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FROM INQUIRY TO ACTION IN COMPLEX SITUATIONS = A SOCIOTECHNICAL APPROACH TO INTERACTIVE MANAGEMENT =

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Thesis submitted in fulfilment of the requirements

for the degree of Doctor of Philosophy

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March 2000

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To my parents, Blanca Rosa and Augusto Homero

As you set out for Ithaka
hope your road is a long one,
full of adventure, full of discovery...

And when you'll get there and find her poor,
Ithaka won't have fooled you...

She gave you the marvelous journey.
Without her you wouldn't have set out.
She has nothing left to give you...

Ithaka
Costas Kavafis
(Greek poet, 1863-1933)

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KEY TO SYMBOLS

METHODS

DSM	Discursive Systems Methodologies
GDSS	Group Decision Support Systems
IM	Interactive Management
ISM	Interpretive Structural Modelling
NGT	Nominal Group Technique
SSM	Soft Systems Methodology
STST	Socio-Technical Systems Theory
TSI	Total Systems Intervention

ORGANISATIONS

AIO	Americans for Indian Opportunity, USA.
BCSD	Business Council for Sustainable Development - worldwide organisation.
CIM	Center for Interactive Management, USA.
CODEREG	Coordinación de Desarrollo Regional, State of Guanajuato, Mexico.
CSIR	Council for Scientific and Industrial Research, Ghana.
CWA	Christakis, Whitehouse and Associates, USA.
DC	Diocesan Caritas of Caritas de Monterrey
DSMC	Defense Systems Management College, USA.
EGADE	Escuela de Graduados en Administración y Dirección de Empresas, ITESM, Mexico.
FIA	Fundaçao Instituto de Administraçao, University of Sao Paulo, Brazil
GMU	George Mason University, USA.
IDA	Institute for Defense Analysis. USA
IMU	Interactive Management Unit, City University, UK.
ITESM	Instituto Tecnológico y de Estudios Superiores de Monterrey
NGO	Non-Governmental Organisations

OIO	Oklahomans for Indian Opportunity, USA.
PC	Parish Caritas of Caritas de Monterrey
RMCS	Royal Military College of Science, UK.
SWFSC	Southwest Fisheries Science Center. USA.
TCS	Tata Consultancy Services, India.
USP	University of Sao Paulo, Brazil.
UVA	University of Virginia, USA.

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DECLARATION

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ABSTRACT

The research work reported in this thesis started with the idea of pursuing the line of research that led to the development of Interactive Management. Socio-Technical Systems Theory was used as a theoretical frame of reference to compare with Interactive Management in order to identify particular areas in which further research on Interactive Management would be significant. As a result of the comparison it was concluded, among other things, that Interactive Management portrays an inquiry-oriented approach to complexity while Socio-technical Systems Theory represents an action-oriented approach. Based on this conclusion the research focused on the study of the factors that contribute or inhibit to put into action the results of the inquiry process of Interactive Management, i.e., to carry out the implementation process.

The conceptual development of the research included the study of the implications of a systemic intervention in the context of complex situations, and a preliminary conceptual framework was developed to be used as a basis for the design of the field research. A qualitative research approach was followed during the field research, which included the completion of a case study and a series of interviews with practitioners and clients of Interactive Management.

The results of the field research were helpful in supporting the conclusion that the Interactive Management process does contribute to promoting the implementation of the proposals that derive from it. However, the field research also indicated that there is a significant set of factors that affect the possibilities of implementation that are not considered within the framework of Interactive Management.

The conclusions of the thesis include the specific factors that were identified as contributing to implementation within the context of a systemic intervention based on Interactive Management, and indicate the contributions to knowledge of the subjects that were derived as a result of this work.

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This chapter presents a general perspective of the work carried out during research on a Socio-technical approach to Interactive Management. This work led to the idea of studying the relationship between inquiry and action in the context of the practice of Interactive Management for addressing complex situations.

Section 1.2 discusses the background of the research in terms of the challenges faced by systems practitioners in dealing with complex situations and the contributions of Interactive Management in this respect. Based on this discussion, Section 1.3 presents the general objectives of the thesis and Section 1.4 briefly describes the methodological approach adopted during the research. Finally, Section 1.5 examines the scope and main limitations of the research and Section 1.6 explains the structure of the whole document.

1.2 BACKGROUND

The evolution of the *Systems Movement* during the XX Century is perhaps one of the most vivid examples of the concern of modern civilisation for developing a comprehensive approach to understanding the world, and to responding to its challenges and opportunities in a responsible way (Bertalanffy, 1968; Churchman, 1971). These challenges and opportunities are related to the wide variety of accomplishments and problems created by Humankind and its relationship with nature, and they represent the central focus of *Systems Practice* (Ackoff, 1974; Checkland, 1981).

From the large societal problems faced by the civilisation of the XX Century - such as the growth of pollution or the proliferation of armaments, to the specific in-house difficulties encountered in any single organisation - such as poor quality of products or market decline, the challenges to systems practice have grown. These

challenges stem from the need to consider all the varieties of elements that shape each situation, to consider how these elements are interrelated, and to be accountable to the different human groups and individuals affected by those situations.

As a response to these challenges, the Systems Movement has produced a number of theoretical and methodological contributions that focus on diverse aspects of the tasks involved in addressing problematic situations. However, in spite of the variety of specific systemic approaches developed to address problematic situations, there are at least three themes that can be found in most of the relevant work in this field. These themes are the concern for providing satisfactory modes of inquiry into complex situations (Churchman, 1971), the interest in developing adequate tools for modelling such situations (Le Moigne, 1977), and the need to organise the effective participation of stakeholders in any intervention effort (Ulrich, 1983).

One methodological contribution that portrays very clearly the emphasis on the three themes just mentioned is the process of *Interactive Management* (IM) developed in the course of the last thirty years by John N. Warfield and his research colleagues (Warfield, 1979, 1994b). The interest that triggered the development of IM was a concern for the growing complexity found in modern society and for its implications in all types of human affairs. A view of some of these implications is shown in Figure 1.1.

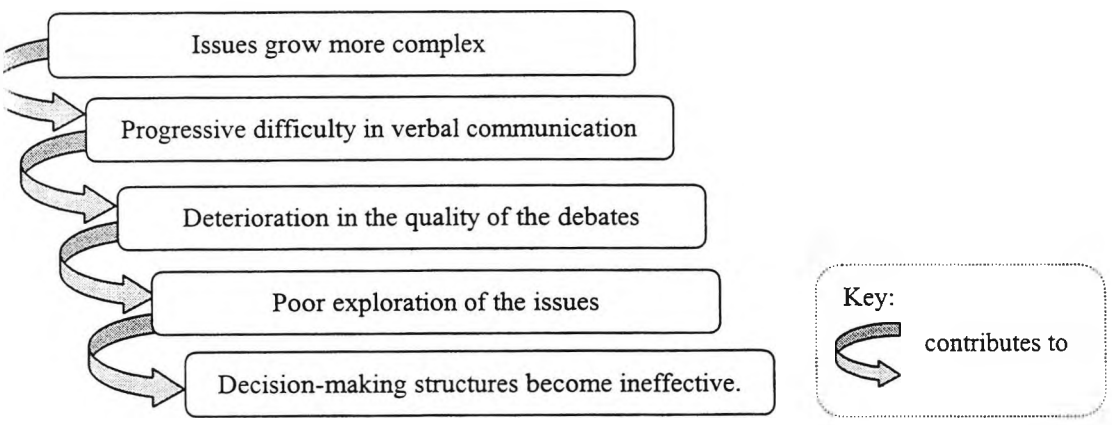


Fig. 1.1 Some Implications of the Escalation of Complexity (Based on Warfield, 1976:49)

Thus, the IM process gradually evolved as a means to organise the participation of a group of stakeholders in an inquiry process which would allow them to understand

a complex situation and to design adequate solutions to address the situation. Furthermore, in order to provide effective support to the human mind in dealing with complex situations, IM incorporated as a major feature of its development a specific modelling technique known as *Interpretive Structural Modelling* (ISM) which was created by Warfield (1976).

Over the last three decades the IM process has been repeatedly applied to address a wide spectrum of complex situations in many different locations worldwide (see Appendix A). As an example, during the year of 1989 the author of this research, together with one academic colleague, took the initiative of introducing the practice and teaching of IM to the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), in Monterrey, Mexico. Through this institution the practice of IM gradually spread to various locations and to different application contexts in Mexico (Broome and Cárdenas, 1991).

The continuous use of Interactive Management through the years, and the content of the literature that has been produced in the field (see for example: Alberts, 1995; Broome and Keever, 1989; Cárdenas and Moreno, 1993; Christakis, 1983; Janes, 1995; Warfield, 1976, 1994a; Warfield and Cárdenas, 1994; Warfield and Staley, 1996) suggest that the line of research initiated by Warfield in the early 1970s has certainly advanced the development of systems practice. As depicted in its literature, IM has provided important contributions to the three major themes that were related to the Systems Movement in the preceding paragraphs: the concern for providing satisfactory modes of inquiry into complex situations; the interest in developing adequate tools for modelling such situations; and the need to organise the effective participation of stakeholders in any intervention effort.

Based on the relevance of the contributions of IM to systems thinking and on a personal interest in promoting the advancement of systems practice, the author of this thesis considered that the continuous development of the line of research initiated by Warfield represented a legitimate focus of interest for undertaking doctoral research. Therefore, this doctoral research concentrates on the study of the theory and practice of Interactive Management.

1.3 OBJECTIVES OF THE THESIS

In view of the interest in pursuing the line of research that led to the development of Interactive Management, an important emphasis of this research was related to the possibility of advancing the conceptual and/or the methodological basis of IM. Thus, given the ample extent of issues involved in the study of IM, the first objective of the research referred to the identification and justification of specific topics where further contributions to this field could be made.

In order to address formally this objective it was established that IM should be studied based on its comparison with a formal frame of reference that would allow the identification of major areas of opportunity for further research. The frame of reference that was chosen to make such a comparison was the Socio-technical Systems Theory (STST) originally developed at the Tavistock Institute of Human Relations in the UK (Emery and Trist, 1960). STST was chosen as the frame of reference to be compared with IM because it is a well-known and solid systemic approach to address complex situations (Jackson, 1991), and because it portrays relevant features that are congruous with the IM process. Among these features are the emphasis on a participative approach to deal with complexity and the importance attributed to the relationship between the social and the technical dimensions of a system.

According to the ideas just discussed, the first objective of the research was finally formulated as follows:

> *First objective*
>
> To develop a better understanding of the process of Interactive Management in the light of Socio-technical Systems Theory and based on such an understanding, to define specific areas where further research on IM would be relevant.

Thus, the first part of the research concentrated on the accomplishment of this objective. The most important results of the first part of the research revealed that a major topic to be investigated with respect to IM concerned the relationship between the inquiry process portrayed in IM and the action process required to implement the

outcomes of IM. Therefore, the second objective of the research was stated in terms of this relationship and it was defined as follows:

Second objective

To find out whether and why implementation takes place as a result of an IM project and, on the grounds of the possible findings, to derive conclusions regarding the way in which an IM project could be planned and organised in order to promote implementation.

Since the use of STST as an approach to study IM led to research on IM in terms of the passage from inquiry to action in the context of addressing complex situations, the title of the thesis was stated as follows: *"From Inquiry to Action in Complex Situations: A Socio-Technical Approach to Interactive Management"*.

1.4 METHODOLOGY OF THE RESEARCH

As the second objective of the research was dependent on the conclusions derived from the first objective, the course of the research was divided in to two main phases according to the sequence needed to address the objectives.

The first phase of the research started by identifying the topics that should be explored in order to carry out the study of IM based on STST. Since both IM and STST involve the design of group activities for addressing complex situations, the main topic considered in this phase of the research - besides IM and STST - was Group Dynamics. Therefore, the research proceeded with a bibliographical research of these three topics: Interactive Management, Socio-technical Systems Theory and Group Dynamics.

The results of the bibliographical research were then used to support a conceptual comparison of IM with STST. This comparison considered the similarities and differences between the two approaches at both the theoretical and the application levels. The most important results of the comparison referred to the relevance of studying the IM process from the point of view of the relationship between inquiry and action when addressing complex situations. The results of the bibliographical research together with the outcomes of the comparison constituted the material presented in the

transfer report that completed the first part of the research (Cárdenas, 1994). Figure 1.2 shows the sequences of activities involved in the first part of the research.

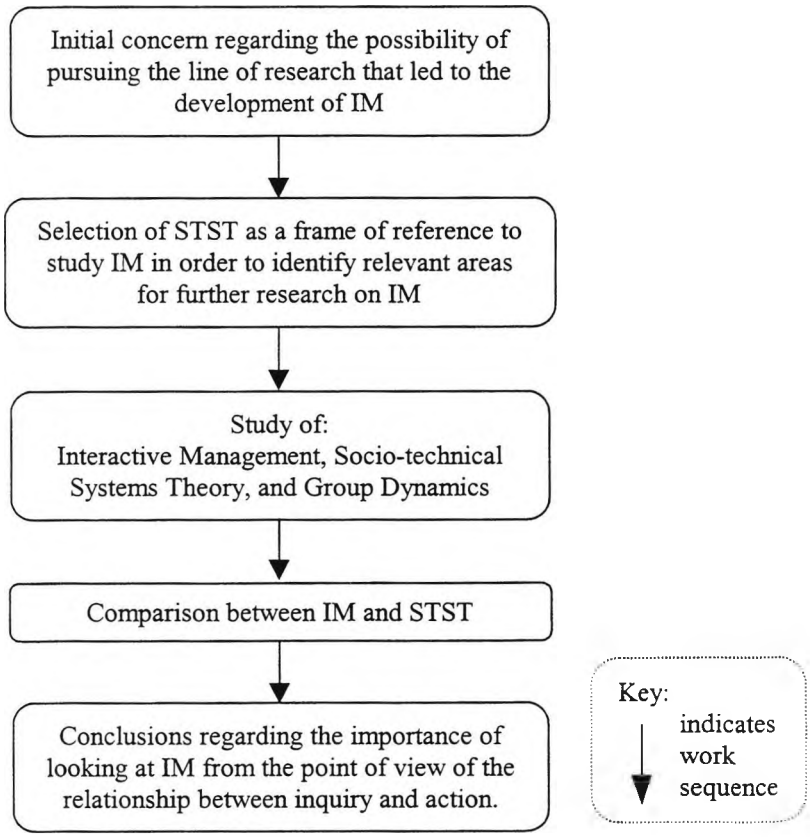


Fig. 1.2 First Phase of the Research

Based on the conclusions of the first part of the research, the second phase comprised the definition of specific research questions, and the design and completion of the research tasks required to address those questions. In order to define the research questions, the first task was to investigate the relationship between inquiry and action in the context of systemic interventions that deal with complex situations.

As a result of this work, two research questions were defined. They were focused on the understanding of how the inquiry process portrayed in IM relates to the action process involved in implementing the outcomes of inquiry. The implications of the research questions identified were then explored in the light of the information obtained during the first part of the research, and additional bibliographical research was undertaken in order to develop a preliminary conceptual framework to address those questions and to design the field research.

Considering the nature of the research questions (Section 7.4) and the characteristics of the preliminary conceptual framework, the design of the field research followed a qualitative research approach (Maxwell, 1996). Within this approach, the main strategy of the field research consisted of a case study (Yin, 1994) related to the application of IM in a specific organisation. In addition, in order to complement the results that could be derived from the case study, it was decided to undertake a series of interviews with people knowledgeable about IM (IM practitioners) and with people who had been clients of IM (IM clients). Thus, the field research design included two strategies that were carried out in parallel: a case study and interviews with IM practitioners and IM clients.

The results obtained from the case study and from the interviews were first analysed independently from each other, and then those results were compared and synthesised in order to derive the final conclusions that responded to the two research questions. Figure 1.3 shows the sequence of activities involved in the second phase of the research and, taken together, Figures 1.2 and 1.3 depict a global view of the methodological approach followed during the research.

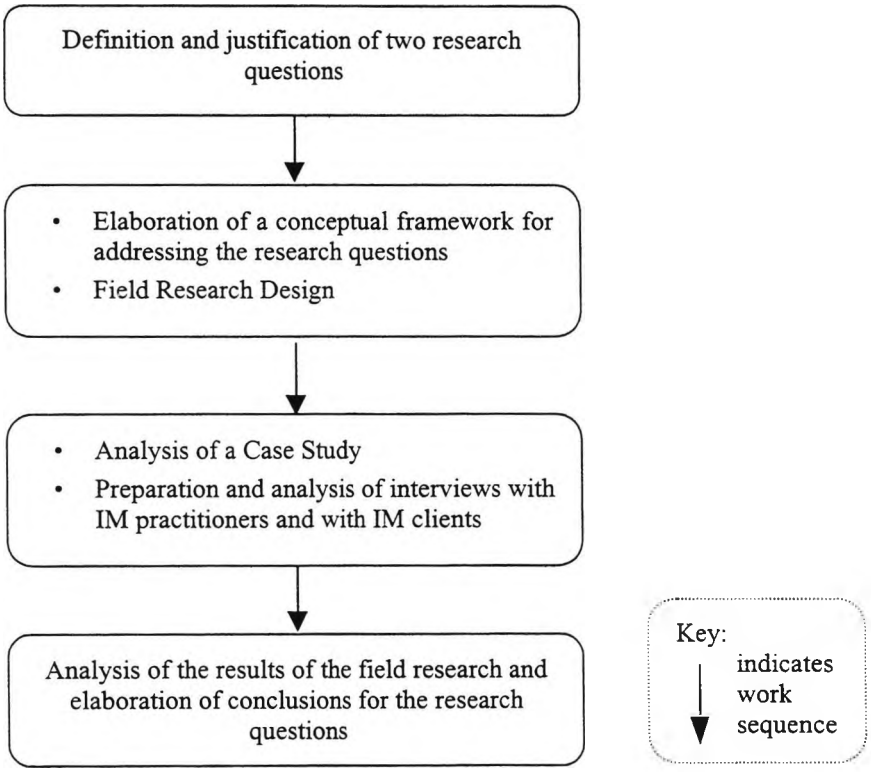


Fig. 1.3 Second Phase of the Research

1.5 SCOPE AND LIMITATIONS

Within the general interest of studying the IM process, the scope of the research focused on the identification and formal research of one particular topic that could be justified as highly relevant for the theory and practice of IM. As described in Section 1.3, the topic identified was related to the study of IM from the point of view of the implementation of its outcomes.

In analysing the possible implications of addressing this topic during the research, it was clear that the nature of the IM process and the characteristics of its applications required the study of a wide range of variables and their relationships. Therefore, instead of concentrating the scope of the research on a predefined set of variables, it was decided that it should consider the identification and exploration of all the major factors involved in the implementation of the outcomes of IM.

As mentioned in Section 1.4, given the nature of the objectives of the research a qualitative research approach was chosen to guide the field research. In selecting a

qualitative approach instead of a quantitative approach, the possibility of deriving statistical generalisations as conclusions of the research was discarded. Within a qualitative approach, the conclusions were aimed at the development of a better understanding of why and how certain factors play a relevant role in implementation. Besides, it was considered that a qualitative approach would allow the identification of possible unanticipated factors relevant to the research questions.

Regarding the completion of the field research, this work was subjected to the same constraints of most research endeavours. Among these constraints were the possibility of having access to the information required for carrying out the case study; the availability of the time of all the people interviewed; and the availability of resources to travel to the different sites where the interviewees were located.

1.6 STRUCTURE OF THE THESIS

The content and structure of this document have been defined in accordance with the sequence of the research tasks undertaken during the course of the research. Chapters 2 to 6 refer mostly to the achievement of the first objective of the research, while chapters 7 to 11 are related to the achievement of the second objective.

Considering that IM is the central theme of the research, Chapters 2 and 3 focus on the description of the IM process and its conceptual framework. A global perspective of the IM process is presented in Chapter 2 as a way of introducing the reader to the methodological characteristics of IM. Then, Chapter 3 concentrates on the major features of the conceptual framework that supports the IM process. Besides the above, Chapter 2 also includes a section which discusses the relationship of IM with other methodological approaches, and Chapter 3 includes a critical perspective on IM.

Chapter 4 describes a synthesis of the aspects of Group Dynamics that were considered relevant for the study of IM and its comparison with STST. Chapter 5 discusses the main conceptual and methodological features of STST emphasising the elements that are particularly relevant to its comparison with IM. This chapter also includes a critical perspective on STST.

Since Chapters 2 to 5 comprise a synthesis of the results of the bibliographical research carried out to support the conceptual development and the field research, those chapters represent the theoretical framework of the research (see Figure 1.4).

The document then proceeds with Chapter 6, which discusses the most significant results of the comparison made between IM and STST. Based on those results, Chapter 7 presents the outcomes of the analysis made to explore the relationship between inquiry and action in the context of complex situations, and describes the two research questions that were derived from such analysis. In addition, Chapter 7 includes a discussion of the IM inquiry process in the context of an action effort, and the general characteristics of an action system aimed at implementation. These two chapters, 6 and 7, synthesise the conceptual development of the research (see Figure 1.4).

On the basis of the definition of the research questions and the main conceptual elements identified to address them, Chapter 8 presents the field research design together with the preliminary conceptual framework on which the field research was based. Chapters 9 and 10 are then devoted to the description of the two strategies adopted in the field research. Chapter 9 concentrates on the description of the case study and its results, and Chapter 10 discusses the organisation and conclusions derived from the interviews with IM practitioners and with IM clients. In these terms, Chapters 8 to 10 encompass the work undertaken as a part of the field research (see Figure 1.4).

Finally, Chapters 11 and 12 present the outcomes of the research. Chapter 11 discusses in detail the results of the field research and Chapter 12 synthesises the main conclusions derived from the whole research effort (see Figure 1.4)

In addition to the main body of the thesis there is a set of 11 appendices included at the end of the document. These appendices include material to support the understanding of the theoretical framework of the thesis, as well as material which supports and provides evidence of the work undertaken during the field research.

Figure 1.4 indicates the general structure of the contents of the thesis that have just been described.

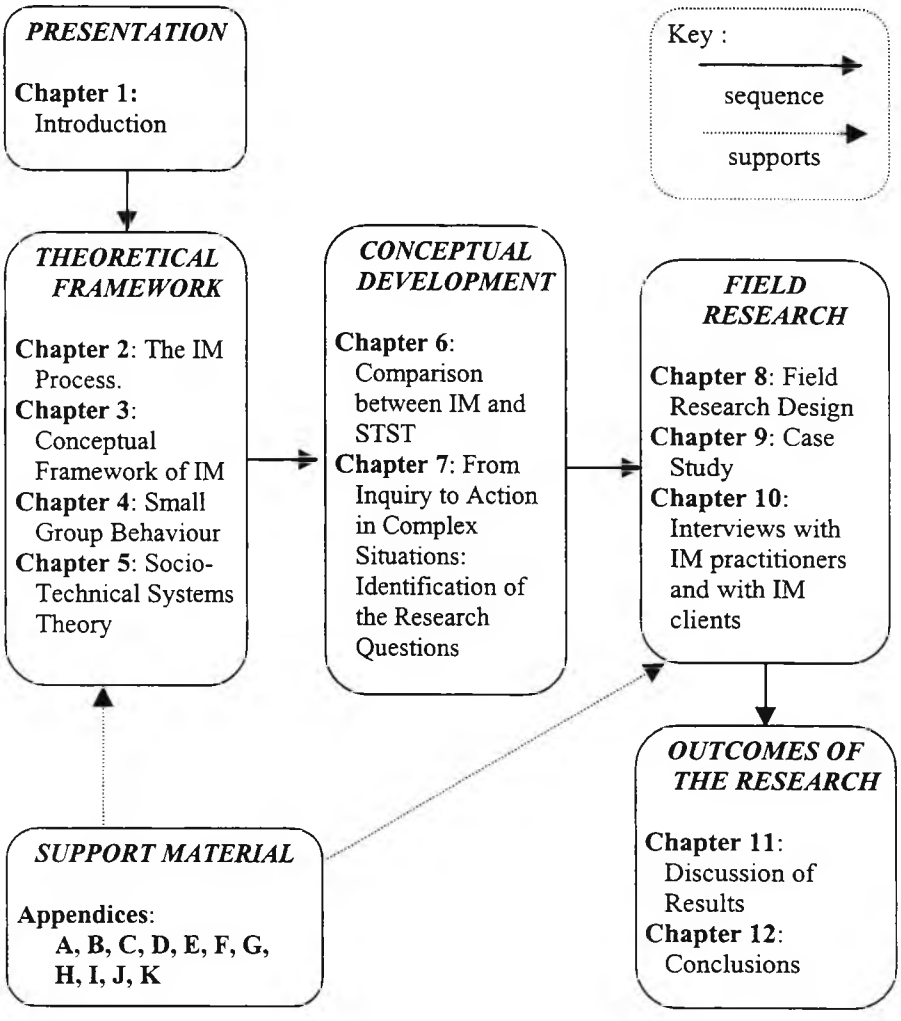


Fig. 1.4 General Structure of the Thesis

CHAPTER 2

INTERACTIVE MANAGEMENT: A GROUP PROCESS FOR DEALING WITH COMPLEXITY

2.1 INTRODUCTION

The Interactive Management (IM) process is presented in this chapter in terms of its general features and the methodological guidelines it proposes for organising and conducting group activity when facing complex situations.

The chapter starts with a general background of Interactive Management (Section 2.2). Section 2.3 presents the most characteristic features and organisation of the IM process. Sections 2.4 to 2.9 describe the five central components that distinguish the IM process. Section 2.10 discusses other related approaches in order to illustrate some of the major differences found in this field. Finally, Section 2.11 presents some general conclusions regarding the characteristics of IM.

2.2 BACKGROUND OF IM

Interactive Management has its origins in the studies initiated by John Warfield and his colleagues at the Battelle Memorial Institute, in Columbus, Ohio, in 1970, as a part of a program called "Science and Human Affairs" (Warfield, 1990b). At that time, an awareness of the increasing complexity of social problems impelled the members of this research group to seek out and develop scientific-based methods for confronting such problems. One of the most salient features of the efforts initiated at that time was the recognition that a participative approach was required for dealing with complex social situations. In order to address effectively such situations it was important to involve the stakeholders and other people with relevant knowledge, and to promote learning among the individuals involved:

> "A methodology for grappling with complexity has to be a methodology for human learning." (Warfield, 1976:2)

This line of research continued through the years under the intellectual leadership of Warfield and one of his most close collaborators, Alexander Christakis. A theoretical and methodological framework for confronting complex issues in a participative group setting was gradually developed and tested in many different situations. The theoretical framework has been the subject of two of the most important books written by Warfield: *Societal Systems* (1976) and, *A Science of Generic Design - Managing Complexity Through Systems Design* (1994a), and it will be the subject of the next chapter. The process of Interactive Management examined in this chapter accounts for the methodological framework of these developments.

Up to date, the situations in which IM has been used cover a wide scope of problem situations and issues such as organisational diagnosis, redesign of organisational structures, engineering design, and regional planning. Appendix A presents a list of some actual applications of IM. Starting in the USA, where IM has had its most extensive application, IM has also been introduced in other countries. Reported applications and practitioners of this process can be found in Australia, Brazil, Canada, China, Cyprus, Ghana, Greece, India, Japan, Liberia, Mexico, Saudi Arabia and the United Kingdom (see for example Warfield and Cárdenas, 1994).

2.3 GENERAL FEATURES AND ORGANISATION OF THE IM PROCESS

As was mentioned in the previous section, the IM process has been conceived as a participative approach to deal with complex situations. It implies the co-ordination and execution of a series of group activities aimed at understanding the situations under study, and designing agreed and comprehensive ways to deal with them. The principles that underlie the design of this kind of group work are characterised, among other things, by a profound emphasis on promoting the development of consensus among a group of stakeholders, and on the need to support human effectiveness to deal with complex issues (the specific meaning attributed to consensus development in IM is discussed in Chapter 3).

The central activities of the IM process involve the planning, organisation, implementation and assessment of one or several group workshops devoted to the participative development of relevant products for each situation. Since it is considered that the main purpose of group activity when dealing with complexity is related to the

management of ideas and information, the basic products obtained as a result of the IM process are sets of ideas that have been carefully clarified and, structural models representing meaningful patterns of relationships among the ideas. These two types of products portray the conclusions of the participants in the IM workshops regarding the situations under study and they are the most important concrete result of IM.

In order to determine the nature and characteristics of the products to be developed, the global structure of an IM project is designed in terms of a progression of phases for dealing with complexity; the required products are thus defined according to the phases that need to be covered. Since the early development of IM, this progression has been based on the four functions of management and decision making described by Simon (1977): Intelligence, Design, Choice and Review, where IM has been concerned with helping the interested groups in coping with the first three of these functions: Intelligence, Design, and Choice.

The progression of the Intelligence, Design and Choice phases is related to the possible "success levels" of the IM activity (Warfield and Cárdenas, 1994). These success levels indicate the level of accomplishment that can be obtained as a result of the IM process, and their definition is based on a careful appraisal of the situation under study at the time an IM intervention is planned. Understanding the purposes of these phases together with the success levels associated to them is what forms the basis for planning an IM intervention and defining the specific products that are to be sought. Also, it should be noticed that even though it is common to describe these ideas in terms of a progression of levels of success, they do not necessarily represent a strict sequence; in many instances they may be conceived as an iterative process where the outcomes of one level point to the need for returning back to a previous one.

The purposes of the intelligence, design and choice phases, as well as their relationship with the success levels that might be sought when planning an IM project can be summarised as follows:

a) Intelligence.

The purposes of this phase are to develop a profound understanding of the situation and the basis to develop the necessary actions to deal with it. Among the kind of outcomes that can be obtained in this phase are the elaboration of a diagnosis of the problems encountered, the identification of the goals of the

stakeholders, or the development of possible future scenarios for the situation. The Intelligence phase is related to the following IM success levels:

i) 1st. Level: Learning more about what is involved in approaching the issue.

This level relates mostly to an exploratory study of the different aspects of the situation or the recognition of important implications of dealing with the issue under study. When dealing with complex situations, the starting point for planning an intervention may be problematical in itself. This level of success recognises the need for organising a careful assessment of what is involved in a situation before proposing a specific design for the global project. As an example, a project undertaken in the Tarahumara Sierra in Mexico started at this level of success by engaging a group of stakeholders in finding out what were the most important aspects to consider in designing a project for promoting self-development among the Tarahumara people (Salas-Porras, 1992).

ii) 2nd. Level: Learning more about the issue itself.

In the case of this level of success, the IM activity helps to develop initial or preliminary approaches to arrive at a good level of understanding of the situation. IM projects working at this level of success may be found when IM is applied in situations that directly involve large groups of people with very different interests and backgrounds (as in regional planning projects). In these cases the IM activity may comprise a series of workshops involving different groups of stakeholders; each workshop is devoted to develop definitions of the same situation according to the points of view of the different groups, and the final results consist of a set of products that portray the situation from different perspectives.

iii) 3rd. Level: Achieving a good definition of the issue.

This is the highest level of success associated with the Intelligence phase. It consists in the development of the products that portray the most comprehensive conclusions obtained for defining the relevant aspects of the situation. Typical outcomes of this level include the development of

structured diagnosis of the situation or the establishment of the goals to be sought and their relationships. Depending on the scope of the issue under study, achieving a good definition may involve the development of IM products which integrate the outcomes of previous IM work as in the case of regional planning projects (see for example Guanajuato XXI, 1994) or in the case of the redesign of the US Defense Acquisition System reported by Alberts (1995).

b) Design and Choice.

The main interest of these phases is to identify a set of structured alternatives to deal with the situation under study, to evaluate them and select the most appropriate ones in order to proceed with their implementation. As in the case of the Intelligence phase, the results of the Design and Choice phases may be organised in various ways according to the particular characteristics of each case; they may cover the actual design of different kinds of systems or the identification and prioritisation of specific actions to undertake. The Design and Choice phases strive to arrive at the following IM success levels:

i) 4th. Level: Finding good alternative designs for resolving the issue.

This involves the identification of sound options to deal with the situation at hand, and to organise them into structured alternatives according to the nature of the solutions or plans that are needed. Some examples of the designs developed through an IM project are: a budgeting system for the National Marine Fisheries Service (USA); policy directives for a Telecommunications Holding company (Brazil); amendments to a Total Quality Programme in a Chemical company (Mexico); an action plan to enhance self-governance in the Comanche Tribe (USA) and, the design of a University Centre for Enterprise Management in the UK (Warfield and Cárdenas, 1994).

ii) 5th. Level: Arriving at a good action choice to resolve the issue.

At this level of success the emphasis is on the evaluation of the different alternatives that have been developed; it involves the identification of the

appropriate criteria and the actual evaluation and choice of the alternatives based on those criteria.

Since the outcomes of the Design and Choice phases consists of designs or plans for later action, these phases may include the development of specific action plans for facilitating the implementation of the results of the IM activity.

The Intelligence, Design and Choice phases may imply the organisation of one or more workshops (lasting from one to several days), or else one workshop could be designed to work on all the phases. A global structure of an IM project illustrates these possibilities in Figure 2.1

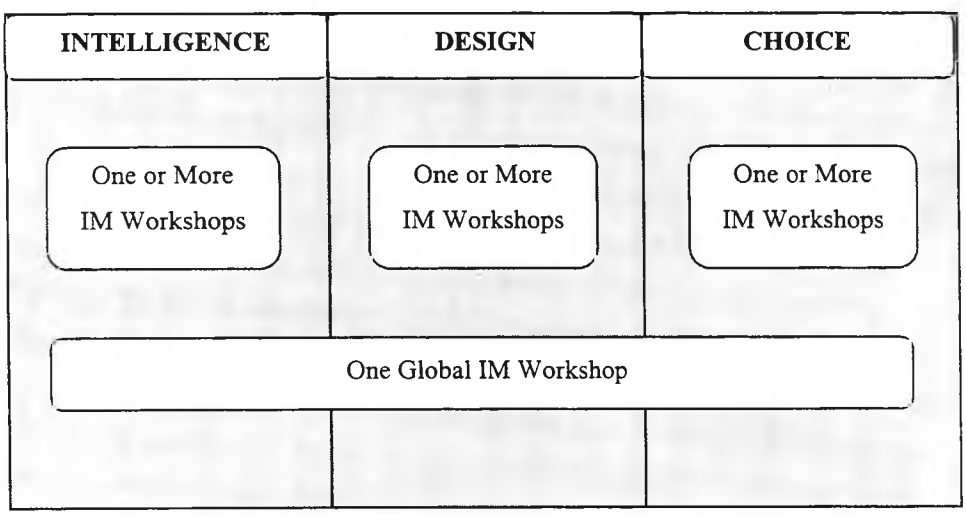


Fig. 2.1 Global Structure of an IM Project

In spite of the fact that most of the documented material on IM is based on the use of the Intelligence, Design and Choice scheme just mentioned, it is worth mentioning that in more recent work, Warfield (1997a) and Christakis (Christakis and Shearer, 1997) propose some alternative views of the phases associated with the IM process which are slightly different from the scheme presented here. These alternative views will be discussed in some detail in Chapter 3.

To end this section Table 2.1 presents a summary of the general outcomes that are sought through the application of the IM process:

Tangible outcomes	Non-tangible outcomes.
i) One or various sets of ideas and structural models that portray the specific results of each phase. ii) A careful and organised documentation of the results produced during the group work.	i) The development of mutual understanding among the participants and the establishment of a consensus regarding the definition of the situation and the proposed designs to deal with it. ii) Individual and group learning about the situation under study and about the group situation itself iii) Commitment with the decisions made. iv) The development of an effective participative culture.

Table 2.1 Outcomes Sought with the IM Process

Since the practice of IM is mostly based on the organisation and running of group workshops, the Sections 2.5 to 2.10 will be concentrated on describing the main components that are at play in an IM workshop.

2.4 THE SIGMA-5 CONCEPT

The idea of presenting a description of the IM activity in terms of its main components derives from the view that it is necessary to identify the most basic and relevant elements that should be integrated in order to succeed in dealing with complexity (Warfield, 1994a). Thus, putting IM into practice involves the integration of five fundamental components:

1. A group of participants, who are relevant stakeholders (or their representatives) of the situation under study, and who will be in charge of resolving the issue.

2. A facilitation team, who are responsible for organising and managing the IM process.

3. A set of consensus methods, which are a set of specific methods for helping the group to deal with the situation.

4. Computer equipment and software required supporting in various ways the group activity.

5. Demosophia facility: a room specifically designed for group work, which provides the necessary means for the group to perform its tasks.

These components are represented in the Sigma-5 concept (Christakis, 1983) which manifests the need to integrate them effectively within the context of group activity. This concept is generally represented according to the next figure.

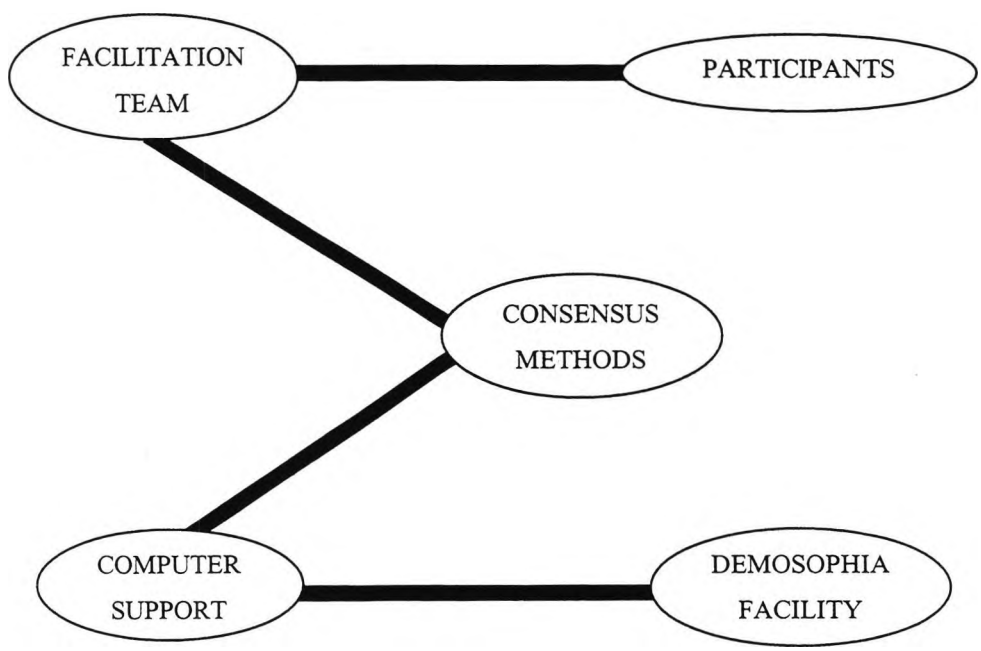


Fig. 2.2 The Sigma-5 Concept (Christakis, 1983)

The differentiation between the social components present in the Sigma-5 concept (i.e., the group of participants and the facilitation team) is associated to another important distinction made in the design of IM. The distinction is made between the context, the content and the process involved in dealing with a complex situation (Warfield, 1990a).

The context encompasses the characteristics of the environment in which the situation is embedded; these include, for example, social, political and material constraints and opportunities. The content refers to the very subject matter to be

addressed and includes all the ideas and information that describe the situation and its possible solutions. Finally, the process comprises the specific methods, rules of procedure, principles and guidelines that are used to help groups in dealing with the situation. Regarding the social components of Sigma-5, there is a role distinction between the group of participants and the facilitation team in which the participants are concerned with the content of the situation, while the facilitation team is in charge of organising and conducting the process. The awareness and definition of the context is basically managed in the planning stage of an IM intervention. (Broome and Keever, 1989; Warfield and Cárdenas, 1994)

Each one of the Sigma-5 components will be discussed in more detail in the following sections.

2.5 THE PARTICIPANTS IN AN IM PROJECT

The participants in an IM workshop are a group of stakeholders who will be in charge of dealing with the content of the issue according to the specific objectives of each IM workshop:

> "The participants are those individuals who produce the substantive content related to the Design Situation or Issue. Moreover they provide the designs of possible solutions, and it is their learning, augmented by the experience of the Workshop, that is required in order to know how to implement the results. Participants will invariably be stakeholders in the issue, and if the set of participants does not include representatives of key stakeholder groups, implementation may be severely compromised." (Warfield and Cárdenas, 1994:44)

According to the above statement the participants may represent the following roles:

a) Stakeholders: people who are directly involved in the situation and who represent different interests and perspectives related to it.

b) Designers: people who, because of their knowledge and experience, are in a good position to contribute to the development of appropriate solutions to the issue. They can be individuals directly involved in the situation, as well as people technically specialised in disciplines that are relevant to the issue.

c) Implementers: people who will be in charge of putting into action the results of the IM activity, and who need to be involved in order to contribute with their own perspectives and experience, as well as to develop the necessary understanding and commitment to the results of the group work.

The participants are thus invited to an IM workshop on the basis of a careful preliminary analysis of the objectives of the workshop, with consideration being given to the fact that the size of the work group is a variable that impinges upon group effectiveness. The size of the group in a typical IM workshop may vary from approximately 8 to 12 individuals, but on special occasions, the work of groups which involve many more people than these numbers could be specially designed to allow for the participation of larger audiences.

Associated with the role of the participants is the role of the observers. The observers are individuals who do not participate actively during the workshops, but who may also contribute significantly to the effectiveness of the IM efforts:

> "The observers are those individuals who are related with the situation of concern by being direct or indirect stakeholders or because somehow they would participate in the implementation phase, but at the same time there are important reasons that prevent them from becoming active participants; among these reasons are a lack of direct involvement with the situation, lack of enough commitment to actively participate during the whole [workshop], or the need to keep the participant group small enough to allow adequate participant discussion. The observer role is in general an optional one during the IM activity, but its importance lies in the fact that there might be many people interested enough in the issues under consideration and for whom it will be helpful to witness and learn from the dialogue that takes place between the participants." (Warfield and Cárdenas, 1994:44)

Thus, the observers are invited to an IM workshop on the basis of a commitment not to interfere with the work of the active participants during the scheduled activities of the workshop. They could interact with the participants to exchange their views and make possible contributions during the break times, or else, in some cases their contributions may be programmed in the group agenda according to a previous plan.

2.6 THE FACILITATION TEAM

The facilitation team in an IM workshop is formed by the group of people who will be in charge of managing and conducting the IM process and the resources needed to accomplish the objectives of the workshop. Since most of the activities required for managing and conducting IM projects are highly specialised and demanding, a group of people very well trained in the management of the process is needed. They must make up an integrated work team, and be very well co-ordinated and ready to respond to the intensive demands of their various tasks.

The facilitation team is normally constituted of a group of 3 to 5 people. The composition of the facilitation team is directly related to the activities involved in managing the IM process and to their training requirements; thus, the members of the facilitation team are identified according to the functions that they perform, and these functions may be classified in three categories: a) professional functions, b) support functions and, c) mediating and representative functions.

a) *IM Professional Functions.*

The IM professional functions encompass all the workshop activities for which substantive knowledge of and experience with the IM process are required. The professional functions required for managing the IM process are:

i) Planning.

Planning an IM workshop involves, among other things, a detailed study of the context of the situation, the establishment of the specific objectives and agenda(s) of the workshop(s) and the identification and selection of the participants. In order to deeply explore the opportunities and restrictions offered by the IM process and to take full advantage of them, the planning activity should be conducted by an experienced IM professional and by the IM broker (this last role is discussed below in relation to the mediating and representative functions).

ii) Facilitation.

The facilitation function comprises the actual running of the workshops according to the plan. Among other activities, this function implies conducting the activities of the participants, controlling the time, and reinforcing the IM principles during the workshop (Broome and Keever, 1989). The person(s) in charge of this function should be adequately trained in the technical, behavioural and procedural aspects of IM. It is common practice to have more than one individual playing this role during a workshop; there will be one person appointed as the primary facilitator in charge of the activity, and another one or two acting as support facilitators.

iii) Interpretation and presentation of results.

Because of the logical and graphical nature of the products obtained from the IM process, and specially because the participants are dealing with a complex issue, it is required that an important effort be devoted to the proper organisation and interpretation of the products before the group of participants. This helps to ensure a deep exploration of the meanings and implications of the results. This work should be performed by a person who has been present during the workshops, and who has enough knowledge and experience in developing and understanding the structural patterns that are obtained during the IM activity. This function also includes the appropriate documentation of the results. Normally, within a few days of the workshop, the facilitation team should deliver a complete report with all the information and the results generated during the IM workshop. It is an important practice of IM that all the participants receive a copy of the final report of the results.

In order to carry out the three professional functions that have just been described it is advisable that at least two IM professionals be in charge of these fundamental aspects of the IM work.

b) *IM Support Functions.*

The support functions include the activities necessary to manage the facilities and available resources, and to organise and provide the information needed by

the group of participants and the facilitation team itself during the IM activity. Among the most important support functions are: to record and document the information generated during the workshop, operate and provide technical support for the software and the computer equipment, manage and organise the materials to be displayed on the walls, co-ordinate the different services that may be needed (catering, for example), and often, it may also be important to make provisions for videotaping the workshop activities in order to keep an accurate record of the dialogue of the participants for review and documentation purposes. The number of people involved in the support functions may vary depending on the circumstances of each workshop, and even if they do not need to be IM professionals they should be very well acquainted with the activities to be performed, and have a certain degree of familiarity with the whole IM process.

c) *Mediating and Representative Functions.*

The mediating and representative functions related to an IM workshop are explicitly related to one individual: the IM Broker. The IM Broker is a person directly involved in the situation under study who acts as a representative of the group or the client of the IM effort. This person should have an intimate knowledge of the situation under study and, because of the nature of this role, should be in a respected position before the group of participants. The person who will take on the IM Broker role is appointed at the outset of the planning activity and, since normally this individual is not familiar with the IM process, he should be rapidly familiarised and instructed on the fundamental aspects of IM.

The role of the IM Broker consists basically in acting as a "bridge" that helps to integrate harmoniously the context of the situation under study with the IM process requirements and possibilities. The IM Broker participates actively in the planning stage of the workshops, where he acts as a representative of the client of the IM effort and helps define the context, objectives and participants to be invited. During the workshop the IM Broker is normally an attentive observer who would be ready to help and advise the facilitator regarding possible deviations from the expected outcomes. After the workshop, the IM Broker

works again with the facilitation team in order to plan for the follow-up of the results.

Given the above perspective of the IM Facilitation Team it is clear that the effectiveness and efficiency of the whole IM effort depends heavily on the performance of this team.

2.7 CONSENSUS METHODS AND THEIR PRODUCTS

The specific methods used in the IM process have been selected and/or designed in order to serve two fundamental purposes: the appropriate management and execution of operations with ideas and, the conduction of satisfactory group work processes. The first one of these two purposes is based on the assumption that when a group gathers to confront a complex issue, their central tasks are precisely the performance of a set of operations with ideas. The most basic operations with ideas that a group is supposed to carry out are the following:

a) Generation of Ideas.
b) Clarification of Ideas.
c) Structuring Ideas.
d) Interpretation of Structures of Ideas.
e) Evaluation of Ideas and Structures of Ideas.

Therefore, the set of methods used in IM has been carefully selected to help groups perform the above operations. These methods are generally referred to as "consensus methodologies" (Warfield, 1982) since their selection and organisation during the IM activity are aimed at promoting the development of consensus between the group of participants. The selection of consensus methods is aimed at helping groups to deal with the whole range of operations with ideas. None of these methods could be independently considered as "a" consensus method by itself; only a particular set that has been properly selected and organised could, if well managed, promote the achievement of consensus.

The IM process normally works with a particular set of consensus methods that have been carefully selected on the basis of a set of criteria that respond to the requirements and characteristics laid down in the theoretical framework of this process. Some examples of the criteria used for selecting these methods are: to possess well-designed behavioural and technical basis, to promote efficiency and group maintenance, to have a sound historical basis, and to be open for public use. The complete set of criteria (Warfield, 1982) establishes the necessary requirements that any particular method should meet in order to be appropriate for the kind of group activity that is practised in IM; these criteria provide the guidelines for assessing the possibility of selecting any other method not included in the typical set of methods used in IM (Broome and Keever, 1989). Table 2.2 shows the consensus methods included in the current practice of IM and indicates the typical phases in which they are most useful.

PHASES: / CONSENSUS METHODS:	INTELLIGENCE	DESIGN	CHOICE
1) Ideawriting	•	•	
2) Nominal Group Technique (NGT)	•	•	
3) Interpretive Structural Modelling (ISM)	•	•	•
4) Delphi	•	•	•
5) Options Field		•	
6) Options Profile		•	•
7) Trade-off Analysis			•

Table 2.2 Interactive Management Spectrum (Based on Warfield 1982:54)

Even though the specific methods that are used in each particular situation are carefully selected in the light of the objectives of each case, it can be said that the two methods most generally used in the practice of IM are Nominal Group Technique - NGT - (Delbecq et al., 1975), through which the generation and clarification of ideas are carried out and Interpretive Structural Modelling - ISM - (Warfield, 1976) which is the main method used to structure the ideas. ISM, based on a substantial dialogue among the participants and with the support of specific software, helps the group develop

various kinds of structural models through the establishment of relevant relationships between the ideas.

As was mentioned in Section 2.3, as a result of the IM process using these methods, the basic products that are developed by the group of participants are different sets of ideas and different kinds of structural models. Examples of these products are given in the next figure.

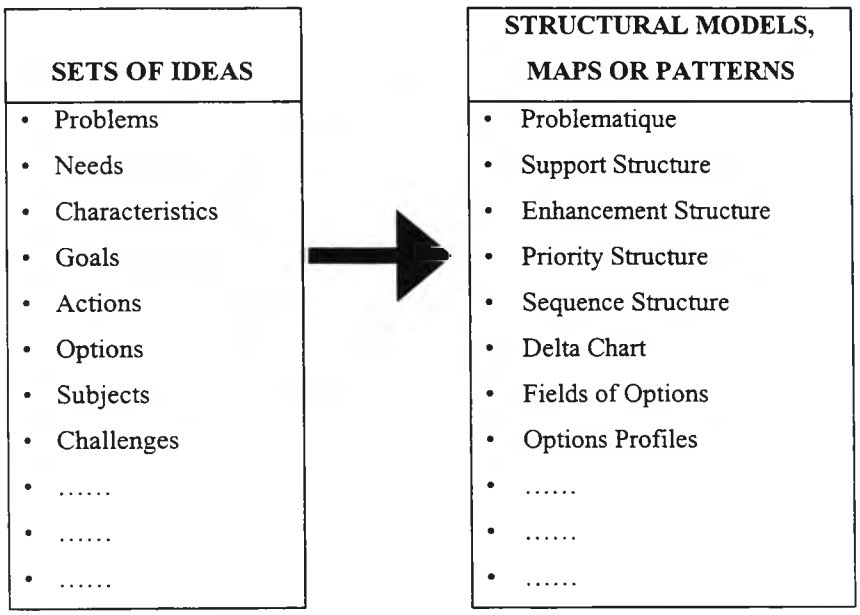


Fig. 2.3 Some Typical Products of the IM Process

The different types of structural models developed in the IM process are aimed at establishing meaningful patterns of relationships between the ideas, and they constitute shared conceptual representations of different aspects of each situation. The models to be developed are defined according to the purposes of each one of the phases of an IM project. In the Intelligence phase it is a common practice to develop structural models that portray relationships between sets of problems in order to understand how the individual problems interact with each other. During the Design phase the corresponding models may be associated with sets of actions to resolve the problems, or more generally, with possible options to address an issue.

To illustrate the nature of the structural models produced using the ISM process Appendix C shows some examples of different types of structural models and Figure 2.4 presents an example of the structure called "problematique". A problematique is a

structural model that portrays a relationship of aggravation (negative contribution) between different problems; it indicates that the problems found in a particular complex situation aggravate each other according to the sense of the arrows that link the individual problem statements.

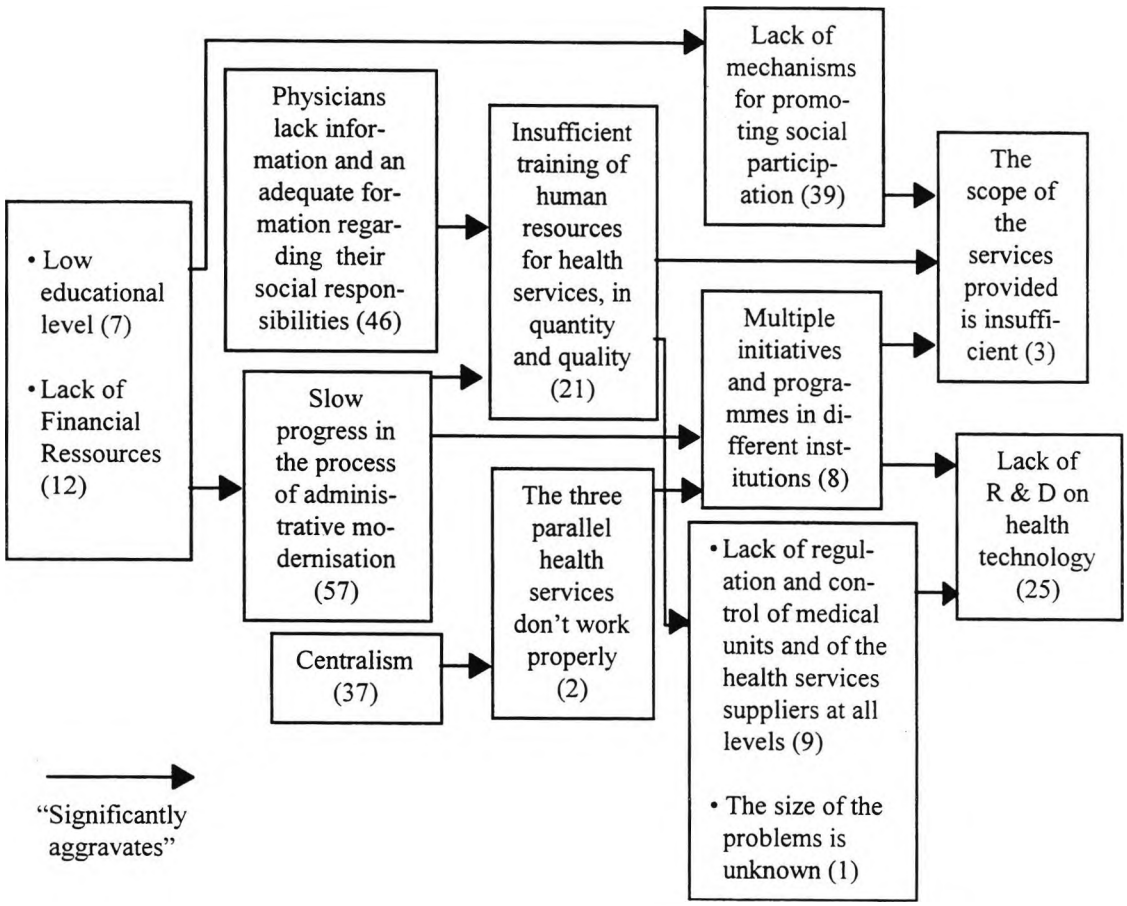


Fig. 2.4 Example of a Partial "Problematique" Associated with the Health Services in a Regional Planning Project

In the figure above, it can be noticed that the aggravation relationship that is established between the individual problem statements helps to explain the influence or impact that they may have on the whole situation. This structure has been displayed according to the various "levels" of influence that can be identified, and it illustrates how the relationship propagates through the individual items that are sequentially linked. For instance, problem 37 is found in the fourth level (from right to left), and the

sense of the arrowhead indicates that it aggravates problem 2 which lies in the third level, problem 8 located in the second level, and problem 25 in the first level. The set of problems that appear in the same box (problems numbered 12 and 7 for example) form what is labelled a "cycle"; this means that the aggravation relationship applies in both senses, i.e. problems 12 and 7 are mutually aggravating each other.

It is not the purpose of this section to describe in detail all the information that is conveyed in a structural model such as the one shown above, but it is worth mentioning here that the development of these models is based on a thorough study of logical, graphical and procedural requirements for arriving at a good representation of complex issues (Warfield, 1976). Also, it is important to note that the ISM method invented by Warfield (1976) stands as the most original feature characterising the IM process.

2.8 SOFTWARE AND COMPUTER SUPPORT

Among the set of components that constitute the Sigma-5 concept, the computer technology that is used to support group activity during an IM workshop helps to accomplish two main functions:

a) *Support of the ISM method.*

As was mentioned above, ISM is the basic method for helping the group to develop the structural models that constitute one of the main products of the IM process. Based on the logical property of transitivity which characterises certain relationships, ISM involves a mathematical procedure which, for the development of each structural model, supports the establishment of a specific relationship between a set of ideas, as well as the identification of the global diagrammatic pattern that derives from the individual relationships found. The mathematical procedure involved has been incorporated in different versions of software specifically designed for this purpose.

Through the ISM method, the group of participants is invited to determine whether or not the specific relationship in focus holds true between specific pairs of ideas, one pair at a time. For each pair of ideas, a question of the general form: "Does A relate (in this particular way) to B ?" is displayed on a public screen and the group engages in a dialogue to participatively arrive to answer the

question. During this process the answers of the group are captured, and the function of the software is to logically infer if the designation of the relationship between a pair of ideas determines the existence or non existence of that relationship between other pairs of ideas; this function also includes the identification of the next question to be discussed by the group. Thus, the group does not need to discuss the existence of the relationship between each and every pair of ideas, since the software minimises the number of relationships that the participants should directly establish through dialogue. Besides minimising the time of the participants spent in the establishment of the complete set of relationships, the ISM software also helps to maintain the logical consistency of the relationship since it does not allow the property of transitivity to be violated. At the end of this process, the last function of the software is to determine the graphical characteristics of the pattern of relationships in order to display the structural model that has been developed.

b) *Documentation.*

During the workshop, the facilitation team carefully registers the ideas and information generated by the group of participants in order to keep track of all the results. The documentation activity is generally concentrated in maintaining an updated record of all the ideas generated by the group and their clarifications, as well as on producing the graphics that display the structural models. The information thus produced is not only used for reporting purposes after the workshop, but also to provide the participants, on a continuous basis, with working handouts of the information. Thus, this second function of the software is to provide the means for documentation.

These are the main functions to be supported by the computer technology during the IM activity. There are several known versions of software specially developed to support the IM process, a list of some of them can be found in the *Handbook of Interactive Management* (Warfield and Cárdenas, 1994)

2.9 DEMOSOPHIA: THE GROUP WORK SUPPORT ROOM

The fifth component in the Sigma-5 concept refers to the need of considering the importance of the physical setting in which group activity takes place, and the name Demosophia has been selected to designate this setting. The idea of having a facility specially designed for supporting the IM group activity reflects the emphasis of IM in integrating all the elements that impinge directly upon group effectiveness.

> "The word 'DEMOSOPHIA' is formed from two Greek words. The first refers to the people, and is recognizable as part of the word 'democracy'. The second refers to wisdom, and is recognizable as associated with the latter part of the word 'philosophy'. Put them together and you have a concept like 'the wisdom of the people'. Naming a facility in this way implies that it is tailored to help organize the collective wisdom of a group of people." (Warfield and Cárdenas, 1994:107)

From the point of view of the physical and intellectual work that is carried out during an IM workshop, there are several aspects of the group work that need to be enhanced by an appropriate facility:

a) *Participants' comfort.*

Since an IM workshop typically lasts for whole day periods over several days, it is important to provide some basic requirements for human comfort in order to avoid, as much as possible, the intellectual and physical fatigue and ineffectiveness due to inadequate space and furniture. Among the aspects considered here are: the shape and flexibility of the chairs, the quantity and quality of lighting, the acoustic features and the size of the room.

b) *Information display.*

Due to the large amount of information managed during an IM workshop, and because it is important to have this information in sight in order to refer to it very often, most of it is normally displayed before the group of participants on the surrounding walls of the meeting room. Therefore, one fundamental requirement of the IM facility is to have ample display space with easy visual access for all the participants.

c) *Flexible working space and furniture.*

The activities carried out by a group of participants may vary in each workshop according to the number of participants, the specific consensus methods being used and, the objectives of the workshop; correspondingly, the physical arrangement of the room should be changed as needed. Most of the IM activities take place when the participants are gathered around a central table, and therefore ample working space is needed on that table. Sometimes the major groups are split into smaller working groups in order to organise better the work to be done; these small groups need to be able to work in the same room as independently as possible. Thus, flexibility is needed to re-arrange the furniture according to these needs.

d) *Specific needs of the various roles involved.*

As it was mentioned in sections 2.5 and 2.6, the people who participate and help to conduct an IM workshop are involved in different kinds of activities; the physical requirements of these activities should be carefully assessed and provided for when designing or preparing an IM facility. In general terms, one should recognise the requirements of the group of participants, the observers and, the facilitation team.

e) *Support services.*

Among the support services that need to be considered in an IM facility are the following: coffee break and lunch supply; videotape recording, if appropriate; telephone and fax access for the participants and, storage room for working materials as well as for the items belonging to the participants (coats, briefcases, and the like).

2.10 RELATED PARTICIPATIVE APPROACHES

The IM process described in the previous sections represents a methodological approach to address complex situations in a participative way. However, related to the kind of efforts portrayed in the IM process, the literature on participative approaches to

address problematic situations includes a wide variety of other possibilities (see for example Flood and Jackson, 1991b; Rosenhead, 1989; VanGundy, 1988). Thus, in order to illustrate some of the major differences that can be found in this field, this section will examine briefly some other approaches that differ from IM in various respects. These approaches have been selected on the basis of their compatibility with the aims of IM while at the same time differing from the IM process in important aspects.

According to the discussion of IM presented in Sections 2.2 and 2.3, the general aims of IM as a process to address complex situations can be described as follows: i) it has been conceptualised as a generic approach to deal with complex situations, i.e., IM aims at providing support for addressing complex situations without being restricted to any particular area of application; conversely, for example, Business Process Re-engineering is specifically oriented to the design of organisational processes and cannot be considered as a generic approach (Hammer and Champy, 1993). ii) IM is concerned with the organisation of a participative effort for dealing with complex issues; conversely, most quantitative approaches which concentrate on the development of sophisticated mathematical models to represent complex situations do not share the interest of IM in promoting participative forms of work.

Based on the above ideas, three systems methodologies and two general types of approaches for conducting group work have been selected for the purpose of illustrating other perspectives which portray to some extent the two general aims attributed to IM (Table 2.3).

SYSTEMS METHODOLOGIES	GENERAL APPROACHES FOR THE ORGANIZATION OF GROUP ACTIVITY
• Interactive Planning (Ackoff 1981). • Soft Systems Methodology (SSM) (Checkland, 1981). • Search Conferences (Emery, 1993).	• Various Forms of Facilitated Group Processes (Keltner, 1989) • Group Decision Support Systems (GDSS) (De Sanctis and Gallupe, 1985).

Table 2.3 Some Participative Approaches to Address Problematic Situations

2.10.1 Systems Methodologies

In the case of the systems methodologies presented in Table 2.3, SSM (Checkland, 1981) and Interactive Planning (Ackoff, 1981) are considered as soft systems thinking approaches which acknowledge the difficulties involved in dealing with ill-structured situations and the need of participative methods to address them (Jackson, 1991b). Search Conferences represent a particular approach to organising planning-oriented group efforts which is conceptually associated with the development of Socio-technical Systems Theory (described in Chapter 5).

SSM is based on the idea that an important aspect of ill-structured situations is related to the different points of view (Weltanschauung) of the people involved. SSM proposes the use of specific systems models (human activity systems models) to explore the different weltanschauungs and to derive proposals for action which accommodate the interests of the various people involved (Checkland, 1981; Checkland and Scholes, 1990).

Interactive Planning is a methodological approach that proposes a set of phases to carry out a comprehensive planning effort. In Interactive Planning the activity of planning is conceptualised as a design task concerned with the idealised design of social systems and the definition of appropriate means for implementing the resulting designs. The process is based on three major principles: participation, continuity and holism; these principles represent the basic philosophy of Interactive Planning and they guide the process in all its phases (Ackoff, 1981).

The conceptual frameworks underlying SSM and Interactive Planning have been developed over the last three decades and both approaches are recognised as two major contributions to systems thinking and practice (Jackson and Keys, 1987; Banathy, 1996). Regarding their methodological prescriptions, SSM and Interactive Planning propose the operationalisation of their corresponding philosophies in terms of a set of phases that should be carried out in a participative way.

Compared with IM, SSM and Interactive Planning also represent flexible processes which emphasise the importance of learning as a key factor in dealing with complex social situations. However, they differ from IM in terms of the specific conceptual frameworks and strategies they propose to organise this task. On the other hand, in contrast IM, where the process is centred on the management of group activity

in order to help groups carry out the phases of intelligence, design and choice, SSM and Interactive Planning do not offer particular prescriptions on how to manage the group processes that are involved in their corresponding methods.

In contrast with the conceptual orientation of SSM and Interactive Planning towards general processes for addressing complex social situations, Search Conferences are more specifically focused on the design and organisation of group efforts to carry out planning activities within organisational or community contexts.

The single major emphasis of the Search Conferences lies in promoting and providing the means for actualising a democratic ideal through participative group processes. Associated with this purpose is the idea of involving the people in the creation of their own future. In order to further these purposes Search Conferences base their methodological prescriptions on concepts stemming from Socio-technical Systems Theory (see Chapter 5) and Group Dynamics (see Chapter 4). Among the most important concepts involved in the design of Search Conferences are: open systems thinking, socio-technical design principles, a theory of learning, Bion's (1961) Group Dynamics, diffusion of results as a communication and psychological process, and rationalisation of conflict (Emery, 1993:241).

Among the most important differences found between Search Conferences and IM are: i) the promotion of group self-management as opposed to facilitated interventions: "... the more that a group manages itself the more it is democratic." (Emery, 1993:16); ii) an emphasis on avoiding the participation of only representative groups: all those directly involved in a situation should participate; a single Search Conference includes 15 to 30 participants and parallel multisearch conferences are organised in the case of larger groups; iii) the provision of explicit ways of surfacing conflicting issues: Search Conferences do not look for consensus but for "rationalisation of conflict" (Emery, 1993:252); and iv) in terms of the procedural guidelines for carrying out the planning task, Search Conferences propose a thorough exploration of environmental issues and constraints and then addressing the desired characteristics of the system in focus, but do not establish structured methods to accomplish these tasks.

2.10.2 Facilitated Group Processes

Group activity for carrying out different types of problem-solving and decision-making tasks is a common feature found in organisations; committees, task forces, and quality circles are examples of group-based schemes of organising these efforts. In this context, facilitated group processes represent a way of conducting group work in which a facilitator role is defined to help groups achieve their goals. Facilitative functions typically include co-ordination and guidance of groups through the various activities needed to perform their tasks (Keltner, 1989). According to this perspective Group Decision Support Systems (GDSS) can also be considered as one type of facilitated group process; however, because of their specific emphasis on the use of technological support they will be discussed in Section 2.10.3 as a separate type of group activity.

Problem-solving and decision-making group facilitated processes have been studied and developed for their use in different areas of application such as Organisational Development (Schein, 1988; Sullivan et al. 1996), Total Quality Management (Brassard, 1989) and, Organisational Planning and Management (Adizes, 1988). The group facilitated processes developed in these fields portray a wide variety of perspectives, general guidelines and specific methods that could hardly be described by one common set of characteristics (see for example Chilberg, 1989; Hirokawa and Gouran, 1989; Keltner, 1989; Seibold, 1979). However, since these processes represent a type of group work very closely related to IM, it is interesting to look at some aspects of their designs where major differences are found:

a) *Process Orientation.*

In spite of the fact that the group processes referred to in this section are related to task-oriented behaviour (problem-solving and decision-making), it is possible to identify processes that are more oriented towards the satisfaction of the socio-psychological needs of the groups involved, processes emphasising the tasks to be accomplished, and processes which seek to balance these two aspects of group activity (Seibold, 1979).

Participant-oriented or group-centred processes emphasise group members' satisfaction and pay particular attention to the characteristics of the socio-psychological processes that take place during group activity. Task-oriented

processes are more concerned with the selection of procedures and problem-solving methods, and with establishing appropriate guidelines for keeping groups focused on the issues under study (Friedman, 1989).

Among other things, these different orientations influence the degree of structure imposed upon group activity. Task-oriented processes tend to promote strict rules of procedure and do not allow for deviations from the working plans, while people-oriented processes incline towards flexible agendas that are modified according to groups' perceived needs.

In the case of IM, the process is clearly oriented towards the accomplishment of group tasks and promotes a structured process; however, acknowledging the importance of socio-psychological concerns in group work, IM seeks to balance the behavioural and technical demands of dealing with complex situations (Broome and Keever, 1989).

b) Facilitator's Role.

The role attributed to the facilitator of these processes may vary in various respects. This role is often associated with the degree of structure involved in the particular process being used, which in turn is related to the level of group autonomy that the process allows. In some cases the facilitation function is centred on providing general guidance and monitoring group progress in order to intervene only when there is a perceived need for help (Friedman, 1989); in other processes facilitators play a more active role by co-ordinating group communication, establishing rules of procedure and guiding the groups through all the items proposed in an established agenda (Hirokawa and Gouran, 1989). There are also different views on whether facilitators should contribute to the content of the discussions taking place between group members or only concentrate their interventions on the management of the group process itself (Keltner, 1989; Schein, 1988).

According to the description of the IM facilitative function presented in Section 2.6, the IM facilitator plays an active role in group activity and does not intervene in the content of group discussions.

c) *Specific Methods Used.*

The specific methods used in facilitated group processes for problem-solving and decision-making include a wide variety of alternatives for carrying out the typical activities involved in these tasks (Olsen, 1982; VanGundy, 1988). Among these tasks are the generation and organisation of ideas, and making choices between alternatives. The criteria for selecting the methods to be used may emphasise different aspects of group activity (such as creativity, efficiency, high quality of group communication and/or analytical basis), but at the same time it is also common to find that the methods are selected on the basis of a piecemeal approach which does not incorporate a global perspective on group complex problem-solving (Broome and Keever, 1989).

Section 2.7 presented the typical methods used in IM and discussed their main features and selection criteria; Section 2.3 discussed the general perspective for dealing with complex issues that is embedded in the IM process.

2.10.3 Group Decision Support Systems (GDSS)

The development of GDSS started in the middle 1980s associated with the progress on computer-based information systems and particularly with a set of emerging information technologies now known as groupware (Johansen, 1991). Groupware refers to various forms of interpersonal computing which are aimed at providing computer support for different types of group activity.

GDSS provide technical and procedural support for decision-making meetings:

> "A group decision support system (GDSS) is an interactive computer-based system which facilitates solution of unstructured problems by a set of decision makers working together as a group. Components of a GDSS include hardware, software, people, and procedures." (DeSanctis and Gallupe, 1985:298)

A central concept in the design of GDSS software is that group activity is mainly related to information management, e.g., retrieval, generation, sharing, storing and organisation of information (Gray and Nunamaker, 1993). In order to support these tasks, each version of a GDSS software incorporates selected techniques and analytical procedures for supporting group decision-making (such as the means to carry out electronic brainstorming and ways of computing voting or ranking results), as well as

general computing tools (such as word processing). A major concern in the design of this type of software is to provide user friendly interfaces that minimise the restrictions imposed on the participants by the technology.

In a typical GDSS meeting a facilitator guides the group activities according to a planned agenda and the specific features of the software version of the GDSS being used. The interaction among participants is basically mediated by electronic means since each participant contributes his/her ideas and information directly through personal computers that are connected in a local network.

In general terms, the design of GDSS does not seem to portray particular conceptual frameworks regarding group decision-making. The emphasis is made on incorporating as many software tools as possible (considering computer efficiency and general user needs) in order to take advantage of the potential benefits of information technology (Cárdenas, 1991; DeSanctis and Gallupe, 1985). Therefore, in terms of methodological guidelines most GDSS do not offer particular prescriptions for conducting decision-making and related tasks, they only provide sets of tools that can be used according to different procedural arrangements but which are always restricted by the features of the available software.

Regarding group participation, as in the case of IM, GDSS also acknowledge the need to encourage the active participation of all group members. One specific means to further this purpose, which is regarded as a highly desirable feature of GDSS, is the possibility of anonymous participation for dealing with "sensitive" issues (Gray and Nunamaker, 1993). However, in IM direct face-to-face communication and the feedback mechanisms that it entails are considered as a basic means to develop the common languages needed to arrive at shared understanding of complex issues and their possible solutions. It has been argued (Cárdenas and Moreno, 1993) that anonymity, by precluding the possibility of direct and thorough feedback for clarifying meanings and lack of information, promotes misunderstanding and inhibits the development of open participative cultures.

2.11 CONCLUSIONS

The brief account of the IM process presented in this chapter has emphasised its major features in terms of the global structure of an IM project and the five main components that need to be integrated in order to conduct an IM workshop. This description of IM helps to highlight the fact that IM does not consist of a rigid step-by-step method, but is a generic and flexible process for organising and conducting group activity when dealing with complex issues. The generic nature of the contribution of IM in dealing with these situations is attested by the varied nature of the different projects in which IM has been applied (Appendix A).

IM has taken on the challenge of formally organising the involvement of stakeholders in the situations which affect them because it fully recognises the need to integrate the various points of view, interests and knowledge that are at stake when a complex situation is faced. Approaching complexity from this perspective not only helps to promote effectiveness but also significantly contributes to promoting the development of a democratic-participative culture for resolving complex issues in modern society.

Two of the most important characteristics of the IM process that distinguish it clearly from other approaches to participative problem-solving and decision-making are: the emphasis it attributes to the formal development of structural models for integrating and representing the collective thinking of groups of stakeholders; and the conceptual framework underlying its development which has been established on the basis of very thorough theoretical and experimental research. A general perspective on the conceptual framework of IM will be discussed in the next chapter.

CHAPTER 3

CONCEPTUAL FRAMEWORK OF INTERACTIVE MANAGEMENT

3.1 INTRODUCTION

Given the general description of the IM process presented in Chapter 2, this chapter now turns to discuss some of the most important aspects of the conceptual framework which underlies the development of Interactive Management.

The conceptual framework of IM has been derived from an integrative and developmental effort carried out under the intellectual leadership of John N. Warfield in collaboration with a number of IM researchers and practitioners as detailed in the *Handbook of Interactive Management* (Warfield and Cárdenas, 1994). Those involved include: A. N. Christakis, R. Waller, B. Broome, D. Keever, R. Janes, H. Alberts, and S. Staley, among others. Within the variety of specific concepts and theoretical developments embodied in the conceptual framework of IM, and considering that it is a contemporary evolving field of inquiry, this chapter represents an attempt to synthesise the major components of this framework to date in order to understand better the characteristics of the IM process.

The chapter begins with a brief description of a Domain of Science Model, which represents the model of scientific inquiry on which the research on IM has been based. Section 3.3 is devoted to discussing the main features of a Science of Generic Design proposed by Warfield (1994a) as the core scientific endeavour behind the development of the IM process. Sections 3.4, 3.5 and 3.6 concentrate on three central themes of the IM philosophy: the study of complexity, structural thinking, and collective inquiry. Section 3.7 presents a critical perspective on IM and its conceptual framework. Finally, in Section 3.8 some general conclusions are drawn regarding the conceptual framework of IM.

3.2 THE DOMAIN OF SCIENCE MODEL

As was mentioned in Chapter 2, IM gradually emerged as a result of the studies initiated at the Battelle Memorial Institute in Columbus, Ohio, as a part of a program called "Science and Human Affairs" (Warfield, 1975 and 1979). Since those initial efforts, an important emphasis has been given to the need to develop a scientific-based approach for dealing with societal problems. This emphasis has become one of the most important traits in the development of IM, and a Domain of Science Model has been proposed as a model of reference for organising and understanding this development.

> "A Domain of Science Model (DOSM)... furnishes a way to describe what should make up a science, and how its information should be organized for Referential Transparency. Such a model will provide not only useful knowledge for general awareness, but also will provide a needed discipline to the development of the science itself." (Warfield, 1994a:110)

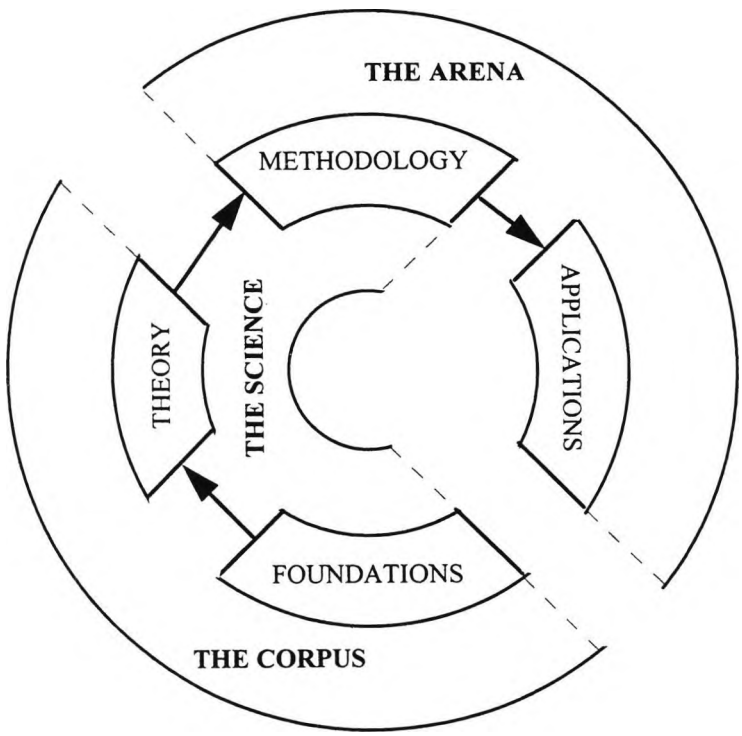


Fig. 3.1. The Domain of the Science Model (Warfield, 1994a:115)

The Domain of Science Model shown in Figure 3.1 illustrates that the elements that constitute a science can be divided according to at least two different perspectives:

a) *Foundations, Theory, Methodology and Applications*. These are the four individual blocks located in the middle of the circle in Figure 3.1, and they represent the primary components of a science:

i) Foundations. The foundations refer to the most elementary concepts on which a science is based; they incorporate the fundamental issues with which the science deals and represent the immediate reference for understanding the concepts provided by the theory.

ii) Theory. The theory represents the set of concepts, and their relationships, which are relevant to a particular science. The theory may incorporate descriptive and prescriptive concepts (for example laws and principles).

iii) Methodology. The methodology relates to the prescriptive components of a science. Its main function is to provide the necessary guidance for the application of the science in particular settings.

iv) Applications. The applications component of the DOSM represents the set of situations on which the application of a science is meaningful; it provides the basis for assessing the usefulness and validity of a science so is possible to feedback to the foundations, theory and methodology.

The arrows that link these four components together in Figure 3.1 represent a steering relationship: Foundations steer Theory, Theory steers Methodology, Methodology steers Applications, and Applications steer Foundations by providing the necessary feed-back to close the loop through which the continuous improvement and development of a science is possible.

b) *Corpus and Arena.* In this case, the division comprises the four individual blocks mentioned above grouped in two general classes (these classes are represented by the two outer semicircles in Figure 3.1):

i) The Corpus includes the Foundations and the Theory, and it accounts for the basic body of knowledge that constitutes a science. According to Warfield, the Corpus is often mistaken as being the only component of a science.

ii) "The Arena is, of course, where the action is." (Warfield, 1994a:114). The Arena is composed of Methodology and Applications; these are the elements that relate the Corpus of a science to its use in a particular domain of reality. According to Warfield (1994a), the Arena is often the area where

"action-research" efforts are concentrated without explicit consideration of the Corpus.

The Domain of Science Model emphasises the need to relate clearly the various components of a science. In particular, it advocates the explicit link of the theoretical basis of a science (the Corpus) with its application area (the Arena) as a way to validate the conceptual developments, and to ensure the never-ending development cycle through which scientific advance is possible.

3.3 A SCIENCE OF GENERIC DESIGN

In 1990, the first edition of the book *A Science of Generic Design: Managing Complexity Through Systems Design* was published (see Warfield, 1994a). This book organised and synthesised most of the body of knowledge accumulated to that date regarding the IM process and its conceptual framework, and presented it under the general heading of a Science of Generic Design (SoGD).

The idea of organising the IM body of knowledge in the context of a Science of Generic Design is associated with the need to cope with the large-scale, complex systems which characterise modern society (such as urban societies, financial systems or multinational corporations) and which are becoming more and more unmanageable:

> "... the greatest single concern in the development of a science of design is to find a way to bring large-scale systems within the purview of the human mind" (Warfield, 1994a:12)

Because these kind of systems and the societal problems that they involve cover a wide range of human activities and interests, the knowledge that is needed to deal with them cannot be directly identified with specific disciplinary areas of design (architectural design, mechanical design, software design and the like). Therefore, the term "generic design" was chosen, as opposed to "specific design", to address the common aspects that characterise complex situations.

The most important aspects of this Science of Generic Design will be considered in the following paragraphs according to the four basic components of the Domain of the Science Model presented in Section 3.2.

3.3.1 Foundations

The Foundations of the SoGD include two sets of concepts: the bases of the SoGD and a series of postulates, which represent the propositions that this science recognises as its most basic assumptions. The bases stand as the fundamental fields of inquiry and knowledge related to this science (Warfield, 1994a). These bases are the anthropological, the formal logical, and the technological. The anthropological base reflects the concern for the human being; the formal logical accounts for the need to support reasoning processes based on formal ways of thinking; and the technological base is related to the enhancements needed to support the design activity.

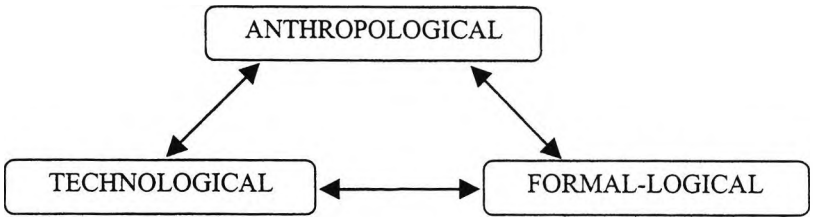


Fig. 3.2 Bases of the Science of Generic Design

The postulates represent the most fundamental assumptions made in the development of the Science of Generic Design. They are grouped in six general types:

TYPES OF POSTULATES
1. Human Being
2. Language
3. Reasoning Through Relationship
4. Archival Representations
5. Design Situation
6. Design Process

Table 3.1 Types the Postulates of the Science of Generic Design

The first four types of postulates represent what Warfield (1994a) considers the Universal Priors of Science i.e., the four fundamental factors without which no science is possible: human beings, language, reasoning through relationships, and archival

representations. The last two types are directly related to basic aspects of design: the design situation and the design process.

Among other things, the postulates lay the foundations for recognising that in order to manage complexity it is necessary to organise a comprehensive participative effort, that this effort should be based on a formal logical approach, and that the quality of the language used in the design activity should be promoted.

3.3.2 Theory

The main components of the theory of the SoGD can be grouped in four areas:

a) *Complexity.* The study of complexity represents a central concern in the development of the SoGD (see for example: Warfield, 1991, 1994a, 1994b, 1995, 1996). An important emphasis has been devoted to the study of the major limitations of the human being in dealing with complexity, and one of the most distinctive features has been the identification of 21 laws of complexity (Warfield, 1998b; Christakis and Shearer, 1997). These laws include descriptive as well as prescriptive statements regarding a variety of issues involved in the management of complexity (Section 3.4.2). Some of the laws derive from direct research in the context of the SoGD, and some others stem from related fields of inquiry. For instance, the Law of Requisite Variety (Ashby, 1956) has been explicitly incorporated as a part of the theoretical framework of the SoGD.

b) *Design.* Since a major concern in the development of the SoGD is systems design, the Theory includes a set of concepts explicitly devoted to address the task of design. Among these concepts are: i) the Theory of Dimensionality which discusses and addresses problems involved in identifying and representing the critical aspects of a design and, ii) the establishment of a set of design principles which are meant to guide the design process (Warfield, 1994a).

c) *Structural Modelling.* The Formal-logical base of the SoGD is explicitly manifested in the Theory through the development of a method for modelling complex situations: Interpretive Structural Modelling (ISM). ISM is based on the

recognition that: i) formal-logical reasoning should be based on the identification of relationships among elements, ii) the language of Mathematics is sufficiently developed to provide a standard for managing relationships, and iii) the language of mathematics should be integrated with prose and graphics in order to develop comprehensive models for dealing with complexity.

d) *Collective Inquiry.* As was mentioned in Chapter 2, the development of IM begun by acknowledging that a participative approach was required in order to deal properly with complex situations. The need to integrate complementary perceptions, interests and information represents one of the most important aspects of promoting a participative approach. As a result, a significant trait of the SoGD is the emphasis attributed to the study of group activity, its implications, problems and requirements. The most important concepts stemming from this line of thought are related, for instance, to the relevance of group learning and to the necessity of developing consensus between stakeholders (Warfield, 1982 and 1991; Broome and Keever, 1986).

3.3.3 Methodology

The Methodology of the SoGD is the Interactive Management process itself. Since the IM process was described in some detail in Chapter 2 only some additional remarks will be made in this section.

The Foundations and Theory of the SoGD lay down the basis of the IM process, and they are manifested in IM through the organisation of two sets of activities:

a) The global structure of an IM project; and
b) The specific planning and management of each IM workshop.

As stated in Chapter 2, another key feature of the IM process is the integration of the five components that make up the Sigma-5 concept: the group of participants, a facilitation team, computer support, a set of consensus methods, and the Demosophia facility. The way in which these five components are integrated is what gives IM its particular identity as a methodology to address complex situations.

3.3.4 Applications

It is estimated that there is no single information source that could give a complete account of the different IM applications that have been carried out all around the world since the practice of IM started in the early 1970s. However, in order to offer a perspective on the nature and scope of these applications a list of some actual IM interventions is presented in Appendix A.

The list includes a total of 147 IM interventions, 115 of them correspond to the list of examples of applications presented in the *Handbook of Interactive Management* (Warfield and Cárdenas, 1994), and the rest represent a sample of more recent IM interventions known to the author. The whole list covers a period from 1974 to 1997, i.e. twenty three years, and includes interventions carried out in ten different countries: Brazil, Canada, Ghana, Greece, India, Liberia, Mexico, Saudi Arabia, the UK and the USA. In an effort to synthesise the nature of these applications, they have been classified into the 17 categories shown in Table 3.2.

No.	TYPE OF APPLICATION	PROJECT NUMBER AS PRESENTED IN APPENDIX A	TOTAL No.	% OF TOTAL
1	Academic and Educational Planning	7, 33, 46, 49, 66, 70, 83, 84, 90, 93, 95, 102, 112, 121	14	10%
2	Curriculum Design	6, 11, 23, 65, 69, 91, 110, 136, 142	9	6%
3	Diagnosis and Design of the Defense Acquisition System	22, 50, 51, 53, 54, 76, 77	7	5%
4	Future Studies	16, 87, 94	3	2%
5	Information Systems and Management	21, 28, 29, 32, 52, 55, 67, 89	8	5%
6	Management Systems and Organisational Planning	4, 13, 19, 35, 37, 47, 48, 72, 74, 97, 103, 120, 123, 124, 131	15	10%
7	Management of Technology Use and Technology Development	3, 71, 141	3	2%
8	Organisational Design	31, 88, 113	3	2%
9	Planning and Management of Public Services	8, 42, 62, 64, 82, 85, 92, 96, 104, 105, 118, 125, 137, 144, 146	15	10%
10	Quality Planning and Improvement	2, 34, 44, 75	4	3%
11	Regional Development Planning	5, 15, 24, 26, 68, 73, 143	7	5%
12	Research and Management of Natural Resources and Ecological Issues	40, 59, 60, 61, 81, 98, 99, 100, 101, 107, 108, 109, 115, 116, 117, 119, 126, 127, 128, 129, 130, 132, 133, 134, 135, 139, 147	27	18%
13	Social and Economic Self-Development of American and Mexican Indian Tribes	17, 18, 25, 27, 38, 39, 56, 57, 58, 79, 80, 106, 114	13	9%
14	Social Development	9, 10, 45, 145	4	3%
15	Strategic Organisational Planning	14, 30, 36, 41, 43, 63, 111, 138, 140	9	6%
16	Strategic Planning in Governmental Offices	1, 12, 20, 122	4	3%
17	Technological & Scientific Development	78, 86	2	1%
		Total No. of Projects:	147	100%

Table 3.2 Types of Applications of Interactive Management

The 17 types of applications shown in Table 3.2 illustrate the wide variety of contexts in which the IM process has been used, and they also exemplify the diversity of social groups that have been involved in this process.

3.4 MANAGING COMPLEXITY

As was stated in Section 3.3, a central concern in the development of IM has been the study of complexity. Accordingly, an important effort has been devoted to the study of the nature of complexity as well as to the problems, limitations and requirements involved in dealing with it. In this section, three aspects of this research on complexity will be examined: the nature of complexity, the laws of complexity and the work programme of complexity.

3.4.1 The Nature of Complexity

Within the conceptual framework of IM, the idea of complexity is mainly characterised by considering human perception as the key factor in conceiving a situation as complex. An explicit manifestation of this thinking is found in the following definition of complexity proposed by Warfield:

> "Complexity: That sensation experienced in the human mind when, while engaged in observing or considering a system, frustration arises from lack of comprehension of what is being explored." (Warfield, 1998a:35).

Here complexity is basically conceptualised as a state of mind derived from observing a situation. Furthermore, according to Christakis and Shearer (1997) the situation being observed is generally seen as problematic:

> "... That state of mind usually occurs when a person is striving to comprehend a 'problematic situation' and, in the process, recognizes that this effort is not successful." (Christakis and Shearer, 1997:27)

The above ideas on complexity stress the role of human perception in identifying complexity and they support the notion that complexity lies basically in the human mind (Warfield, 1997a).

A complementary view of complexity within the IM framework has been proposed by Janes (1992). Based on some earlier ideas developed by Warfield (1994a) in which complexity was conceptualised in terms of two components (situational and cognitive complexity), Janes (1992) proposes a view of complexity which includes three components: situational, cognitive and pluralistic complexity:

a) *Situational complexity* refers to the elements involved in a given situation, their relationships and the dynamics of their behaviour through time. Situational complexity is viewed as the component of complexity which accounts for the "real world", as opposed to being only an intellectual construct of the human mind.

b) *Cognitive complexity* relates directly to the mental endeavour involved in any conceptualisation of reality; specifically, it refers to "those aspects of our understanding of the situation that make interpretation difficult" (Janes, 1995:57). Among the elements that impinge upon the difficulties involved in interpreting a situation are the limitations of the human mind in perceiving and processing information, and the cultural and psychological factors that influence the way in which meaning is attributed to what is perceived. Within the context of the three components of complexity examined here, cognitive complexity accounts for the "state of mind" referred to above.

c) *Pluralistic complexity* introduces a socio-psychological dimension by considering that complex situations generally involve a group of people; this implies that an appreciation of complexity in such contexts can only be reached by shared experience. Thus, pluralistic complexity derives from the problems posed by the presence of diverse individual interpretations of a situation (Janes, 1995).

The two perspectives on complexity considered above differ basically in the relative emphasis they accord to the aspects of complex situations that lie outside the realm of the human mind. However, they share in common the idea that complexity can only be understood in terms of the mental reactions of the individuals involved in observing a situation. This trait of both perspectives represents the most important feature of the concept of complexity underlying the conceptual framework of IM.

Besides the fundamental notions of complexity just discussed, some other relevant aspects of complexity have been explored within the context of IM. Among these aspects, a set of characteristics of complex situations has been identified. These

characteristics have been found to be present in most complex situations addressed by the IM process (Warfield, 1997a):

a) A plethora of component problems.

b) Widespread differences of belief.

c) A large number of problem interdependencies.

Finally, it is worth noting here that as a part of his study of complexity Warfield (1997a) has identified the existence of five schools of thought about complexity:

NAME OF SCHOOL	UNDERLYING FORMALISM	WHERE COMPLEXITY LIES
Cross-Discipline (CD)	None	Unidentified
Systems Dynamics	Ordinary Differential Equations	In the System
Chaos Theory	Ordinary Non-linear Differential Equations	In the System
Adaptive Systems Theory	Partial Differential Equations	In the System
Structure-Based	Formal Western Logic, including Set Theory, Theory of Relations, Digraph Theory, Lattice Theory, Boolean Methods, and the Algebra of Partitions	In the Mind (Much of the work is represented by the works of Peirce, Piaget, Polanyi, and Vickers)

Table 3.3 Schools of Thought About Complexity (Source: Warfield, 1997a:46)

Within these five schools, it is considered that the ideas on complexity associated with the IM process form the basis of the Structure-Based School (Warfield, 1997a).

3.4.2 The Laws of Complexity

The identification of a set of laws of complexity has been one of the most distinctive features of the study of complexity associated with the development of Interactive Management. The set comprises 21 laws that have been derived from or explicitly incorporated into the IM framework over the last 20 years.

The laws cover both descriptive as well as prescriptive assertions regarding individual and social behaviour, scientific inquiry, and design activity. Their origins can

be traced back to different sources: some of them have been empirically developed, i.e., based on observation and statistical analysis; some others have been logically derived from the Philosophy of Science, Mathematical Logic and the Theory of Relations; and some others stem from related fields of inquiry (Warfield, 1993, 1994a, 1998b; Christakis and Shearer, 1997; Ashby, 1956).

An important concern behind the identification of these laws has been the study of the main limitations that impinge upon human capacity to understand and manage complexity:

> "Part of the study of complexity involves the study of limits. Of particular importance are limits on individuals, limits on groups, limits on organizations, and limits on processes. All of these limits must be understood and overcome, if a highly-effective management support system is to be made available." (Warfield, 1998b)

Based on these ideas, the identification of the laws has been largely associated with the study of the four elements mentioned above: individuals, groups, organisations and processes. It is in these terms in which some brief comments on the nature of the 21 laws will be presented in the following paragraphs (Warfield, 1998b; Christakis and Shearer, 1997). The total list of the 21 laws of complexity is presented in Appendix B together with a shortened version of the formal statements describing each one of them.

a) *Laws Associated with the Individual.*

The laws that are more relevant at the level of the individual human being concentrate mostly on the limitations of the human mind for information-processing purposes. These are: Triadic Compatibility, Requisite Parsimony, Requisite Saliency, Small Displays, and the Law of Limits.

b) *Laws Associated with the Group.*

The research on group activity in the context of IM has devoted particular attention to the study of patterns of behaviour that might be relevant for inhibiting or enhancing group performance. As a result, a number of the Laws of Complexity are directly related to those behaviours: Diverse Beliefs, Inherent Conflict, Structural Underconceptualisation, Uncorrelated Extremes, and Induced Groupthink. In addition, two other laws are also associated with group activity: Requisite Variety and the Law of Limits.

c) *Laws Associated with Organisations.*

The laws that are particularly relevant at the level of organisations focus mainly on typical problems encountered in organisations as they strive to confront complex issues without appropriate methods. These laws are: Organisational Linguistics, Forced Substitution, Precluded Resolution, Vertical Incoherence, Escalation of Complexity, and the Law of Limits.

d) *Laws Associated with the Process.*

The set of laws more directly associated with the design processes portrays prescriptions required to organise a serious effort to deal with complexity. The laws that are more relevant regarding the design process are: Gradation, Success and Failure, Triadic Necessity and Sufficiency, Universal Priors, Validation, and here again, the Law of Limits.

As can be noticed from the above discussion, the Law of Limits is considered strongly relevant in the context of each one of the four elements of concern analysed here. This is the case since, as was stated before, an important effort has been made to study the main limitations present in any formal attempt to address complex situations, and to identify appropriate ways of coping with them.

3.4.3 The Work Programme of Complexity

In Section 2.3 the typical strategy for dealing with complexity in IM was presented in terms of a progression of three phases: Intelligence, Design and Choice (Simon, 1977). As was stated in that section, most IM literature to date describes the IM process in terms of these three phases; however, in their recent work Warfield (1997a) and Christakis (Christakis and Shearer, 1997) propose some alternative views of this scheme.

Warfield has coined the term "Work Program of Complexity" (Warfield, 1997a) to refer to the progression of outcomes that should be sought when facing a complex situation using the IM process. The work programme of complexity can be thought of as an extension of the original scheme based on Simon's functions of management, and it

can be paralleled with the original phases of intelligence, design and choice as shown in Table 3.3.

Christakis and Shearer (1997) also propose an extended version of the original scheme, and Christakis and Conaway (1995, referred to in Christakis and Shearer, 1997) emphasise the need for continuity and flexibility in managing the global effort to deal with complexity.

Management Functions Originally Incorporated into the IM Framework (Based on Simon, 1977)	**Work Programme of Complexity (Warfield, 1997a)**	**Stages in Design Practice (Christakis and Shearer 1997)**
Intelligence	Description	Definition
	Diagnosis	
Design	Design (includes Choice and development of Action Plan)	Design
Choice		Choice
		Plan for Action
	Implementation	

Table 3.4 A Parallel between the Three Strategies for Dealing with Complexity

Compared with the original scheme of IM based on Simon's management functions, the two new schemes presented in Table 3.3 include the following differences:

a) *Intelligence.*

In the new scheme proposed by Warfield (1997b) the intelligence phase becomes two separate functions: description and diagnosis. Description refers to the development of structural models in order to define the major issues or problems involved in the situation under study and their relationships. Diagnosis refers to the interpretation of the results of the description and it does not necessarily imply IM group activity.

In the case of the definition stage proposed by Christakis and Shearer (1997), it seems to correspond directly to the intelligence phase.

b) *Design.*

The Work Program of Complexity proposed by Warfield (1997b) incorporates into the design phase the choice function, as well as the development of an action plan for implementing the results of the IM activity.

The design stage of the Stages in Design Practice (Christakis and Shearer, 1977) seems to correspond directly to Simon's design phase as in the previous case.

c) *Choice.*

As was mentioned in the previous paragraph this phase has been incorporated into Warfield's design phase. In the scheme proposed by Christakis and Shearer (1997) the choice stage is equivalent to the choice phase of Simon's scheme.

d) *Plan for Action.*

Christakis and Shearer (1997) explicitly incorporate a stage devoted to planning for action as a part of their Stages in Design Practice. This idea is included in the design phase of Warfield's Work Program of Complexity, and it is not explicit in Simon's scheme of the management functions.

e) *Implementation.*

An implementation phase is only explicitly incorporated in the Work Program of Complexity. In this phase Warfield (1997b) considers the need to prepare a specific facility (called an Observatorium) for communicating the results of the IM activity to people who were not directly involved in the workshops; this is conceived as a requirement for implementation. Also, it is stated that the action plan developed in the design phase should be carried out during implementation to complete the work programme.

Based on the brief comparison just made between the three strategies shown in Table 3.3, the three most general phases for dealing with complexity that are associated with IM are: Intelligence, Design and Implementation. However, most of the conceptual framework of IM can only be formally related to the intelligence and design phases since it is during those phases where the methodological contributions of IM are manifested (i.e., IM group activity).

3.5 STRUCTURAL THINKING

Structural thinking represents the mode of thinking associated with the formal-logical base of the conceptual framework of IM. Central to structural thinking is the systems idea of thinking in terms of relationships:

> "The term 'structure' as a base for the phrase 'structural thinking' refers to the relational patterns that are involved among members of a set or system. Structural Thinking emphasizes relational thinking as its primary distinguishing attribute." (Warfield and Staley, 1996:56)

This kind of thinking involves the explicit identification of relationships among elements of a situation and the recognition of the patterns that characterise those relationships. The formalisation of structural thinking within the IM process is manifested in the activity of modelling, and in particular, in modelling through the Interpretive Structural Modelling (ISM) method mentioned in Chapter 2. These two topics, modelling and ISM, will be now considered in some detail.

3.5.1 Modelling in the Context of IM

Model development represents the most important single feature of the IM process since the activity of modelling stands as the main strategy of IM to address the challenges to the human mind posed by complexity. Model building in this context is associated with two basic ideas:

a) *The need to develop rich and insightful representations of complex situations and effective ways to address them.*

In order to incorporate into the models the variety of knowledge, experience and interests present in complex situations, the need to involve the stakeholders in model building is also acknowledged.

b) *The recognition that dealing with complexity requires the use of languages of high quality in order to promote high standards of communication.*

This idea is basically supported through the use of formal languages for model development:

> "The use of formalisms coming from formal languages appears ... to be essential as a means of quality control on communication...." (Warfield, 1997a:44)

Therefore, an important characteristic of model building in IM is the use of mathematical formalisms.

The two ideas just exposed have also been recognised within the context of other related fields. However, it seems that in most cases these ideas are treated as if they were mutually exclusive, i.e., if the stakeholders are directly involved in model building there is no use of mathematical formalisms in the corresponding models (for example, in the development of Rich Pictures; Checkland and Scholes, 1990), or else, if mathematics is used for model development then the stakeholders are not extensively involved in their construction (for example, the development of operational research models):

> "In conventional modelling, e.g., in fields such as operational research and management science... formal ways of involving the client in the model building activity are frequently neglected." (Janes, 1992:141)

In the case of IM, this apparent dilemma has been approached through the introduction of computer support (Warfield, 1997a). By assigning to the computer the task of dealing with the formalisms of mathematics, the group of stakeholders base their modelling activity on the use of prose. This is one of the main features of the ISM method discussed in section 3.5.2.

Figure 3.3 illustrates the elements involved in model development during the IM process. Starting with the individual mental models of various stakeholders, the process proceeds to translate into prose the set of elements (ideas) which characterise the situation. A matrix model of the situation is then developed; this model consists of a square matrix portraying the interactions between the ideas according to some particular relationship. Based on the information content of the matrix model, a structural model is produced; the structural model translates into graphical form the information content of the matrix model, allowing for the recognition of patterns of interaction between the elements (Appendix C presents some examples of these structural models).

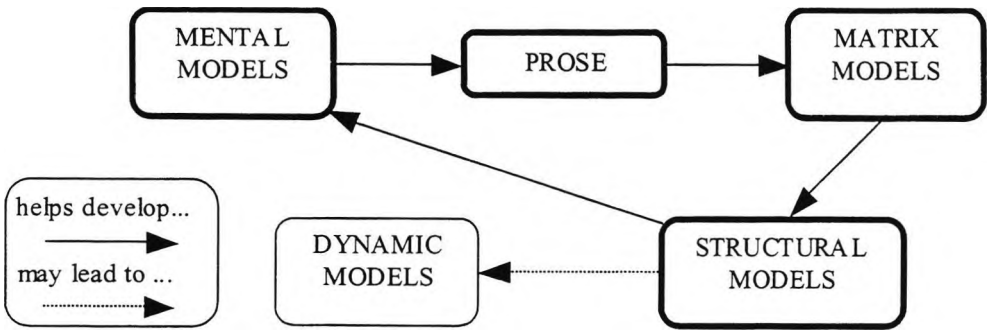


Fig. 3.3 Model Development in Interactive Management (Based on Christakis, 1991)

The main characteristics of this way of conceiving model development are:

a) The mathematical formalisms required to develop the matrix and structural models are handled by the computer. Therefore, the stakeholders are not required to be knowledgeable about any specialised language; any person involved in the situation can directly participate in the development of the models.

b) Formal structural models are directly developed by stakeholders and not by specialists in model building, i.e., there is no mediating agent in the construction of these models.

c) By directly engaging the stakeholders in the process of building models that are relevant to the situations in which they are involved, a relevant learning process is also developed. This learning process is illustrated in Figure 3.3 by the line connecting structural models with mental models.

d) By promoting the shared development of structural models in order to understand and acting upon complex situations, a non-traditional view of decision-making is embraced:

> "We now hold the means of explaining why people remain so stubbornly and extravagantly irrational, ignoring logic, maximization principles and even self-interest postulated by conventional models. The answer appears to be strikingly simple: humans do not maximize functions, but search for recognizable patterns. Decision making is not about maximizing some components subject

to postulated levels of other components, but about stable patterns of harmony among all components". (Zeleny & Nappelbaum, 1990:1)

e) Given the characteristics of the structural models that are obtained, it is possible to derive from them quantitative dynamic models. This is illustrated in Figure 3.3 by the dashed line connecting structural models with dynamic models.

3.5.2 Interpretive Structural Modelling (ISM)

As has already been stated (Chapter 2, Sections 3.4 and 3.5.1), the ISM method is the basic means through which model development is carried out in the IM process.

According to the explanation of ISM given in Section 2.8, this method integrates the use of mathematics, prose and graphics in the development of structural models. The mathematical and graphical components of this method are directly related to the formal -logical base of IM, and Warfield (1997a) has identified six major contributions in the history of thought that have laid the foundations for the development of ISM:

No.	CONTRIBUTION	DATE	SOURCE OF REFERENCE
1	Aristotle's articulation of Categories and Syllogism	Fourth Century, BC	Aristotle, 1983
2	Abelard's articulation of (but not naming of) Transitivity, Antecedents, and Succedents.	Twelfth Century, AC	Bochenski, 1970
3	Leibniz's Introduction of Graphical Symbolism to Portray Reasoning Patterns.	Eighteenth Century	Bochenski, 1970
4	Boole's Propositional Calculus and De Morgan's Theory of Relations.	Nineteenth Century	Bochenski, 1970
5	C. S. Peirce's Connection of Logic to Science in General.	Nineteenth - Twentieth Century	Brent, 1993
6	Harary's Development of Linkages among Branches of Mathematics	Twentieth Century	Harary et al., 1965

Table 3.5 Main Contribution in the History of Thought to the Development of ISM (Based on Warfield, 1997a)

In combination with the use of Mathematics, prose and graphics for model development, ISM sets the procedural basis for allowing the interaction of stakeholders

in the establishment of the relationships that compose the structural patterns of each model. The formal logic of ISM is embedded in an algorithm managed through computer software. As described in Section 2.8, in order to establish the relationships between ideas, the software displays on a public screen a question aimed at relating one pair of ideas at a time. The stakeholders are then engaged in discussing the possible answers to the question, and in so doing, they are involved in a focused dialogue concerning specific aspects of the situation under study. At this stage, the function of the software lies in ensuring model consistency and in minimising the number of questions that should be directly answered by the group of stakeholders. Through this process, the stakeholders gradually develop the structural models that are the final outcome of their IM activity.

Regarding the most basic characteristics of ISM, Warfield and Staley state:

"The design of the ISM process recognizes these aspects of modelling:

- Model consistency is necessary in order to comprehend any system, and to make possible action recommendations...
- Achievement of model consistency in the development of models is subject to severe human intellectual limitations, therefore machines must be used to ensure that the human achieves model consistency.
- The role of the machine in assuring model consistency is limited only to assuring consistency of relationships envisaged by human beings.
- The more the human beings involved encompass through their collective knowledge and experience the context of the situation involved and the scope of the joint effort to be carried out in model development, the more likely their integrated knowledge about complex situations will be found reliable.
- A variety of relationship types should be admitted and, within the types, a variety of specific instances shall be admitted.
- Where models require more than one type of relationship (i.e. composite relationships), complexity requires the composition to be done from component relationships to composite.
- The physical representation of relationships should be carried out for maximum readability.
- All structures produced should be unambiguously translatable into prose, requiring that chosen symbol systems shall not introduce uncertainty or opacity." (Warfield and Staley, 1996:56-57)

Since the use of ISM in particular, and of IM in general is directly related to a participative group effort, the next section will discuss group activity in the context of IM.

3.6 COLLECTIVE INQUIRY

Based on the idea that a participative approach is required to deal effectively with complex societal problems (Section 2.2), the development of IM and its conceptual framework has been largely characterised by thorough research into the foundations and means of organising participation. As a result, the IM process has been designed in terms of the management of group activity, through which a collective inquiring effort to address complex issues is carried out.

This section will discuss the design of such collective inquiry in terms of the meaning of participation portrayed in the IM process and the objectives attributed to group activity.

3.6.1 The Meaning of Participation

Starting with the recognition that participation of stakeholders is an important means of complying with the Law of Requisite Variety (Ashby, 1956) when facing complex situations, the meaning of participation within the context of IM has other equally important connotations. In general terms, it can be said that at least three basic meanings can be attributed to the participation of stakeholders in the IM process:

a) *Requisite Variety.*

As has just been stated, the participation of stakeholders is the main strategy proposed in the IM process to provide the variety required to deal with complex issues. The required variety is thus conceptualised in terms of the knowledge, experience, and interests of the stakeholders. From this point of view, and considering that the size of the IM groups involves a limited number of participants, one of the greatest challenges in organising an IM project consists

in designing appropriate ways of allowing for the participation of the most representative groups of people.

Within the context of providing the requisite variety to cope with complex situations, the IM process not only takes into consideration the importance of the individual contributions of the stakeholders, but also the aggregated contributions that result from the interactions of the stakeholders as they are involved in a learning cycle of mutual feedback.

b) *Democracy in Decision-Making: Promoting a Participative Culture.*

By justifying the importance of the participation of stakeholders in decision-making and providing a means to achieve it, the IM process also embraces the idea that a participative, democratic culture should be fostered in modern society. According to Warfield (1976) and Christakis (1993), decision-making processes need to become "democratised" in at least two senses. First, in terms of providing for "referential transparency", i.e., decisions and the rationale behind them should be clearly understood by the affected individuals. Second, the possibility should be open for the stakeholders to get involved, on an equal basis, in the decision-making processes that concern them.

c) *Ownership of the Process and its Results.*

Related to the two aspects of participation mentioned in (a) and (b) above, a third aspect of participation is also embodied in the IM framework. This third aspect is related to the need of direct involvement of the stakeholders in the process of dealing with the complex issues that affect them since, according to Ackoff (1981), the process is as important as its outcomes.

In many expert-based consultant interventions the expert (consultant) takes on the role of diagnosing the situation and prescribing solutions. As an alternative to this, IM espouses the idea that it is precisely by directly involving the stakeholders in diagnosis and prescription activities that the actual benefits of the whole IM intervention are obtained (Christakis, 1983). Among other implications, this view of participation promotes the development of ownership of the results by the stakeholders.

These views on participation that characterise the IM conceptual framework are consistent with Churchman's proposal: "There are no experts in the Systems Approach" (Churchman, 1979) since they emphasise the central role that should be attributed to the stakeholders in a systemic methodology. In addition, the concept of participation reflected in IM can also be related to Ackoff's idea that the only way to promote development is self-development (Ackoff, 1981). Through the participative group process that is promoted by IM, the stakeholders have an opportunity to reflect on the situations in which they are involved and to design the means of addressing those situations according to their own perspectives.

3.6.2 Objectives of Group Work

The central endeavour within the IM process refers to the collective inquiry that is carried out through group activity. The purposes attributed to this collective inquiry are related to the decision-making paradigm described as a "Cognitive Equilibrium" paradigm by Zeleny & Nappelbaum:

> "Modeling implications of the CE [Cognitive Equilibrium] paradigm are undoubtedly rich, challenging and far-reaching. However, its philosophical implications are even more intriguing:
> For the first time in history we are posed to understand decision making not merely as computation of the world given 'out there', but as the very way of constructing our local world, ordering our individual and collective experience, making sense of the 'chaos' of reality. Making decisions does not mean finding our ways through a fixed maze (problem solving) - decision making refers to the very construction of that maze - ordering of nature so that we ourselves can find our way through it ..." (Zeleny & Nappelbaum, 1990:7)

Thus, according to this view, group activity in IM is centred on the identification and/or development of patterns of interaction among the elements selected to represent a situation. Furthermore, the development of those patterns is focused on accomplishing the intelligence and design phases referred to in Section 3.4.3.

The task of developing the patterns that help in "ordering the collective experience" is undertaken under a broader perspective on the objectives of group work:

> "... the working group ... should reach a state of serenity in regard to (a) their understanding of the issue, and (b) their consensus on how to deal with the issue...
> Serenity in the individual and the group involves two major components... One of these components is cognitive equilibrium ... Cognitive equilibrium arises

> from a period of sharing of information and thought, including a period of development and sharing of patterns that define the issue and its proposed resolution... The other component of the state of serenity is emotional equilibrium. This condition grows from the elimination of doubt and the satisfaction of having finally reached a viable perspective on a complex issue. Emotional equilibrium means that the proposed resolution of the issue is compatible with both individual value systems of members of the group and with the intersection of these value systems which reflects group sharing of values." (Warfield, 1991:197)

Three aspects of the objectives attributed to group work within this perspective can be highlighted:

a) *A State of Serenity as the Central Purpose of Group Work.*

The idea of considering a state of serenity as the central purpose of group work when dealing with complexity supports the notion that participation, as conceptualised in Section 3.6.1, represents one of the most important concerns of IM. At the same time, dealing with complexity through a process of collective inquiry reflects the view that the "democratisation" of scientific inquiry needs to be promoted in the design and development of modern complex systems (Warfield, 1976; Christakis, 1993).

b) *Cognitive and Emotional Equilibrium as the Basis for Attaining a State of Serenity.*

Even though it is considered that a state of serenity involves both cognitive and emotional equilibrium, it is also recognised that the IM process primarily addresses the development of cognitive equilibrium in group activity:

> "Empirical evidence ... can only highlight the aspects of the group work that produce cognitive equilibrium. Emotional equilibrium cannot be highlighted by empirical results to date." (Warfield, 1991:198)

Also, it is worth noting, that the specific methods and the facilitated communication process on which IM is based do not incorporate any formal methodological prescriptions to deal with potential problems caused by conflictive social interaction:

> "Users should recognise that, whilst the methods [used in IM] are designed to encourage equal opportunity of participation, they do not have any formal procedures for explicitly analysing power differences and conflicts which may be present among participants in a group." (Janes, 1992:xix)

From this perspective, it could be said that the availability of well-trained and experienced facilitators as well as a thorough planning of the IM workshops play a major role in promoting the state of serenity referred to above. These elements do not emanate directly from the conceptual framework of IM.

c) The Meaning of Consensus Involved in this View of Group Work.

In most IM literature there is a continuous emphasis on the idea that IM groups operate within consensus-based procedures (Warfield, 1994a; Warfield and Cárdenas, 1994). However, as opposed to some general views on the meaning of consensus in which total agreement is searched for through thorough dialogue (see for example Section 4.5.2), the idea of consensus portrayed in IM is closer to Schein's perspective which does not imply unanimity (Schein, 1988). In IM consensus is related to the characteristics of the whole IM group process and not to each and every individual decision made by the group during the IM activity:

> "In practice, the word 'consensus' is used to signify a number of important characteristics concerning the participative nature of the methods [used in IM]. These are: that the meetings involved are conducted in an open fashion, whereby all participants have an opportunity to contribute through structured discussion of the issue being explored; that the ideas of participants are acknowledged by the group so that members feel that their views have been listened to and that they have had a fair chance of influencing decisions; that individuals can formally indicate their judgements, e.g., by voting; and that participants accept that whilst everyone may not be in complete agreement with all aspects of the products resulting from the use of the methods, they accept the outcome as a way forward." (Janes, 1995:54)

Since IM groups are involved in the collaborative development of models which represent the situations of concern and their possible solutions, the idea of consensus embraced here refers mainly to the shared understanding of the situations and the basic agreement as to the solutions that are built up as the IM process unfolds.

3.7 A CRITICAL PERSPECTIVE ON INTERACTIVE MANAGEMENT

According to the description of the conceptual framework of IM discussed in the previous sections, IM represents a participative approach for dealing with complex issues. From a critical point of view it is now necessary to examine some of the

strengths and weaknesses of the conceptual and methodological proposals of IM in order to understand better its contributions to address complex situations.

3.7.1 IM as a Soft Systems Approach

Jackson (1992) describes the main characteristics of soft systems thinking based on his study of the work of Churchman (1971, 1979), Ackoff (1981), Checkland (1981) and, Mason and Mitroff (1981). According to such a description, IM can be considered as a soft systems approach; this is illustrated in Table 3.6 which shows the characteristics of IM that correspond to the characteristics of soft systems thinking identified by Jackson (1992).

CHARACTERISTICS OF SOFT SYSTEMS THINKING ACCORDING TO JACKSON (1992:161)	CORRESPONDING CHARACTERISTICS OF IM
"All are concerned to cope with ill-structured problems, or messes, at the strategic level. All are opposed to tackling messes by the method of reductionism..."	Concern for dealing with complex situations and the emphasis on identifying relationships between elements. (Section 3.3.2)
"... Rather than attempting to identify and analyze systems in the real world, all ... approaches prefer to work with the different perceptions of systems that exist in people's minds..."	The cognitive orientation found in the concept of complexity on which IM is based. (Sections 3.4.1 and 3.5.1)
"... Multiple perceptions of reality are admitted and explored. Values are included explicitly rather than being excluded (in theory) from the methodological process..."	The emphasis on a participative approach through which the different perspectives and interests of stakeholders are considered. (Section 3.6)
"...The privileged role of experts in the systems approach is questioned..."	Relevance of the direct participation of stakeholders in addressing complex situations. (Section 3.6.1)
"... The aim in each case is to encourage learning so that an accommodation can be reached among participants involved with a problem situation."	Model development as a learning process and the meaning of consensus involved in IM group work. (Sections 3.5.1 and 3.6.2)

Table 3.6 IM as a Soft Systems Approach

Based on the perspective of IM as a soft systems approach, it can be said that the critiques addressed to soft systems thinking also concern IM. In this respect, Jackson (1992) identifies four of the main criticisms to soft systems thinking made by different authors (Chesterton et al., 1975, Rosenhead 1976, 1984; Bryer, 1979; Thomas and Lockett, 1979; Bevan, 1980; Jackson, 1982, 1983; Burrell, 1983; Mingers, 1984):

a) Soft systems thinking is biased towards a consensus view of the world where the possibilities of important social conflicts are not formally considered.

b) Since a consensual view of the world is adopted, participation is seen as the remedy for most social and organisational problems.

c) The efficacy of participation is sustained because soft systems interventions do not challenge the fundamental interests of their clients or sponsors.

d) The last criticism points out the weaknesses of the soft systems approach to promote change:

> "Finally, related to the other points .... soft systems thinking is criticized for its 'subjectivism' or its 'idealism', and for its consequent failure to come to terms with structural features of social reality such as conflict and power. The social world may very well be created by people, the criticism runs, but it is not necessarily created by them in the full awareness of what they are doing. Further, it is created by people who have conflicting aims and intentions and who bring different resources to bear when the social construction is taking place. It follows that the social world escapes the understanding and control of any one person or group of people. It takes place on the form of a highly complex and structured external reality that exercises constraint on the individuals who make it up.... [a] consequence of this idealism is that it limits [soft systems approaches'] ability to understand how change comes about and, hence, their ability to promote change." (Jackson, 1992:164).

According to Jackson (1992) these criticisms point to the need to understand the domain of application of soft systems thinking by recognising its limitations when dealing with situations in which the basic assumptions of soft systems thinking cannot be met (for example when there is no possibility of achieving open and free participation).

Besides the above, Jackson (1992) also relates the criticisms made to soft system thinking with the underlying philosophical and sociological assumptions of these approaches. In terms of the three cognitive interests of human beings identified by Habermas (1971), the technical, the practical and the emancipatory, Jackson (1992) associates soft systems thinking with the pursuit of the practical interest:

> "The main value of soft systems thinking, in terms of Habermas's schema, lies in the support it offers to the practical interest in promoting intersubjective understanding. All the methodologies considered offer effective means of securing and expanding the possibility of mutual understanding among individuals in social systems - whether through dialectical debate, focusing

attention on an idealized design, or engaging in a cyclic learning process... " (Jackson, 1992:168).

According to Jackson (1992) the technical interest in predicting and controlling natural and social systems is not really supported by soft systems thinking given their emphasis on reaching intersubjective agreements:

> "What the best queuing system is for a particular supermarket or what would be an effective information-systems design for a particular organization are not simply matters of intersubjective agreement." (Jackson, 1992:172)

Also, the emancipatory interest - concerned with freeing human beings from exploitation, manipulation and systematically distorted communication - is considered as being poorly served by soft systems thinking in general since conflictive situations, power relations and their influence on communication processes have not been formally addressed in the development of soft systems methodologies (Jackson, 1992).

From the point of view of the sociological paradigms identified by Burrell and Morgan (1979), Jackson (1992) associates soft systems thinking with an interpretive paradigm; such a paradigm is defined in terms of a subjectivist approach to reality and a regulation perspective on social systems:

> "One defining feature of the interpretive paradigm, according to Burrell and Morgan, is its subjectivist approach to social science... Theorists of a subjective orientation seek knowledge by attempting to understand the point of view of the people involved in creating social reality... The sociology of regulation concerns itself with understanding the status quo. By probing the different points of view of the actors in social systems, the soft systems approach can be seen as contributing to this end. It enables us to understand how social order is maintained at the ideological level. It does not greatly assist in the search for those structural contradictions that might be the cause of radical change. From the point of view of the sociology of regulation, social systems are seen as being basically consensual... All the soft systems methodologies admit that differences of opinion exist among actors in social systems. To be effective, however, they all depend ultimately on bringing about a genuine consensus or accommodation so that changes can be agreed upon." (Jackson, 1992:172-175).

The analysis of soft systems thinking proposed by Jackson (1992) highlights the contribution of soft systems approaches to address problematic situations by promoting learning and mutual understanding between different stakeholders. It also points out the weaknesses of these approaches regarding the problems posed by conflictive social situations where the influence of power relations could represent a major barrier to legitimise the communication processes involved in achieving social agreements.

Another weakness of soft system thinking identified by Jackson (1992) concerns the lack of attention to the technical interest defined by Habermas (1971).

3.7.2 Group Work as the Central Means for Promoting Participation in Dealing with Complex Issues

As it has been described in Chapter 2 and in Section 3.6 of this chapter, IM is based on the organisation and management of group work as its basic strategy to deal with complexity. Given the subjectivist perspective on complexity of IM and the recognition of the need to involve multiple perspectives in appreciating complex issues, group work becomes a natural arena for the communication processes required to develop shared languages, representations and agreements on the issues under study.

In this context, IM group work represents also the means to manage the participation of stakeholders in dealing with complex issues. Thus, the characteristics of the participation of stakeholders in IM group settings constitute an important aspect of concern for the effectiveness of the whole process. Among the contributions and limitations of IM in organising the participation of stakeholders, the following aspects can be mentioned:

a) *Participation of Stakeholders in Model Development.*

In accordance with the formal-logical base of the Science of Generic Design, group activity in IM is viewed as a process for developing structural models that help to identify relevant patterns of interaction among sets of elements that characterise a situation. Two important contributions of IM in this respect can be highlighted: i) the development of formal structural models provides the basis for seriously addressing complex issues, and ii) model development is directly carried out by the group of participants without requiring the involvement of specialists in formal model building; this characteristic of IM implies that any person could participate in the process without having to comply to any special requirement.

b) *Objectives of Group Work.*

In section 3.6.2 the objectives of group work were described according to Warfield (1991) in terms of the search of a state of serenity which involves cognitive and emotional equilibrium. The shared development of structural models constitutes a means of promoting cognitive equilibrium since the identification of patterns of interaction among the elements of a situation is meant to eliminate the sense of confusion produced by complex situations. However, emotional equilibrium is not so explicitly addressed in the conceptual framework of IM, and there is not a clear basis for promoting its development.

c) *Planning and Facilitation of IM Group Activity.*

As it was noted in Section 3.6.2, in order to foster the achievement of the objectives of group work, the IM process depends heavily on the performance of the facilitation team in planning and conducting the IM workshops.

These characteristics of IM, being a facilitated process and the establishment of detailed plans for each workshop, represent very important features of the design of IM for the effective organisation of group work. Planning and facilitation of the IM workshops are meant to address the main problems found in social interaction when dealing with complex situations. However, they also operate as limitations to the open and free participation of stakeholders in group work. As a facilitated process, it is the facilitator who controls the flux of communication between the participants. As a planned process, it is the facilitation team who establishes the activities in which the participants would be involved; furthermore, it is during the planning stage where the selection of participants is made .

d) *Contextual Influences on Group Work.*

The emphasis of IM on group activity seems to disregard the influence of social interactions that take place outside the context of organised group work.

From a sociological point of view, the social structure and the dynamics of social interactions that characterise the context in which group activity is promoted have an important influence on the outcomes and kind of participation that can be expected from group work. Studying several decision-situations reported in

literature (Janis, 1972; Allison, 1971), as well as specific studies carried out by themselves, Crozier and Fredberg (1977) identify at least three interrelated levels of analysis that are relevant to understanding how organisations deal with decision and change situations in complex environments: i) the definition of the problems to be addressed and the decision processes involved, ii) the organisational characteristics of the institutions involved, and iii) the political interpretations of the situation:

> "In this book [Victims of Groupthink, 1972] on groups of decision makers, Irving Janis greatly overestimates, in our view, the importance of interpersonal relations. He fails to notice the degree to which they are conditioned by the structural preconditions of the problem to be solved and by the pre-existing organizational system. Even if the leaders were properly engaged in group dynamics, this would not be enough to change the situation. (Crozier and Fredberg, 1977:299)

The lack of attention to the influence of these contextual aspects of group work is directly related to some of the criticisms of soft systems thinking mentioned in the previous section.

3.7.3 Structural Thinking and Formal Logic

Section 3.5 was devoted to discussing the characteristics and importance attributed to structural thinking in IM which is related to the formal-logical base of the Science of Generic Design mentioned in Section 3.3.1. Structural thinking - thinking in terms of relationships - is formalised in IM through the use of Interpretive Structural Modelling (ISM). Thus, the contributions and limitations of IM in this respect will be considered here in terms of three general aspects of ISM: use of formal logic, procedural characteristics of ISM, and the ISM algorithm and its software support.

a) *Use of Formal Logic.*

The use of formal logic for model development in ISM provides a standard of reasoning which serves at least two purposes: to operate as a common ground for group members to explore relationships among sets of ideas, and to identify the structural patterns that derive from the relationships that are found. The possibility of attaining these purposes lies on the proper combination of three languages during the modelling process: mathematics, graphs and prose.

An important feature of the use of mathematics in this context is that logical consistency - a major criterion used for model development (Section 3.5.2) - is based on the property of transitivity (Section 2.8). Transitivity allows a logical inference to be made: if A relates to B, and B relates to C, then A relates to C, and it requires that the relationships could be established as a binary decision (A relates to B, or A does not relate to B).

When working in non-mathematical contexts, as is the case in most ISM projects, it is assumed that transitivity applies to some major types of relationships (as in some influence relationships: if problem A aggravates problem B, and problem B aggravates problem C, then problem A aggravates problem C). It is also assumed that it is possible to clearly establish whether or not the relationships hold true for each particular pair of ideas.

Even though these two assumptions have been openly recognised in the design of ISM and the need for a careful review of the final products of the ISM process has been identified (Warfield, 1976), it is nevertheless important to notice that the logical requirements of transitivity may impose artificial constraints on group reasoning and this could have a negative influence on the resulting structural models.

b) *Procedural characteristics of ISM.*

The basic group activity involved in ISM consists of exploring and discussing the existence of relationships between pairs of ideas, one pair at a time. The relationships to be established are presented before the group on a public screen in terms of specific questions to be answered. The implications of this activity are twofold.

On the one hand, the idea of concentrating group effort on the establishment of relationships in this way provides the basis for keeping groups focused on the issue under study, and helps to avoid a cognitive overload that is likely to affect the quality of thinking when people are forced to deal with a large amount of information. Furthermore, the nature of the relationships to be explored and the discussion that takes place among participants promote an in-depth level of reflection on relevant aspects of the situation. These characteristics of ISM set

the basis for the learning process that unfolds while developing structural models.

On the other hand, because of the repetitiveness of the procedure and the level of concentration required to establish the relationships, time management and group facilitation become crucial aspects of ISM. According to Janes (1992), in order to avoid the emergence of fatigue and boredom during this procedure, the facilitator should be an attentive observer of the group's attitudes and be able to foster a stimulating atmosphere for group participation.

c) *The ISM Algorithm and its Software Support.*

As was mentioned in Sections 2.8 and 3.5, the mathematical formalisms of ISM are embedded in the design of a software programme, which embodies the ISM algorithm to support group activity during model development.

For each specific set of ideas to be structured on the basis of a given relationship, the basic functions of the software are: i) to determine which pair of ideas should be considered by the group in order to answer whether or not the relationship holds true between them, ii) to establish all the relationships that can be logically inferred from the answers given by group members, iii) to determine the graphical characteristics of the resulting relational model so that a graphical structural model can be drawn (depending on the software version available the actual display of the structural model can be obtained); this function is normally called upon once the whole set of relationships has been established.

The most important contributions of these functions for model development can be synthesised in three aspects: i) logical consistency of the model is assured by precluding the possibility of establishing relationships that violate the property of transitivity, ii) the time of group members devoted to model development is minimised since they are not required to deal with all the possible relationships between the pairs of ideas; the software has an in-built procedure for maximising the number of relationships that can be established by logical inference, and iii) the possibility of translating relational models into unambiguous graphical models where the patterns of interaction among ideas can be visually identified.

From the point of view of the weaknesses of the ISM algorithm and its software support, one major shortcoming can be mentioned. Since during the modelling

process group members concentrate on only one pair of ideas at a time and they only explore a subset of the possible relationships, they do not have an explicit overview of the characteristics of the model they are building. As was mentioned in (b) above, this feature of ISM is helpful in promoting a focused dialogue and in avoiding cognitive overload; however, it also has two important implications for the characteristics of the final structural model that is obtained.

First, because of the learning process that takes place during model development, it is likely that some relationships established at the outset of the process may need to be reconsidered after some period of discussion of other relationships. If the participants are not aware of the need to reconsider previous decisions, model development may continue on weak basis and lead to unsatisfactory final models. This possible limitation of ISM has already been recognised by Janes (1992).

Second, the structural models developed with ISM are presented before the group of participants after the period of establishing relationships has finished. Up to this point the participants have only been working with one pair of ideas at a time and now suddenly they are confronted with an elaborated graphical array of ideas and relationships. This sudden exposure to the structural models implies a sort of "logical jump" between the work that has been done and its outcomes. Therefore, a crucial role of the facilitation team consists of adequately managing this presentation to avoid confusion and to help the groups in understanding the characteristics of the structural models and in interpreting them.

In order to minimise the problems that may derive from these two aspects of model development in ISM, Janes (1992) proposes the use of intermediate structures during an ISM exercise. An intermediate structure is a structural model that can be produced at different stages while the relationships between ideas are being established. The use of intermediate structures can help the groups of participants to become familiar with the characteristics of the structural models they are developing and to introduce the changes that may be needed before the final models are obtained.

The contributions and limitations of ISM that have been considered in this section illustrate the depth of thought which underlies the design of ISM as well as the

difficulties involved in promoting a formal-logical effort to participatively address complex situations. Regarding the characteristics of most of the limitations of ISM identified here, it is interesting to realise that, as it was considered by Janes (1992) in his own analysis of the limitations of ISM:

> "...it is noted that these [limitations] are 'potential' limitations in the sense that many need not be limiting provided that the IM user is aware of them and pays proper attention to preparation, implementation and facilitation of the ISM process." (Janes, 1992:126)

3.8 CONCLUSIONS

In the light of the different aspects of the conceptual framework of Interactive Management that have been discussed in this chapter, a set of general conclusions can now be drawn.

One of the major features in the development of IM has been the interest in promoting a scientific-based discipline to guide the construction of its theoretical and methodological framework. This effort has been characterised by an explicit attempt to establish a clear relationship between the theoretical and the methodological aspects of IM, and this is harmonious with the scientific ideal of "referential transparency" advocated by Warfield (1994a).

Regarding the three themes that have been presented as central to the IM philosophy: the study of complexity, structural thinking and collective inquiry, the following aspects can be highlighted:

a) The emphasis attributed to the perceptual nature of complexity and to the concomitant idea that dealing with complexity is basically a cognitive endeavour (whether individual or collective) is reflected in the fact that the methodological prescriptions of IM concentrate on the intelligence and the design phases required to address complex situations. These phases are basically associated with intellectual and communication tasks, as opposed to the implementation phase where the related tasks would be more concerned with "acting-on" the complex situations under study. Even though Warfield has recently referred to an implementation phase under the Work Programme of Complexity (Warfield

1997a), the methodological implications of this phase have not been yet formally incorporated in IM research.

b) Structural thinking, with its emphasis on developing formal structural models, and collective inquiry, with its emphasis on organising the participation of stakeholders, are two aspects of IM that complement each other in such a way that neither of them could be promoted without the other. In addition, these two aspects of IM, structural thinking and collective inquiry, could be thought of as the integrated global strategy proposed by IM for dealing with complexity.

c) The way in which collective inquiry is understood within the context of IM portrays the ideals of a participative model of decision-making, i.e., serenity, democracy, learning, and development, and IM proposes a structured and scientific-based process to approach those ideals. In this respect, some of the weaknesses of the IM process have been noted in Section 3.6.2 in the light of the difficulties involved in managing a social process designed to deal with complex issues.

d) The critical overview of IM presented in Section 3.7 has pointed out some of the most important contributions and limitations of IM. Within systems thinking IM has been described as a soft systems approach which contributes to the promotion of learning and mutual understanding in problematic social contexts. Considering the basis for participation embedded in the IM process, its lack of attention to the influence on group activity of structural characteristics of social systems - such as power relationships and conflictive situations - has been noted. Regarding the significant body of knowledge that has been developed to support structural thinking, the most important characteristics of the ISM method have been assessed to illustrate the relevance of the contributions of IM in this respect and to highlight the difficulties involved in the appropriate management of this process.

Given the importance of group activity in the IM process, the next chapter will be devoted to exploring the characteristics of small group behaviour.

CHAPTER 4

SMALL GROUP BEHAVIOUR

4.1 INTRODUCTION

Since the essence of the IM process is concentrated on planning, organising and conducting group activity in the context of face-to-face interaction, this chapter discusses the major characteristics of group behaviour in such contexts.

Starting with a section in which the kind of groups involved in IM activity are formally defined as small groups, the chapter proceeds with the description of the main aspects of small group behaviour. The aspects are Group Dynamics, the relevant variables in group behaviour, and group processes. In the final section some conclusions are presented regarding the IM groups in the general context of small group behaviour.

4.2 WHAT IS A SMALL GROUP

In general terms groups are considered as social units formed by sets of interrelated individuals. However, this basic notion does not help to make distinctions that are relevant for understanding group behaviour since groups may exhibit different behaviour depending on their size, history, form of organisation or purposes.

In order to identify the main features of the type of groups involved in the IM process, this section will examine some classifications of groups. Then, a definition of small groups will be proposed based on the idea that IM groups correspond to the type of groups so defined.

4.2.1 Some Relevant Classifications of Social Groups

Within the sociological tradition, one of the most interesting distinctions between groups is the one made by Tönnies (Timasheft, 1961). Social groups are seen in terms of the kind of relationships on which they are based and the distinction made is

between "Gesellschaft" (society) and "Gemeinschaft" (community). The second term (Gemeinschaft) corresponds to natural or informal groups, which represent a form of community that is born out of historical and emotional bounds. The first term (Gesellschaft) accounts for forms of social associations, which are based on some sort of "contractual" relationship. This distinction is particularly important regarding the political dimension of group behaviour since it helps to better understand the different ways in which these different types of groups deal with conflict and power issues.

Within the socio-psychological tradition, Cartwright and Zander (1968) propose a view of groups based on their origins. The idea is that the origin of group formation is an important influence for the development of group characteristics. Based on this view three types of groups are identified: i) deliberate formation - groups formed for a specific purpose; ii) spontaneous formation - like families and neighbourhoods; and iii) external designation - such as the groups formed as a result of racial or sexual discrimination; in this case perceptual segregation contributes to behavioural segregation.

Another comprehensive framework for differentiating various types of groups has been developed by Anzieu and Martin (1990). These authors propose a classification of groups based on the identification of seven key variables. The first column in Table 4.1 shows the variables proposed to distinguish the characteristics of the types of groups that are shown in the second column.

DISTINCTIVE VARIABLES	TYPES OF GROUPS
• Structure: degree of internal organisation and role differentiation • Duration: time of existence of the group as an entity • Size: number of members • Relationships Between Individuals: nature and intensity of the relationships • Effects on Beliefs and Norms: influence of the group in the individual members and the way in which it shapes its own identity • Goals Awareness: how conscious are the members of the group of its purposes • Common Actions: nature of the actions that are undertaken by the group as a whole	• Crowd • Band • Gathering • Primary or Small Group • Secondary Group or Organisation

Table 4.1 Types of Groups and Relevant Variables Distinguishing their Characteristics (Based on Anzieu and Martin, 1990)

Based on these three frameworks IM groups can be characterised as:

a) *Formal Groups. (Tönnies, referred to by Timasheft, 1961)*

As opposed to the notion of informal or natural groups, IM groups can be considered as formal groups in which the relationships between their members are mediated by some explicit or implicit contract, i.e., a kind of negotiation that implies an exchange of mutual benefits between the members of the group.

b) *Groups of Deliberate Formation. (Cartwright and Zander, 1968)*

IM groups are explicitly formed with the aim of organising and conducting the efforts of their members to deal with specific complex situations; therefore their formation is deliberate as opposed to spontaneous or perceptual.

c) *Small Groups. (Anzieu and Martin, 1990)*

According to the classification proposed by Anzieu and Martin (1990) IM groups correspond more directly to the category of small groups. Within this framework, small groups present the following characteristics: high degree of structure, short to long duration (days to years), relatively small number of

individuals, rich human relations, high level of goal awareness, and important common actions. These characteristics are manifested in IM groups in the following terms: a high degree of structure is mainly associated to the differentiation of roles established by the IM process, the duration of the IM workshops generally lasts for more than one day, group size varies from about 8 to 12 individuals, goal awareness can be at least identified with the explicit goals attributed to the IM effort, and common actions refer to the activities involved in the specific methods put in place during the workshops. In the case of the development of rich human relations it is important to note that Anzieu and Martin (1990) emphasise this characteristic since, in the context of this classification, they consider small groups and primary groups as belonging to the same category. Rich human relations involve for example the emotional bounds typically present in primary groups (such as the family), and it cannot be asserted that IM groups exhibit this characteristic.

4.2.2 Small Group Definition

In view of the three characteristics attributed to IM groups in the previous section, this section will now focus on a further discussion of the nature of small groups since it is considered that the main features of group behaviour associated with IM groups are encompassed in the study of small groups.

In order to synthesise the central ideas on what is the essence of social groups in general, and small groups in particular, various socio-psychological perspectives can be found. The majority of these perspectives are primarily based on different aspects of the relationships between the members of a group. Three of the most interesting and well-known approaches in this area are the following:

a) Interactionist Theory.

Represented by the work carried out by Bales (1950), the Interactionist Theory, as it is suggested by its name, highlights the relevance of the interactions among the individuals in a group setting.

> " A small group is defined as any number of persons engaged in interaction with one another in a single face-to-face meeting or series of such meetings, in which each member receives some impression or perception of each other

member distinct enough so that he can, either at the time or in later questioning, give some reaction to each of the others as an individual person, even though it be only to recall that the other was present." (Bales 1950, quoted in Shaw 1976:7).

This definition portrays the core ideas behind the development of Bales' method of Interaction Process Analysis (Bales, 1950) in which the aim is to understand group behaviour through the analysis of the interactions that take place among group members.

b) Interdependence Perspective.

Based on the Lewinian tradition (see Group Dynamics in the next section), a number of authors stress the idea of interdependence as the main concept underlying the definition of what a group is.

" A group is a collection of individuals who have relations to one another that make them interdependent in some significant degree. As so defined, the term group refers to a class of social entities having in common the property of interdependence among their constituent members." (Cartwright and Zander, 1968: 46).

In this definition, the phrase: "interdependent in some significant degree", denotes the possibility of identifying a variety of relationships (functional, emotional, physical) as focus of attention for understanding the nature of the bonds that tie together the members of a group.

c) Developmental Perspective.

The two perspectives discussed so far represent rather static descriptions of social groups in the sense that they do not consider explicitly the changes in the nature of group relationships through time. In contrast with these points of view, Douglas (1983) proposes a developmental perspective:

" All groups are collections of human beings. What determines the degree of 'groupness' must be at a very basic level, for example, the amount of time they spend in each other's company. Thus, if people congregate for noticeable periods of time then they lose some of the fluidity of a haphazard gathering." (Douglas 1983:31-32)

Thus, the time spent together becomes a major variable in identifying a group as such since it is through time that relationships are established and shaped:

> "[McGrath and Altman, 1966] ... comment that time is a fundamental dimension in small-group research and list three kinds of temporal relationships in group study: (a) the history of the group, (b) changes through time between sessions, and (c) the development of the group 'within-session'. Without the existence together over a period of time, a group, in the sense used here, cannot be said to have formed. Wright, Morris, and Fettig (1974) felt that 12 hours of contact between individuals as members of a group are essential for the group to have 'formed', i.e. become a 'group' in the sense of a definable entity." (Douglas, 1979:84-85).

Based on this brief account of the main ideas found regarding the nature of small groups, the following definition of small groups is proposed as a generic description of the type of groups involved in the IM process.

> *" A small group is a collection of a limited number of individuals who, through time, have face-to-face interactions and other kinds of relationships between each other that make them interdependent in some significant degree".*

The next section discusses some of the basic concepts describing Group Dynamics that are consistent with this view of small groups.

4.3 GROUP DYNAMICS

The term "Group Dynamics" was originally proposed by Kurt Lewin in 1944 (Anzieu and Martin, 1990) to give account of the nature of the socio-psychological processes that take place in a group setting and to account for the social fields of forces that are present in the collectivity. These fields of forces derive from a relationship of interdependence between the members of a group:

> "... the system of interdependence characterizing a group in a given moment, accounts for the behaviour and functioning of the group, for its internal functioning..., as well as for its actions over external reality. It is there where the force of the group lies, or better the system of forces that make it act or prevent it from action. The term Group Dynamics stems from these ideas to designate this particular method of group study." (Anzieu and Martin, 1990:85)

The Group Dynamics perspective is largely based on the application of Gestalt Theory and General Systems Theory to group phenomena, and it pays particular attention to the notions of energy deployment and, communication and feedback. These two concepts will be discussed next in more detail.

4.3.1 Energy Deployment

A view of group behaviour based on the Lewinian tradition emphasises its functional aspects in terms of the use of available energy (Anzieu and Martin 1990). This perspective relates Group Dynamics to Field Theory in Physics; as a social entity the group has a certain amount of energy that constitutes the main resource for its operation. The underlying model is illustrated in the next table:

$E = e + \mu$, where:	$E =$	the total amount of energy available for the group.
	$\mu =$	the energy that cannot be used by the group (latent)
	$e =$	the energy available for its actual use by the group
$e = e_p + e_m$, where:	$e_p =$	energy used in the production functions of the group (used for the instrumental activities of the group in search for its goals)
	$e_m =$	energy used for the maintenance functions (used for the activities needed to maintain group cohesiveness, and it includes the emotional dimension of human behaviour)

Table 4.2 Energy Use in Group Behaviour (Anzieu and Martin, 1990)

Thus, the available energy is divided in two sets, one for supporting group tasks, and the other for sustaining groups as socio-psychological entities. The distribution of the use of energy into these two functions is highly dependent upon the meanings attributed to group goals:

a) If the goals have a positive connotation for the members of the group (i.e., they are perceived as clear, meaningful and are accepted), then e_p tends to grow, and the group is considered a task-oriented or action-oriented group.

b) If the goals have a negative connotation for the members of the group (non-clear, meaningless or unsatisfactory), then e_m tends to grow, and the group is considered a "mundane" or socialising group.

Within this framework, maintenance functions are considered as a major factor affecting group cohesiveness, and therefore group survival. The use of energy for

maintenance purposes comprises two primary functions: facilitation of the necessary activities to support the production function (such as guidance and co-ordination) and, regulation, which allows the creation and maintenance of the socio-psychological conditions needed to support the other functions.

This description of group behaviour in terms of the use of energy helps to identify two aspects of behaviour, the procedural (related to tasks) and the socio-psychological (related to structure and development of interpersonal relationships). Figure 4.1 shows a diagram of the ways group energy may be used and distributed.

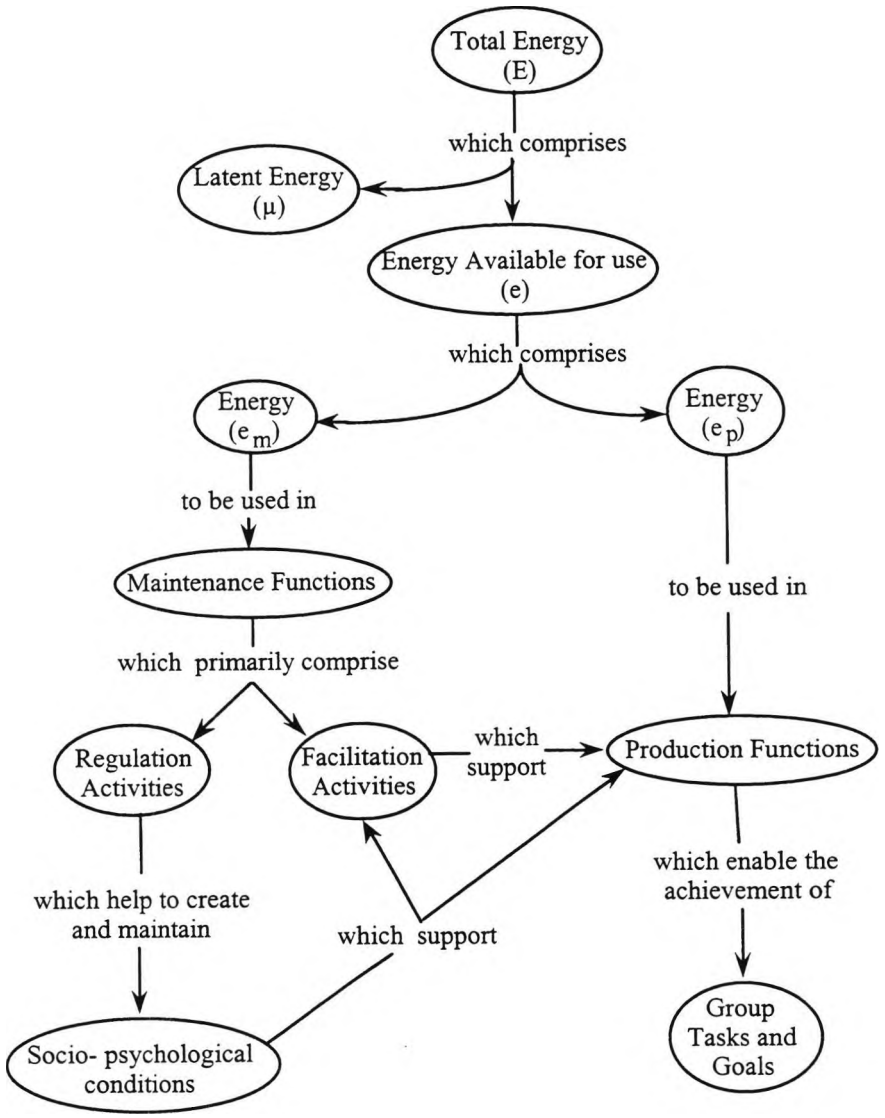


Fig. 4.1 Energy Deployment in Group Activity

4.3.2 Communication and feedback

The nature of social processes in groups is determined to a large extent by the interaction between their members; this interaction is mainly carried out through two different forms of communication processes: verbal and non-verbal communication.

The most well known and basic communication model is the cybernetic model developed in the context of Information Theory (Shannon and Weaver, 1949). This model comprises six major elements: 1) a transmitter, 2) a receiver, 3) a message, 4) a channel for transmission, 5) noise, and 6) a feedback mechanism.

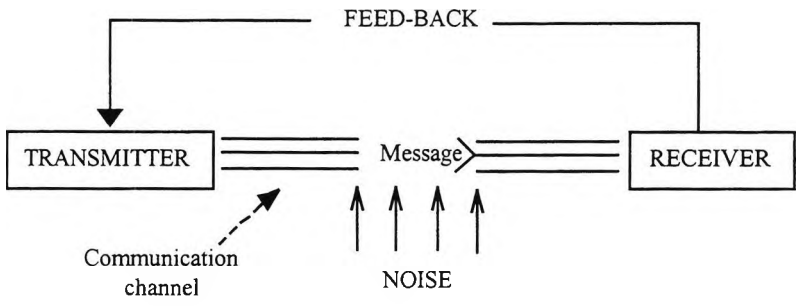


Fig. 4.2 Basic Cybernetic Model of a Communication Process

Since this model represents the formal communication model that traditionally has been used in automation and control engineering, Anzieu and Martin (1990) propose an enlarged version to introduce those socio-psychological aspects of communication that are particular to human interaction (Fig. 4.3).

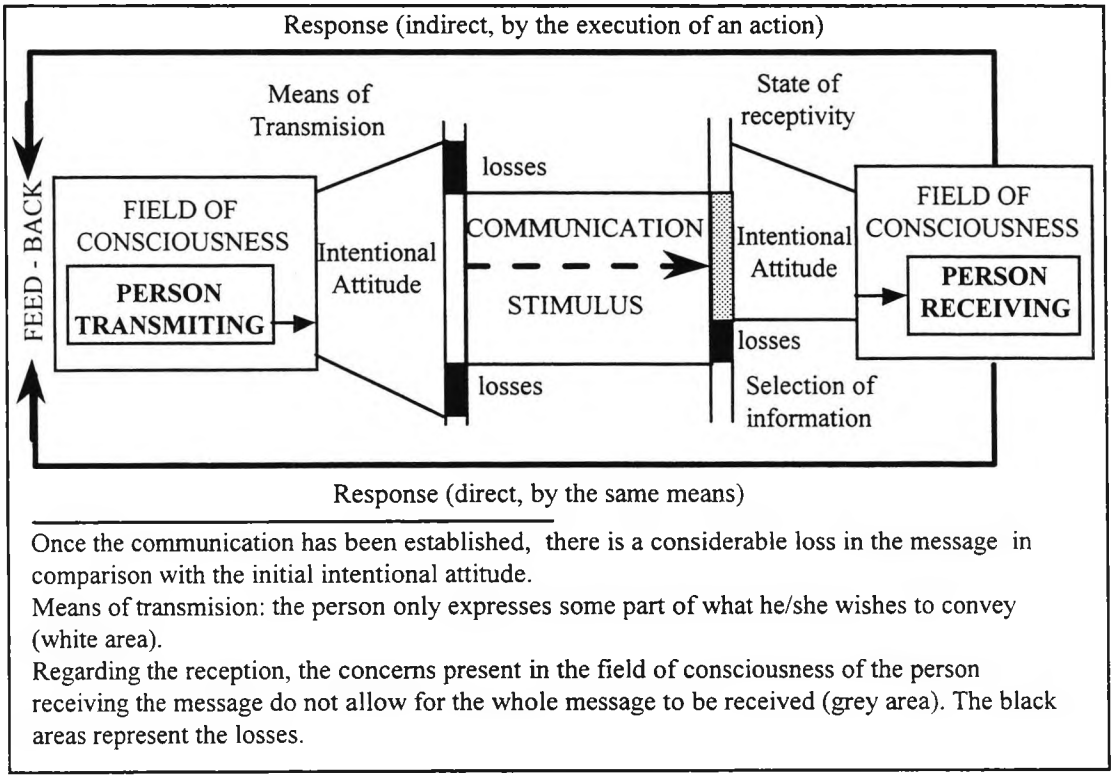


Fig. 4. 3 Schematic Analysis of the Communication between Two Subjects. (Anzieu and Martin, 1990:192)

Some interesting aspects of this way of conceptualising human communication can be noted:

a) The model highlights the mediating role of the virtual worlds of the subjects (represented by their fields of consciousness), as well as the influence of the purposeful nature of their relationships (intentional attitude).

b) The type of "noise" identified here refers to socio-psychological factors (such as the awareness of others' expectations and intentions), physical factors (such as lighting and acoustics), and physiological factors (such as the level of fatigue).

c) The effectiveness in communicating depends to a large extent on the quality of the language used and the mastery of the semantic problems that it poses.

Group communication and its feedback mechanisms have been one of the most widely explored subjects in Social-psychology. In the context of understanding the importance of feedback in Group Dynamics, a pioneer work was reported by Leavitt and Mueller (1951). This work stresses the influence of feedback not only on the effectiveness of communication itself, but also in shaping the relationships between the members of a group. Three of the most interesting findings of this work are:

a) *Feedback and Language.*

Regarding the use of natural language as a means for the accurate transmission of messages the authors note that:

> "Language ... may be thought of as a tool originally learned with feedback, but currently useful in a multitude of situations without simultaneous feedback to help us at least to get within range of our targets. But if the material to be communicated is relatively new and relatively precise, previously learned language may not be enough. Accurate transmission may require some additional contemporaneous feedback" (Leavitt and Mueller, 1951:435).

This idea is very relevant in the context of dealing with complex situations, as in the case of the IM process, since it highlights the importance of providing contemporaneous feedback in order to upgrade the communication possibilities of the language used in common situations.

c) *Feedback, Language and Time.*

Also related to the relationship between language and feedback, Leavitt and Mueller reported the results of a series of experimental studies regarding the characteristics and influence of various feedback modes on the development of a shared language. During these experiments they analysed the effects of imposing different constraints on feedback. By controlling the constraints to allow various degrees of feedback (from free feedback to zero feedback) they concluded that:

> "...The cost of feedback is time. But the difference in time between free feedback and zero feedback appears to decrease... Free feedback seems to permit the participants to learn a mutual language, which language once learned may obviate the necessity for further feedback." " (Leavitt and Mueller, 1951:443).

b) Feedback and Interpersonal Relationships.

The effect of feedback on interpersonal relationships was studied in another series of experimental situations and it was demonstrated that:

> "... the completion of the AB circuit [between two people A and B] produces other effects on the AB relationship. Feedback from both A and B can increase the certainty of B that he is getting the intended information, and the certainty of A that he is getting it across. This increase in certainty, assuming motivated participants, should have some effect on feelings of frustration or achievement and, hence, on the feelings of hostility or security that pervade the relationship." (Leavitt and Mueller, 1951:435)

The conclusion derived from these ideas lend support to the view that an appropriate feedback mechanism promotes the development of a positive group climate.

Considering what has been said so far, it is easy to see why feedback is a major factor affecting Group Dynamics. First, the possibility of minimising the level of distortion in interpreting a message depends heavily on feedback mechanisms; second, the effectiveness of the communication processes through which groups resolve their internal tension (maintenance function) and are able to attain their goals (production function) is mediated by the feedback mechanisms; and third, because of their primary role in group communication, feedback mechanisms underlie the development of most group processes. Group processes as well as some of the most important variables influencing group behaviour will be analysed in the next sections.

4.4 RELEVANT VARIABLES IN GROUP BEHAVIOUR

In order to better understand the varied and complex nature of behaviour in small groups, a distinction is made in this chapter between group variables and group processes. Group variables represent those aspects of the description of groups that are more easily associated with a static perspective, i.e., the characteristics of groups that can be observed in a specific moment in time. Group processes are related to the patterns of group behaviour through time and this will be the subject of the next section.

Group variables will be discussed in this section as classified in two subsets: population variables and internal structure variables. The variables of concern are shown in Table 4.3.

POPULATION VARIABLES		INTERNAL STRUCTURE VARIABLES	
a)	Size	a)	Physical Distribution
b)	Group Homogeneity	b)	Communication Structures
		c)	Styles of Leadership
		d)	Power Structures

Table 4.3 Relevant Variables in Small Group Behaviour

4.4.1 Population Variables

The population variables are the identifiable aspects of groups that describe the aggregated characteristics of their individual members. The two most basic population variables are:

a) *Size.*

As was mentioned in section 4.2, group size is an important variable influencing group behaviour. The larger the group, the more difficult are the communication processes which are influenced along with other aspects of group behaviour:

> "On the basis of this review it is apparent that group size has significant effects on aspects of individual and group performance, on the nature of interaction and distribution of participation of group members, on group organization, on conformity and consensus, and on member satisfaction..." (Thomas and Fink 1963:534)

Anzieu and Martin (1990) suggest a classification of groups based on group size specifically related to the concept that in French literature is known as a "constrained group". This classification identifies six categories: i) base groups (3 persons minimum, this being the minimal size required for a set of individuals to be considered as a group); ii) very small groups (3 to 5 persons); iii) small groups (6 to 13); iv) extended groups (14 to 24); v) large groups (25 to 50) and; assemblies (more than 50 persons). This classification accounts for the important differences that appear in group behaviour as the size varies, in particular the authors mention the difficulties in conducting a group as the size grows, and the level of formality in structure that is required for the group to accomplish different tasks.

b) *Group Homogeneity.*

There are many characteristics associated with the level of homogeneity of group membership, some of these are the age, culture, education, social status, and gender of the group members. Group homogeneity plays an important role in group behaviour specially regarding two aspects:

i) Communication processes. For example, the differences in culture and education have an important influence on achieving mutual understanding (Anzieu and Martin, 1990); and

ii) Role differentiation and development of group climate. These processes are deeply influenced, for instance, by differences in social status among group members since these processes are partially developed depending on the perceptions that the members of the group have of one another.

4.4.2 Internal Structure Variables

Internal structure variables refer to the way the relationships of the members of a group are organised; they represent the underlying structure upon which all group activity is carried out. Among the variables considered relevant in this category are:

a) *Physical distribution.*

Physical distribution is a factor characterising the physical environment of groups. It may play an important role in group behaviour since it could impose severe constraints on the communication patterns of the group.

> " ...the physical arrangement of group members determines to a significant degree the flow of communication and interaction in the group, the status assigned to group members, and the emergence of leaders" (Shaw 1976:137).

Physical distribution is mainly related to the geographical or spatial arrangements that mediate the communication between the members of a group. In the case of small, face-to-face, groups physical distribution is mainly related to the seating arrangements of group members. Some specific concerns of the

studies related to physical distribution include the management of territoriality, use of personal space, interaction distance, and seating preferences.

b) *Communication Structures.*

Communication structures are generally understood in terms of the communication channels that are open to the members of a group, and an important part of the researches on this subject focus on the communication networks that represent the geometrical characteristics of the communication channels (Bavelas, 1950).

> " ... the number and arrangement of communication channels among group members exert a powerful influence upon the group.... If the group is to function effectively, its members must be able to communicate easily and efficiently". (Shaw, 1976:138)

Two other important aspects of communication structures are: the difference between facilitated communication processes and non-facilitated ones, and the means through which communication is carried out (verbal, written, through computer, with visual contact or without it).

Perhaps the central factor associated with the relevance of the characteristics of communication structures in a group setting concerns the level of freedom allowed to group members during the communication process. According to this perspective, the communication structures are defined in terms of the form and means of communication available to group members.

c) *Styles of Leadership.*

Most of the studies devoted to analyse the influence of the styles of leadership on groups, including the classic researches reported by Lewin et al. (1939) and White and Lippitt (1960), differentiate three basic types of leadership styles: autocratic, democratic and laissez-faire. The impact of these styles of leadership on groups is mainly considered in terms of the effect they have on group satisfaction and on group performance. The results of the various studies are very homogeneous regarding group satisfaction, but not quite so conclusive concerning group performance:

> "It is evident that, although different terms are used, these several researches are dealing with similar leadership variables. In each instance, a directive

leader is compared with a nondirective one. The results concerning the group members' reactions to the group are entirely consistent across a wide range of situations and groups: Members of groups with nondirective leaders react more positively to the group than do members of groups led by directive leaders. The evidence concerning productivity is inconsistent..." (Shaw, 1976:278)

"Similar experiments, often repeated and extended to adults, have always shown the superiority of the democratic leadership style, not only from the point of view of participants satisfaction, but also from the point of view of the group performance." (Anzieu and Martin, 1990:228).

Given the outcomes of these studies, it is clear that leadership styles are an important variable influencing group behaviour. There is enough evidence of the positive influence of democratic styles on group satisfaction, but its impact on group performance should be further investigated.

d) *Power Structure.*

Power is generally considered as the ability of one person (A) to control or influence another person (B) (Shaw, 1976:262). The most common ideas found in socio-psychological literature indicate that the sources of this influence lie basically in two aspects: i) A's control over resources that are significant to B (such as money, information or formal authority) and, ii) B's motivation to comply with A's influence (such as identification, fear of punishment, or desire for a reward). Power relationships are likely to influence the communication patterns of a group and the social climate or group atmosphere that develops during groups' lifetime:

"Variations among group members with respect to power are likely to influence group process in several ways. The powerful group member(s) elicits reactions from other group members that are different from those elicited by less powerful members; the behavior of the individual group member is influenced by the relative amount of power that he or she possesses; and the power structure of the group determines to some extent the kinds of products produced by the group" (Shaw 1976:264).

Power relationships, and the way groups assign and react to the distribution of power, play an important role in the initial structure of groups and also influence their subsequent development; this influence is particularly significant in the case of organisational settings where formal hierarchical structures tend to

promote inflexible power relationships which some groups may not be able to overcome.

Having discussed two sets of group variables (population and internal structure variables) it is important to point out that the effect of these variables on group behaviour is largely dependent on their interaction, i.e., different combinations of these variables may have different effects on group behaviour. Also, it is important to note that the specific features of these variables at any given moment may change through time not only as a result of external influences (changes in membership, for example), but also because some of them are shaped according to the different group processes that take place during group activity.

4.5 GROUP PROCESSES

Group processes constitute those aspects of group behaviour that can be identified as patterns of behaviour and which are the manifestation of recurrent group phenomena:

> "...there is more than ample evidence that those who work with groups can and do recognize behaviours that cluster in particular ways not only in terms of the nature of such behaviours, but in the frequency of their occurrence and their intensity, and in their spread or diffusion through the group, which, in time, actually create either a structure, a movement, or some more amorphous though readily recognizable ambiance. It is these creations and the means by which they are created and maintained that form the group processes... one way of describing group processes is to say that they are not orthogonal. They overlap; parts of some are identical to parts of others - they are not mutually exclusive" (Douglas, 1983:60).

The large interest attributed to group processes in socio-psychological research has resulted in different classification schemes. One of the most interesting accounts of these efforts is the classification of group processes proposed by Douglas (1979) since it encompasses most of the group phenomena and processes described by other authors (Table 4.3). One interesting remark concerning the description of group processes refers to the fact that these processes are not independent from one another:

CATEGORY	SPECIFIC GROUP PROCESSES
1. Basic	Interaction
2. Structural	Social Structure Subgroup Formation Group Development
3. Locomotive	Purpose and Goal Formation Decision Making
4. Molar	Norms, Standards and Values Cohesion Group Pressure Climate

Table 4.4 Classification of Group Processes (Douglas 1979:53)

The discussion of group processes presented in this section is based on this classification but emphasises the aspects of group processes that are particularly relevant in the context of small groups as these were defined in section 4.2. The only category of the above classification not considered explicitly in the following discussion is number 1 (basic) which only includes the process of interaction; this is so because that category was implicitly covered in sections 4.3 and 4.4 when dealing with communication, feedback and communication structures.

4.5.1 Structural Group Processes

Structural group processes are those patterns of group behaviour that are oriented towards the establishment of stable arrangements of relationships between the members of a group.

> "...[these] processes are largely defined as 'group-building' processes and are therefore identified as 'structural'. By this is meant that they are instrumental in effecting change in the group regarded as a discrete entity or as a system." (Douglas, 1979:53).

The structural group processes are: social structure; sub-group formation and; group development, and are discussed in the following paragraphs.

a) *Social Structure.*

Social structure refers to the relative position the members of a group hold with respect to one another regarding elements such as power, status or roles:

> "There are conflicting views about what social structure actually is, ranging from structures which develop naturally within a group over time to those which may be imposed from without... structure is seen as recognition of the positions members hold in relation to one another, which occur frequently enough to have some stability on several major parameters" (Douglas, 1979:58).

Since power and status have been already referred to in the previous section, this section will concentrate on role differentiation.

When a group is formed it is possible to observe the development of certain patterns of behaviour that are attributed to specific persons within the group; these behavioural patterns constitute the roles assigned to those people.

> "In its most strict definition, the concept of role refers to the set of expectations shared by the members of the group, regarding the behaviour of a person who occupies a certain position in the group" (Hare 1985:156).

There are various classifications of the roles that may be observed in a group setting. Shaw (1976) distinguishes between expected, perceived and enacted roles. Bales and Hare (Hare 1985) identified schemes of role differentiation related to the functions and attitudes observed in different individuals (such as positive or negative attitudes). In general, many authors coincide in asserting that role differentiation is a group response to the need for specialisation in order to accomplish its functions. Within this perspective, there are two basic types of roles: those centred on the task (such as clarification of goals or presenting proposals) and those centred on the maintenance function of the group (such as encouragement in promoting participation).

b) *Sub-group Formation.*

Sub-group formation consists of the emergence of smaller groups within the context of a larger central group. Among the variables that have been studied related to sub-group formation are: size, heterogeneity in group membership, agreement on group goals and decisions, and other situational factors. In most cases sub-group formation is associated with a low level group cohesion, and sometimes it results in the development of coalitions. According to Gamson

(quoted by Shaw 1976) coalitions arise in situations where there are elements of conflict and co-ordination at stake:

> "Conflict exists in the sense that there is no outcome that maximizes rewards for every group member; coordination is involved in that there exists for at least two persons the possibility that they can do better by coordinating their efforts than they can by acting alone" (Shaw, 1976:101).

Coalitions of subgroups have the effect of precluding the possibility of balanced participation of group members affecting the whole group performance. Other forms of sub-groups relate to factors such as affinity or status. In any case, whether a true coalition appears or weaker forms of sub-groups are present:

> "Sub-group formation is a matter of alliance either to further influence attempts or in order to generate increased security in the company of like-minded members" (Douglas, 1983:68).

c) *Group Development.*

Group development is generally associated with phases or stages that characterise group behaviour at different moments in time. These phases are related to the attainment of group goals and to the achievement of stable states where group needs could be better satisfied. Two of the most well known group developmental models are Bales' "Phases in Group Problem-Solving" (Bales and Strotdbeck, 1951), and Bion's "Basic Assumptions Model" (Bion, 1961). These models offer complementary views on group development: Bales' model concentrates on sequential phases of group problem-solving tasks (Bales and Strotdbeck, 1951), while Bion's work (1961) is concerned with the non-conscious and emotional drives that characterise group emotional life at different moments in time.

Based on the above models of group development and on the work of some other 50 authors, Tuckman (1965) proposed a developmental sequence model, which seems to synthesise the main findings in this field:

> "Groups initially concern themselves with orientation accomplished primarily through testing. Such testing serves to identify the boundaries of both interpersonal and task behaviours. Coincident with testing in the interpersonal realm is the establishment of dependency relationships with leaders, other group members, or preexisting standards. It may be said that orientation, testing, and dependence constitute the group process of **forming**.
> The second point in the sequence is characterized by conflict and polarization around interpersonal issues, with concomitant emotional responding in the task

sphere. These behaviours serve as resistance to group influence and task requirements and may be labeled **storming**.
Resistance is overcome in the third stage in which ingroup feeling and cohesiveness develop, new standards evolve, and new roles are adopted. In the task realm, intimate, personal opinions are expressed. Thus we have the stage of **norming**.
Finally, the group attains the fourth and final stage in which interpersonal structure becomes the tool of task activities. Roles become flexible and functional, and group energy is channeled into the task. Structural issues have been resolved, and structure can now become supportive of task performance. This stage can be labeled as **performing**..." (Tuckman 1965:396 - 398).

In a subsequent paper, Tuckman and Jensen (1977) revisited the original model and added a final stage called "adjourning" which is the label they give to the period in which groups come to an end, a period in which the task is centred around finding ways to mark the end of a group's life.

4.5.2 Locomotive Group Processes

Locomotive group processes refer to those group behaviours that are mainly related to the production function of groups since they are regarded as the ways through which groups move towards the attainment of their goals; they include:

> "... those factors which create and 'move' a group towards its operational ends. In this sense these processes are directly and indirectly concerned with outcomes..." (Douglas, 1979:53).

The processes comprised in this category are:

a) *Purpose and goal formation.*

Orientation towards purposes and goals is a feature attributed to group behaviour by most authors. The idea that groups behave in terms of a search of some ends is often explained as a part of the motivational systems of groups, and the purposes groups may explicitly or implicitly follow are not constrained to task-oriented issues. Groups can also be oriented towards the satisfaction of socio-psychological needs. Based on Whyte's (1960) distinction between "natural" and "functional" groups, Douglas (1983) helps to clarify the differences in orientation towards purposes:

> "... So Whyte's distinction lies in whether a group form arose to meet or accommodate the exigencies of an 'in-process' situation and in that sense is a

spontaneous growth from that situation, or whether a conscious effort is directed to the establishment of a group form 'designed' to cope with a situation and to facilitate a predicated outcome" (Douglas 1983:37).

The importance of purpose and goal formation lies in the effects it has on group behaviour and effectiveness. On the one hand, the level of understanding and acceptance of group goals by their individual members impinge upon the way groups get organised in order to accomplish such goals. On the other hand, the individual differences in interests and perceptions of group goals could foster or inhibit the emergence of different behaviours such as co-ordination, competition, or subgroup formation.

"...group members commonly differ, to some extent, in their perceptions of the group goal and, especially, in the degree to which they are committed to achieving it. In some instances, group members hold different goals for the group, or they hold different individual goals that can only be achieved through group action. These differing individual orientations have powerful effects upon the behaviors of group members and upon the products of the group" (Shaw 1976:324).

Figure 4.4 summarises some of the most important issues concerning group effectiveness in attaining purposes and goals.

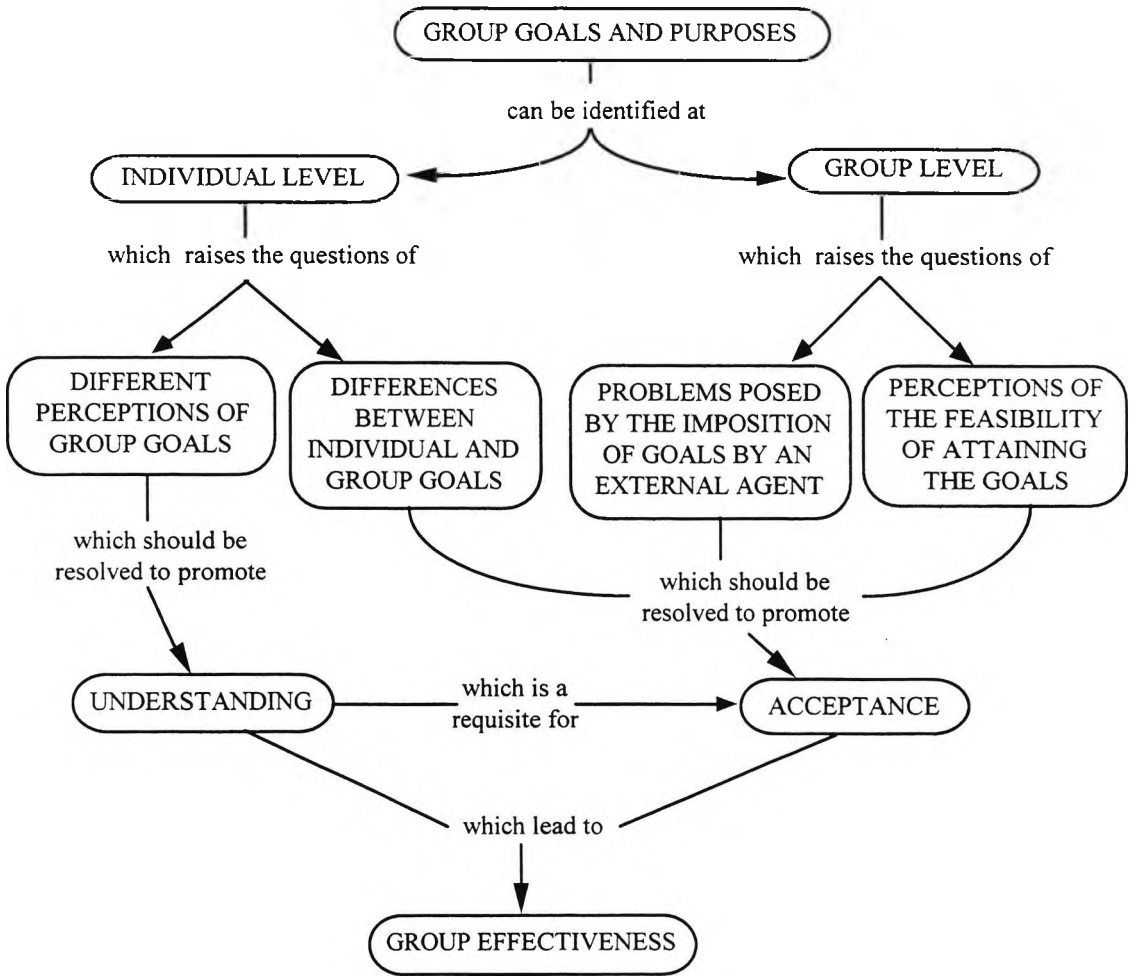


Fig. 4.4 Some Major Factors Influencing the Achievement by Groups of Purposes and Goals

b) *Decision-making.*

Decision-making is a process occurring when groups face different alternatives for action or when there is a need for agreement about particular issues. This process is closely related to the internal structural variables analysed in section 4.4: communication structures, styles of leadership and power structures are important characteristics of decision-making. Among the distinguishing elements of the decision-making process, Beebe and Masterson (1986) describe six methods for group decision-making originally identified by Brilhart (1982):

> *Decision by Consensus*: ... consensus occurs when all members of the group agree on a particular course of action. This method is time-consuming and difficult to achieve, but group members are usually satisfied with the decision.

This method is desirable particularly if the group members must also implement the solution.

Decision by Majority Vote: Majority rule is a democratic procedure that can be used efficiently to make swift decisions but that can also result in an unsatisfied minority. The group may sacrifice decision quality and group cohesiveness for efficiency unless time is allotted to discuss the issues.

Decision by Expert: An expert decision occurs when a group member or an individual outside the group is invited to make a decision based on his or her expertise. While an expert may well produce a fine decision, the group loses the advantages of greater input and a variety of approaches if it abdicates its decision making to an expert.

Decision by Leader: This approach may or may not include group consent. This too, can be an efficient decision-making method, but without adequate discussion the group may be less satisfied with the decision.

Random Choice: This method is not recommended for use by groups who take their decision-making task seriously. Flipping a coin or making a decision by lottery is usually a sign of desperation which negates the need for group discussion.

Averaging Individual Rankings or Ratings: While this method can be useful as a discussion starter to see where the group stands on a particular issue, it does not take advantage of group members' various talents and resources." (Beebe and Masterson, 1986:159).

Among these methods, decision by consensus seems to be the best means to achieve group satisfaction because it promotes serious involvement:

" ... there is consensus precisely when the group doesn't fall in an easy agreement, but when instead it obtains an agreement which is developed arduously. Consensus... is an agreement composed of an active acceptance of oneself and of the others, and of the relationship one-to-others" (Muller, 1965, quoted by Anzieu and Martin 1990:180)

One important group phenomenon associated with decision-making is the emergence of conflict. According to Anzieu and Martin (1990), conflicts may be present in different proportions, can be latent or explicit, and may be substantial or affective:

"a) substantial conflicts, which are related to the content of the discussion, and are associated with an intellectual opposition between the participants; and b) affective conflicts, of an emotional nature, related to the interpersonal fights that tend to make that one choice prevail over the others." (Anzieu and Martin 1990:179)

The ways through which groups deal with conflict are largely influenced by the molar processes (section 4.5.3) such as the formation of norms, standards and values, development of cohesion, group pressure, and group climate. In general, many authors agree in considering that the most effective manner for dealing with conflict is through open and profound dialogue and therefore by promoting the primary mechanism for achieving consensus.

Another relevant group phenomenon associated with decision-making refers to a rather pathological behaviour sometimes exhibited by groups:

> " I use the term 'groupthink' as a quick and easy way to refer to a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members' striving for unanimity override their motivation to realistically appraise alternative courses of action... Groupthink refers to a deterioration of mental efficiency, reality testing, and moral judgement that results from in-group pressures..." (Janis, 1972:9).

Groupthink is characterised by: i) the illusion that the group is invulnerable, ii) collective efforts to rationalise and neglect undesired information, iii) a tendency to ignore ethical or moral consequences of group decisions, iv) stereotyped views of other groups, v) active pressure to change the views of any deviating member, vi) self-censorship of deviations from apparent group consensus, vii) a shared illusion of unanimity and, viii) the emergence of "mindguards" who take it upon themselves to guard the group against information not in accord with the group consensus (Janis, 1972). Groupthink overrides the effectiveness of feedback in group communication and seems to be associated to a pathological manifestation of the *Theory of Cognitive Dissonance* developed by Festinger (Festinger and Aronson, 1968):

> "The theory of dissonance ... [implies] that the simultaneous existence of cognitions which in one way or another do not fit together (dissonance) leads to effort on the part of the person to somehow make them fit better (dissonance reduction)" (Festinger and Aronson, 1968:125)

Festinger reported some dramatic cases in which cognitive dissonance avoidance created in-group situations where members of the groups developed beliefs that were totally outside the realm of factual reality, and yet group behaviour was based on those beliefs. However, cognitive dissonance avoidance, considered as a natural phenomenon, helps in understanding the psychological dilemmas faced

by group members when confronted with opinions and ideas that differ significantly from their own.

4.5.3 Molar Group Processes

Molar group processes correspond to group behaviours directly related to the maintenance function of groups; they account for the drive towards the establishment of group identity and permanence through time. These processes represent the key blocks in building the group sense of being a whole individual entity and are related to the way groups establish the links that tie its members together. The term "molar" is used as a metaphor derived from the basic unit used in Physics for measuring the quantity of mass in a particle (the unit is called a "mole"); in this sense molar processes describe the basic processes that contribute to develop groups' identity as individual entities.

a) *Formation of Norms, Standards and Values.*

Norms and standards are rules of behaviour explicitly or implicitly shared by the members of a group. The terms "norm" and "standard" are used indistinctly by many authors, though some consider a standard as a rule of behaviour imported from outside and which could become a norm if accepted by a group; in this document the terms will not be differentiated and will be used in the following sense:

> " A norm ... is an idea in the minds of the members of a group, an idea that can be put in the form of a statement specifying what the members or other men should do, ought to do, are expected to do, under given circumstances.... A statement of the kind described is a norm only if any departure of real behaviour from the norm is followed by some punishment" (Homans 1950:123).

Most authors agree in considering that norms have an instrumental value for groups, i.e., they help groups to deal with different aspects of their performance. Thibaut and Kelley (1986) for example, emphasise the value of norms as substitutes for informal influence since they reinforce the adoption of certain behaviours that otherwise could only be promoted through direct personal influence (power). In this sense, the formation of norms is directly related to the phenomenon of group pressure towards uniformity.

Some of the most important characteristics of the formation of norms found by different authors (Cartwright and Zander, 1968; Shaw, 1976; Sheriff, 1936; Thibaut and Kelly, 1986) are summarised in next table:

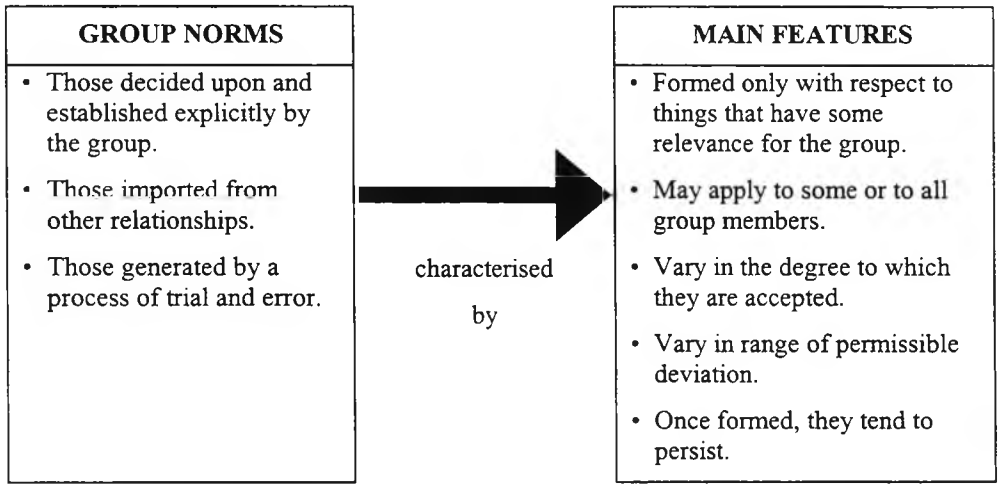


Fig. 4.5 Characteristics of Group Norms

b) Development of Cohesion.

The concept of cohesion plays a central role in the study of group behaviour. A most widely accepted notion of group cohesion is the following:

> " ... [cohesion] refers to the degree to which the members of a group desire to remain in the group ... the members of a highly cohesive group, in contrast to one with a low level of cohesiveness, are more concerned with their membership and are therefore more strongly motivated to contribute to the group's welfare, to advance its objectives, and to participate in its activities" (Cartwright 1968:91).

The development of group cohesion seems to be a process based on direct interaction, but which is mediated or catalysed by different factors. According to Cartwright (1968), the main determinants of group cohesion are:

i) The incentive properties of the group. Those characteristics of the group that may render it attractive for its members, such as the frequency and quality of interaction, and the group atmosphere.

ii) The motive base of its members. The compatibility of group goals regarding the individual motive basis of its members.

iii) Expectations concerning the outcomes. The perception of the possibilities of obtaining relevant benefits from belonging to the group.

iv) Comparison level. Individual perceptions of the benefits of membership as compared to previous experiences.

Cohesion plays a major role in the level of influence groups may exert over their members - the more cohesive a group, the more likely it is that its members will conform to group pressure -, and it is directly related to other aspects of group behaviour. Among the variables that have been most widely studied from this perspective are group performance and group satisfaction:

> " that group cohesion is a critical predictor of group behaviour is evident from the steady stream of research findings that link group cohesion to improved (or reduced) performance, increased satisfaction, and lower turnover in groups as varied as sports teams, therapy groups, product development teams, and undergraduate discussion groups." (Bettenhausen, 1991:364).

As can be noticed in the above statement, group performance can be influenced by group cohesion in two opposite directions: it can help to improve or reduce performance. An explanation of this apparently contradictory conclusion can be found in terms of Bernthal and Insko's (1993) distinction between task-oriented and socio-emotional cohesion. If socio-emotional cohesion prevails over task-oriented cohesion, group performance may seriously deteriorate and the emergence of phenomena such as groupthink (see section 4.5.2) are likely to happen:

> "The more amiability and esprit de corps among the members of an ingroup of policy-makers, the greater is the danger that independent critical thinking will be replaced by groupthink ... A high degree of amiability and esprit de corps among the members are manifestations of the high degree to which the members value their membership in the group and want to continue to be affiliated - that is group cohesiveness." (Janis, 1972:198).

Figure 4.6 illustrates the influence of these two dimensions of group cohesion.

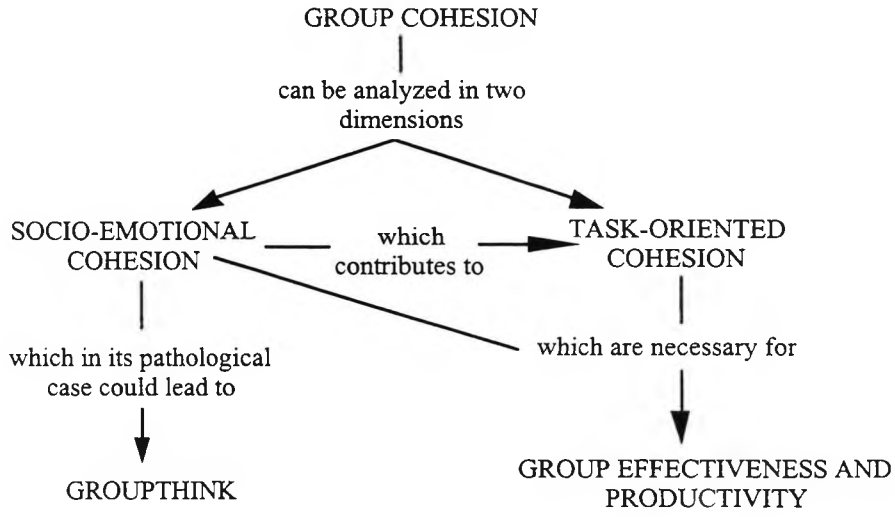


Fig. 4.6 Group Cohesion and its Two Dimensions

c) *Development of Group Pressure.*

Group pressure is considered as the main mechanism through which most group processes develop (Douglas 1983). Cartwright and Zander (1968) suggest that group pressure is related to a tendency towards uniformity in group behaviour. According to these authors there are four main functions that are facilitated by this homogenising pressure:

> "a) to help the group accomplish its goals, b) to help the group maintain itself as a group, c) to help the members develop validity or 'reality' for their opinions, and d) to help members define their relations to their social surroundings" (Cartwright and Zander, 1968:142).

Group membership implies the acceptance of group pressure to some significant degree. The actual influence of group pressure over group members is related to factors such as the level of cohesion, the presence of high status members, and the rewards and punishments the group may confer and impose on its members (Cartwright and Zander 1968). Therefore, individual responses to group pressure may vary considerably: Jahoda (1956) identifies four types of responses to group pressure: conformity, compliance, agreement, and convergence; Kelman (1958) proposes three types of reactions: compliance, identification and internalisation; Douglas (1983) makes four distinctions: conformity, compliance, identification and internalisation. The last four distinctions are described next in order to illustrate the implications of these different behaviours.

i) Conformity.

" ...Conformity is dependent behaviour. It requires that those it affects should be of equal status. It spreads by imitation. The requirement to conform is implicit and the conformist believes that his or her autonomy has been retained.... in general conformity means bringing one's behaviour within bounds defined as acceptable by group members and doing one's best to meet their expectation" (Douglas 1983:45).

ii) Compliance.

"Compliance equates obedience and appears to arise as an attempt on the part of an individual to attract reward and avoid punishment... the compliant person holds complying opinions and values lightly and does not believe in them..." (Douglas 1983:46).

iii) Identification.

"...to identify indicates a desire to be like the influencer and is concerned with attractiveness. Satisfaction in this case resides in taking on the values, opinions, and beliefs of the influencer, and creating a self-denying relationship." (Douglas 1983:47).

iv) Internalisation.

"... Conformity, compliance, and identification are relative transient responses to group pressure, internalization is not... [it] allows the influence to become independent of the source and an integral part of the internalizer. If the influencing agent, group or person, is perceived as trustworthy and as possessing good judgment, then the values and beliefs of that agent will become an integral part of the internalizer's value system." (Douglas 1983:47).

d) Development of Climate.

Group climate concerns mainly the emotional dimension of group activity; in its positive connotation it may be characterised by an atmosphere of loyalty and mutual support. According to Anzieu and Martin (1990), it was under the tradition of the psychoanalytical approach that the relevance of emotional factors became explicit in the study of group behaviour. They state:

"... in every group, in every moment, there is a central feeling, shared by all the members of the group, with individual shades. This feeling, normally unconscious, dominates the life of the group at all its levels" (Pages 1957b:335).

The development of group climate is directly associated with the development of socio-emotional cohesion and both are regarded as important aspects of the maintenance function of groups.

4.6 CONCLUSIONS

The discussion of small group behaviour presented in this chapter represents a general overview of an extensive field of study that has been the subject of much research in Social-psychology. The findings reported in this field illustrate the complexity and richness of human interaction as it is manifested in small group behaviour.

Among the different aspects which characterise small groups, one of the most interesting traits found is the dual nature of their behaviour, i.e., the orientation towards production (task-oriented) functions, and the orientation towards maintenance (socio-psychological) functions. These two dimensions of small group behaviour seem to pervade all group processes and recognition of them helps in understanding the need of small groups to make accommodations to meet the requirements posed by these two functions.

In the case of IM groups, these have been described as small groups not only because their size directly relates them to this category, but also because the time the group members spend together and the nature of their interactions contribute, to a certain extent, to the development of their socio-psychological identity as groups (see section 4.2.2). In this respect, it is important to note that the time IM groups spend together (typically from 2 to 4 days) and the nature of the interactions among their members seem to play a double role in the development of the socio-psychological identity of these groups.

On the one hand, the time spent together helps to promote group identity since it allows group members to become familiar with each other and to develop socio-psychological bounds; however, the duration of the IM workshops also constrains the development of a solid group identity since these groups are generally conceived as temporal arrangements of short duration. On the other hand, because of the nature of the IM process, groups in this context are meant to operate within a clear task-oriented direction, which involves formalised types of social interaction and thus their socio-

psychological orientation is expected to be subordinated to the accomplishment of their tasks.

Based on the discussion of small group behaviour presented in this chapter and given the characteristics of the IM process discussed in Chapters 2 and 3, it can be said that the IM process addresses directly the following aspects of small group behaviour:

a) *Communication structure.*

IM sets the basis for a balanced participation of group members in group discussions through the mediating role of a facilitator. As a facilitated group process, IM promotes the development of a communication structure which encourages the interaction among all the participants, and at the same time it constrains the use of some other forms of communication (such as direct dialogue with the facilitator and conversations which exclude some members of the group).

b) *Development of social structure.*

IM group activity starts by establishing a clear differentiation of task-roles between the facilitation team, the participants and the observers. The enactment of these roles is promoted and controlled all through the group activity.

c) *Purpose and goal formation.*

The formal purposes and goals of a group are defined during the IM planning activity. However, even though these purposes are normally communicated and often discussed with the participants before the actual group activity takes place, it is clear that the IM process does not provide an opportunity for the group to manage the process of purpose and goal formation on its own.

d) *Decision-making.*

During the participative development of structural models for understanding and resolving complex situations, IM groups are continuously involved in decision-making tasks. The IM approach for dealing with decision-making is based on the promotion of a facilitated focused dialogue. For each one of the multiple decisions involved in developing structural models, after a period of dialogue

takes place, the majority vote rule is used to determine the final outcome. This process denotes the particular view of consensus development embedded in IM (Chapter 3). The ideas on consensus mentioned in this chapter (Section 4.5.2) conceptualise it as an agreement about an issue, which is reached through deep personal involvement and after long periods of sharing and discussing ideas. In contrast with this perspective, IM proposes to "build-up" the consensus: on the basis of reaching substantial agreements in small fragments of a larger issue, and with computer support, a global perspective on the issue is progressively developed by the participants.

e) *Formation of norms.*

The differentiation of roles formally established at the outset of IM group activity entails the definition of the basic norms of behaviour that are associated with those roles. Since these roles are identified in terms of task-oriented functions, the corresponding norms are also related to these functions. Besides the above, the rules of procedure embedded in each of the consensus methods used in IM also represent the kind of norms that should be followed by the group members.

Besides the identification of these aspects of small group behaviour in which specific features of the IM process are reflected, it is also worth noting that the conceptualisation of IM group activity does not address directly some other important aspects of small group behaviour. In particular, regarding groups' molar processes it can be noted that only one (formation of norms) of the four processes included in this category is addressed directly by IM. The other three molar processes (development of cohesion, group pressure and group climate) do not seem to be directly addressed in the design of the IM process.

Now that the major factors for understanding small group behaviour in the context of the IM process have been discussed, the next chapter will concentrate in presenting Socio-Technical Systems Theory, the conceptual framework that has been chosen to be compared with IM.

CHAPTER 5

SOCIO-TECHNICAL SYSTEMS THEORY
= AN OVERVIEW =

5.1 INTRODUCTION

This chapter presents a summary of the Socio-Technical Systems Theory (STST) originally developed at the Tavistock Institute of Human Relations in the United Kingdom in the early 1950s. There is an important amount of literature available in this field and for synthetic purposes, this chapter concentrates on the background and main contributions of STST to modern systems thinking, emphasising the work done in the context of industrial organisations.

5.2 BACKGROUND

The work of the Tavistock Institute of Human Relations in this area started during the late 1940s and early 1950s, and it was originally related to studies carried out in the coal-mining industry in the United Kingdom (Trist and Bamforth, 1951). At that time, the emphasis given to the social aspects of organisations by the Human Relations School (Mayo, 1949) was having a strong impact on the views and practices of organisational management, and there was a general interest in following more social-oriented efforts to improve organisational performance.

In the case of the coal-mining studies, some technological changes introduced in different mining settings provided the basis for appreciating the strong relationship existing between the technological and the social factors of the situation. The term "socio-technical system" was derived to give account of that relationship and to emphasise that it was not only the social aspect, but also the technological one which has to be considered in any effort to improve the performance of a work setting.

Based on these views, and with the experience of other similar studies in various countries, a Socio-technical Systems Theory emerged under the leadership of men like

E. Trist, F. Emery, E. Miller, A. K. Rice and, D. Herbst (Trist and Murray, 1993). The development of a comprehensive body of knowledge in this area lead to the recognition that the work should be concerned with at least three levels of analysis:

> "Socio-technical studies needed to be carried out at three broad levels - from micro to macro - all of which are interrelated: i) Primary work systems. These are the systems which carry out the set of activities involved in an identifiable and bounded subsystem of a whole organization ... ii) Whole organization systems. At one limit these would be plants or equivalent self-standing workplaces. At the other, they would be entire corporations or public agencies... iii) Macrosocial systems. These include systems in communities and industrial sectors, and institutions operating at the overall level of a society..." (Trist, 1981b:39-40)

However, since the original efforts at the Tavistock Institute were basically focused at the level of primary work systems and whole organisation systems, the work related to these levels of analysis spread rapidly to other institutions and countries and became one of the most serious efforts in this field:

> " The sociotechnical systems approach is the most extensive body of scientific and applied work underlying employee involvement and innovative work designs today. Its techniques and principles derive from extensive action research in both public and private organizations across a diversity of national cultures." (Cummings and Worley, 1997)

A list of the some of the organisations and institutions in which research on STST has been carried out is presented in the following table.

LOCATION	INSTITUTE / ORGANIZATION
EUROPE	• Tavistock Institute of Human Relations. UK • Department of Continuing Management Education. Loughborough University. UK. • School of Business Administration. Erasmus University. Holland. • Work Research Institute. Oslo, Norway.
AUSTRALIA	• Centre for Continuing Education, Australian National University.
CANADA	• Ontario Quality of Working Life Centre. • Action Learning Group, Faculty of Environmental Studies. York University. Toronto.
INDIA	• National Labour Institute and Punjab Institute for Public Administration.
USA	• Center for Quality of Working Life. University of California, Los Angeles. • Department of Social Systems Sciences, The Wharton School, University of Pennsylvania

Table 5.1 Some Organisations and Institutes Directly Related to the Tavistock's Development of Socio-technical Systems Theory (source: Trist and Murray, 1993)

Because of the relevance and large scope of the concepts developed in this area, the emphasis in this chapter will be concentrated in presenting an overview of Socio-technical Systems Theory as applied to primary work systems and whole organisation systems.

5.3 GENERAL FRAMEWORK

The synthesis of STST presented here is organised in terms of the most general concepts that are considered as the basis of its development. These include the view of organisations as open systems; the socio-technical systems concept as such; some key issues related to organisational design, participation and democracy; and the particular emphasis attributed to primary work systems.

5.3.1 Organisations as Open Systems

STST has been highly influenced by the concepts and ideas developed within General Systems Theory. In particular, the open systems concept became one of the key

components of STST and, in analysing the effectiveness of an organisation, much attention was paid to the environment in which organisations are embedded. Four types of organisational environments were identified and it was found that modern organisations face a situation marked by highly complex environments:

> "... The new environment is called the turbulent field in which large competing organizations, all acting independently in diverse directions, produce unanticipated and dissonant consequences... The result is a kind of contextual commotion which makes it seem as if 'the ground' were moving as well as the organizational actors." (Trist, 1981a:39)

The features of this "turbulent field" place important demands on the abilities that organisations need in order to cope with the environment, and STST concentrated on the identification of the major factors that affect the ability of an organisation to produce satisfactory outcomes under this situation:

> " If we examine the factors influencing the ability of an enterprise to maintain a steady state in the face of these broader environmental influences, we find that... the technological component, in converting inputs into outputs, plays a major role in determining the self-regulating properties of an enterprise... The technological component has been found to play this mediating role and hence it follows that the open system concept, as applied to enterprises, ought to be referred to the socio-technical system, not simply to the social system" (Emery, 1959:5-6)

The importance attributed to the management of an organisation in a turbulent environment associated with the open systems concept, led to exploration of the notion of self-regulation and to the application of it to the study of organisations.

5.3.2 The Socio-Technical System Concept

The concept of socio-technical systems derives from two complementary views on work and organisations. On the one hand, it comes from the experience of the studies undertaken in the coal-mining industry:

> "So close is the relationship between the various aspects that the social and psychological can be understood only in terms of the detailed engineering facts and of the way the technological system as a whole behaves in the environment of the underground [mining] situation..." (Trist and Bamforth, 1951:11)

On the other hand, it derives from the acknowledgement of the requirements imposed by the environment regarding the way the social and the technological components of the enterprise are organised.

The study of an organisation in terms of a system consisting of both aspects, the social and the technical, led to the development of specialised types of analysis in which attention was paid not only to each one of these components separately, but also to their relationship and to the environment in which they were embedded.

This conceptualisation of socio-technical systems was further developed for application at three different levels of analysis: primary work systems, whole organisation systems, and macro-social systems. At the three levels the basic notion remains the same: there is an entity - a system - formed by two types of components - social and technical -, each one exhibiting features of its own, but which could not be treated independently. With the interaction of both components a new type of system emerges and its logic and performance should be recognised as such.

5.3.3 Organisational Choice, Participation and Democracy

Among the more important implications of looking at organisations as socio-technical open systems is the recognition that there are always different alternatives available for designing the way they operate; one of the classical works on STST was titled: "Organizational Choice" (Trist et al., 1963), a title which refers to the possibility of finding out different ways of designing an organisation. This notion of organisational choice is related to the property of equifinality attributed to living open systems (Bertalanffy, 1968), where a system is considered capable of attaining the same results through different means.

Organisational choice became a workable idea through the development of certain design concepts, three of which seem to be especially relevant:

a) *Alternatives to Hierarchies.*

> "Herbst ... produced a theory of alternatives to hierarchies. This involved, at the primary work level, work groups, matrices and networks. Primary work groups exist where the tasks are such that all members of the group can learn them..." (Trist and Murray, 1993:190)

The option of organising the work based on principles that differed from the traditional hierarchical structure, and particularly the idea of introducing work groups, brought into play the difficulties posed by the definition of how the work could be assigned to the different actors involved. New concepts were developed

to cope with the need to distribute the different tasks according to new schemes. Eric Miller (1959) provided a framework for analysing the basis on which the distribution could be done. Table 3.2 shows the three dimensions (territory, technology and time) found by Miller for this kind of analysis; the table also shows possible different combinations of those dimensions and some examples of the settings where they can actually be found.

Differentiated dimensions	Undifferentiated dimensions	Examples
1. Territory	Technology - time	Separate sections within a factory, or separate factories making same product
2. Technology	Time - territory	Shipbuilding
3. Time	Territory - technology	Typical multi-shift structure in process and other industries
4. Territory - technology	Time	a) Quasi-independent product units. b) Consecutive manufacturing operations
5. Technology - time	Territory	Longwall coal-mining
6. Time - territory	Technology	Mechanised road making with shiftworking
7. Territory - technology - time		Milk: collection, processing and bottling, delivery.

Table 5.2 The Seven Basic Forms of Differentiation at One Organisational Level (Source: Miller, 1959:397)

b) *Redundancy of parts vs. redundancy of functions.*

A second major idea in shaping the concept of organisational choice was the identification of what Trist and Murray call the "second design principle" (1993). This principle is related to the need to incorporate some redundancy in to the operation of a system in order for it to be able to adapt to its environment.

> " To achieve wide adaptiveness redundancy has to be built into the system... There are two basic ways that redundancy can be built in: i) By adding redundant parts to the system. Each part is replaceable; when one part fails, another takes over. ii) By adding redundant functions to the parts. At any one time some of the functions of any part will be redundant to the role it is playing at the time; as when a part fails in the function it is performing, other parts can assume the function; so long as a part retains any of its functional capabilities (i.e. functional relative to system requirements) it is of some value to the system." (Emery, 1976:214)

The second design principle refers to the concept of redundancy of functions and implies, among other things, the development of multiskilled personnel in a work setting. According to Trist and Murray this principle "had inherent tendencies toward participative (nonhierarchical) orders and evolutionary democratic principles" (1993:189)

c) *Minimal critical specifications.*

> "... Herbst... formulated the concept of minimal critical specifications in a design. In a rapidly changing environment such as that now obtaining, over-specified designs became obsolete before they were finished. The new way was to design in only those items which had to be dealt with immediately and to leave all else to be determined when more of the future environment became known. This open-systems approach involved continuous re-appreciation and learning." (Trist and Murray, 1993:190)

The concept of minimal critical specifications has the implicit connotation of providing the basis for the emergence of autonomous areas of decision making at various organisational levels.

Besides all the impact that the concepts just explained have had on the efforts oriented towards the improvement of organisational performance, they also provided the basis for the development of a new vision of industrial work: a conceptual setting to contribute to the idea of industrial democracy had been laid down, particularly as it is related to the participation of workers in decision making at the level of the tasks they accomplish.

> " Confusion regarding the forms and meaning of industrial democracy has persisted. Four different forms may be distinguished, all of which represent modes of participation and the sharing of power. They are: i) Interest group democracy, i.e., collective bargaining, through which organised labor gains power to take an independent role vis-à-vis management. ii) Representative democracy whereby those at the lower levels of an organisation influence policies decided at higher levels (workers on boards, works councils). iii) Owner democracy as in employee-owned firms and cooperative establishments where there is participation in the equity. iv) Work-linked democracy whereby the participation is secured of those directly involved in decisions about how work shall be done at their own level. These four forms may be found independently or together, in consonance or contradiction, and in different degrees in various contemporary industrial societies. The work-linked form has been the last to appear historically and is that with which the socio-technical restructuring of work is associated." (Trist, 1981b:50)

5.3.4 The Primary Work System

Since the initial studies in the coal-mining industry, the primary work system has been considered the "organisational building block" (Trist 1981a) and much effort has been devoted to basing the design of organisations on the characteristics and requirements found at this level of analysis. Within this level of design the organisational form that emerged as a salient feature of socio-technical studies was the establishment of semi-autonomous work groups. The design and implementation of these work groups became a central characteristic of STST:

> "The most prevalent application of the STST approach is *self-managed work teams*. Alternatively referred to as *self-directed work teams, self-regulating work teams,* or *high performance work teams*, these work designs consist of members performing interrelated tasks. Self-managed work teams are typically responsible for a whole product or service, or a major part of a larger production process. They control members' task behaviors and make decisions about task assignments and work methods." (Cummings and Worley, 1997)

According to Trist (1981b), some of the principles involved in the establishment of these work groups were:

> "• The *work system*, which comprised a set of activities that made up a functioning whole, now became the basic unit rather than the single jobs into which it was decomposable.
> - Correspondingly, the *work group* became central rather than the individual jobholder.
> - *Internal regulation* of the system by the group was thus rendered possible rather than the external regulation of individuals by supervisors...
> - It was *variety-increasing* for both the individual and the organisation rather than variety-decreasing in the bureaucratic mode." (Trist, 1981b:38).

Together with the above, a set of concepts and methods of analysis were gradually developed in order to deal with the challenge of discovering the best possible design for any particular organisational setting.

Emphasising the work done at the level of the primary work systems, in the following sections a brief account will be made of the specific concepts related to each of the components of a socio-technical system - the technical and the social systems; after that, the key concepts that provide the basis for the integrative study of these components will be analysed: joint optimisation and environmental considerations.

5.4 THE TECHNICAL SYSTEM

As was pointed out in the previous section, in the post-war period a general trend was observed towards the study of the social and human aspects of organisations. It was an important feature of the Socio-technical Systems studies to go against this trend by recognising that social factors could not be isolated from the technological component and, furthermore, that the technological component played a fundamental role in the ability of an enterprise to cope with its environment.

This point of view was supported not only by the empirical evidence obtained during the initial STST studies, but also by other important studies (e.g. Woodward, 1958; Burns and Stalker, 1961; Fensham and Hooper, 1964) that were already exploring the influence of technology on various organisational variables.

In the study of the technical system the emphasis was placed on production technology since it was considered that this technology represented the basic means through which the enterprise obtained the products that enabled it to compete in its environment. Among the various concepts developed for the analysis and understanding of the technical system, there are three central ideas:

a) In order to proceed with any design proposal at the primary work system level, the requirements of the technical system should be clearly understood so that they can be properly satisfied.

b) A set of specific dimensions for analysing the requirements of the technical system was identified, and it provided the general framework on which the methods of analysis in STST are based.

TECHNOLOGICAL REQUIREMENTS	TECHNOLOGICAL DIMENSIONS
a. The pure technical requirements (engineering). This implies a detailed understanding of the technical means as such: equipment, processes, tools, etc. b. The requirements that arise because the technical system has to be 'operated' by human beings. This perspective is related to the study of the social system and its realisation contributed to the development of the concept of "joint optimisation" which will be analysed in section 3.6.	a. The natural characteristics of the material being transformed. b. The immediate physical work setting c. The spatio-temporal dimension (the spatial layout and the spread of the process over time) d. The level of mechanisation or automation. e. The unit operations required completing the changes involved in production and the natural grouping of these units. f. The degree of centrality of the different production operations (the degree to which they command attention, effort and/or special skill). g. The maintenance operations. h. The supply operations. (which were considered to be a part of the boundary conditions of the work system)

Table 5.3 Requirements and Dimensions Found for the Study of the Technological Component of Socio-technical Systems According to Emery (1959)

c) The main strategy for analysing the technical system is based on the idea of "variance control", i.e. the technical system should be analysed in terms of the different possible deviations (variances) from its expected operation, in order to determine which factors have a major impact in attaining the goals of the system and how they should be controlled. Therefore the methodological guidelines and principles developed for socio-technical design are largely based on the concept of variance control which derives from the importance attributed to the Law of Requisite Variety (Ashby, 1956).

These are some of the initial concepts developed to undertake the study of the technical system. However, as was stated in Section 5.3.2, it was clearly recognised that the study of this system should not be carried out independently of the analysis and understanding of the social system; therefore, the global socio-technical analysis incorporates provisions to cover and integrate both aspects in its methods of study.

5.5 THE SOCIAL SYSTEM

The different aspects of the study of social systems in STST will be analysed in this section in terms of four major points: the meaning and relevance of social systems within the STST framework, the tasks groups and their work roles, the socio-psychological needs that should be satisfied within the context of a socio-technical system and, some basic characteristics of the task groups.

5.5.1 Meaning and Relevance of Social Systems within the STST Framework

The study of the social component of socio-technical systems is endowed with a prominent position within the development of STST since it is acknowledged that the social system should be considered in itself as both a means and an end as far as organisational design is concerned. The meaning and relevance of the study of the social system derive from two complementary perspectives:

a) *The flexibility of the social system to adapt and respond to organisational needs.*

> "Our principal concern is to examine that aspect of the socio-technical whole - the socio-psychological - within which the primary work group has relatively greater opportunity to develop various forms of work organisation within imposed technological and economic limits." (Trist et al., 1963:8)

b) *The concern for humanising the workplace in the face of the accelerated level of mechanisation brought about by the introduction of new production technologies.*

> " Socio-technical design ... [have]... a clear ethical principle associated with it. This is, to increase the ability of the individual to participate in decision taking and in this way to enable him or her to exercise a degree of control over the immediate work environment. It assists personal participation through organizing work in such way that decisions on how work shall be carried out are taken by the individual and the work group, rather than by the supervisor. In addition, through recognizing the interaction of technology and social organization and the need to try to optimize the behaviour of both of these, it increases productivity and provides an opportunity for individual learning and the development of multi-skills." (Mumford, 1996:70)

5.5.2 Task Groups and Work Roles

According to the importance attached to the concept of primary work systems, and based on the idea of promoting semi-autonomous group work, the most elaborate concepts of STST relating to the study of the social system are focused at the level of work groups. They are considered as the key social entity where the design efforts should concentrate, and are referred to as task groups.

In emphasising the importance of the social system it is also recognised that different possibilities for its organisation are related to the characteristics of the technical system. Therefore some specific elements of the study of the social system are defined in terms of its relationship with the technical system (here with reference to coalmining):

> " (a) the quality of the work roles to which each system gives rise through the division of labour.
> (b) the kinds of task group - the groups who together carry out given operations at the coal face and share a common paynote
> (c) the work culture - customs, traditions, and attitudes - which governs how these groups are built up and conduct themselves
> (d) the nature of inter-group relations between task groups making up the face team
> (e) the managing system through which the work of all faces in the seam is supervised, supported, and co-ordinated." (Trist et al., 1963:21)

With these ideas, Trist and others (1963) laid down the concepts on which the study of the social system is based (work roles, work culture, inter-group relations), and this helped to establish functionalism as the underlying social paradigm of STST:

> "We teach engineers that any social system must, if it is to survive, perform the function of Parsons' (1951) four subsystems. As we present them, these functions are attainment of the goals of the organisation; adaptation to the environment; integration of the activities of the people in the organisation, including the resolution of conflict whether task-based, organisation-based, or interpersonally based; and providing for the continued occupation of the essential roles through recruitment and socialization." (Cherns, 1976:62)

Thus, the understanding and eventual design of the socio-technical system should concentrate on the study of the work roles that are developed within each task group. The analysis of these work roles incorporates both the formal and the informal aspects of the activities of people at work:

> "By work roles are meant the jobs which people do every day and with which they become identified... A distinction must, however, be made between the

> formal or specified work role (the 'model') and the actual role which develops under a particular set of operating conditions... The delineation of work roles is .... to some extent a function of the period of time over which the role content is observed." (Trist et al., 1963:22)

5.5.3 Socio-psychological Needs of People at Work

One of the most important differences between the STST approach to social needs and the original approach followed by the Human Relations School is the emphasis made in STST on the intrinsic dimensions of job satisfaction, as opposed to its extrinsic dimensions.

The extrinsic dimensions refer to the provisions made by the organisation to motivate the workers through the establishment of means for rewarding the work done. These means may include rises in wages and salaries or special promotions that imply the satisfaction of needs that lie outside the scope of the work itself. On the other side, the intrinsic dimensions are related to the characteristics of the task itself and to the extent to which it is possible to develop a work organisation that is pleasant and challenging, and motivates the development of what Emery (1959) called "task orientation".

> "The two primary conditions for 'task orientation' to emerge seem to be those that underlie workers' task preferences, namely that: (a) the individual should have control over the materials and processes of the task; and (b) the structural characteristics of the task be such as to induce forces on the individual toward aiding its completion or continuation." (Emery, 1959:52)

The interest in finding out the most fundamental socio-psychological needs that should be satisfied in the work setting led to various accounts of the characteristics of a good job (for example, Emery, 1959; Trist, 1981a, 1981b; and Pasmore 1988), and these were addressed to the requirements at both the individual and the group level. A synthesis of the main elements to incorporate in the design of a socio-technical system in order to provide for an enriching human experience was proposed by Thorsrud (1972):

> "Thorsrud (1972) has identified six characteristics of a good job which can be striven for in the design of organisations and jobs. They are as follows:
> (1) the need for the content of a job to be reasonably demanding of the worker in terms other than sheer endurance, and yet to provide a minimum of variety;
> (2) the need to be able to learn on the job and to go on learning;

(3) the need for some minimal area of decision-making that the individual can call his own;
(4) the need for some minimal degree of social support and recognition in the workplace;
(5) the need for the individual to be able to relate what he does and what he produces to his social life; and
(6) the need to feel that the job leads to some sort of desirable future". (Cherns, 1976:69)

In spite of the fact that these general needs had been identified, it was also acknowledged that the human needs cannot be so easily generalised, and that every human being and every particular instance of a social system exhibits specific and dynamic needs. Therefore, a socio-technical study should always strive for the identification of the various human values and requirements present in each work situation.

5.5.4 Some Characteristics of Social Systems in a Socio-technically Designed Environment

As was mentioned in Section 5.3.4, the socio-technical design of work is largely based on the development of semi-autonomous work groups. These groups are formed according to the tasks that should be accomplished within a productive system. Among the most important characteristics of these socio-technical groups are the following:

a) *Learning and Self-regulation.*

STST highlights the importance of self-regulation as one of the main characteristics that should be supported within the establishment of work groups. Self-regulation is made possible only if the groups are empowered with enough decision-making capability to be able to respond to disturbances in an appropriate and timely way. Also, the self-regulation capability depends on the learning abilities of the group and, therefore, a learning environment should be provided for the group.

> "Both [Bion and Lewin] emphasized the capacity of the small group for self-regulation... A sociotechnical theory of the efficacy of autonomous work groups is based on the cybernetic concept of self-regulation. The more the key variances can be controlled by the group, the better the results and the higher the member satisfaction.... autonomous groups are learning systems" (Trist, 1981a:14 and 34)

b) *Multiskilled Workers.*

Another important concept in STST is the idea that work groups should form a system of roles in which most of the tasks could be performed by more that one of the members. This idea is rooted in the "second design principle" (Section 5.3.3) and on the interest of fulfilling the psychological needs of the individual:

> "The only justification for a rigid division of labour is a technology which demands specialized non-substitute skills and which is, moreover, sufficiently superior, as a technology, to offset the losses due to rigidity." (Emery and Trist, 1960: 281)

Based on this idea, socio-technical analysis pays much attention to the training requirements of each worker in order to develop the various skills needed for the operation of the whole system.

5.6 JOINT OPTIMIZATION

The concept of joint optimisation plays a central role as a design concept in the development of STST. In this section it will be described in the following terms: 1) the implications of joint optimisation for systems design, 2) joint optimisation, the self-regulation capabilities of the social system, and the idea of goodness of fit between the social and the technical systems, 3) the design principles derived for achieving joint optimisation, and 4) a general method that characterises a socio-technical intervention.

5.6.1 Joint Optimisation: Core Implication

Now that the basic ideas that describe the components of a socio-technical system - the social and the technical - have been presented, the concept of joint optimisation can be introduced:

> " The original formulation of social and technical relations had been made in terms of obtaining the best match or 'goodness of fit' between the two... Emery reformulated the matching process... as the joint optimization of the social and technical systems. The technical and social systems are independent of each other in the sense that the former follows the laws of the natural sciences while the latter follows the laws of the human sciences and is a purposeful system. Yet they are correlative in that one requires the other for the transformation of

> input into an output, which comprises the functional task of a work system. Their relationship represents a coupling of dissimilar which can only be jointly optimized. ...They are co-producers of the outcome (Ackoff and Emery, 1972). The distinctive characteristics of each must be respected else their contradictions will intrude and their complementarities will remain unrealized." (Trist, 1981a:24)

The most significant implication of this concept is that the optimal performance of the socio-technical whole cannot be obtained by independently optimising the design of each of its components, and therefore a method of study should incorporate the integration of both elements. In particular, Trist et al. (1963) argued that the joint optimisation of these elements often requires a less than optimum operation of each one of them taken independently since the decisions applied only to the optimisation of one component could easily interfere with the performance of the other.

5.6.2 Joint Optimisation: Self-Regulation and Goodness of Fit

Behind the concept of joint optimisation is the notion that it is possible to find out the best way to organise a system to achieve its goals. The specific means available of finding out this "best way" should be looked for in the distinctive characteristics of the components of the socio-technical system, in their relationships, and in the characteristics of the work situation and its environment.

> "The coal-mining studies of the Tavistock Institute ...showed that, given experience of a job and some flexibility, people would find the optimum way of doing the job for themselves." (Klein, 1989:372)

As was mentioned in Section 5.4, one of the major emphases in the study of the technical system is related to the problem of variance control because it is acknowledged that in a turbulent environment there are many different factors that continually impinge upon the normal operation of the production system. On the other side, it is also clear that the social system is the one that has the potential flexibility for responding in different ways to disturbances and, because of its orientation towards goal achievement, it is capable of exhibiting the property of equifinality referred to in Section 5.3.3.

These ideas, together with the importance of individual and group learning constitute the basis for conceptualising the social system as an entity capable of self-regulation within the context of the characteristics and constraints imposed by the

technical system. The concept of directive correlation was applied to account for the nature of this relationship between the social and the technical systems.

> " The term joint optimization derives from Sommerhoff's (1969) theory of directive correlation. Directive correlation is a theoretical construct that explains purposeful behavior as the relationship between two independent but correlative systems: the system or organism that seeks a purpose or goal and its environment. For our purposes, directive correlation describes the conditions that must be satisfied if the independent but correlative social and technical systems are to interact purposefully to produce a desired outcome. Briefly stated, directive correlation analyzes purposeful behavior into three successive time frames, T0, T1, and T2. The first time frame, T0, exists prior to the matching of the two systems to produce a goal or purposeful outcome. At this point, the two systems, the social and technical systems, for example, interact with one another such that there is a movement of information between them; this information informs the goal-seeking system (the social system) of an appropriate course of action to take at some later time (T1), to respond to events which have in the meantime occurred in the environment (the technical system) if a goal is to be attained. The second time frame (T1) designates that point at which the goal-seeking system (the social system) uses this information to respond to or match its environment (the technical system) to produce a desired outcome. Finally, the third time frame (T2) represent the outcome of this joint system-plus-environment match, the goal state of focal condition." (Cummings and Srivastva, 1977:56)

This point of view leads to the idea that the responsibility for achieving joint optimisation is a basic function of the social system if the conditions are properly designed for it to accomplish this end.

> "If we want to implement viable autonomous social systems, the design will not consist of a specification of the final system...; rather, what has to be specified and implemented are the conditions that make it possible for a system of this type to develop. (Herbst, 1974:301)

A complementary view of the concept of joint optimisation is the idea of goodness of fit whereby the characteristics of both, the social and the technical systems are assessed and designed in order to obtain the best match between the two systems.

The idea of designing with the logic of attaining a goodness of fit between the two systems stresses the importance of identifying the requirements of each one of the systems (social and technical) and the need to assure the satisfaction of the most fundamental requirements of each one of them.

> "How well the social and the technical systems are designed with respect to one another and with respect to the demands of the external environment determines to a large extent how effective the organization will be...". (Pasmore, 1988:1)

5.6.3 Socio-technical Design Principles

In an effort to synthesise the basic concepts used in STST to achieve joint optimisation, Cherns (1976 and 1987) proposed what is perhaps the most well known account of the socio-technical principles for organisational design. These principles represent the most general design guidelines that are consistent with the philosophy and theoretical developments of STST. The following table presents a summary of these principles.

1. Compatibility.	"The process of design must be compatible with its objectives" (Cherns, 1976:63)
2. Minimal Critical Specification.	"This principle has two aspects, negative and positive. The negative simply states that no more should be specified than is absolutely essential; the positive requires that we identify what is essential" (Cherns, 1987:155)
3. Variance Control	" ...variances, if they cannot be eliminated, must be controlled as near to their point of origin as possible." (formerly the Socio-technical Criterion) (Cherns, 1976:65)
4. Boundary Location	"Its essential feature is that boundaries should not be drawn so as to impede the sharing of information, knowledge, and learning." (Cherns, 1987:156)
5. Information Flow	"...information systems should be designed to provide information in the first place to the point where action on the basis of it will be needed" (Cherns, 1976:68)
6. Power and Authority	" Those who need equipment, materials, or other resources to carry out their responsibilities should have access to them and authority to command them. In return, they accept responsibility for them and for their prudent and economical use. They exercise power and authority needed to accept responsibility for their performance" (Cherns, 1987:157)
7. Multifunctional Principle	"It then becomes more adaptive and less wasteful for each element to possess more than one function" (Cherns, 1976:66)
8. Support Congruence	" ... the systems of social support should be designed so as to reinforce the behaviors which the organisation structure is designed to elicit." (Cherns, 1976:68)
9. Transitional Organisation	"As we are engaged in change from a traditional to a new organisation, from a traditional to a new philosophy of management, from an old to a new system of values, we need to see the design team and its process as a vehicle of transition...Start up and its debugging should be planned and designed..." (Cherns, 1987:159)
10. Incompletion (The Forth Bridge Principle)	"Design is a reiterative process. The closure of options opens new ones. At the end we are back at the beginning" (Cherns, 1976:69).

Table 5.4 Socio-Technical Design Principles as Proposed by Cherns (1976,1987)

5.6.4 Methodological Basis for a Socio-technical Intervention

Based on the design principles mentioned above and on the other conceptual developments of STST described before, a general account of the proposed method for organisational design based on STST was derived.

This method is known as the "nine-step model", and it represents a procedure that encompasses the study of the relevant aspects of both, the social and the technical system, as well as the relationships existing between them. In table 3.4 this model is summarised based on the account of it given by Trist (1971).

1)	An initial scanning is made of all the main aspects - technical and social - of the selected target system - that is, department or plant to be studied.
2)	The unit operations - that is, the transformations (changes of state) of the material or product that take place in the target system - are then identified, whether carried out by men or machines.
3)	An attempt is made to discover the key variances and their interrelations. A variance is key if it significantly affects (1) either the quantity or quality of production, and (2) either the operating or social costs of production.
4)	A table of variance control is then drawn up to ascertain how far the key variances are controlled by the social system - the workers, supervisors, and managers concerned. Investigation is made of what variances are imported or exported across the social-system boundary.
5)	A separate inquiry is made into social-system members' perceptions of their roles and of role possibilities as well as constraining factors.
6)	Attention then shifts to neighbouring systems, beginning with the support or maintenance system.
7)	Attention continues to the boundary-crossing system on the input and output side - that is, supplier and user systems.
8)	The target system and its immediate neighbours are then considered in the context of the general management system of the organisation as regards the effects of policies or development plans of either a technical or social nature.
9)	Recycling occurs at any stage, eventually culminating in design proposals for the target and/or neighbouring systems.

Table 5.5 "The nine-step model" for Socio-technical Design (based on Trist, 1971)

The model just presented is directly related to the analysis of the industry of continuous processes; however Trist (1981a) indicates that this basic model has also been adapted to other types of industry. Furthermore, a version of it has been derived for its application to office work (Pava, 1980) and to the design and implementation of computer-based information systems (Mumford, 1996).

Besides the specific stages or steps involved in carrying out a socio-technical design, another important factor in any socio-technical study is the identification of the measures of performance of the system under study. As should be expected, STST identifies a set of measures of performance that evaluate the operation of the different aspects that make up the socio-technical system.

> "It is virtually impossible to combine in a single indicator all the variables relevant for an adequate characterization of performance; rather, a 'profile' of indicators is needed... There are three main aspects of production performance, each of which comprises a number of indicators. The first is output level - actual related to potential production; the second is the task situation - the task to be carried out and the conditions under which the [work groups] are operating; and the third, certain social and psychological aspects of the *group response* ... to the task situation" (Trist et al. 1963:114-116)

5.7 THE CONTEXT OF A SOCIO-TECHNICAL DESIGN

Before finishing this description of STST it is important to include a reflection regarding the context and cultural environment in which socio-technical systems are embedded. This question relates not only to the specific organisational cultures and "turbulent environments" in which organisations function, but also to the historical and ideological factors that shape a situation and the way STST approaches them.

> "As the historical process of a society unfolds individuals change their values and expectations concerning work roles. This changes the parameters of organizational design. Conversely, changes in technology bring about changes in values, cognitive structures, life-styles, habitats and communications which profoundly alter a society and its chances of survival. Socio-technical phenomena are contextual as well as organizational." (Trist, 1981:11)

Regarding the immediate organisational environment where socio-technically designed systems should operate, there are a number of factors that have a critical bearing on the success or failure of a socio-technical intervention. Among others, the following four can be mentioned:

a) Organisational Culture.

The problems and opportunities posed by a socio-technical design are directly tied to the history, values, and norms of every particularly organisational culture. This idea suggests that a careful understanding of these elements is a

requirement for the definition of any plan or strategy to introduce socio-technical systems ideas into an organisation.

> " Despite, for instance, the generality of many notions about the requirements of the technical system, it is most unusual to find two systems with apparently identical technologies having identical social systems. Some of these differences appear to be traceable to immediately operating environmental factors, but many can only be traced in the history of the enterprise. Similarly, while it is possible to specify many of the requirements that will emerge with increased mechanisation and automation, much more information is needed about the 'culture' or 'character ' of the particular enterprise in order to specify how these requirements will be recognised and coped with." (Emery, 1959:44)

Besides the above, Emery (1959) also emphasised the need to institutionalise a set of elements that are important for the successful operation of socio-technical ideas; among these elements are the commitment to the goals of the organisation, and the belief in solidarity and participation which should be accompanied by a suitable reward system.

b) *Leadership.*

In the conduct of a socio-technical project and the implementation of its results, as is the case in most types of organisational change, leadership plays a major role. In general, the ability of an organisation to provide not only for the development of enthusiasm and commitment, but also good guidance and support is a major factor in determining the probabilities of success or failure of any proposed change. This is particularly true in the case of socio-technical studies and specially when the principles that they entail are very different from the organisation's current trends.

> "The hypothesis is put forward that the successful implementation of change requires the exercise of continuously active leadership at the level of the largest implicated system". (Trist et al., 1963:224)

Furthermore, Trist (1981a) suggest that the main failures of autonomous work groups are related to a lack of organisational support and leadership.

c) *Co-ordination and control.*

Co-ordination and control of semi-autonomous work groups should be structured and designed in such a way as to preserve the socio-technical design principles.

Within this context, the more immediate area of concern refers to the definition of the supervisor's role.

> "The role of the supervisor or manager was conceived in terms of regulating the boundary of the system for which he was responsible so as to maintain its internal resilience in the face of change; the corollary of this, of course, was that he was expected to draw attention of his superior to sources of disturbance to which it was beyond the capacity of this own system to adjust," (Miller, 1983:151)

Thus, the functions of co-ordination and control of the task groups are concentrated on the "management of the boundary conditions" that lie outside the direct area of control of the individual members of the group.

d) *Resistance to change.*

The different efforts to introduce socio-technical ideas in organisations helped in recognising some of the most important challenges that needed to be faced in order to produce a radical change in the way the work was organised. Among these challenges different manifestations of resistance to change were identified.

> "... a situation of lost and threat may be expected to induce regressive behaviour in the members of organisations undergoing radical change." (Trist, 1981a:47-48)

A common feature of the factors just mentioned in the context of socio-technical studies is the need to develop a "participative culture" where the autonomy of the various actors involved is recognised and accepted. In the historical account of the development of STST given by Trist (1981a) it is clear that major barriers to the implementation of the results of socio-technical studies were found all through the 1950s and 1960s, and it was only in particular cultural contexts (like the Scandinavian countries) where these efforts could flourish more smoothly. Among the problems related to the acceptance of this participative approach, the most prominent seems to be the sharing of power that it implies.

> "In the fifties, the societal climate was negative toward socio-technical innovation. Thirty years later, as the eighties begin, the societal climate is becoming positive..., though in most Western countries the support base remains limited in face of the persisting power of the technocratic and bureaucratic mode. Yet this mode is being experienced as increasingly dysfunctional in the more complex and uncertain conditions of the wider environment..." (Trist, 1981:28)

5.8 SOME CRITICAL VIEWS ON SOCIO-TECHNICAL SYSTEMS THEORY

STST has had an important influence on organisational thinking and practice, particularly in areas such as the development of the Quality of Working Life movement (Cutcher-Gershenfeld, 1983), and in promoting the establishment of participative forms of work organisation (Cummings and Worley, 1997). However, STST has also been the subject of several criticisms regarding various aspects of its conceptual framework as well as of its practical implications in organisational settings.

According to Mumford (1996) some of the most important criticisms that have been addressed to STST are the following:

a) STST does not consider explicitly the possibilities of conflict and disputes that are often related to industrial relations problems.

b) Socio-technical studies are associated with a managerial orientation in the sense that they are typically oriented towards the achievement of management's goals as related to organisational performance.

c) The changes brought about by introducing socio-technical designs do not lead to radical changes regarding the social and economic situation of workers, and thus, they preserve the basic status quo of industrial organisations.

d) From the point of view of trade unions, some criticisms suggest that socio-technical studies do not involve the workers as much as they should, and that in assigning managerial responsibilities to the workers they do not assign managerial pay.

e) The design and implementation of semi-autonomous work groups is not always the preferred work organisation of all the workers, and in establishing this form of operation supervisors and lower level managers experience a reduction of responsibilities.

In analysing these criticisms Mumford (1996) recognises that there is some truth in each one of them. However, she also argues that some of these criticisms are related to the circumstances in which most organisational studies are undertaken (such as being requested by top management), and that they are not necessarily related to particular features of STST.

Besides the above, a critical perspective on STST is reported by Jackson (1991b). In his study of systems methodologies Jackson (1991b) considers STST as belonging to the "organisations-as-systems" approach which represents the original account of the systems approach found in organisational literature. Within the organisations-as-systems approach organisations are considered as open systems interacting constantly with their environment and are studied from a holistic perspective. This view of STST as a part of the organisations-as-systems approach is consistent with the ideas on STST presented in Section 5.3.1.

Analysing the organisations-as-systems approach from the point of view of its underlying assumptions Jackson (1991b) identifies the characteristics of this approach according to two different perspectives: i) Habermas' three basic cognitive interests of human beings (Habermas, 1971); ii) Burrell and Morgan's sociological paradigms (Burrell and Morgan, 1979). In addition, Jackson (1991b) also places the assumptions of STST in the context of a system of systems methodologies.

a) Based on Habermas' ideas, Jackson (1991b) characterises the organisations-as-systems approach as follows:

> "Interrogating the organizations-as-systems approach using Habermas's sociological theory clearly reveals that it is oriented toward serving the technical interest in prediction and control of objectified processes (in this case, social systems) ... The knowledge produced by the organizations-as-systems methodology seeks to guide instrumental action in developing the forces of production, and strategic action in improving the steering capacities of organizations ... The practical interest in maintaining and improving mutual understanding, insofar as it is considered at all, is subordinated to the technical interest. In Parsonian theory and sociotechnical thinking, social integration is wholly secondary to system integration. The emancipatory interest in freedom from unnecessary constraint is ignored." (Jackson, 1991b:70)

Under this perspective, according to Jackson (1991b), STST subordinates the practical and the emancipatory interests to the technical interest. However, even

if the technical interest is the one most clearly manifested in the basic goals of socio-technical studies, it is also important to note that the practical and the emancipatory interests are also present in the STST framework. The emphasis on human development through supportive relationships and collaborative work, and the freedom in work through the opportunity of taking decisions and making choices that are promoted by STST (Mumford, 1996) reflect the idea that the practical and the emancipatory interests can be at least partially associated with STST.

b) In terms of the sociological paradigms identified by Burrell and Morgan (1979), Jackson (1991b) relates the organisations-as-systems approach to the functionalist paradigm:

> "An examination of Burrell and Morgan's (1979) account of where different theories of organization fit in terms of sociological paradigms finds the organizations-as-systems approach set squarely in the functionalist box ... Organizations-as-systems theorists are objectivist in terms of the assumptions they make about systems thinking ... They are also regulative in terms of their assumptions about social systems, seeking to understand how the status quo is maintained and aiming to facilitate better prediction and control." (Jackson, 1991b:71)

The idea that STST was mostly based on a functionalist paradigm has already been supported in Section 5.5.2.

c) In the context of the system of systems methodologies originally developed by Jackson and Keys (1984), STST is considered as follows:

> "Contingency theory [Kast and Rosenzweig, 1981] and sociotechnical thinking seem to assume that problem contexts are systemic-unitary. These methodologies rest on the organismic rather than the mechanical analogy, and view systems as complex - made up of elements in close interrelationship, probabilistic, open to the environment, evolving over time, subject to behavioral influences, and having purposeful parts ... Contingency and sociotechnical theory also make predominantly unitary assumptions about problem contexts. This should not be overstated in relation to sociotechnical thinking, where an acknowledgement of the need for a participative and collaborative carrying through of projects demonstrates some recognition of pluralism." (Jackson, 1991b:71)

The view of STST as having a systemic assumption is also consistent with the account of STST presented in this chapter. The idea that a unitary assumption

predominates in STST is partially supported by the lack of provision for dealing with conflict situations which is one of the criticisms of STST identified by Mumford (1996); however, the emphasis of STST in promoting a participative culture and developing industrial democracy also accounts for the pluralistic basis of STST as recognised by Jackson (1991b).

5.9 CONCLUSIONS

The description of STST presented in this chapter helps in recognising that this approach for organisational design has largely contributed to organisational theory and to modern Systems Thinking. Some of its main contributions are summarised in this last section.

From the point of view of the contributions of STST to organisational theory at least three major aspects can be highlighted:

a) The idea of conceptualising organisations as socio-technical systems in which both the social and the technical aspects could only be jointly optimised.

b) The importance attributed to the study of the social system of an organisation, not only in terms of providing the means for its efficient performance, but also in terms of promoting better quality of working life and industrial democracy.

c) The identification of new possible forms of organisation in which learning and self-regulation became central concepts of design.

Regarding the contributions of STST to Systems Thinking, besides the specific concepts and methodological guidelines for organisational design contributed by STST, the following aspects can be mentioned:

a) STST represents an integrative effort of ideas and concepts, and this is so in at least two senses:

i) In developing a framework for systems design STST successfully incorporated a set of concepts stemming from different intellectual traditions, such as General Systems Theory, Social-psychology and Cybernetics.

ii) In formalising the concept of socio-technical systems, not only a new subject of study was identified, but it also helped to establish the relationship between the social and the technical components of a system as a non-trivial object of inquiry.

b) Through the development of specific concepts and methodological guidelines for organisational systems design which have been successfully applied in many different settings, STST has contributed to Systems Thinking with the possibility of enriching other theoretical and methodological approaches, and this is partially the idea that inspired the work reported in this document.

c) By providing a systems-based conceptual framework which has been successfully applied in the implementation of socio-technical systems, STST offered the possibility of putting systems ideas into the action arena of organisational life.

Given the perspective of STST presented in this chapter, and the account of the Interactive Management process and its conceptual framework which were developed in chapters 2 and 3, the next chapter will concentrate on the comparison made between these two approaches.

CHAPTER 6

COMPARISON BETWEEN INTERACTIVE MANAGEMENT AND SOCIO-TECHNICAL SYSTEMS THEORY

6.1 INTRODUCTION

Based on the theoretical and methodological contributions of IM and STST, a comparison was made between the two approaches and the results of the comparison provided the basis for establishing the set of research questions that are the focus of this research. This chapter synthesises the results of the comparison and elaborates on the most important findings derived from it.

6.2 BASIS OF THE COMPARISON BETWEEN IM AND STST

The initial idea of comparing IM with STST stemmed from the perspective that an alternative theoretical framework for the study of IM could provide significant insights for the identification of relevant research questions. STST was chosen as the alternative framework because it included important concepts that were relevant for IM. Specifically, two major features of STST reflect this view:

a) The very concept of a socio-technical system which implies the conceptualisation of the social and technical components of a system as an integrated unit of study. A concept general enough to be applied in different areas of study:

> "There is no single body of concepts that can claim on grounds of common usage or exhaustiveness to be the theory of socio-technical systems... In what follows there will be a bias toward the concepts and formulations that have been introduced by the workers in the Tavistock Institute of Human Relations... Nevertheless, this bias is not a necessary one - at many points it is possible, and others may think it desirable, to translate the argument into alternative conceptual frameworks." (Emery, 1959:8-9).

This idea was considered particularly relevant for IM, since the IM process involves an important interaction between groups of people and different technological components, and therefore these groups could be conceptualised as socio-technical systems.

b) The fact that a typical socio-technical study leads to the establishment of autonomous work groups within an organisational context, i.e., the design of participation through group activity, which reflects an important aspect of the philosophy of STST. Since group activity constitutes the heart of the IM process, this similarity with STST was considered as a very important feature of both approaches.

These ideas provided the platform to proceed with the comparison but because the origins, development and purposes of IM and STST are not the same, in order to have a coherent framework for the comparison three important considerations were made:

a) A distinction was made between the ideas that seemed more closely related to the conceptual aspects of these approaches, and those more clearly associated with the application aspects, i.e. those that manifest themselves in the way the theory is put into practice.

b) As was mentioned in Chapter 5, STST embraces a perspective on human affairs which includes three possible levels of analysis: primary work systems, whole organisational systems and macro-social systems (Trist, 1981). However, because of the relevance for IM of the concepts developed at the level of the primary work systems and of the whole organisational systems, the account of STST used for the comparison is the one focused in these areas. The concepts specifically falling at the level of the macro-social systems were not formally considered in the comparison.

c) Related to (b) above and because IM does not reflect the same units of study as STST, it was found that the comparison should be concentrated on the

contributions of both approaches at different levels of analysis but which were considered similar enough to allow the comparison to be relevant. Table 5.1 shows the levels of analysis that correspond to the concepts compared in each case.

LEVELS OF ANALYSIS	SOCIO-TECHNICAL SYSTEMS THEORY	INTERACTIVE MANAGEMENT
First	Primary Work System	Group Activity
Second	Organisational Systems	Problematic/Complex Situation

Table 6.1 Levels of Analysis of STST and IM

Another important aspect of the comparison refers to the fact that both IM and STST are contemporary developments and the various authors representing significant views on these subjects are continually producing new material. This continuous development of IM and STST implies that the results of the comparison necessarily reflect a view of these approaches at the particular moment in time when the comparison was made.

Based on the above, the comparison between IM and STST was undertaken with the aim of finding out specific areas on which to focus significant research on IM. As a result of the comparison a number of similarities and differences between IM and STST were identified, and a synthesis of the comparison led to the establishment of the set of research questions which are presented in Chapter 7.

A detailed account of the comparison is reported in Cárdenas (1994). In this chapter, Sections 6.3 and 6.4 present the most important similarities and differences found between IM and STST. Section 6.5 concentrates on the synthesis of the comparison and Section 6.6 presents some general conclusions of the comparison. Since Chapters 2, 3 and 5 were devoted to discuss the conceptual and methodological characteristics of IM and STST, the sections of those chapters where the specific concepts used in the comparison are found will be indicated in parenthesis in this chapter.

6.3 SIMILARITIES BETWEEN IM AND STST

Starting with the similarities between IM and STST that led to the decision of comparing both approaches, a set of additional important similarities were found at both the conceptual and the application levels (Cárdenas, 1994). In some cases these similarities reflected the presence of equivalent concepts in both approaches and they helped to confirm the relevance of the comparison.

The following list summarises the most important similarities between the concepts and practices of IM and STST that were found:

a) *The concern for developing a systemic approach for dealing with complex situations.*

STST puts an important emphasis in the study of complex organisational environments - called turbulent fields - (Emery and Trist, 1965) which are characterised by a high level of interaction and dynamics amongst an increasing number of variables. According to STST this kind of environment calls for organisational designs flexible enough to respond to the variety that is generated in such contexts (Section 5.3.1).

IM is conceptualised as a system explicitly invented for the management of complexity (Warfield and Cárdenas, 1994). It faces the challenge of complexity through a design effort in which the resulting designs should incorporate all the variety that is required to respond to the problems and needs posed by complex situations (Section 3.6.1).

Within this thinking, STST and IM incorporate Ashby's Law of Requisite Variety as one of the guiding elements of the development of their theoretical frameworks (Sections 3.4 and 5.4).

b) *The need to integrate the social and technical components of a system.*

The idea of the non-separability of the social and the technical components of a system was one of the first and most important concepts of STST and it led to the formulation of the concept of socio-technical systems (Section 5.3.2):

> "... the idea of separate approaches to the social and the technical systems of an organization could no longer suffice... a conceptual reframing was proposed in

which work organizations were envisaged as socio-technical systems ..." (Trist, 1993:39)

In the case of IM the idea of integrating the social and the technical components can be found in the bases of the Science of Generic Design where an explicit recognition is made of the need to integrate anthropological, technological and formal logical considerations in order to deal effectively with complexity (Section 3.3.1). In these terms, a parallel can be drawn between the social and technical components of STST and the anthropological, technological and formal logical bases of IM as shown in Table 6.2

SOCIOTECHNICAL SYSTEMS THEORY	SCIENCE OF GENERIC DESIGN (IM)
Social system: "The social system of an organization is comprised of the people who work in the organization and all that is human about their presence..." (Pasmore, 1988:25)	Anthropological Base: refers to all the aspects directly related to the human being, physical as well as social and individual; this incorporate physiological, social, socio-psychological and psychological concerns.
Technical system: "The technical system of an organization consist of the tools, techniques, devices, artefacts, methods, configurations, procedures and knowledge used by organizational members to acquire inputs, transform inputs into outputs and provide outputs or services to clients or customers." (Pasmore, 1988:57)	Technological base: refers to the provision and use of all the means of manmade artefacts that would be advantageous to utilise to support group work. Formal Logical base: refers to the legitimacy of the logic used in order to arrive at well founded conclusions regarding complex situations (intelligence, design and choice)

Table 6.2 The Components of a Socio-technical System and the Bases of the Science of Generic Design

Besides the above, the idea of integrating the social and technical components into a single unit of activity is also found in IM in the identification of key criteria for selecting consensus methods for group work; one of those criteria is precisely the "sound integration of behavioral and technical designs" (Warfield, 1982:52).

c) *Participation as a central approach to deal with requisite variety and to espouse a democratic principle by promoting the egalitarian participation of stakeholders in decision-making and action.*

STST seeks to provide organisations with the flexibility required to cope with changing environments. The most common way through which the flexibility requirements are met is through the establishment of autonomous work groups whose activities are defined at a minimum level of specification, allowing the groups to decide upon and to control variations in processes at their source.

IM focuses on the necessity of gathering the relevant points of view, knowledge and information available to understand complex situations, and on proposing structured alternatives for dealing with them. These different perspectives are collected through the participation of the relevant stakeholders in the IM process.

Participative approaches are also seen in STST and in IM as a means to promote the ideal of a democratic culture. It is in part because of the importance attributed to participation and democracy that both approaches reject the idea of a hierarchical form of organisation and concentrate on the design of small group work as an alternative way for organising participation. (Sections 3.6.1 and 5.5.1)

d) *Emphasis on individual and group learning.*

Perhaps one of the most relevant features of IM is that, because of the nature of complex situations, it is founded in a strong effort to promote group learning: "A methodology for grappling with complexity has to be a methodology for human learning" (Warfield, 1976:2). This emphasis on human learning derives from various sources and is directly related to the postulates about the human being of the Science of Generic Design, in which the limited ability of self-calibration of the human beings is explicitly recognised. Operationally, the generic design principle of "Individual Cybernetic Embedding" synthesises this view:

> "In the light of the now-recognizable human shortcomings in system design, the individual designer should learn self-reference criteria for self-assessment of the fragility and fallibility of the individual actor in a design process. Designers should then apply these criteria as guidelines to place and sustain themselves in learning networks, being thereby embedded cybernetically in a network of self-corrective feedback loops. They should likewise help create the discipline of being systematically informed by sustained iterative documentation, and appropriate cognitive assistance in complex endeavors" (Warfield, 1994a:190)

Correspondingly, STST also highlights the relevance of individual and group learning:

> "A sociotechnical theory of the efficacy of autonomous work groups is based on the cybernetic concept of self-regulation. The more the key variances can be controlled by the group, the better the results and the higher the member satisfaction.... autonomous groups are learning systems" (Trist, 1981:34).

In both cases this emphasis stems from a cybernetic perspective and, humanistically, leads to the consideration of social systems as both ends in themselves and means for dealing with complexity (Sections 3.5.1 and 5.5.4).

e) *Emphasis on task-oriented behaviour within the context of group activities.*

From the point of view of Group Dynamics it is clear that STST and IM group designs concentrate on the production function of group activity, i.e. on the task-oriented behaviour of groups. The two approaches are concerned with the design of group activity for the purposes of carrying out a set of specific tasks, and even though in both cases an explicit attempt is made to consider what has been called the "maintenance" functions of a group (see Chapter 4), they subordinate this aspect to the central purposes attributed to group activity.

Because of its interest in organisational contexts and the need to find out appropriate ways to integrate the social and technical aspects of work roles, the development of autonomous work groups in socio-technical systems studies concentrates to a large extent on the improvement of the overall performance of organisations. This concern has played a leading role in the identification of the requirements and principles for the design of autonomous group work.

In the case of IM this idea seems to apply in an equivalent manner. Because of its interest in dealing with complexity and the significant challenges that this poses to the human mind, the formal methods through which a human actor (or actors) could deal effectively with complex situations represent one of the most fundamental concerns of IM. Therefore, IM largely focuses on the formal logical dimension of group work (conceptualised here as a part of the technical system) and it is placed in a prominent position compared with the other aspects of group work design.

The emphasis on task oriented behaviour is the base, in both approaches, for the study of the physiological, social, psychological, and socio-psychological needs of individuals and groups (Sections 3.6.2 and 5.5.3).

Besides the above similarities it is also worth noting that because STST and IM represent participative approaches to decision-making, they share a challenge when introduced in traditional contexts where democratic participation is not embedded into the culture of the institutions concerned. The problem is related to the resistance to accepting a participative approach because of the risks associated with the distribution of power that it entails. In the case of STST a major emphasis is put on the need to institutionalise the participative culture that is required for the autonomous work groups to be effective. In the case of IM particular attention is paid to assess the actual possibilities of attaining a good level of acceptance of a participative effort and group work is then designed based on that assessment.

6.4 DIFFERENCES BETWEEN IM AND STST

The major differences between IM and STST were identified in terms of the characteristics and concepts of STST that contrast sharply with the theory and practice of IM, and these are:

a) Purposes and Contexts of application.

The original theoretical framework of STST refers basically to the study of organisational settings, and it was developed within the specific context of industrial organisations where a physical transformation process could be clearly identified (even though the developments of STST can be applied in other settings, its basic and most well-known framework remains within this context). Because of this, as was mentioned in section 5.2, the application contexts that concern STST are identified at two levels of analysis: organisations and, within them, the primary work systems where the basic transformation processes occur. Based on this view STST is frequently considered as an approach to organisational design, and as such it seeks to design the most appropriate ways for

structuring the functioning of organisations. As a result, it is claimed that even though the establishment of autonomous work groups is generally proposed, an emphasis is placed on identifying the specific requirements and constraints that might be relevant to each organisational study (Section 5.3.3).

In spite of the fact that IM has also been largely applied in organisational contexts, it does not restrict itself to this context of application. Based on a "generic" approach for dealing with complexity, IM seeks to provide methodological support in situations were the need to face complexity in a participative manner is clearly justified. In general, the main interest of IM focuses on the notion of "large scale systems design" (Warfield 1994a), and the generic requirements of this kind of situation are stressed. The design of the structure and operation of the groups formed to work with the IM process are therefore based on an interest in taking advantage of the relevant knowledge about complexity and group behaviour that may be applied in different situations (Table 3.2).

b) *The nature of the tasks carried out by the groups involved in IM and STST.*

The nature of the tasks carried out by socio-technical groups and by IM groups seems to be the most important difference between the two approaches at the operational level. This difference implies major variations in the way the groups get organised and function, and in the kind of outcomes that result from their activity.

In the case of STST the tasks assigned to work groups are normally related to the daily activities carried out in an organisation, and therefore they imply all kinds of human operations from intellectual to physical. As a result of these activities, the outcomes of a socio-technical design relate directly with the overall performance of the organisation in which it is embedded. This characteristic of the STST reflects the concern to intervene directly in the stream of events that characterise organisational dynamics.

In the case of IM the nature of the tasks carried out by a group are basically concerned with intellectual and communication activities, implying that the main tasks performed are based on the deployment of intellectual and communication skills. Therefore, the expected outcomes of the IM process are stated in terms of intellectual constructs (ideas and structures of ideas) and in terms of the

effectiveness of the social communication processes that take place during the IM activity (such as understanding and development of commitment). Also, these activities of IM groups reflect the view of complexity portrayed in this approach where the cognitive dimension plays a major role.

c) *Characteristics of the work groups.*

Related to the different nature of the tasks of the IM and STST groups mentioned above, the characteristics of the groups formed as a result of a STST intervention differ greatly from the IM groups. Among the most important differences are group composition, required skills, and group development and permanence through time:

i) Composition: Socio-technical autonomous groups can be referred to as organisational groups, i.e., groups that are formed with members of the same organisation and, furthermore, they are composed by members of the same organisational units. The composition of these organisational groups in some cases can be thought of as a particular case of the IM groups since IM can be applied to both, particular organisational contexts and to the study of situations that are larger in scope. However, when IM is practised in a particular organisation, usually the groups formed involve people from different organisational units and from different hierarchical levels, and require non-standard forms of supervision and control. Besides, the IM groups often include members of different organisations (multi-organisational groups), or otherwise they are formed by members of social groups not necessarily involved in formal organisational settings.

ii) Multiskills requirement. One important design concept in STST is the idea that work groups should form a system of roles in which each different task could be performed by most of the members of the group; those tasks generally involve a large variety of operations and imply different kinds of skills. Because of this, socio-technical analysis pays much attention to the training requirements of a group. In the case of IM groups those requirements are not present. The participation in IM group activity

concerns mainly communication activities in order to share ideas and develop new insights. All the participants are expected to contribute on an equal basis to the communication process and no special requirement for training is imposed upon them since the facilitation team manages this communication process.

iii) Group development and permanence through time. As was mentioned in Chapter 4, the time dimension in group life is to a large extent the most important constraint in the development of groups' natural processes. Regarding this variable, the socio-technical groups are expected to operate throughout long periods of time (they could last for years), and thus their social bonds are expected to develop to significant levels of maturity allowing all group processes to develop naturally. In contrast, the IM groups typically operate for the duration of one or more workshops that could last several days, implying that the social processes that take place occur in a very different time scale to those occurring in socio-technical groups. In the light of this difference, STST groups are considered as "on-going" work groups, while IM groups are normally temporary groups which do not necessarily have the possibility of developing naturally most group processes.

d) Equifinality and Self-regulation.

Another major difference between IM and STST refers to a set of concepts found in STST that do not seem to have an equivalent in IM. The design of socio-technical systems is based on the theoretical concept of an open system, which entails the property of equifinality and the self-regulation capability of a system. This set of concepts led to the development of the idea of joint optimisation as directive correlation (Section 5.6). Important socio-technical design concepts derive from this view, such as the principle of minimal critical specifications and the concept of redundancy of functions. The main implication of these ideas for the design of group activity in STST refers to the high level of flexibility promoted within a socio-technical system in order for the group to find out by itself the best way to get organised.

In sharp contrast with this, IM group activity is highly structured and does not incorporate high levels of flexibility in group activity. The differentiation of roles between the participants and the facilitation team is basically aimed at preserving the structure of the IM process and at discouraging the possibilities of the group to change it (Section 2.4).

This difference in the way IM and STST groups are designed to operate is also related to the characteristics of the work groups mentioned in (c) above. In particular, the idea of promoting group self-regulation together with the "on-going" nature of group activity in STST represent important features of STST groups that support the development of the groups' molar processes discussed in Section 4.5.3 (formation of norms, standards and values; development of cohesion; development of group pressure; and development of climate), and which are not present in IM (Section 4.6).

e) *The systemic perspectives associated to each approach.*

Finally, the last major difference between IM and STST to be considered here is found at the level of their corresponding conceptual frameworks. According to the critical perspectives on IM and STST presented in Sections 3.7 and 5.8 respectively, these approaches are seen as belonging to two different traditions in systems thinking. In section 3.7 it has been argued that IM can be considered as a soft systems approach adhering basically to a subjectivist position. Section 5.8 presented STST, as it has been described by Jackson (1971), as an "organisations-as-systems" approach where the objectivist nature of the systems ideas is sustained.

Because of these different perspectives, STST highlights the need to control operationally the environmental variety faced by an organisation and the internal variety generated by its own operations, whereas in IM the idea is centred on conceptually addressing the variety associated with a complex situation. This conceptual distinction between IM and STST lies at the heart of the operational distinction on the nature of the tasks carried out by IM and STST mentioned in (b).

This set of differences at both the conceptual and the application levels between IM and STST opened up the possibility of envisaging how STST could be helpful in complementing some theoretical and pragmatic aspects of IM. In the next section, a synthesis of the total comparison will be presented emphasising this possibility of complementarity.

6.5 SYNTHESIS OF THE COMPARISON

The similarities and differences between IM and STST just discussed have been helpful in defining an important focus of this thesis, the notion that whereas STST is primarily oriented towards the design of "action" systems, IM is primarily concerned with the operationalisation of an "inquiring" system. This notion will be considered in more detail in this section, together with a brief summary of the similarities and differences between IM and STST.

6.5.1 Summary of the Main Similarities and Differences between IM and STST

As they were discussed in Sections 6.3 and 6.4, the main similarities and differences between IM and STST are listed in the next table.

MAIN SIMILARITIES	MAIN DIFFERENCES
1. The concern for developing a systemic approach for dealing with complex situations, considering the Law of Requisite Variety as a critical concept. 2. The need to integrate the social and technical components of a system. 3. Participation as a means to deal with complexity, and the democratic principle that it entails 4. Emphasis on individual and group learning 5. Emphasis on task-oriented behaviour within the context of group activities	1. Purposes and contexts of application (organisational vs. generic design) 2. The nature of the tasks carried out by the groups involved in IM and STST 3. Characteristics of the work groups and group processes. 4. The concepts of equifinality and self-regulation used in STST for design purposes. 5. The systemic perspectives associated with each approach (Soft Systems Thinking and Organisations-as-Systems)

Table 6.3 Main similarities and differences between IM and STST

Regarding the similarities between IM and STST, it can be noted that they share in common an important set of ideas: the relevance of participation and democracy, the need to promote individual and group learning, and the need to jointly conceptualise the social and the technical components of a system. These ideas are also found in the conceptual frameworks of other authors as key concepts within the context of the Systems Approach (see for example Churchman, 1979; Ackoff, 1981; Checkland, 1981; Beer, 1994; Ulrich, 1983). In the particular case of IM and STST these ideas, together with the importance attributed to the Law of Requisite Variety, represent the common systemic concepts of the two approaches for addressing the design tasks at which they are aimed. However, IM and STST also differ significantly in some respects at both the operational and the conceptual levels.

At the operational level, the most important differences found refer to the nature of the tasks carried out by IM and STST groups, to the particular characteristics of the groups associated with each approach, and to the use of the concepts of self-regulation and equifinality for designing the operation of socio-technical groups.

At the conceptual level, there are two important aspects of these approaches where major differences are found. The first of these aspects refers to the purposes and context of application of IM and STST. IM has been described as a generic design approach for dealing with complex situations while STST is basically considered as an approach to organisational design. This difference between IM and STST has important implications in both their conceptual frameworks and their methodological prescriptions. In terms of the distinction made in IM between the context, content and process involved in addressing a problematic situation (Section 2.4), it can be said that IM concentrates on the development of a process which could be used to address complex situations in general and explicitly excludes content proposals related to the specific subject matters of the situations under study. In contrast with this, STST is concerned with both the process and the content requirements of organisational design, as it is manifested in the methodological guidelines and in the design principles STST proposes.

Based on the study of systems methodologies reported by Jackson (1991b), a second major conceptual difference between IM and STST has been found. These approaches have been described as belonging to the organisations-as-systems approach

in the case of STST, and to soft systems thinking in the case of IM. Among other things, this difference portrays a distinction between an objectivist and subjectivist view of the world, and it can be argued that this difference between an objective and a subjective perspective lies at the heart of some of the other important differences between IM and STST.

For instance, this difference in perspectives helps in understanding the difference between the nature of the tasks carried out by the groups involved in IM and STST. In STST the perspective that there is a need to cope directly with environmental and organisational variety leads to the organisation of human action in such a way that people are able to respond to the requirements of variety in whatever form it might be needed, i.e., by communicating with other people, by making immediate decisions or, by taking direct action on materials, men or machinery. In the case of IM, the view of complexity related to the subjective appreciation of an observer or a group of observers leads to the organisation of an intellectual and communicative effort in order to develop shared understandings and agreements. Correspondingly, the difference in the nature of the tasks carried out by the groups involved in IM and STST helps in understanding most of the specific differences found in the characteristics of the work groups and group processes portrayed in each approach. Figure 6.1 illustrates this idea.

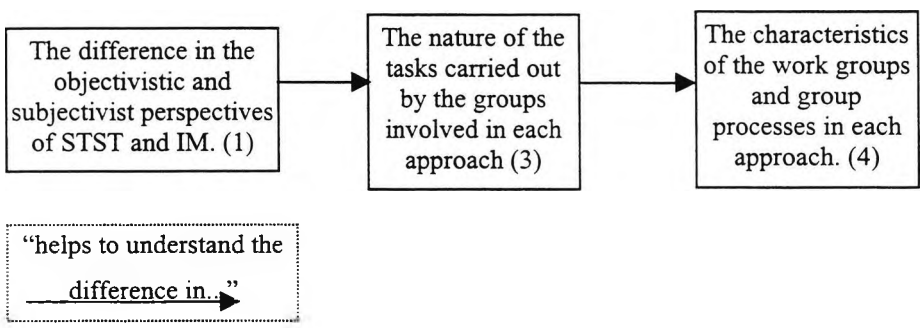


Fig. 6.1 Support Structure for Understanding Some Differences between IM and STST

6.5.2 Action-oriented and Inquiring-oriented Approaches

The main differences between the two approaches that have been just discussed have helped to establish what can be considered, for the purposes of this research, as the most important distinction between these approaches: the difference between an "action-oriented" approach and an "inquiring-oriented" approach.

Socio-technical Systems Theory, as it has been practised in most organisational studies, emphasises the design and actual functioning of socio-technical systems. The expected outcomes of a socio-technical systems intervention refer to the improvement of the performance of organisations, and these outcomes are measured in terms of output level, task situation and group response (Trist et al, 1963). From this perspective a socio-technical systems study is basically concerned with the design of "action systems", where the most important contributions of STST concentrate on the characteristics and principles of operation of such systems. Because of its emphasis on putting in to operation socio-technical systems, it is considered that STST portrays basically a "participative action-oriented" approach.

In the case of IM, it is clear that its emphasis lies in the development of conceptual designs that could respond to the demands of complex situations. IM focuses on the development of shared representations of complex situations within a group of stakeholders, as well as on the generation of consensus-based designed alternatives for addressing those situations. Its expected outcomes are stated in terms of the development of: i) definition of situations, ii) alternative designs and, iii) choice of a design (Warfield and Cárdenas, 1994). From this point of view, the theoretical and methodological prescriptions of IM are basically concerned with the design of a particular kind of "inquiring system" which could cope with the perceived complexity of a given situation. Even though IM naturally involves a concern for the ultimate implications of the inquiry in action terms, the emphasis on the inquiring process itself leads to the consideration that IM portrays mainly a "participative inquiring-oriented" approach.

This way of looking at the differences between IM and STST made it possible to envisage the idea that each one of them can contribute to complementing the other's perspective regarding the distinction between inquiry and action. In the case of this study, since the focus of the research is on IM, the results of the comparison invited

exploration of the possibility of studying IM from the point of view of an "action" perspective. Therefore, these findings were used to identify specific research questions with respect to the IM process and to explore the actual possibility of using STST ideas to complement it.

6.6 CONCLUSIONS

As a result of the comparison between IM and STST it has been found that both approaches share in common important systemic principles for dealing with complex situations, including the idea of conceptualising the social and the technical components of a system as an integrated unit of study, and the importance of participation and individual and group learning. On the other hand, it has also been found that a major difference between them is related to the distinction between an objectivist and a subjectivist perspective on reality; this difference is reflected in the nature of the tasks of the group designs proposed by each approach.

Based on the results of the comparison, a conclusion has been reached regarding the possibility of looking at the IM process not only from the point of view of an inquiring system which helps to understand complex situations and to develop alternatives for addressing them, but also from the point of view of an action system concerned with the implementation of the decisions and/or designs that derive from the inquiring process.

Within this view of IM, and since most of its theoretical developments and methodological prescriptions do not reflect an emphasis on action concerns, a set of related research questions has been identified and the need to develop and propose a conceptual framework for addressing those questions has been recognised. These topics will be the subject of the next chapter.

CHAPTER 7

FROM INQUIRY TO ACTION IN COMPLEX SITUATIONS: DEFINITION OF THE RESEARCH QUESTIONS

7.1 INTRODUCTION

In Chapter 6 one important finding of the comparison between IM and STST indicated a major difference in their methodological orientations: IM portrays the design of inquiring systems, while STST focuses on the design of action systems.

This chapter suggests that these two orientations represent complementary approaches within the context of a holistic perspective on systemic interventions in complex situations. Inquiry and action are visualised as two components of such interventions. According to these ideas, the research questions on IM, which are the subject of this thesis, are defined and discussed in this chapter.

7.2 A THREE DIMENSIONAL VIEW OF COMPLEX SITUATIONS

In IM complexity is related to the problems posed to the human mind when appreciating a situation; according to this perspective complexity is approached through an intellectual process based on social interaction (Section 3.4.1). In STST the study of complexity has not been as explicit as in the case of IM. However, given the objectivist view of STST, it can be said that its underlying idea of complexity is directly associated with the situations in which socio-technical systems are embedded. Within this perspective, STST proposes the design and operationalisation of socio-technical systems capable of dealing with the variety of events and circumstances that characterise the internal operation of organisations and their environments.

In spite of the fact that these two perspectives denote a major conceptual difference between IM and STST (Section 6.5), it is not the purpose here to undertake a philosophical debate regarding the foundations of these perspectives. The intention is to identify the aspects of complexity that could help to understand better the nature of

systemic interventions in complex situations and to explore the possible complementarities between IM and STST in those terms. Thus, instead of proposing a particular definition of complexity, it is argued that the study of complex situations should involve the consideration of three dimensions: a cognitive, an empirical and a social dimension.

The cognitive dimension represents the starting point to identify a situation as complex. According to the definition proposed by Warfield (1998a), complexity is a mental response to a situation that is not comprehended (Section 3.4.1). This view of complexity is also reflected in Ulrich's thinking:

> "By *complexity* we ... have to understand not so much a 'given' attribute of a particular system but rather an individual strategy for dealing with ill-structured problems. ... a model of complexity is nothing other than an inquirer's way of confronting a lack of knowledge ..." (Ulrich, 1983:320)

Even though the cognitive dimension is considered as the distinctive element in recognising a situation as complex, the ideas proposed by Warfield (1998a) and Ulrich (1983) can also be related to an empirical dimension of complex situations. In both cases there is the notion of a situation being studied. Therefore, it is acknowledged that the qualification of complex can only be understood as a mental response to a situation, but at the same time it is considered that this mental response is ultimately associated with a particular object of attention (a situation) which accounts here for the empirical dimension of complex situations. These cognitive and empirical dimensions of complex situations correspond directly to the cognitive and situational components of complexity discussed in Section 3.4.1. Besides these two components of complexity Janes (1992) also identifies a third one: pluralistic complexity.

According to Janes (1992) pluralistic complexity refers to the problems posed by the different interpretations of a situation found when a group effort is involved; Christakis and Shearer also acknowledge this aspect of complexity:

> "Once it is recognized that complexity is a state of mind, the interesting question is to investigate the similarities and differences in the states of mind of multiple observers. ... " (Christakis and Shearer, 1997:27)

The pluralistic component of complexity is particularly relevant in IM since it refers to the problems of multiple perceptions and social interaction involved in a participative effort to comprehend a complex situation, but an equivalent idea can be associated with STST. As described in Chapter 5, the theoretical bases of STST suggest

that an important source of complexity is related to problems of motivation, learning and co-ordination of social systems in the context of the on-going activities in which they are involved. Thus, the pluralistic component of complexity (Janes, 1992) can be considered as a part of a more general, social dimension of complex situations.

The social dimension would account not only for the problems derived from different interpretations and the social interactions involved in developing shared perspectives on complex issues, but also for the problems involved in the organisation and management of social systems when dealing directly with the flux of events and circumstances characterising a complex situation. Table 7.1 illustrates the differences between the cognitive, social and empirical dimensions in terms of the main sources of complexity associated to each dimension. However, it is important to note that this differentiation does not imply that it is possible to make a sharp distinction between each dimension when studying a specific situation; it only represents an analytical frame of reference to help in better understanding what is involved in dealing with complex situations.

Dimensions of complex situations:	**COGNITIVE**	**SOCIAL**	**EMPIRICAL**
Sources of complexity:	Bounded rationality. Cognitive burden. (cultural and psychological factors that influence the way in which meaning is attributed to what is perceived).	Different interpretations, interests, and beliefs. Lack of shared languages. Dynamics of human interaction. Different habits, needs and capabilities.	Large number and varied nature of the elements characterising the observed situation. Large number and non-deterministic nature of the relationships among elements

Table 7.1 Three Dimensions of Complex Situations

The social dimension differs from the empirical dimension since the first one concerns the relationships between the "subjects" involved in dealing with a complex situation while the empirical dimension refers to the characteristics of the situation seen as the "object" under study. Correspondingly, the social dimension differs from the cognitive dimension in that this last one refers to psychological factors involved in appreciating a situation, whilst the social dimension refers to issues specifically

associated with human interaction when a group of people is dealing with such a situation.

Related to the cognitive and social dimensions a negative connotation is often associated with complex situations, i.e., confusion, misunderstandings, or difficulty. A negative connotation can only be attributed to a situation through the exercise of human judgement and it is because of a negative connotation that a need to intervene in complex situations is recognised. Table 7.2 presents three examples of complex situations that are often associated with strong negative connotations.

Dimensions of complexity: / **Complex situation:**	**COGNITIVE** *Sources of complexity associated with an individual observer:*	**SOCIAL** *Groups involved in dealing with the situation and sources of complexity associated with them:*	**EMPIRICAL** *Characteristics of the situation that can be considered as sources of complexity:*
Origins of the Universe	Bounded rationality and intellectual skills. Professional and ideological background.	Scientific communities: different theories and political interests among their members.	Regularities and discontinuities in the behaviour of the celestial bodies.
Market competition in electronics industry.	Bounded rationality and intellectual skills. Professional education and previous experience.	Competing organisations: different interests they represent and the capabilities of their professional members.	Technologies in use and product features. Market preferences. Market share. Economic regulations.
Latin-American children begging and working in the streets.	Bounded rationality and intellectual skills. Social and economic ideologies.	These children and their families: their interests and capabilities. Governmental agencies and NGO's: different social and political interests and capabilities.	Socio-economic situation of these children. Available resources. Latin-American societies' responses to the situation.

Table 7. 2. Three Examples of Complex Situations

The negative connotation attributed to complex situations invites one to relate them to the idea of problematic situations. Complex situations and problematic situations share in common a sense of dissatisfaction: they represent challenging states of affairs for at least one human observer. The implications of this perspective within the context of systemic interventions will be further elaborated in the next section.

7.3 A HOLISTIC VIEW OF SYSTEMIC INTERVENTIONS IN COMPLEX SITUATIONS

As was mentioned in Section 6.4 an important difference between IM and STST refers to their purposes and context of application: IM represents a generic design approach to deal with complex situations while STST is more concerned with organisational design. In spite of this difference, at a general level of analysis both can be viewed as forms of conducting systemic interventions in complex situations.

Systemic interventions are considered as organised efforts, based on systems concepts, to bring about relevant changes in a situation. The tasks involved in systemic interventions have been conceptualised in terms such as problem-solving, design, planning, or improvement (Ackoff, 1981; Banathy, 1996; Flood and Jackson, 1991b; Warfield, 1994a; Ulrich, 1996). In the next subsections the notion of problem-solving will be used to explore the implications of a holistic view of systemic interventions since problem-solving is a term that has been widely used in literature to reflect upon concepts and methodological issues involved in promoting relevant changes in complex situations.

7.3.1 Problem-Solving as a Purposeful Effort to Produce Changes

A general idea on what a problem is considers it as a situation where there are differences between what is desired and what is perceived at present, and problem-solving is viewed as a purposeful effort aimed at eliminating the differences:

> "A problem is defined ... as an unsatisfied need to change a perceived present situation to a perceived desired situation. A solution to a problem is realized when the perceived present and desired situations are perceived to be the same." (Bartee, 1973:439)

According to Checkland (1981) a problem situation denotes a dissatisfaction with the actual state of affairs and the perceived present and desired situations are not necessarily clearly defined; their definition may be part of the problem situation itself.

In these terms, a problem-solving effort involves a human agent (an individual or a group) whose perceptions and interests indicate a sense of dissatisfaction; a situation which is perceived as unsatisfactory; and a set of activities organised to

produce a change from what is perceived to what is desired. In order to "solve" a problem three types of changes could be sought (Bartee, 1973): a) changes in the perceptions of the human agent, b) changes in the present situation and, c) changes in both the perceptions and the situation.

According to this view dealing with complex situations can be considered as a problem-solving effort in which the problems start with the sense of confusion produced by the perceptions of the present situation. Furthermore, the type of changes involved in problem-solving mentioned above could be directly related to the idea of addressing the three dimensions involved in dealing with complex situations that were described in Section 7.2:

a) *Changes in the perceptions of the human agent.*

As stated by Bartee:

> "... the perceived present situation can be transformed into the perceived desired situation." (Bartee, 1973:439)

In this case, understanding and acceptance of the perceived situation are reached through problem-solving and these become the means of eliminating the sense of dissatisfaction that the situation originally produced.

From the point of view of complex situations, promoting changes in perceptions is a way of directly addressing the cognitive dimension of complex situations; the social dimension is also involved to the extent that these changes concern the interpretations, interests, attitudes and value systems of the people involved in dealing with the situation. These are the types of changes needed, for instance, to address the first example of complex situations presented in Table 7.2, the origins of the universe. Problem-solving becomes a process to generate understanding and acceptance of the present situation.

b) *Changes in the present situation.*

In this case action is taken to change the characteristics of the situation in order to transform it into the desired situation. In a pure form this type of change implies the modification of the situation in such a way that the perception of the changed situation coincides with the desired situation.

These changes address mainly the empirical dimension of complex situations. However, since the recognition of a situation as complex necessarily involves the cognitive and the social dimensions (Section 7.2), in complex situations it cannot be possible to address the empirical dimension without involving the other dimensions as well.

c) *Changes in both the perceptions and the situation.*

According to Bartee (1973) this is the most common form of problem-solving and it implies some combination of (a) and (b).

Related to complex situations, changes in perceptions and in the situation concern the sources of complexity associated with the cognitive, the social and the empirical dimensions of complex situations (see Table 7.1). These would be the type of changes needed in the second and third examples presented in Table 7.2 where organisational and economic problems (market competition in the electronics industry), and societal problems (Latin-American children begging and working in the streets) are involved.

Finally, given the intricate and dynamic interactions of the elements involved in the cognitive, social and empirical dimensions of complex situations, problem-solving in this context cannot be thought of as a process through which complex situations are completely solved when selected changes are introduced. Instead, it should be conceptualised as a way of improving the actual situation by introducing relevant changes. As stated by Warfield when referring to societal problems:

> " 'Solution of a societal problem' is simply a short way of saying: 'developing sufficient understanding of the nature of the problem and effectively using this acquired understanding so that enough societal change can be effected to diminish substantially the perceived intensity of the problem, without creating other problems of equal or greater severity.' " (Warfield, 1976:11)

7.3.2. Problem-Solving as a Process

Looking at problem-solving from the point of view of a process is aimed at identifying which are the tasks involved in carrying out a problem-solving effort. In the

systems literature, the definition proposed by Wilson (1984) provides a good example of the type of activities involved in problem-solving:

> "The activity of problem-solving consists of, first of all, finding out about the situation in which the problem is believed to lie and then, through some analysis leading to decisions about what to do, taking action to alleviate the perceived problems" (Wilson, 1984:1)

The problem-solving tasks included in this definition are illustrated in the next figure:

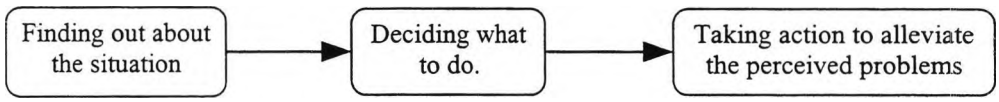


Fig. 7.1 Tasks Involved in Problem-Solving According to Wilson (1984)

In organisational literature, Schein (1988) proposes a model of the stages involved in problem-solving; this model is shown in the Figure 7.2.

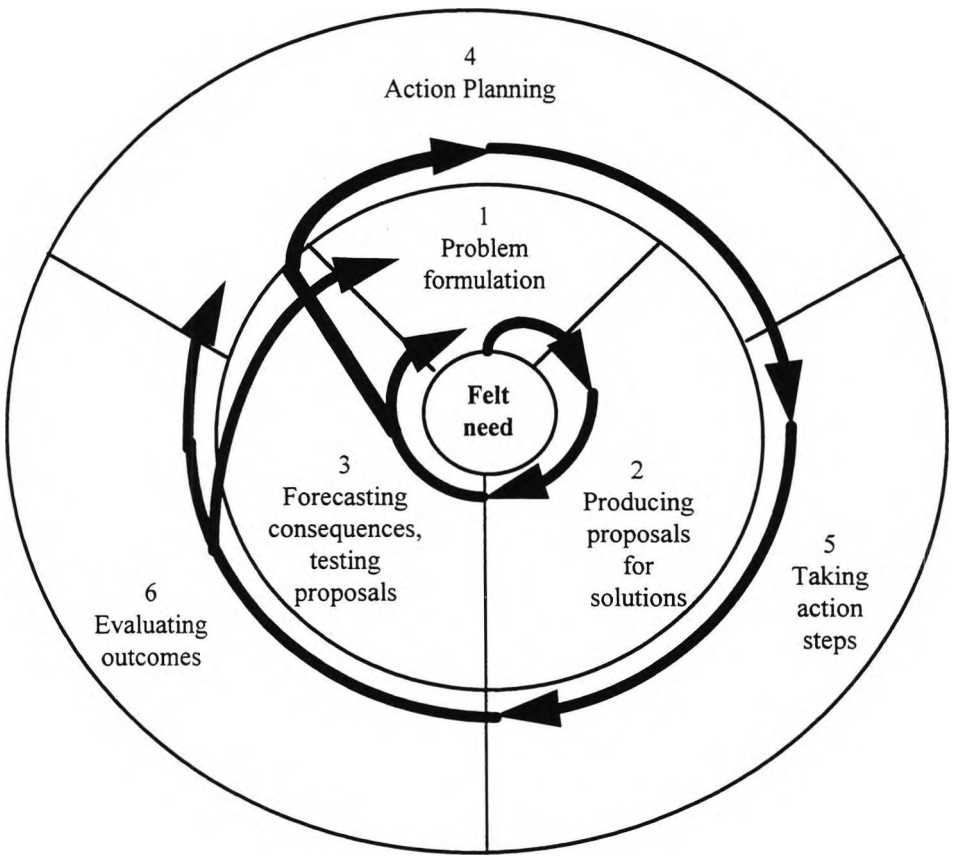


Fig. 7.2 A Model of the Stages of Problem Solving (Source: Schein, 1988:61)

A third account of the tasks involved in problem-solving is the one proposed by Ulrich (1983). Ulrich conceptualises a problem-solving system as a purposeful system which is self-reflective and at least partially internally motivated, that is, the system can be aware of its own implications and display internal choice behaviour (Ulrich, 1977). The tasks attributed to a problem-solving system are stated as:

> "... the three basic kinds of complementary problem-solving processes that a purposeful system .... must inevitably perform:
> 1. Inquiry: A purposeful system S must produce meaningful knowledge in respect to its purpose (S ought to become a purposeful inquiring system).
> 2. Action: S must secure the purposeful use of this knowledge (S ought to become a purposeful action system).
> 3. Valuation: S must responsibly evaluate its production and use of knowledge from the standpoint of both the client and those who do not benefit but might be negatively affected (S ought to become a purposeful, morally responsible, valuation system)." (Ulrich, 1983:335-336)

Table 7.3 illustrates that there is a correspondence between the tasks involved in problem-solving proposed by the authors mentioned above and with the proposed phases of IM (Section 2.3) to deal with complexity.

Problem-solving Processes (Ulrich, 1977)	**Problem-solving Activities (Wilson, 1984)**	**Stages in Problem-solving (Schein, 1988)**	**Phases Involved in Dealing with Complexity in IM (Section 2.3)**
Inquiry	Finding out about the situation	Problem formulation	Intelligence
	Deciding what to do.	Producing proposals for solution	Design
		Forecasting consequences, testing proposals	Choice
		Action planning	
Action	Taking action	Taking action steps	
Valuation		Evaluating outcomes	

Table 7.3 Tasks Involved in Various Perspectives on Problem-solving

Based on Table 7.3, the most general tasks that can be identified in a problem-solving process are inquiry, action and evaluation ("evaluation" is used instead of "valuation" since it is the usual term used in systems and organisational literature).

7.3.3 Systemic Interventions as Problem-Solving Processes

On the basis of the views on problem-solving presented in Sections 7.3.1 and 7.3.2, systemic interventions in complex situations can be considered as problem-solving processes which use systems concepts to bring about relevant changes. Furthermore, since complex situations cannot be thought of as situations that can be "solved" once and for all when selected changes are introduced (Section 7.3.1.), another important aspect of a systemic intervention concerns the development of capabilities of the social systems involved in the intervention to deal with the situation on a continuous basis (Gharajedaghi, 1985).

Thus, systemic interventions are viewed as formally planned, temporary organised efforts through which situations are improved by introducing changes that diminish the negative connotations associated with those situations, and by an increase in the ability of the people involved in the intervention effort to comprehend and manage the situations of concern.

According to this perspective, the most general procedural components of systemic interventions are inquiry, action and evaluation. The inquiry component is related to the development of satisfactory understandings of the situations of concern and the design of appropriate solutions. The action component refers to the implementation of the designed solutions. The evaluation component involves a holistic assessment of the processes, products, and consequences of an intervention.

These three components of a systemic intervention can be related to the three dimensions of complex situations presented in Section 7.2. The relationship is shown in Table 7.4 in terms of the endeavours that are typically involved in each component of an intervention and their expected outcomes; the three components are discussed in the following paragraphs.

Components of a Systemic Intervention / Dimensions of complex situations:	INQUIRY	ACTION	EVALUATION
COGNITIVE	Defining Designing Deciding	Defining Designing Deciding	Assessing
SOCIAL	Communicating	Communicating Co-ordinating	Assessing
EMPIRICAL	Comparing/Testing	Implementing	Assessing
EXPECTED OUTCOMES:	Learning Shared perspectives. Agreed decisions. Satisfaction	Learning Improvement Satisfaction	Learning Definition of possible improvements.

Table 7.4 Different Endeavours Involved in a Systemic Intervention in Complex Situations and their Expected Outcomes

a) *Inquiry.*

The inquiry component deals with the cognitive dimension through definition, design and decision-making processes. The social dimension is addressed through the management of communication processes among the individuals involved in the intervention. The empirical dimension is indirectly addressed in the inquiring effort through cognitive processes; in Table 7.4 it is related to the inquiry component only in terms of the possibilities it has for comparison or testing purposes. The outcomes that can be expected from inquiry concern the possibilities of learning and reaching agreements about the main issues at stake and how to address them, as well as individual and collective satisfaction with the process and products of the inquiry.

b) *Action.*

The action component addresses the cognitive dimension to the extent that "acting upon" specific situations involves cognitive responses to events and circumstances that do not necessarily imply a formally organised inquiring effort

(Schön, 1983); these responses are associated, as in the case of inquiry, with definition, design and decision-making processes. Addressing the social dimension, besides involving the communication processes associated with social interaction, requires the mobilisation and co-ordination of groups and individuals. The social and the empirical dimensions are the major focus of the action component. Action takes place in order to change specific aspects of the situation according to the decisions made as a result of the inquiry and these may imply behavioural, social and technical issues. The expected outcomes include learning about the situation and satisfaction with the results of the action effort; these outcomes are ultimately concerned with the accomplishment of changes that reflect improvements in the situation according to the criteria of the people involved.

c) *Evaluation.*

Evaluation refers to the need to explicitly reflect upon the processes, results and consequences of an intervention; it is not aimed at directly addressing the dimensions of complex situations. The basic endeavour involved is the assessment of the effectiveness of systemic interventions in dealing with the situations. Evaluation can be approached on a continuous basis during the intervention as well as a final task that is helpful in bringing to a formal closure the intervention process. If a systemic intervention is not brought to closure regarding the original interests which initiated it, then it becomes a continuous improvement effort and evaluation would concern the on-going development of the social systems involved (Ulrich, 1977). Finally, the expected outcomes from evaluation involve the learning that takes place as a result of the assessment, as well as the definition of possible improvements to the intervention process and to the situation being addressed.

Based on the ideas presented in this section, a holistic view of systemic interventions in complex situations implies that such interventions should address the cognitive, social and empirical dimensions of complex situations, and that to do so the three basic processes: inquiry, action and evaluation should be considered as fundamental components of an intervention effort.

7.4 FROM INQUIRY TO ACTION: TWO RESEARCH QUESTIONS ON INTERACTIVE MANAGEMENT

According to the results of the comparison between IM and STST presented in Chapter 6, a major difference lies in their methodological proposals for dealing with complexity. IM concentrates on the design of inquiring systems while STST focuses on the design and operationalisation of action systems. On the other hand, in Section 7.3 inquiry and action have been conceptualised as two of the three basic components of a systemic intervention. Therefore, the idea of studying IM from the point of view of an action system concerned with the implementation of the outcomes of the IM process (Chapter 6) can now be approached in terms of the relationship between inquiry and action in the context of a systemic intervention.

Based on the description of inquiry and action proposed in Section 7.3.3, one way of looking at their relationships is to consider how they complement each other in order to bring about relevant changes in a complex situation. Inquiry and action can be considered as complementary in at least two senses:

a) The outcomes of inquiry represent inputs for action. The most direct way through which inquiry and action can be related is when the outcomes of the inquiry process include decisions and/or designed solutions that need to be carried out. It is in this sense that action refers to the implementation of the results of inquiry. Figure 7.3 shows this relationship.

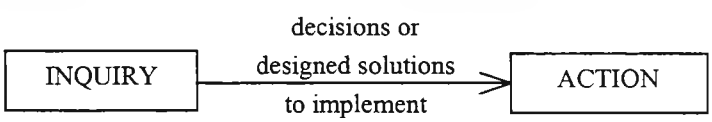


Fig. 7.3 Outputs of Inquiry as Inputs for Action

b) Inquiry and action may be related to different types of changes that can improve a situation. Because of the nature of the endeavours involved in inquiry (Table 7.4), it is mainly associated with changes in perceptions. These changes address the cognitive dimension of complex situations and the communication aspects of

the social dimension. On the other hand, since the action component refers to the implementation of the decisions derived from inquiry, the changes involved in this case address more directly both the social and the empirical dimensions of complex situations (Section 7.3.1).

Therefore, inquiry and action imply a different emphasis in addressing the cognitive and the empirical dimensions of complex situations, while addressing the social dimension is an integral aspect of both inquiry and action. Taken together, inquiry and action bring about changes that concern the three dimensions of complex situations: the cognitive, the social and the empirical. This complementarity is illustrated in Figure 7.4.

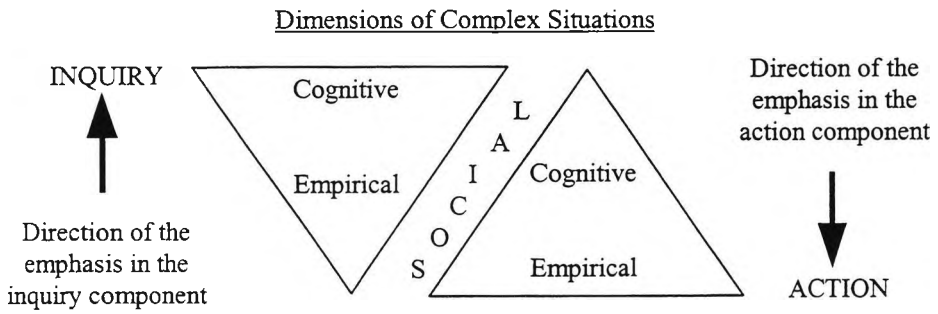


Fig. 7.4 Complementarity between Inquiry and Action in Addressing the Three Dimensions of Complex Situations

In order to explore the conceptual and methodological implications of studying IM from an action perspective according to the complementarities between inquiry and action just described two general research questions were identified. The first question is related to the development of a better understanding of the IM process from an action point of view; the second question refers to the possibility of designing an IM project considering the need to integrate the inquiry and action components of a systemic intervention in complex situations:

a) Research Question No. 1

According to the discussion on systemic interventions in complex situations presented in this chapter, as an inquiring process, IM addresses basically the

cognitive and the social dimensions of complex situations. The description of the methodological prescriptions and conceptual framework of IM presented in Chapters 2 and 3 illustrate how the IM process has been designed to help groups of people to develop shared understandings of complex situations and to arrive at agreed upon perspectives on how to tackle those situations.

However, apart from the idea that the client and the broker should be in charge of the follow-up of the outcomes of IM work, IM does not offer methodological guidelines concerning the implementation process once a set of actions to be undertaken has been decided (Warfield and Cárdenas, 1994). Furthermore, since the implementation of the decisions that derive from the IM process has not been formally studied, from an action perspective this situation suggests that it is important to find out whether and why implementation takes place as a result of an IM project. In order to approach these issues the following research question has been identified:

What are the factors that contribute to or inhibit the implementation of the decisions that derive directly from the IM process ?

This research question is based on the idea that establishing what courses of action should be undertaken does not necessarily imply that the actions will actually take place. Besides the definition of courses of action to undertake, it is considered that implementation generally involves social, individual, material and/or economic requirements which are not necessarily involved in the process of establishing the courses of action; according to Brunsson:

> "*Action* .... includes activities other than the purely cognitive, and it cannot be expected to derive automatically from decisions, or choices, or problem-solving activities." (Brunsson, 1985:7)

However, the first research question also acknowledges that the IM process involves much more than the mere definition of actions to be undertaken, and therefore, points to the need of identifying how the characteristics of an IM project could be related to the implementation of its outcomes.

b) Research Question No. 2

Based on the idea that IM represents the inquiry component of a systemic intervention, and given the interest of research question No. 1 in understanding IM in terms of its contributions to the action component of such an intervention, the second question concerns the possibility of including both components, inquiry and action, as a part of the design of an IM project:

How should an IM intervention should be planned and organised so as to promote the implementation of the decisions that derive directly from the IM process ?

In these terms, the possible answers to the second research question are expected to derive from understanding the factors which contribute or inhibit the implementation of the decisions that derive directly from the IM process (research question No. 1).

In order to address the two research questions that have just been stated the most important factors that impinge upon the effectiveness of the relationship between inquiry and action in a systemic intervention have been conceptually identified. Based on such identification, field research has been designed and carried out. Chapters 8 to 11 describe and discuss the design and results of the field research, and the rest of this chapter is devoted to discussing the most important ideas on inquiry, action and their relationship that formed the basis for the field research.

7.5 THE IM INQUIRING PROCESS IN THE CONTEXT OF AN ACTION EFFORT

According to the complementarities between inquiry and action discussed in Section 7.4, a central aspect of their relationship is the way in which the outcomes of inquiry operate as inputs for action. In the context of IM, the definition of tangible and non-tangible outcomes of the IM process presented in Table 2.1 has been used to distinguish between conceptual and socio-psychological outcomes of IM that may be

relevant inputs to the action component of an intervention. Conceptual outcomes refer to the products of IM that portray the descriptions, designs and/or decisions arrived at by the participants. Socio-psychological outcomes concern the changes in attitudes and beliefs experienced by the people involved in the IM process.

Even though conceptual and socio-psychological outcomes are closely intertwined, this section discusses them separately in order to illustrate better how they may be related to the action component of an intervention.

7.5.1 Conceptual Outcomes of IM

Since conceptual outcomes refer to the intellectual constructs that describe the situations under study and their possible solutions, their development is basically associated to the cognitive dimension of complex situations. The central aim of IM in this respect is to support a community of inquirers in attaining a state of cognitive equilibrium regarding their perspectives on the situation under study (Section 3.6.2). The conceptual aspect of these perspectives represents the outcomes that can be expected from an inquiring process in the context of a problematic situation: better understandings of the situation and proposals for action. In IM these outcomes take the form of sets of ideas and structural models which portray relevant relationships among the elements that characterise a situation and its possible solutions.

The way in which these outcomes relate to the action component depends on the levels of success sought when proceeding from the intelligence to the design phases of an IM project (Section 2.3). The first three levels refer to a progressive understanding of the situations under study and apply to the intelligence phase; they do not involve the definition of action proposals to address those situations (Section 2.3). Thus, the conceptual outcomes associated with these levels of success (such as a problematique) cannot be considered as direct inputs to the action component.

The last two levels of success of IM: i) finding good alternative designs for resolving the issue under study (4th. Level), and ii) arriving at a good action choice to resolve the issue (5th. Level), are the ones directly related to defining actions to address a situation (Section 2.3). Taken together these levels of success encompass the conceptual outcomes of IM that set an explicit basis for initiating an action effort. The products of IM associated with this aim can be divided in two sets:

a) *Products concerning the changes to introduce in a situation.*

The sets of ideas generated, which represent the proposed changes, may consist of the desired characteristics of a system (such as topics to be taught in the design of a curriculum) or specific actions to undertake in order to improve the situation. The structural models which portray patterns of interaction between these ideas can take different forms; among the most typically used are: i) options fields and options profiles which depict a classification of ideas in relevant categories and indicate the ideas selected for implementation from each category; ii) support structures which represent how the accomplishment of some actions supports the accomplishment of other actions; and iii) resolution structures which relate the proposed ideas with a problematique, helping to identify which solutions have a stronger impact in the situation. Appendix C shows some examples of these structural models.

b) *Products concerning implementation plans.*

In the description of the last two levels of success of IM presented in the *Handbook of Interactive Management* (Warfield and Cárdenas, 1994) the need to develop implementation plans is not explicitly recognised. However, Warfield (1997a) and Christakis and Shearer (1997) consider this requirement as an important aspect of the products to be developed within an IM project. The sets of ideas involved in developing an implementation plan typically consist of the activities needed to implement the proposed changes and the people responsible of carrying out those activities. The structural model that corresponds more closely to an implementation plan is the Delta Chart. The Delta Chart portrays a relationship of time precedence between activities (and the actors associated to the activities), events and decisions; however, it is possible to develop other types of structural models based on the idea of establishing a sequence for carrying out the activities.

The conceptual outcomes of IM just described are important inputs for action in the sense that they guide the action efforts, i.e., they define what is expected to be done. Thus, the effectiveness of the relationship between inquiry and action depends upon the

appropriateness of the conceptual outcomes of inquiry as prescriptions for action. Both the content and the form of the conceptual outcomes play a major role in this respect as they encompass the relevance and feasibility of the proposed changes, and the adequacy and clearness of their descriptions.

Based on the above ideas it can be said that the suitability of the conceptual outcomes of IM as prescriptions for action may be influenced by factors such as: i) the characteristics of the IM process, ii) the plan of the intervention which includes, among other things, the IM products to be developed and the selection of participants, ii) the possibility of refining the conceptual outcomes by iterating between the intelligence and design phases of inquiry, as well as between inquiry and action, where both iterations concern the evaluation component of an intervention, and iii) the context and dynamics of the situation being addressed.

7.5.2 Socio-psychological Outcomes of IM

The socio-psychological outcomes of IM are associated with the management of the cognitive and the social dimensions of complex situations. These outcomes derive from all the aspects of inquiry that involve human interaction and therefore they only concern the people who participate in the inquiring process. The socio-psychological outcomes expected from IM include: i) the development of mutual understanding and shared meanings, ii) learning leading to changes in attitudes, ideas, and beliefs, and iii) consensus and commitment to action (Section 2.3).

Because of its emphasis on the socio-psychological outcomes, IM has been considered by Tsivacou (1993) as a "discursive systems methodology" (DSM):

> "With the term DSM are called methodologies (like 'Soft Systems Methodology', 'Interactive Management Methodology', 'Interpretive Systemology', 'Critical Systems Heuristics', among others) which are based on a participative and discursive process of inquiry and which are also structured as systems... These methodologies try to restructure the problem situation of participants by effecting a change of the worldviews, ideas, and beliefs of participants in such a situation." (Tsivacou, 1993:119)

The changes in worldviews, ideas and beliefs referred to above constitute the essence of the socio-psychological outcomes. According to Tsivacou (1993) these changes could be conceived as a part of the action component of an intervention in the sense that action represents a process of transformation which involves material and

social conditions. In her view, DSM transform social conditions by modifying the cultural regularities which set the context for action:

> "DSM are composed of three identifiable stages: first is the constitution of the systemic structure used to capture meaning; second is a process of mutual explanations which tries to ... reveal a common domain ... third is a readjustment of individual expectations to the organization's expectations by using the function of meaning and constituting in this way a processing of shared experience. Consequently, the discursive interactions among participants of the DSM redefine and restructure meaning and thereby they redefine all the cultural regularities on which meaning is anchored." (Tsivacou, 1993:124).

However, even if the socio-psychological outcomes of IM correspond to the type of changes identified by Tsivacou (1993), they cannot be considered as action elements. In order for the socio-psychological outcomes to become actual changes in the social conditions of a situation they should be manifest in behavioural changes which can hardly be recognised as a part of the inquiring process itself. This is a central aspect of organisational learning:

> "When organizational inquiry leads to learning, its results are manifested in thought and action that are in some degree new to the organization. In instrumental learning, organizational inquiry yields new ways of thinking and acting that enable the improved performance of an organizational task. In this sense, the attribution of organizational learning is contingent on the presence of an observable change in behavior...." (Argyris and Schön, 1996:33).

In the context of a holistically conceived systemic intervention another aspect of the socio-psychological outcomes is the need to be attuned with the conceptual outcomes in order for both to become integrated inputs of the action component. The socio-psychological outcomes that respond to this need involve the development of commitment to the decisions made. Commitment to action depends, among other things, on the level of agreement and satisfaction reached in producing decisions.

Examining the IM process various characteristics which may contribute directly to the development of socio-psychological outcomes can be found: i) the methods used for generating and structuring ideas which help groups develop a common language and get involved in a focused and in-depth dialogue (Section 2.7); ii) the differentiation of roles between participants and facilitation team which helps to promote a balanced participation (Sections 2.5 and 2.6); and iii) the management of information in order to avoid cognitive overload (Sections 2.7, 2.8 and 2.9).

On the other hand, according to the ideas on small group behaviour presented in Chapter 4, the development of socio-psychological outcomes is highly dependent on the group processes taking place during the IM activity. In some cases these outcomes may only represent conformity, compliance or identification responses to group activity, which dissipate as group pressure disappears (Section 4.5.3). If the socio-psychological outcomes expected from IM are meant to be internalised by group members, i.e., become an integral part of their value systems, group activity and its products should have a strong positive connotation for its members (Section 4.5.3). As described in Section 4.5, the development of good levels of satisfaction and trust in group work is contingent upon the development of the natural processes of groups. One of the most important factors that impinges upon the effective development of group processes is the time the group members spend together.

Finally, regarding the ultimate consequences of the IM inquiring process, it should be noted that its socio-psychological outcomes represent the most important contribution of soft systems thinking recognised by Jackson (1992) as these outcomes respond to the practical interest identified by Habermas (1971) (Section 3.7.1). However, from the point of view of the holistic conceptualisation of systemic interventions presented in Section 7.3, without a corresponding action effort these outcomes only represent a partial response to the three dimensions of complex situations.

7.6 THE ACTION COMPONENT OF A SYSTEMIC INTERVENTION

The action component of a systemic intervention refers to the implementation of the conceptual outcomes of inquiry, and is meant to lead to actual improvements in the situation that originally initiated the intervention:

> "The action that resolves a problematic situation is what Dewey [1938] would call the 'end-in-view' of inquiry, the purpose that sets it in motion; and it is by reference to such an action that we can judge whether organizational inquiry has been effective." (Argyris and Schön, 1996:33).

According to the description of the action component presented in Section 7.3.3, action involves the cognitive dimension of complex situations, as it cannot be dissociated from the social and the empirical dimensions. However, the focus of the

action component lies in bringing about changes in the social and material conditions of a situation (Tsivacou, 1993) which involve more than only cognitive issues.

Within this view, this section explores some major aspects of the action component of an intervention in terms of four related topics: the meaning and implications of implementation, ideas stemming from the literature on change management, socio-psychological conditions for action and, the contributions of STST to the design and operationalisation of action systems.

7.6.1 On Implementation

Implementation is basically concerned with the realisation of the conceptual outcomes of the inquiry component of an intervention as these are related to the accomplishment of proposed changes. In this respect it is interesting to note that it is not common to find published literature focused on implementation issues, and less still on implementation failures that might be helpful in understanding the major problems involved in implementation:

> "The practice of management science normally involves recommending changes to existing organizational practices and procedures and it is well known that, in some cases, such changes are not successfully accomplished. The description of applied work in the literature is often silent on whether proposed changes actually took place. Some authors do reflect on the difficulties of achieving change but admissions of implementation failure are rarely published." (Walsham, 1993:187)

According to Walsham (1993) implementation failures in management science are often associated to a lack of attention to the contextual issues (political, cultural and material) that constrain an implementation effort and to the implementation process itself.

Together with the above issues, the characteristics of an implementation effort depend also on the nature and scope of the proposed changes. However, the changes proposed to address a complex situation cannot be easily typified. These changes may involve a wide variety of possibilities both in number and in scope such as the whole re-structuring of an organisation, the installation of new equipment or the setting up of management procedures. Furthermore, implementation does not lead to a "yes or no" type of results, i.e., there can be different levels of accomplishment in an implementation effort. This idea is illustrated in Figure 7.5.



Fig. 7.5 A Continuous Scale of the Levels of Accomplishment of an Implementation Effort

Full implementation (right extreme of the above scale) implies that the decisions made are realised together with the changes implied by those decision as these are represented in the conceptual outcomes of inquiry. This would be the case for example when an information system has been designed and the implemented system portrays all the characteristics proposed in its design. No implementation at all (left extreme of the scale) means that none of the decisions made is fulfilled. Between the two extremes there is place for a whole range of possibilities in terms of both the quantity and the effectiveness of the implemented changes. In the above example the quantity would refer, for instance, to the number of specifications of the design that get implemented, while the effectiveness would concern the question of how well the implemented specifications conform to the proposed design.

The possibilities of effectively completing the implementation of proposed changes may be influenced by a number of factors related to the inquiry and the action processes, the nature and scope of the proposed changes, and the characteristics of the situations being addressed. In Section 7.5.1 the relevance of the conceptual outcomes of inquiry as prescriptions for action was discussed and a set of specific factors mainly related to the inquiry process was identified.

From the point of view of the implementation process itself, it should be noted that in order for an action system to implement proposed changes it should possess the resources, capabilities and power needed to accomplish its task, and it must be able to "adjust" to the requirements of the action situation. Adjustment to the requirements of the action situation implies that an important factor for successful implementation is related to the possibilities of learning from action. As opposed to the type of learning

that is promoted during inquiry, according to Ackoff (1981) learning during implementation requires an experimental approach:

> "...if an organization's ability to improve its performance continuously is to be developed, the implementation of plans should be undertaken experimentally. Experimentation is controlled experience; it enables us to learn much more rapidly and effectively than we can from ordinary experience and trial and error." (Ackoff, 1981:237)

Another aspect of implementation associated with the scale shown in Figure 7.5 is that even if full accomplishment of the proposed changes (right extreme) is achieved, this does not necessarily lead to an improvement of the situation. According to the discussion on action presented in Section 7.3.3, improvement is related to the sense of satisfaction experienced by the people affected by the situation. This satisfaction is in turn associated with the technical and social appropriateness of the proposed changes with respect to the characteristics and dynamics of the situation under study.

Besides the above it is important to note that once enacted into the life of a social system, the implementation process may dissolve into a larger action system not necessarily concerned with the original aims of the intervention. Therefore, in order to be able to learn from the whole intervention effort and bring it to a closure, a final evaluation becomes a necessary component of the intervention process.

7.6.2 Change Management

Change management may be related directly to implementation since it is concerned with the effectiveness of producing relevant changes in organisations. However, it should be noted that in most cases the literature on change management refers specifically to processes of organisational change as opposed to the generic perspective on systemic interventions adopted here.

Change management has been a widely explored subject in organisational literature (see for example Brunsson, 1985; Burnes, 1996; Mabey and Mayon-White, 1993; Schein, 1987). The extensive body of literature that has been published in this field offers a wide variety of perspectives on how to approach organisational change. Burnes (1996) for example, identifies two basic approaches:

> "The *planned* approach to change has dominated the theory and practice of change management for the past 50 years. Based on the pioneering work of Kurt Lewin, this approach views organisational change as essentially a process

> of moving from one fixed state to another through a series of predictable and pre-planned steps. The *emergent* approach, which came to the fore in the 1980s, starts from the assumption that change is a continuous, open-ended and unpredictable process of aligning and realigning an organisation to its changing environment." (Burnes, 1996:170-171)

Considering these two approaches it can be noted that the planned approach to change is the one more consistent with the management of implementation in a systemic intervention. This approach involves consideration of an inquiring phase through which the purposes and characteristics of the change process are defined; the emergent approach on the other hand, is more concerned with the design of organisations that may be able to change according to environmental changes.

The most widely known model on which the planned approach is based is the three-step model developed by Lewin (1958): unfreezing, moving, and refreezing.

> "Unfreezing usually involves reducing those forces maintaining the organisation's behaviour at its present level... Moving [implies that] having analysed the present situation, identified alternatives and selected the most appropriate, action is then necessary to move to the more desirable state of affairs... Refreezing seeks to stabilise the organisation at a new state of equilibrium in order to ensure that the new ways of working are relatively safe from regression..." (Burnes, 1996:182-183)

An important emphasis made by Lewin (1958) referred to the notion that groups tend to revert back to previous patterns of behaviour if no attention is paid to promoting ways of stabilising the new patterns (refreezing).

Besides the identification of the two approaches to change just discussed, different concepts underlying the proposals for managing change can be found in this field. In particular, there are three contrasting strategies advocated by different authors; these strategies refer to the focus of attention for conducting the change process: the individual, the group and the structures.

Programmatic Change (Individual emphasis)	Task Alignment (Structural emphasis)
Problems in behaviour are a function of individual knowledge, attitudes, and beliefs.	Individual knowledge, attitudes and beliefs are shaped by recurring patterns of interaction.
The primary target of renewal should be the ideas and attitudes; actual behaviour should be secondary.	The primary target of renewal should be behaviour; attitudes and ideas should be secondary.
Behaviour can be isolated and changed individually.	Problems in behaviour come from a circular pattern, but the effects of the organisational system on the individual are greater than those of the individual on the system.
The target for renewal should be at the individual level.	The target for renewal should be at the level or roles, responsibilities, and relationships.

Table 7.5 Contrasting Assumptions about Change Management (Based on Beer et al., 1993:100)

Table 7.5 illustrates the assumptions underlying the strategies focusing on the individual and on the structure. According to Crozier and Fredberg (1977) these two strategies represent the two basic perspectives that can be found when addressing an organisational change process: acting on the people (whether at the individual or at the group level) or acting on the structures. In this respect, Crozier and Fredberg (1977) advocate the need to incorporate both approaches in an integrated strategy.

The different concepts and prescriptive models found in the literature on change management indicate that there is not yet available a generally accepted conceptual framework for managing change, and that there is still much research to be done in this field (Burnes, 1996; Crozier and Fredberg, 1977, Stickland and Reavill, 1995). However, at the same time the ideas found help to recognise the need to reflect upon alternative strategies for conducting a change process and to base the design of such an strategy on the consideration of human responses to change.

7.6.3 Socio-psychological Conditions for Action

According to the discussion of the socio-psychological outcomes of inquiry (Section 7.5.2) and the ideas on the action component presented in section 7.3.3, addressing the social dimension of complex situations is perhaps the main issue at stake regarding the action component of a systemic intervention. This view is supported by

different perspectives on the problems associated with the introduction of changes in a social context.

From a socio-psychological point of view, Brunsson (1985) distinguishes between two kinds of rationality associated with a change effort: *decision rationality* and *action rationality*. Depending on the characteristics of the decision processes involved these rationalities may even conflict with each other, especially when decision-makers and actors are not the same people. Decision rationality is more concerned with cognitive issues, while action rationality involves cognitive, emotional and social issues.

Considering the need to relate decision and action rationalities in an action effort, Brunsson (1985) identifies three socio-psychological conditions for action:

> "An important cognitive condition for organizational action is *expectation* ... [individuals] must believe that their doing will result in an organizational action...
> A second condition for organizational action is *motivation*, i.e., people's desire to contribute... Motivation is dependent on people's assessment of the action, whether they regard it as good or bad. Thus motivation may be partly determined by choice or decision. At the same time it is in itself an essentially emotional aspect of action...
> A third condition of organizational action is *commitment*. This is the social aspect of action ... 'Commitment' means that a person is regarded by other people as being clearly tied to a specific action. The ties must be perfectly evident to others, explicit and 'strong', if they are to persist through the effort and energy required to overcome the foreseen and unforeseen difficulties that are typical of change actions...
> If a decision is to initiate an intended organizational action ... organizations should provide cognitive, motivational and social links between decisions and actions." (Brunsson, 1985:19-22, 52)

The relevance of these conditions in a specific action situation would depend, among other things, on the characteristics of the changes sought, culture and power relations within the organisation, and the external pressures to change.

Decision-making processes may encourage the development of expectations, motivation and commitment, for example, by promoting participation. However, they may also counteract these conditions. There are two major obstacles to expectations, motivation and commitment that can be associated with the decision-making processes used as well as to the general context in which organisational action is meant to take place: uncertainty and conflict.

Uncertainty represents a strong obstacle to the development of motivation; it affects the cognitive and the emotional sources of motivation. Uncertainty may be associated with cognitive doubts (confusion, ignorance, unfamiliarity), or with judgmental doubts about the appropriateness of the action effort involved (how good or bad is the change in question). When uncertainty is associated with issues of high stake for the people involved, i.e., it represents a risky situation, then it becomes a further threat to motivation since it provides justification for "contra-motivation, i.e. motivation *not* to undertake action." (Brunsson, 1985:43).

Within this perspective, rationalistic decision-making processes that encourage the analysis of all the pros and cons of alternatives are likely to increase uncertainty as the amount of contrasting and inconsistent information grows. Also, it should be noted that there are studies on group dynamics which indicate that sometimes groups are more prone than individuals to take risks in their decisions (Cartwright and Zander, 1968) and this may operate against the possibilities of carrying out such decisions.

Conflict also represents an obstacle to action to the extent that it portrays substantial or affective disagreements (Anzieu and Martin, 1990) regarding the changes to be accomplished:

> "Conflict is important to an understanding of organizational action, since it greatly reduces the likelihood of commitment ... A conflict between two parties is a strong expression of their differences, signalling the parties' decision not to co-operate in a common action - it is their 'de-commitment'." (Brunsson, 1985:116)

According to the review of group processes presented in Chapter 4, one of the most effective ways to deal with the emergence of conflict in a group setting is through open and profound dialogue (search of consensus). However, the presence of conflict as a strong obstacle to action is not only related to group dynamics, but also to cultural and institutional characteristics which may prevent the possibility of establishing open and profound dialogues (Brunsson, 1985).

In organisations with many ideological inconsistencies - as those manifested in contrasting values - conflict is more likely to surface as a response to change initiatives; in those circumstances people avoid commitment since there are no common grounds for initiating an action effort. In the case of political organisations, such as the ones formed by representatives of various interest groups, conflict characterises the nature of the relationships between decision-makers, it is institutionalised. In these cases there is

a strong orientation towards decision rationality (Brunsson, 1985). Decision-making is commonly based on processes that promote the expression of disagreement (like majority voting) leaving almost no place for the development of commitment:

> "The difficulty surrounding organizational action in political organizations may even lead to a focus on decisions, a state in which the politicians regard decisions rather than actions as their duty.... A decision orientation enables people to make decisions without worrying about any subsequent actions.... [this] may mean that decisions are reached on many radical organizational changes, but that these are never carried through." (Brunsson, 1985:161-163)

In view of the ideas just discussed, it can be said that IM supports the development of expectation, motivation and commitment by promoting the participation of stakeholders, by helping them to clarify their perspectives on complex situations and by engaging them in relevant dialogues.

However, as noted on Section 7.5.2, the possibility of encouraging these socio-psychological responses to change through IM applies only to the individuals directly involved in the IM process. Therefore, when the participants in the IM process and those involved in the implementation effort are not the same people, attention should be paid to the way expectation, motivation and commitment may be encouraged among the implementers. Another important aspect of these socio-psychological conditions is that even if they can be encouraged among the participants in the IM process, provisions should be taken to encourage their permanence through the action effort.

Besides the socio-psychological aspects of organisational action just discussed, there are some major effects of organisational changes in the social structure of an action system that should be considered:

> "Organizational change ... involves much more than just moving boxes around an organizational chart or 'adapting' workers to a new technology. It actually means restructuring a system of action by redistributing the crucial zones of uncertainty, and, consequently, redistributing an important part of the advantages and resources used by the various organizational groups in their negotiations ... this has a very direct effect on the negotiating capacities of the members of the organization and, therefore, on their ability to play the role expected from them." (Crozier and Fredberg, 1977:93)

Within this perspective Crozier and Fredberg (1977) emphasise the need to recognise the social dynamics that are triggered when a change effort is carried out. Even if there is no opposition to the proposed changes, individuals would act in such a way as to protect their autonomy and this could be enough to counteract the expected

outcomes of change. This situation concerns not only the people who participate directly as actors in inquiry and implementation, but also all other groups and individuals who may be affected by the change process and its outcomes. Such a process of social change is mediated by a learning process:

> " ... learning, i. e., the discovery, creation and acquisition by the actors concerned, of new relational models, new modes of reasoning, in short, new collective capacities." (Crozier and Fredberg, 1977:339)

Thus, the actual changes that get accomplished derive from the combination of both the "pre-defined" purposes of change and the responses and reactions of the people involved in the change process.

7.6.4 Contributions of STST

STST emphasises the need to design action systems in order to promote both joint optimisation of socio-technical systems and improvements in the quality of working life (Chapter 5). In the light of the complementarities between inquiry and action discussed in Section 7.4, it is considered that the contributions of STST to the design of action systems can be helpful in understanding and designing an action component associated with the inquiry process portrayed in the IM approach.

As described in Section 5.6.3, the main concepts and methodological foundations of STST are synthesised in the socio-technical design principles presented in Table 5.4 (Cherns, 1976, 1987). Therefore, the approach to identifying the potential contributions of STST for conceptualising the action component of an intervention has been based on a reflection on the possible implications of such principles for an implementation effort. In pursuing this approach attention has been paid to the fact that the action systems derived from socio-technical designs are meant to become long-lasting action systems while an implementation effort is mostly concerned with "temporary" systems.

The possible implications of the socio-technical design principles for the action component of an intervention have been grouped in the following themes:

a) *Consistency.*

There are two socio-technical principles associated with the idea of promoting consistency between objectives, processes and social support when designing an action system: *Compatibility and Support Congruence* (Cherns, 1976; 1985). According to these principles and considering that IM encourages participation, openness and learning, the implementation process should be characterised by the same features. Another important aspect of consistency refers to the need to ensure that the people with the power and authority needed to support the implementation of the outcomes of IM are willing to do so even if they do not participate directly in the IM process. This aspect of consistency is explicitly recognised in the IM literature (Warfield, 1991; Warfield and Cárdenas, 1994).

As suggested in Section 7.6.3, if participation, openness, learning and social support are fostered during implementation they should be helpful in supporting the development and/or preservation of the socio-psychological conditions for action identified by Brunsson (1985): expectation, motivation and commitment.

b) *Flexibility.*

One of the most well-known principles of socio-technical design is the principle of *Minimal Critical Specification* (Cherns, 1976; 1985). Instead of defining rigid and detailed specifications, the idea is to identify the objectives and minimum desired characteristics of a system, and to provide the means for a social system to achieve them with a maximum of flexibility. This principle is related to the conceptual outcomes of IM that concern both the definition of changes and of their implementation plans (Section 7.5.1).

A major problem with this principle is that even if the idea of defining minimum specifications seems appropriate from a conceptual point of view, in practice it could be very difficult to recognise when minimum specification has been reached. This is in part the reason why the principle of *Incompletion* (Cherns, 1976; 1985) is also associated with the interest in promoting flexibility.

Incompletion refers to the iterative nature of a design process. It highlights the importance of iterating between inquiry and action as well as between the different levels of conceptualisation involved in the inquiring process itself. This

last type of iteration is also emphasised in the conceptual framework of IM in the form of a *Principle of Formal Iteration* (Warfield, 1994a).

Another socio-technical design principle that supports the design for flexibility is the *Multifunctional* principle (Cherns, 1976; 1985). In order for a system to be more adaptive each element should be able to perform more than one function. In a socio-technical design this principle implies that the individual members should be trained in the different functions carried out by the system. Since the implications of this principle are particularly relevant for an on-going action system, it is considered it cannot be clearly related to an implementation effort.

c) *Empowerment.*

Empowerment is a key concept in STST as it is related to two important aspects of the design of an action system: the exertion of control where it is needed and the support required to accomplish a task and to exercise control over it.

The principle of *Variance Control* (Cherns, 1976; 1985) asserts that control should be exerted as close to the source of deviation from the norm as possible. In an implementation effort this implies that people must be able to make decisions and take corrective actions according to the circumstances faced while accomplishing their tasks.

The principles of *Power and Authority and Information Flow* (Cherns, 1976; 1985) refer to the management support needed to accomplish a task and have control over it. Power and authority are required over the resources involved in carrying out the implementation of changes. In turn, information should also be available for the implementing actors according to the requirements of their tasks.

The principle of *Boundary Location* (Cherns, 1976; 1985) advocates the definition of comprehensive operational units which do not prevent the sharing of information, knowledge and learning. As related to implementation this principle indicates the need to reflect upon the composition of an implementation system in terms of the variety of information, interests and capabilities of the actors involved.

Besides the ideas just discussed which are associated with nine of the ten socio-technical design principles, the principle of *Transitional Organisation* (Cherns 1976; 1985) is also related to the design of the action component of an intervention since it refers directly to the implementation phase of a socio-technical design. This principle considers the need of planning the start up and closure phases of a transitional effort.

As a result of the analysis of the socio-technical design principles, a set of important implications of STST for the design of an action system concerned with the implementation of the outcomes of IM have been found. Among other things, these implications suggest important aspects to consider in the design of implementation plans (such as minimum specifications, resource allocation and role definition) and in the characteristics of the implementation process (such as iteration and consistency).

7.7 CONCLUSIONS

The different orientations found between IM and STST regarding inquiry and action have been helpful in identifying the complementarity of these two approaches in the context of systemic interventions in complex situations. The relevance of this complementarity stems from the identification of three dimensions of complex situations that need to be addressed in a systemic intervention: a cognitive, a social and an empirical dimension (Section 7.2).

A systemic intervention that is meant to address these three dimensions of complex situations needs to integrate three basic components: inquiry, action and evaluation (Section 7.3). The inquiry component is concerned with the development of shared understandings of a situation and substantial agreements on how to deal with it; the action component refers to the implementation of such agreements; and the evaluation component involves the assessment of the intervention in order to learn and to be able to improve the outcomes as well the intervention process itself.

Considering the emphasis of IM in the inquiry component of an intervention, two research questions have been identified associated with the possibilities of relating IM with the action component (Section 7.4).

In order to proceed with field research to find out comprehensive responses to the research questions a conceptual exploration has been made regarding the main issues involved in an implementation effort and the possible contributions of STST to

the design of an implementation system. These ideas were discussed in terms of the inquiry and action components of an intervention (Sections 7.5 and 7.6) and they suggested the importance of considering not only the characteristics of each one of these components, but also their relationship, the context of the situation under study and the design (planning) of the whole intervention.

Thus, as a result of this conceptual exploration it is considered that the factors that could have more influence on the possibilities of implementation can be associated to the five aspects of an intervention mentioned above:

i) The planning process of the intervention.
ii) The characteristics of the inquiry component.
iii) The relationship between inquiry and action.
iv) The characteristics of the action component (the implementation process).
v) The context of the intervention.

The specific factors associated with each one of these five aspects are discussed in Chapter 8 together with the basis and characteristics of the design of the field research used to address the research questions.

CHAPTER 8

FIELD RESEARCH DESIGN

8.1 INTRODUCTION

This chapter discusses the characteristics of the field research that was designed to address the research questions stated in Section 7.4. Section 8.2 reviews the nature and implications of the research questions and presents the methodological foundations of the field research. Section 8.3 presents the two field research strategies selected to address the research questions: a case study of two IM projects carried out within the same organisation and in-depth interviews with IM practitioners and clients. Finally, based on the ideas on inquiry and action discussed in Chapter 7, Section 8.4 presents the conceptual framework on which the field research design was based.

8.2 NATURE OF THE RESEARCH QUESTIONS AND THE FIELD RESEARCH

Considering the interest of the research questions in understanding the IM process from an implementation point of view, this section starts by examining some of the major implications of these questions for the field research. Based on those ideas, this section explains why a qualitative approach was selected as the main approach to address the research questions and the major features of such an approach are described.

8.2.1 Major Implications of the Research Questions

The research questions stated in Section 7.4 concern the possibility of relating the nature and characteristics of the IM process to the implementation of the decisions that derive from IM group activity. The general purpose underlying the two research questions refers to the development of a good level of understanding of the factors and

processes involved in conducting an intervention based on IM when such an intervention leads to the implementation of agreed upon decisions.

The first research question concerns the identification of the factors which may contribute to or inhibit the implementation of the outcomes of IM; the aim here is to understand how the implementation process is influenced by the characteristics of the IM process and the way it is managed. The second research question concentrates on how an IM project could be organised in order to support implementation. The conceptualisation of this second question was based on the idea of finding out enough conceptual and empirical support in the answers given to the first research question to derive a proposal for conducting IM projects in order to promote implementation.

In the light of the issues involved in understanding the inquiry and action components of an intervention discussed in Sections 7.5 and 7.6, it was considered that in order to address the two research questions a global perspective on the study of the intervention process should be adopted. This view implied, among other things, that the study should take into account the five aspects of an intervention which were identified as relevant for implementation purposes in Section 7.7: i) the planning process of the intervention; ii) the characteristics of the inquiry component; iii) the relationship between inquiry and action; iv) the characteristics of the action component; and v) the context of the intervention.

Therefore, in order to address the research questions in a comprehensive way, the relationship between inquiry and action needed to be explored in terms of a broad array of social and methodological aspects which involved not only some specific characteristics of the IM process and their relationships, but also their contextualisation in specific circumstances. In analysing the implications of these ideas for the field research it was concluded that because of the nature of the understanding aimed at by addressing the research questions and the characteristics of an IM project, a qualitative approach should be the main approach to proceed with the field research, as opposed to pursuing a quantitative approach. The purposes attributed to qualitative research by Maxwell (1996) are the following:

> "There are five particular *research* purposes for which qualitative studies are especially suited:
> 1. Understanding the *meaning*, for participants in the study, of the events, situations, and actions they are involved with and of the accounts that they give of their lives and experiences...

2. Understanding the particular *context* within which the participants act, and the influence that this context has on their actions...
3. Identifying *unanticipated* phenomena and influences, and generating new grounded theories about the latter...
4. Understanding the *process* by which events and actions take place... a major strength of qualitative research is in getting at the processes that led to these outcomes...
5. Developing *causal explanations*... quantitative and qualitative researchers tend to ask different kinds of causal questions. Quantitative researchers tend to be interested in whether and to what extent variance in *x* causes variance in *y*. Qualitative researches, on the other hand, tend to ask *how x* plays a role in causing *y*, what the process is that connects x and y." (Maxwell, 1996: 19-290)

In terms of these ideas, the interest of the research concentrates on items 3, 4 and 5, i.e., understanding the process by which events and actions take place as well as understanding how certain factors play a role in promoting implementation, and on considering the possibility of identifying unanticipated phenomena and influences relevant to the research questions. Even though items 1 and 2 do not represent the focus of the research, they represent relevant aspects to consider since the context of the projects and the meanings attributed to the situations by the participants cannot be dissociated from the other purposes of the research.

8.2.2 Qualitative Research

Many authors in the literature of research design make a distinction between two research paradigms: quantitative and qualitative (Berg, 1998; Chadwick et al, 1984; Creswell, 1994; Kirk and Miller, 1986; Maxwell, 1996; McCracken, 1988). According to Maxwell (1996), quantitative and qualitative research are not only different means for accomplishing the same research purposes, they represent different perspectives on research issues, stem from different scholarly traditions, and both possess different strengths and weaknesses. In this respect, Creswell (1994) synthesises the basic assumptions underlying each paradigm according to a number of authors (Smith, 1983; Guba and Lincoln, 1988; McCracken, 1988; and Firestone, 1987); this synthesis is shown in Table 8.1.

Assumption	Question	Quantitative	Qualitative
Ontological Assumption	What is the nature of reality?	Reality is objective and singular, apart from the researcher	Reality is subjective and multiple as seen by participants in a study
Epistemological Assumption	What is the relationship of the researcher to that researched?	Researcher is independent from that being researched.	Researcher interacts with that being researched.
Axiological Assumption	What is the role of values?	Value - free and unbiased	Value-laden and biased
Rhetorical Assumption	What is the language of the research?	Formal Based on set of definitions Impersonal voice Use of accepted quantitative words.	Informal Evolving decisions Personal voice Accepted qualitative words.
Methodological Assumption	What is the process of research?	Deductive process Cause and effect Static- design categories isolated before study Context - free Generalizations leading to prediction, explanation and understanding Accurate and reliable through validity and reliability.	Inductive process Mutual simultaneous shaping of factors Emerging design - categories identified during research process Context - bound Patterns, theories developed for understanding Accurate and reliable through verification

Table 8.1 Quantitative and Qualitative Paradigm Assumptions (Source: Creswell, 1994:5)

According to the ideas presented in Table 8.1, the qualitative approach represents better than the quantitative approach the assumptions and interests, which guided this research. In terms of the five assumptions mentioned in Table 8.1, this research was based on the following:

a) Ontological Assumption. This research has been based on the idea that, even though an empirical dimension of reality is acknowledged, reality is essentially subjective and the conclusions derived from this study were shaped by the recognition of the multiple perceptions of those involved in the research.

b) Epistemological Assumption. The role of the researcher in this study is clearly recognised as an important aspect of the research, not only in terms of her role as investigator, but also because of her background and direct interest in the practice of IM, as well as because of the history of her relationship with the participants in the research.

c) Axiological Assumption. Even though provisions have been made to avoid as much as possible detrimental biases in conducting the research, it is also acknowledged that the interests and worldviews of the researcher and of the participants in the research played an important role in shaping the discourses which took place during the research.

d) Rhetorical Assumption. Regarding this assumption, an attempt has been made to preserve as much as possible a formal approach to the use of terms. The most significant effort in this direction is manifested in Appendix D, where an attempt was made to define as precisely as possible the "a priori" factors identified as relevant for implementation purposes in the context of an IM project (Section 8.4). However, due to the nature of the research and given the interaction with the participants in the research, it is acknowledged that those definitions represented only a point of departure for initiating the conversations which took place during the interviews carried out all through the field research.

e) Methodological Assumption. The most significant methodological assumptions of the research referred to the relevance attributed to the context of an IM project and to the idea that the different factors that play a significant role in implementation simultaneously shape each other within the context of each particular IM project. An important implication of these assumptions manifested itself in the use of a set of research questions to guide the study, instead of stating a precise hypothesis to be tested.

Regarding the results that may be obtained from a qualitative research study, the most important issues at stake concern the possibilities of generalising the conclusions obtained and the validity of those conclusions. Some major validity issues are discussed in Section 8.3 when describing the two strategies that were chosen to carry out the field research, and they are considered again in Chapter 11 during the discussion of the results of the research.

As far as generalisability is concerned, according to Maxwell (1996) qualitative research is not always aimed at producing conclusions that may be generalisable to complete populations. Instead, very often qualitative research is specifically interested in the study of particular groups, events or situations. However, qualitative research designs can also contribute to generalisation efforts. The generalisations that could be derived from a qualitative study are based on an in-depth understanding of particular situations, which may contribute to develop coherent theoretical propositions applicable to other instances of the phenomena under study. Maxwell (1996) exemplifies some of the arguments that support the generalisation of conclusions from qualitative studies in the following terms:

> "First, qualitative studies often have what Judith Singer (personal communication) has called *face generalizability*; there is no obvious reason *not* to believe that the results apply more generally. Second, the generalizability of qualitative studies usually is based, not on explicit sampling of some defined population to which the results can be extended, but on the development of a theory that can be extended to other cases (Becker, 1991; Ragin, 1987; Yin, 1994). Third, Hammersley (1992, pp. 189-191) and Weiss (1994, pp. 26-19) list a number of features that lend plausibility to generalizations from case studies or nonrandom samples, including respondents' own assessments of generalizability, the similarity of dynamics and constraints to other situations, the presumed depth or universality of the phenomenon studied, and corroboration from other studies. All of these characteristics can provide credibility to generalizations from qualitative studies, but none permit the kinds of precise extrapolation of results to defined populations that probability sampling allows." (Maxwell, 1996:97-98)

Thus, the aim of this research regarding generalisability was concentrated on the possibilities of identifying sound conceptual answers to the research questions based on the results of field research designed from a qualitative perspective.

Based on these characteristics of qualitative research, the next section discusses the research strategies that were selected to carry out the field research.

8.3 FIELD RESEARCH STRATEGIES

8.3.1 Selection of Strategies for the Field Research

The research strategies associated with a qualitative approach are generally related to studies carried out in fields such as sociology, psychology, anthropology,

evaluation research and administrative sciences (McCracken, 1988). Among some of the most well known strategies for qualitative research Creswell (1994) mentions the following:

> "**Ethnographies**, in which the researcher studies an intact cultural group in a natural setting during a prolonged period of time by collecting, primarily observational data... The research process is flexible and typically evolves contextually in response to the lived realities encountered in the field setting (Wallen & Fraenkel, 1991)....
> **Grounded theory**, in which the researcher attempts to derive a theory by using multiple stages of data collection and the refinement and interrelationship of categories of information (Strauss & Corbin, 1990)...
> **Case Studies**, in which the researcher explores a single entity or phenomenon ('the case') bounded by time and activity (a program, event, process, institution or social group) and collects detailed information by using a variety of data collection procedures during a sustained period of time (Merriam, 1988; Yin, 1989).
> **Phenomenological studies**, in which human experiences are examined through the detailed descriptions of the people being studied... the procedure involves studying a small number of subjects through extensive and prolonged engagement to develop patterns and relationships of meaning (Dukes, 1984; Oiler, 1986)..." (Creswell, 1994:11-12)

Additional qualitative research strategies cited by Denzin and Lincoln (1994) include the biographical method, the historical method, action and applied research, and clinical research.

Considering these strategies as possible alternatives for the field research, the case study strategy was chosen as the main approach to conduct the research for the following reasons:

a) The focus of analysis of a case study: "a single entity or phenomenon ... bounded by time and activity (a program, event, process, institution or social group)" (Creswell, 1994:12) corresponds directly to the characteristics of the focus of the research: an intervention process based on IM.

b) According to Yin (1994), the characteristics of a research situation for which case studies are most suitable include: the focus of the research questions towards explanatory purposes, when the researcher has little or no control over events and circumstances, and when the interest lies in studying contemporary phenomena which are context-bounded. These characteristics are portrayed in

the implications of the research questions discussed in Section 8.2.1, as well as in the nature of the situations to be studied during the field research.

Having selected the case study strategy as the main strategy for the research and considering that the focus of the research questions was concentrated on a general issue and not in a particular situation, it was also recognised that the nature of the case study to be investigated corresponded to what Stake (1994) and Berg (1998) call "instrumental case studies":

> "*Instrumental case studies* are cases examined to provide insight into some issue or to refine some theoretical explanation (Stake, 1994). In these situations, the case actually becomes of secondary importance. It will serve only a supportive role, a background against which the actual research interest will play out ... the intention is to assist the researcher to better understand some external theoretical question or problem... the choice of a particular case for study is made because the investigator believes that his or her understanding about some other research interest will be advanced." (Berg, 1998:216)

Besides the selection of the case study strategy for addressing the research questions, a further consideration was made regarding the possibility of complementing the results to be obtained from a case study and it was decided to incorporate another strategy as a part of the field research design.

This other strategy was not based on the consideration of the formal approaches discussed at the beginning of this section, but on the idea of gathering additional relevant information to support or contrast the conclusions obtained from the case study. The chosen strategy was to conduct a series of in-depth interviews with IM practitioners, i.e., people with knowledge of and experience in applying the IM process, and with IM clients, i.e., people who could be considered as the most directly interested recipients of the results of the IM process in specific situations.

Even though conducting of in-depth interviews does not seem to correspond by itself to a specific research strategy within the qualitative research tradition, it was included as a part of the field research design since the interviews with relevant actors could help to gain additional insights into the intricacies associated with the management of an intervention process based on IM.

The following sections discuss in more detail the research strategies that were selected for this research.

8.3.2 Case Study

The conceptual guidelines for designing the case study were mostly taken from the work of Yin (1994, 1993) and additional conceptual support was found in the work of Berg (1998), Creswell (1994), and Stake (1994).

The formal definition of a case study proposed by Yin (1994) asserts that:

"1. *A case study is an empirical inquiry that*
- investigates a contemporary phenomenon within its real-life context, especially when
- the boundaries between phenomenon and context are not clearly evident.

2. *The case study inquiry*
- copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
- relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
- benefits from prior development of theoretical propositions to guide data collection and analysis." (Yin, 1994)

Within this perspective, Yin (1994) distinguishes between three types of case studies, exploratory, descriptive and explanatory. Exploratory case studies aim at finding empirical evidence to develop hypotheses or theoretical propositions that would be further studied. Descriptive case studies aim at identifying the characteristics of certain phenomena and their incidence or prevalence within particular situations. Explanatory case studies on the other hand, are of more interest in understanding how or why some phenomenon takes place given its context and its characteristics. In this research an explanatory case study was designed because of the interest in understanding how and why implementation takes place as a result of an IM project.

Another important characteristic of the case study is that it corresponds to a "single-case" design instead of what has been labelled "multiple-case design". According to Yin (1994) multiple-case designs involve the study of six to ten cases where there is an interest in predicting similar or contrasting results among the different cases; this type of case design follows the logic of experimental replication where each case is treated as a single object of study and it is not to be confused with a sampling logic. On the other hand, single-case designs are based on one of the three following reasons: a) the case represents a critical case which exhibits the necessary conditions to test a previously formulated theory; b) the case represents a unique or extreme case, i.e.,

it illustrates a rare phenomenon not to be found easily; and c) the case is a revelatory case in that it represents an opportunity to study a phenomenon "previously inaccessible to scientific investigation" (Yin, 1994:40).

The case study that was selected for conducting this research portrays elements that are related to items (a) and (c) above. The case refers to the use of the IM process in a charity organisation located in the city of Monterrey, Mexico, where the IM process was used to conduct two different projects within a period of 3 years. This case was considered "critical" in the sense mentioned above since it was considered that the application of IM followed the typical characteristics of the IM process and therefore the case illustrated most of the elements to be studied. At the same time, this case was considered as "revelatory" because it provided the opportunity of studying the use of the IM process on two occasions within the same organisational context, and because the relationship of the researcher with the case allowed for the accessibility required to the various sources of information.

A final major aspect of the case study design that was followed involved the development of a preliminary theory to guide the field research. In sharp contrast with other qualitative strategies (such as ethnography and grounded theory), Yin (1994) stresses the importance of constructing a preliminary theory in order to design field research based on a case study strategy oriented towards explanatory purposes. This methodological advice stems from the need to design a case study in such a way as to promote the collection and analysis of relevant data, to be able to proceed on the basis of relevant existing literature, and to make explicit the researcher's views on the issue under study. The basic elements of the preliminary conceptual framework on which the design of the case study for this research was based is presented in Section 8.4.

8.3.3 Interviews with IM Practitioners and Clients

As stated in Section 8.3.1, it was decided to conduct a series of interviews with IM practitioners and with IM clients in order to complement the results obtained from the case study. The importance of the interviews in qualitative research lies in the possibility of having access to different individual perspectives on the subject of study and being able to challenge or support the assumptions and conclusions of the researcher with those perspectives; as stated by Burges (1982):

> "... (the interview) is ... the opportunity for the researcher to probe deeply to uncover new clues, open up new dimensions of a problem and to secure vivid, accurate inclusive accounts that are based on personal experience" (Burgess 1982:107, quoted by Easterby-Smith at al., 1991:73)

The design of the interviews was based on the idea of finding out additional insights to probe the preliminary conceptual framework on which the case design was based. They were planned as semistandardised interviews to investigate specific topics, but it was also expected that they would provide an opportunity to uncover issues not previously considered. According to Berg (1998), a semistandardised interview has the following characteristics:

> "This type of interview involves the implementation of a number of predetermined questions and /or special topics. These questions are typically asked of each interviewee in a systematic and consistent order, but the interviewers are allowed freedom to digress; that is, the interviewers are permitted (in fact expected) to probe far beyond the answers to their prepared and standardized questions." (Berg, 1998:61)

The interviews were conducted in order to inquire into the perspectives of two types of subjects: IM practitioners and IM clients. Since these people represented two different perspectives on the IM process it was judged that their contributions would be complementary. The selection of the interviewees was based on the following:

a) Interviews with IM Practitioners.

In selecting the IM practitioners to interview, a random sampling of individuals (statistical sampling) was discarded because the aim was to contact the people most knowledgeable and experienced with the IM process. Thus, the sampling strategy was based on what Maxwell (1996) describes as "purposeful sampling":

> "...This is a strategy in which particular settings, persons, or events are selected deliberately in order to provide important information that can't be gotten as well from other choices." (Maxwell, 1996:70)

Therefore, the individuals selected for interviews were the people known by the researcher as having most ample experience with the IM process. They were five IM practitioners located in the US: Henry Alberts, Benjamin Broome, Alexander Christakis, Scott Staley and John N. Warfield, and in Mexico, three of the four individuals with most experience with the IM process in the country (the other one being the researcher) were interviewed: Carlos Flores, Carmen Moreno and

Reynaldo Treviño. Besides these people, there was also the possibility of interviewing Ross Janes, an IM practitioner with ample experience and located in the UK, however since Ross Janes is one of the supervisors of this research it was considered that he was too much involved in the work being done to be considered as a participant in the field research.

b) Interviews with IM clients.

In the case of the IM clients even though the selection of interviewees on the basis of a statistical sampling could be desirable, very pragmatic reasons prevented the researcher from having access to the population concerned (restrictions on time, resources and availability of information). Thus, it was decided to interview a number between five and ten IM clients who could be contacted within the restrictions of the research. In the end, out of an initial list of eight candidates only five IM clients were available for interviewing. These five IM clients are all located in the city of Monterrey, Mexico, and their contributions during the interviews were most valuable for developing the conclusions of this research.

Considering the features of the field research strategies chosen, the next section discusses some validity issues associated with the field research in general.

8.3.4 Validity Issues

According to Creswell (1994), the most significant validity issues of a scholarly research refer to the internal validity (conceptual and empirical basis), the external validity (generalisability), and the reliability (possibility of replication) of the research. These issues are considered in more detail in the discussion of the results of the research (Chapter 11) as they relate to the global conclusions obtained from this research.

On the other hand, referring to qualitative research in particular, Maxwell (1996) proposes that special attention be paid to three threats that may challenge the validity of the research. Table 8.2 presents the three threats to validity identified by Maxwell (1996) together with a brief comment on how these threats were addressed during the research.

VALIDITY THREATS (Maxwell 1996:89-90)	PROVISIONS MADE
"*Description*. The main threat to valid description, in the sense of describing what you saw and heard, is the inaccuracy or incompleteness of the data... For this reason, you should *always* record and transcribe interviews unless there is a strong reason not to..."	All the interviews involved in the case study, as well as those made to the IM practitioners and to the IM clients were recorded and transcribed.
"*Interpretation*. The main threat to valid interpretation is imposing one's own framework or meaning rather than understanding the perspective of the people studied ... The most important check ... is to seriously and systematically attempt to learn how the participants in your study make sense of what's going on, rather than pigeonholing their words and actions in your own framework..."	Since this is mainly an attitudinal issue, an explicit attempt was made during the interviews and during the analysis of their transcriptions to understand the ideas offered by the interviewees.
"*Theory*. The most serious threat to the theoretical validity of an account is not collecting or paying attention to discrepant data, or not considering alternative explanations or understandings of the phenomenon you are studying."	The use of tabular formats to analyse the information and conclusions, together with an explicit search for alternative explanations and discrepant data.

Table 8.2 Validity Threats to Qualitative Research and the Provisions Made in their Regard in this Study

Having discussed the main characteristics of the field research, the next section presents the preliminary conceptual framework that guided the detailed design of the case study and of the interviews of IM practitioners and IM clients.

8.4 CONCEPTUAL FRAMEWORK: MAJOR FACTORS INVOLVED IN THE IMPLEMENTATION OF THE OUTCOMES OF AN IM PROJECT

This section presents the preliminary conceptual framework of the research in terms of the five aspects of an intervention considered relevant for implementation purposes (Section 8.2.1), the identification of the specific factors associated with each one of those aspects in view of their relevance for implementation purposes, and the implications of these ideas for the field research.

8.4.1 The Planning Process of the Intervention

The planning process of an intervention has an important influence on the possibilities of implementation since it is through planning that the scope and purposes of the intervention are established. Of particular importance is the consideration that not all IM projects are aimed at making decisions about actions to undertake (Section 7.5).

A project plan is developed based on an initial appraisal of the situation of concern and on the initial perspectives on the situation of those involved in planning. Two major components of the project plan are the definition of the IM products to be developed and the selection of the people who would be involved in the intervention. These components portray the social and the conceptual basis of an IM intervention.

Based on these ideas and on the elements involved in the planning phase of IM (Warfield and Cárdenas, 1994) there is a set of at least eleven factors related to the planning process that could have relevant influence on implementation. Table 8.3 lists those factors and a brief description of each one of them is presented in Appendix D.

No.	RELEVANT FACTORS
1	Aims of the intervention
2	Scope of the intervention
3	People involved in the planning process
4	General characteristics of the planning process
5	Understanding of the situation
6	Objectives of the project
7	Definition of participants and their roles in the whole intervention
8	Selection of participants for the IM workshops
9	Broker's training
10	The planned work sequence
11	Briefing the participants in the IM process.

Table 8.3 Major Factors Associated with the Planning Process of an IM Intervention that could Influence the Possibilities of Implementation

8.4.2 The Characteristics of the Inquiry Component

For the purposes of this analysis, the characteristics of the inquiry component include the characteristics of both the IM process and its outcomes.

Section 7.5.1 pointed out the importance of the suitability of the conceptual outcomes of IM as prescriptions for action. Suitability means that the content and the form of the conceptual outcomes are relevant and clear for action purposes. Relevance and clearness are associated with the types of structural models developed in IM for representing the proposed changes and their implementation plans, the levels of detail portrayed in the models, and with a proper documentation (Sections 7.5.1 and 7.6.4).

The socio-psychological outcomes of IM refer to the changes in attitudes, ideas and beliefs experienced by the people who participate in the IM process (Section 7.5.2). These changes involve the development of mutual understandings, shared meanings, consensus and commitment with the results of IM. The achievement of such changes is related to the conversational features of IM and to the satisfaction of the participants with the process and its outcomes. Regarding implementation an additional aspect of these outcomes concerns their relationship with the socio-psychological conditions for action discussed in Section 7.6.3: expectation, motivation and commitment for action.

The development of the conceptual and the socio-psychological outcomes of IM is directly associated with the characteristics of the IM process. Three elements of IM were explicitly considered in this respect in Sections 7.5.1 and 7.5.2: the methods used for generating and structuring ideas, the differentiation of roles between participants and the IM facilitation team, and the need to promote iteration between the different phases of inquiry. On the other hand, Sections 7.5.2 and 7.6.3 emphasised the relevance of the group processes during the IM work; the time that the group members spent together and the way groups deal with conflict were considered of particular importance.

Examining the ideas just discussed, and the description of IM presented in Chapters 2 and 3, thirty-four interrelated but distinguishable factors have been identified that could be associated with the possibilities of implementation. These factors have been classified in five groups and are listed in Table 8.4; Appendix D provides a brief description of each one of them.

1. Global Characteristics of the Inquiry Process	
1.1	Activities carried out during the inquiry process.
1.2	Time framework of the inquiring effort
1.3	Total duration of the IM activity
1.4	Participants
1.5	Observers
1.6	IM Facilitation Team
1.7	Consistency of the actual process with the IM plan
1.8	Iteration in defining the conceptual outcomes.
1.9	Documentation
1.10	Appropriatness of the products developed.
2. Characteristics of Each Workshop	
2.1	Objectives of Each Workshop
2.2	Time distribution of each workshop
2.3	Participants
2.4	Observers
2.5	IM methods used
2.6	Other activities or methods used besides IM

3. Socio-Psychological Processes	
3.1	Individual's attitudes and expectations
3.2	Group climate
3.3	Group development processes
3.4	Sub-group formation
3.5	Group cohesion
3.6	Conflict present and its resolution
4. Conceptual Outcomes	
4.1	Characteristics of the ideas generated
4.2	Characteristics of the structural models developed
4.3	"Transparency" of the structural models
4.4	Other conceptual outcomes
4.5	Responsibility for follow-up
4.6	Follow-up specific commitments
4.7	Implementation plan
4.8	The 'transparency' of the conceptual outcomes regarding their implementation
5. Socio-psychological Outcomes	
5.1	Level of consensus
5.2	Level of satisfaction
5.3	Level of commitment for action
5.4	Other socio-psychological outcomes of the IM workshops

Table 8.4 Major Factors Associated with the IM Process that could Influence the Possibilities of Implementation

8.4.3 The Relationship between Inquiry and Action

The relationship between inquiry and action refers mostly to the roles of the groups and individuals involved in both inquiry and action, and to the processes that support the coherence between inquiry and action once the action has been initiated.

Sections 7.6.3 and 7.6.4 established that an important factor for facilitating new organisational action is the involvement of the concerned actors in defining the proposed changes and their implementation plans, i.e., their participation in the inquiry process. However, there are several factors that may prevent the involvement of these

people in the inquiry process. Among these factors are: the perceptions of the situation at the outset of the intervention by the people in charge of planning the project and selecting the participants (Section 8.4.1), the possibilities of IM allowing for the participation of all the people concerned (Section 2.5), and the context of the situation (Section 8.4.5).

The importance of the participation of the implementation actors in inquiry stems from the need to promote their understanding of and commitment to the proposed actions. Understanding and commitment could be fostered by involving these actors in inquiry or by establishing appropriate communication processes. A related issue at stake is the perceived legitimacy of the inquiry process.

Besides the involvement of the implementation actors in the inquiry process, Section 7.6.4 indicated the need to consider the role of the people with decision-making authority in supporting the implementation efforts.

An additional important factor identified in Sections 7.5.1 and 7.6.4 refers to the iteration between inquiry and action. Iteration between inquiry and action is associated with the evaluation component and with the learning that takes place during an intervention: it involves the possibility of reviewing previous decisions and adjusting the whole intervention process to changing requirements and perceptions. Iteration is a major aspect of the flexibility required for carrying out an action effort (7.6.4).

Based on the aspects of the relationship between inquiry and action that have just been mentioned and on the corresponding characteristics of IM presented in Chapter 2, it is considered that there are at least eight relevant factors which could have a significant effect on the possibilities of successful implementation. Table 8.5 lists the eight factors and Appendix D provides a brief description of each one of them.

No.	RELEVANT FACTORS
1	Role of the IM broker in the follow-up
2	Role of the IM participants in implementation
3	Role of the IM observers in implementation
4	Role of relevant authorities in inquiry and implementation
5	Relationship of other implementation actors with the inquiry process.
6	Communication of results
7	Institutional support for implementing the outcomes of inquiry
8	Iteration between action and inquiry

Table 8.5 Major Factors Associated with the Relationship between Inquiry and Action that could Influence the Possibilities of Implementation

8.4.4 The Characteristics of the Action Component (the Implementation Process)

Since the action component of an intervention represents the implementation process itself, the relevance of the action component for the research questions concerns the identification of the factors that - within the implementation process - may facilitate or inhibit a successful implementation.

According to the ideas presented in Section 7.6 there are a number of conditions needed to carry out a new organisational action such as an implementation effort. In Section 7.6.3 the socio-psychological conditions for action proposed by Brunsson (1985) were discussed together with some other important aspects of the sociological and socio-psychological basis of organisational action. Section 7.6.4 discussed a set of requirements for action in terms of the STST framework; these requirements were synthesised under the labels of consistency, flexibility and empowerment.

Based on those ideas there is a set of six relevant factors that could have a significant effect on the possibilities of successful implementation. Table 8.6 lists the six factors identified and Appendix D provides a brief description of each one of them.

No.	RELEVANT FACTORS
1	Implementation actors
2	Motivation and commitment
3	Availability of resources
4	Power and authority
5	Communication processes
6	Learning and adjustments

Table 8.6 Major Factors Associated with the Action Component that could Influence the Possibilities of a Successful Implementation

8.4.5 The Context of the Intervention

The different factors discussed so far are all related to the characteristics of the intervention process itself. However, in the discussion on inquiry and action presented in Sections 7.5 and 7.6 additional relevant issues were identified regarding the situation being addressed. These issues account for the context of the intervention.

There are two aspects of the context of an intervention that play an important role in the possibilities of undertaking a new action effort: the characteristics of the situation itself and the social setting in which the intervention takes place. Even though the two aspects are closely intertwined it is possible to differentiate them for analytical purposes.

The characteristics of the situation account for factors such as the history of the situation regarding the need for an intervention, previous efforts undertaken to address the situation, and the changes in the situation occurring during the intervention (Section 7.6.1). On the other hand, the social setting in which the intervention takes place refer to the organisational characteristics of the institutions (or informal groups) concerned as well as to their socio-political background (Section 7.6.3). Associated with these elements is the consideration of the people being affected by the intervention and its outcomes and who are not directly involved in the intervention process.

The major factors derived from the ideas just exposed are presented in Table 8.7 and a brief description of each one of them is given in Appendix D.

No.	RELEVANT FACTORS
1	History of the situation
2	Characteristics of the organisation(s) concerned
3	Organisational culture
4	Power structures and political issues
5	Stakeholders not involved in the intervention process
6	Communication processes
7	Major changes in the situation
8	Implications of the proposed changes for the organisation(s) concerned.

Table 8.7 Major Factors Associated with the Context of an Intervention, which could Influence the Possibilities of Implementation

8.4.6 Implications of the Research Questions and the Identified Factors for the Field Research

Since the research questions refer to the idea of understanding the relationship between inquiry and action within an intervention based on IM, the central unit of analysis of the research concerns the whole process involved in an IM intervention. According to the ideas discussed in Section 8.4.1 to 8.4.5 there are four possible levels of analysis for approaching the study of such an intervention.

The first level of analysis represents the broadest perspective and it includes the three fundamental components of an intervention: inquiry, action and evaluation. This level of analysis was briefly discussed in Section 7.3.3 by presenting the general characteristics attributed to a systemic intervention.

The second level of analysis refers to the five aspects of an intervention that were identified while exploring the characteristics of inquiry and action considered relevant for implementation (Sections 7.5 and 7.6). These five aspects were discussed in Sections 8.4.1 to 8.4.5.

The ideas presented in Sections 8.4.1 to 8.4.5 indicated that there are at least 67 factors that could have a significant influence on implementation (Table 8.8). The 67 factors identified represent thus a third level of analysis.

ASPECTS OF AN IM INTERVENTION CONSIDERED AS RELEVANT FOR IMPLEMENTATION		No. OF FACTORS INVOLVED
i)	The Planning Process of the Intervention	11
ii)	The Characteristics of the Inquiry Component (the IM Process)	34
iii)	The Relationship Between Inquiry and Action	8
iv)	The Characteristics of the Action Component (the Implementation Process)	6
v)	The Context of the Intervention	8
	TOTAL	**67**

Table 8.8 Number of Factors Considered Relevant for Implementation Purposes

As can be noticed from the description of the 67 factors given in Appendix D most of these factors could be further decomposed into specific variables. For instance, the factor: "people involved in the planning process" (factor number 3 in Table 8.3) includes variables such as the total number of people involved, their positions and roles in the situation, and their perceptions and interests regarding the situation. An initial attempt to identify all the possible specific variables associated with the 67 factors indicated that there were at least 143 distinguishable variables involved. However, this was only a preliminary exploration and the total number of possible variables involved remained unspecified since the emphasis of the research questions and the qualitative approach chosen to address them suggested that it was meaningless to develop an initial conceptual framework at such level of detail. However, in spite of the fact that it was judged that the study of these variables was not necessary, they still represented a fourth possible level of analysis.

These four possible levels of analysis are illustrated in Figure 8.1.

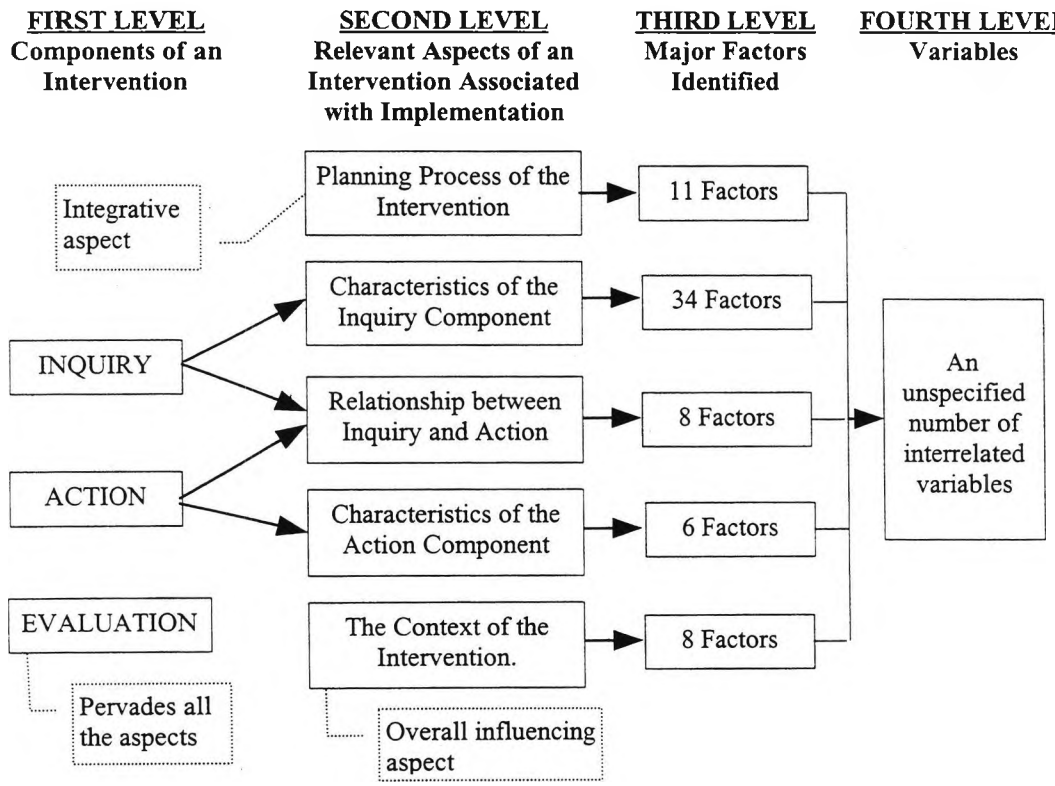


Fig. 8.1 Levels of Analysis Associated with the Factors which could Influence the Possibilities of Implementation

As can be noticed in Figure 8.1, none of the five aspects of an intervention located at the second level of analysis is explicitly related to the evaluation component (first level). The main reason for this is because the evaluation elements found relevant for implementation purposes refer mostly to a continuous evaluation of an intervention and they are associated with feed-back and iteration processes which take place during inquiry and action. These elements were incorporated into the analysis of the factors associated with each one of the five aspects of an intervention discussed in the previous sections.

An examination of the four levels of analysis illustrated in Figure 8.1 in the light of the research questions indicated that the second and third levels represented the best focus for the design of the field research.

Even though the 67 factors representing the third level were defined so as to be clearly differentiated from one another, they are so closely interrelated that it was not possible to consider their influence on implementation on the basis of their independent

contributions. An example of the relevance of their relationships is the case of the factors associated with the planning process of an intervention (Table 8.3). Factors such as the aims, scope and specific objectives of an intervention cannot be understood without considering the people involved in planning and the level of understanding of the situation at the outset of the intervention; in turn, all these factors contribute to define the people involved in the subsequent phases of the intervention.

Therefore, in order to explore better the influence of these factors on implementation it was considered that they should be studied in various sets, grouped according to the original categories from which they were derived, i.e., the five aspects of an intervention considered relevant for implementation purposes.

These ideas led to the conclusion that the design of the field research should be based on the study of the five aspects of an intervention that conform to the second level of analysis shown in Figure 8.1, and that the analysis of these five aspects should be guided by the set of factors associated with each one of them (third level of analysis in Figure 8.1).

Furthermore, since an intervention process is marked by a chronological perspective, it was considered that the influence of the five aspects of an intervention has a propagating influence on implementation. This idea is illustrated in Figure 8.2 showing that, if they are appropriately managed, the planning process (i), the characteristics of the inquiring phase (ii), the relationship between inquiry and action (iii) and the characteristics of the action system (iv) may all contribute to the effectiveness of implementation through their sequential contributions to each other during the intervention process. In the case of the context of the situation (v), it was considered that its influence on implementation operates through the influence it has on the other four aspects of an intervention.

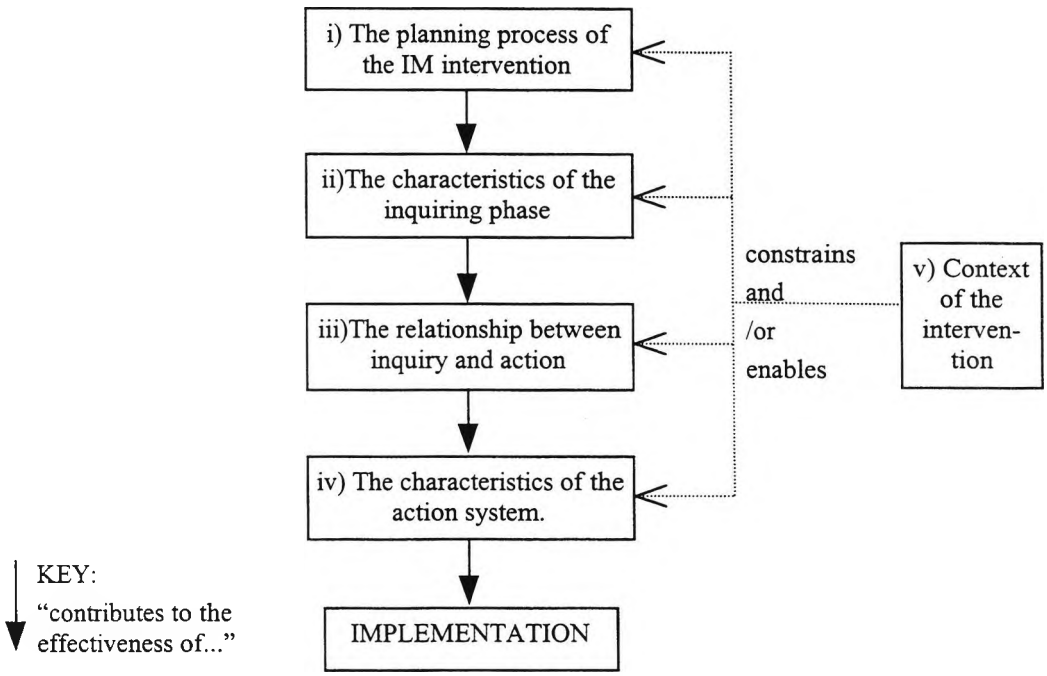


Fig. 8.2 The Five Aspects of an Intervention which Influence the Effectiveness of Implementation

According to the interest of the research questions, the relevance of these aspects and their associated factors should be manifested in the influence they have in promoting or inhibiting the implementation of the decisions derived from the IM process. Therefore, a final set of factors to be identified referred to the characteristics of the final implementation results obtained from an intervention. In this sense, it was important to consider not only the results directly associated with the implementation of agreed decisions, but also any other possible results derived from an intervention concerned with implementation.

The factors identified in this respect were basically derived from the discussion on implementation presented in Section 7.6.1. These factors include two items specifically related to the implemented results and six items related to the global results of an intervention. Table 8.9 shows the list of the eight factors and Appendix D provides a brief description of each one of them.

No.	RELEVANT FACTORS
1	Level of accomplishment of implementation
2	Effectiveness of implementation
3	Changes in the situation
4	Socio-psychological changes
5	Relevance of the final results
6	People's reactions to the intervention effort.
7	Negative consequences of the project
8	Final assessment of the intervention

Table 8.9 Major Factors Characterising the Final Results of Implementation

8.5 CONCLUSIONS

Given the interest of the research questions in understanding why and how certain factors may play a relevant role in promoting implementation in the context of an intervention based on the IM process, a qualitative research approach was chosen as the methodological basis for designing the field research. Based on the characteristics of such an approach, the major assumptions of the field research were made explicit in Section 8.2.2, and a case study was selected as the main research strategy for the field research (Section 8.3) Besides the case study, the design of the field research included proposals for a series of in-depth interviews with IM practitioners and with IM clients, in order to obtain additional insights to contrast or support the conclusions obtained from the case study.

Finally, a conceptual framework was developed to guide the detailed design of the case study and the in-depth interviews with IM practitioners and IM clients. This conceptual framework included the identification of sixty-seven factors associated with the five aspects of an intervention considered relevant for implementation purposes, and the identification of a set of eight factors that represent the final results of an intervention.

The next two chapters discuss in detail the results of the field research that was conducted according to the ideas presented in this chapter.

CHAPTER 9

FIELD RESEARCH I: CASE STUDY

9.1 INTRODUCTION

This chapter describes the case study carried out in accordance with the field research design presented in Chapter 8. The chapter begins with a general overview of the case study, including a discussion of the field procedures used to collect data (Section 9.2) and a brief description of the organisation concerned (Section 9.3). Sections 9.4 and 9.5 present the characteristics of the two IM projects that are the subject of study in terms of the five aspects of an intervention that are considered relevant for implementation purposes. Section 9.6 elaborates on a comparison between the characteristics and results of each one of the IM projects. Finally, Section 9.7 draws some general conclusions derived from the case study.

9.2 OVERVIEW OF THE CASE STUDY

As mentioned in Section 8.3.2, the case that has been selected for study in this research represents a situation in which two IM projects were conducted within the same organisation between 1992 and 1994. Even though each project represents an IM intervention on its own, it was decided to treat them jointly as a single-case study design since both projects shared in common the same client, the same organisation, many of the key participants, and the same IM consultants. It was expected that these similarities between the two projects would allow for a better understanding of the factors influencing the implementation process.

The analysis of the case proceeded according to Figure 9.1. Considering the characteristics of the organisation concerned, each project was studied individually and then, a comparison was made between the two projects to derive conclusions about the factors that influenced the implementation of the outcomes. Figure 9.1 also indicates the sections of this chapter devoted to discuss the corresponding results.

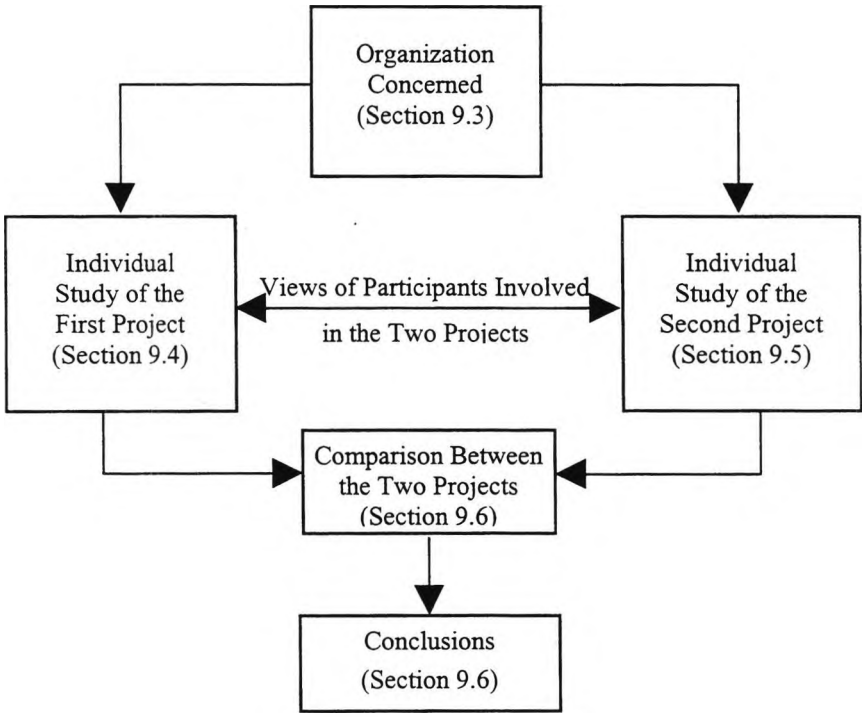


Fig. 9.1 Analysis of the Case Study

This analysis was based on the identification of the aspects of an intervention considered relevant for implementation purposes (Chapter 8): i) the planning process of the intervention, ii) the characteristics of the inquiry component, iii) the relationship between inquiry and action, iv) the characteristics of the action component, and v) the context of the intervention. The idea was to understand the influence (if any) that these aspects, and their corresponding factors, had on the implementation results of the two projects. A major consideration in the analysis referred to the identification of the factors of the intervention (as defined in Chapter 8) that the two projects shared in common. The commonalties found are mostly related to the context of the situation and they concern factors such as: general characteristics of the organisation, organisational culture, power structures, and major changes in the situation taking place in time periods relevant to the interventions.

The sources of evidence used during the study were the following: i) official information describing the organisation, ii) working papers and reports produced as a result of the projects, iii) letters received by the IM consultants from the client, iv) interviews with participants, and v) bulletins and internal journals produced by the organisation where the projects took place.

The single most important source of evidence in the research were the interviews with the client and participants in the projects as they provided the basis for finding out about the implementation results, and for understanding the relative importance of the factors being analysed as well as the possible relationships between them.

As in the case of the interviews made with the IM practitioners and IM clients (Chapter 10), the interviews in the case study were planned as semistandardised interviews. A set of guidelines were designed for conducting the interviews in order to address the five aspects of an intervention being studied; the aim was to inquire about the factors associated with each aspect that the interviewees would be able to elucidate. Since many of the participants in the two projects were the same people, most of the individual interviews were planned to address both projects sequentially. The guidelines used are presented in Appendix E.

Regarding the selection of the interviewees, the original plan was to interview all the participants in the projects who played key roles in the organisation and in the implementation of the outcomes of the IM workshops. However, this criterion was constrained by their availability and willingness to participate in the study; in particular, it turned out that there were some people who did not work in the organisation anymore at the time of the study. The final number of interviewees was seven and all of them, except for one, represented people involved in both projects.

Each individual interview lasted between one and a half and two and half hours; the client of both projects, the General Manager of the organisation, was interviewed two times because of time constraints and on each occasion the duration of the interview exceeded two hours. Table 9.1 shows the number of interviewees who were involved in the projects as participants or as observers during the IM workshops.

	No. of Participants in the Workshop(s)	No. of Observers in the Workshop(s)	No. of Interviewees
First Project (one workshop)	10	3	Participants: 5 Observers: 1
Second Project			
First workshop	16	0	Participants: 7
Second Workshop	15	5	Participants: 0 Observers: 3
Third Workshop	23	1	Participants: 5 Observers: 1

Table 9.1 Number of Interviewees from each Project

All the interviews were recorded and transcribed; this information was organised in a matrix format to relate it to the 67 factors under study and to the final results of the projects. The information provided by the participants was compared with other sources of evidence when this was feasible, and the results of the interviews were also compared between each other in order to find out about contrasting points of view.

9.3 THE ORGANISATION INVOLVED

Caritas de Monterrey is a non-profit organisation of the Roman Catholic Church, which operates in the metropolitan area of Monterrey, Mexico since 1982. Caritas de Monterrey is one of the Caritas organisations of the Church, which exist in more than 140 countries. "Caritas" means "love" in Latin and the first Caritas was founded in Germany after the Second World War with the approval of Pope Pio XII.

The objectives of Caritas de Monterrey as stated in its founding documents are:

"1. To serve as a bridge between the people who have the possibility of practising charity and those who need it.
2. To promote and dignify the spirit of charity and solidarity.
3. To foster and promote the creation of institutions, or else to support existing organisations, aimed at helping in the solution of individual and community problems." (Caritas Monterrey, 1992).

Caritas de Monterrey has a Board of Trustees consisting of 18 members who are mostly businessmen. There is a General Manager who reports directly to the Board. The institution is organised by departments that represent the services offered as well as other administrative areas. A manager is in charge of each department and they report to the General Manager; in most cases there is one member of the Board associated with a department in order to provide advice and managerial support.

The organisational chart that was in place at the time of the two IM projects is shown in Figure 9.2; even though the organisational chart changed in 1997, the version presented here still represents the basic functional areas of the institution.

In 1992, when the first IM project took place, Caritas de Monterrey had 95 full time employees, but an important part of the services provided to the community through the different departments was accomplished with the support of approximately 2,000 volunteers. In 1998 the institution had 115 full time employees and more than 3,500 volunteers helping to carry out its activities. The involvement and direct participation of volunteers for the accomplishment of its objectives is a major feature of Caritas de Monterrey.

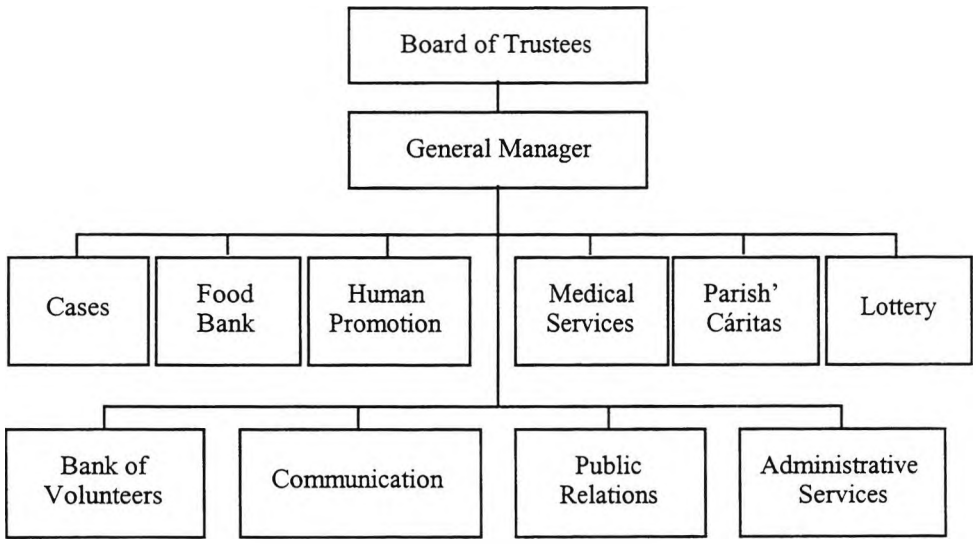


Fig. 9.2 Organisational Chart of Caritas de Monterrey

The main functions of the departments devoted to provide services to the community are shown in Table 9.2.

DEPARTMENT	DESCRIPTION
Cases	Offers economic support for specific major needs such as: reconstruction of houses, surgery and other major medical services, equipment for handicapped, and funerals. The department has a team of social workers who study each case and define the best means to provide help.
Food Bank	It manages the acquisition, storage and distribution of large volumes of food, through donations or low cost purchases, in order to distribute it directly to people in need or through the other services of Caritas de Monterrey.
Parish Caritas	This department co-ordinates the operation of individual Caritas units which are located in the Parish Churches. In 1992 there were 71 Parish Caritas in the metropolitan area of Monterrey. These Caritas are operated by volunteers and they represent the main vehicle of Caritas to provide their services to the community.
Medical Services	This department co-ordinates a number of medical programmes such as: dentists assistance, nutrition, cancer detection, psychological help, mobile medical assistance in the state of Nuevo León, and basic assistance and distribution of medicines in the Parish Caritas.
Human Promotion	This department co-ordinates services provided through different assistance units (including the Parish Caritas), and which are aimed at supporting the development of people through education and training.

Table 9.2 Departments of Caritas de Monterrey that Provide Services to the Community

The other departments shown in Figure 9.2 represent the organisational units in charge of providing the internal administrative services required for accomplishing the objectives of the organisation. There is one department, Lottery, in charge of organising periodical raffles to obtain funds. Apart from the funds raised through the raffles, the incomes of Caritas de Monterrey come from donations of the community.

9.4 FIRST PROJECT: IMPROVING QUALITY SERVICE IN CARITAS DE MONTERREY

In 1992 two IM consultants took the initiative of offering their services to the General Manager of Caritas de Monterrey and had a series of introductory meetings to familiarise him with the IM process and the possible benefits of using it to address organisational issues. As a result of the initial meetings a specific project was agreed with a focus on the improvement of the quality of the services. The project was agreed without making any explicit contract between the IM consultants and the organisation

and the consulting services provided were free of any charge because of the interests of the consultants in supporting the objectives of the institution.

9.4.1 Planning of the IM intervention

Since the beginning of the project, the General Manager was explicitly designated as the IM broker besides being the client and the executive in charge of the project. Thus, the plan for the intervention was developed with the participation of the General Manager and the two IM consultants, and the main activities involved meetings held by these three people in order to explore and define the basis for the workshop.

Because of the strong emphasis the General Manager was putting at that time on improving the quality of the services provided by the organisation, this became the central theme of the project. The intervention was conceptualised in terms of carrying out one IM workshop and no consideration was made of any possible follow-up activities as a part of the project. As a result, the plan concentrated on the design of a workshop and its objectives were defined as follows:

> "1. To identify the main factors which inhibit Caritas de Monterrey from providing a quality service to the community and to establish the interdependencies between those factors.
> 2. To define concrete actions aimed at eliminating the identified inhibiting factors, and to structure those actions in order to define an action plan.
> 3. With the above, to develop a better understanding of the current situation of Caritas de Monterrey regarding the quality of its services, and to lay down the foundations for a continuous improvement plan." (Cárdenas and Moreno, 1992:4)

Since these objectives concerned the general operation of the organisation, it was considered that all the departmental managers should participate in the workshop. It was also decided that the General Manager should not get involved as an active participant but as an observer since the organisation did not have previous experience with any participative effort of this kind, and it was considered that the participation of the General Manager could inhibit the open participation of the managers. On the other hand, it was thought that he could greatly benefit from listening to the perspectives of the managers to understand better their interests and worries. Besides the above, it was also decided to invite some members of the Board as observers in order for them to become sensitised to the problems of the organisation and their possible solutions.

The results of the planning phase were documented according to the guidelines of the IM process (Warfield and Cárdenas, 1994) and, before the workshop, a meeting was held with all the participants in order to brief them on the characteristics of the IM process and the objectives of the workshop.

9.4.2 Characteristics of the Inquiry Process

As the project consisted only of one IM workshop, the characteristics of the inquiry process are directly related to it. Table 9.3 summarises the general features of the workshop.

CHARACTERISTIC	DESCRIPTION
Duration	Three working days
Participants	9 of the 10 managers and the manager of a new area which was being formed.
Observers	The General Manager (present during most of the duration of the workshop) The President of the Board and another member of the Board (they attended the workshop only for a couple of hours the first day)
Facilitation Team	Two IM consultants and four support members.
IM methods used	NGT and ISM
IM phases covered	Intelligence and Design
Other activities or methods involved	Classification of actions, definition of responsibilities for action.

Table 9.3 General Characteristics of the IM Workshop in the First Project

Regarding these general characteristics of the workshop it is considered that the composition of the group was the single most important factor influencing the general outcomes of the project. The participation of the General Manager as an observer during the entire workshop seemed to have had more disadvantages than advantages. According to most of the interviewees his presence inhibited the behaviour of the participants. At the same time, it was clear that he had relevant contributions to make, and the role of observer did not allow him to incorporate most of his possible contributions into the group dialogue. The lack of participation of members of the Board was also identified as a major factor affecting the final outcomes of the project.

In spite of the above, the group processes during the workshop were in general characterised by a very good and open atmosphere. Some interviewees felt that there was some peer pressure during the voting process but at the same time they much appreciated this first opportunity they had to openly discuss important organisational issues.

The conceptual outcomes of the workshop included two IM structures and a set of specific commitments for action; these outcomes are summarised in Table 9.4 and they are presented in more detail in Appendix F.

1	53 factors which make difficult (or inhibit) the provision of a quality service.
2	A "problematique" structure interrelating 20 selected factors.
3	60 actions aimed at diminishing or eliminating the inhibiting factors.
4	A "resolution" structure showing 18 selected actions which could help to eliminate the inhibiting factors present in the "problematique"
5	A follow-up general plan which comprised the following: • The 18 selected actions classified in three sets according to the responsibilities involved. • The identification of specific individuals responsible for carrying out 13 of the 19 actions. • An outline guide for developing detailed plans for each action to be undertaken. • A deadline for preparing the detailed plans.

Table 9.4 Conceptual Outcomes of the IM Workshop in the First Project

The participants found that the structures generated through the ISM method were very clear and their content appropriate regarding the objectives of the workshop. The final outcomes included the classification of the proposed actions in three sets according to the groups of people who should be responsible for carrying them out: i) the managers (including the General Manager), ii) the managers and the Board of Trustees and, iii) the Board of Trustees. Besides the above, responsibilities were also assigned to individual managers regarding the actions included in sets (i) and (ii).

The socio-psychological outcomes of the workshop were very favourable. All the interviewees coincided in stating that the communication among the managers improved significantly because of the workshop, they got to know each other's problems much better, and they ended up highly motivated and felt seriously committed to undertake the agreed decisions.

The final report of the workshop was prepared by the IM consultants and they gave it to the General Manager but it was not distributed to all the participants, only the Communications Manager got a copy of it to work on her commitments.

9.4.3 Relationship between Inquiry and Action

According to the outcomes of the workshop the most important actors to be involved in implementation were the managers, the General Manager and the Board of Trustees. Since only two members of the Board attended the workshop and only for a couple of hours, the General Manager made a presentation of the results before the Board in order to get their support to carry out the proposed actions.

As a result of the project two members of the Board got directly involved in helping the General Manager to follow-up on some specific actions. However, most of the members of the Board did not get interested in the effort.

Since some of the responsibilities assigned to the managers concerned also their subordinates, the results of the workshop were communicated to the employees through their corresponding managers but mostly on an informal basis.

In order to provide continuity for the project after the workshop, during the periodical meetings of the managers the General Manager introduced a section to discuss the progress on the commitments made. This activity continued for several months after the workshop; however, the proposal for developing detailed plans of all the actions to undertake was never carried out. In this respect the managers were concerned by the fact that the final outcomes of the workshop did not include specific implementation plans for the proposed actions; some of them complained because even though the general ideas on what to do were clear, they did not know how to carry them out.

As the client and executive in charge of the project, the General Manger was strongly committed to follow-up the results of the project. Even though the role of the IM consultants was not defined for any follow-up activity, the General Manger kept on communicating with them all through the first year after the workshop, and informed them on the progress on implementation.

9.4.4 Characteristics of the Action Process (Implementation)

The main efforts undertaken after the workshop to implement the proposed actions were mostly carried out by the people who participated in the workshop, i.e., the General Manager and the area managers.

According to the interviews most of the actions carried out immediately after the workshop were those which did not involve additional costs and for which the managers had the necessary authority. Even though two members of the Board supported the implementation of some actions, the lack of participation of the Board in the inquiry process was a problematic issue since many of the proposed actions could only be accomplished with the participation of the Board.

The outcomes of the implementation efforts are synthesised in Table 9.5. The table presents the actions defined as a result of the workshop together with a brief description of the outcomes of the efforts made to implement them. The actions are separated according to the level of accomplishment of their implementation. The individual numbers used to identify each action correspond to the original identification numbers of the ideas generated during the workshop. A letter after the statement of each action indicates the group of people which was originally designated as responsible for carrying out that action (M refers to the managers, B, refers to the Board).

ACTIONS	IMPLEMENTATION OUTCOMES
Accomplished Actions	
7. To carry out workshops with the employees to find out about the actual situation (M).	Many workshops in different areas were actually carried out after the IM project. The processes used were based on the learning of IM derived from the initial workshop.
Actions Carried Out on an Informal Basis and Partially Accomplished	
1. To develop an intensive and continuous programme of promotion, and information at all the levels of the institution (M).	Most interviewees considered that this action was partially accomplished. They indicated that as this issue was related to something already being done, the IM workshop just reinforced its importance.
10. To establish a programme of spiritual help according to the current needs of the institution (M).	It was difficult for most of the interviewees to say if this idea was implemented, they said that something was done but did not know exactly what was it. The person in charge of this action said that an implementation plan was designed but it was not carried out.
16. To establish better relationships: managers - board - functional areas (M, B).	One manager worked heavily on this as a result of the IM effort. However this was not actually accomplished until there was a change in the members of the Board.
18. To develop a structured motivational programme at all the levels of the institution (M, B).	This was partially done through talks given by the General Manager but the emphasis was mostly on improving the quality of service and not on a structured programme to motivate people.
35. To make the volunteers a part of the institution (M).	Apparently an important effort was initiated in this direction after the workshop; however, the actual results and benefits materialised some 2 or 3 years afterwards.
46. To follow-up the outcomes of the workshop in the short and medium terms according to the needs (B).	Periodical meetings were organised during the first year after the workshop; however, they were mixed up with the regular meetings of the managers and all the interviewees questioned the effectiveness of the follow-up effort.
52. To provide continuous training for all employees (M).	There never was an explicit plan for implementing this idea; however, some unstructured efforts were made to provide training. Formal training also had economic implications and there was no budget to work seriously on this idea.
Actions Partially Accomplished but Constrained by Lack of Financial Resources	
6. To create a salary table considering the position, seniority, efficiency, etc. (M, B).	A specific effort was made in this direction but it was not possible to establish a table of salaries because of economic problems. Most interviewees did not even know that this was actually tried out.
23. To improve wages and salaries (B).	This was actually done and it was one of the most important specific efforts to implement the results of the IM project. The General Manager, the Manager of Administrative Services and one member of the Board were highly committed to improve salaries; however, due to economic restrictions only a few people benefited from the effort and most managers and employees never knew that this was done.

Table 9.5 Implementation Outcomes of the First Project

ACTIONS	IMPLEMENTATION OUTCOMES
Actions Tried Out without Success	
4. To create a human resources department (B).	This action was undertaken but it did not work. The department was created and functioned for some months. However the person in charge was also in charge of many other administrative services and could not cope with the new functions; the department was then eliminated and in 1997 they were trying to re-establish it.
Actions Accomplished a Long Time after the Workshop	
3. To create a highly committed commission of incomes (B).	This action was accomplished 3 years after the workshop. However, most people considered it was a direct result of the IM project.
14. To restructure the organisational chart (B).	Nothing was done in this respect after the workshop. However, in 1997 the organisational chart was finally changed and the General Manager considered that this was related to the attempts he had made to accomplish it since 1993.
29. To install a telephone service with improved capacity (B).	This was accomplished 3 years after the IM project and yet most interviewees agreed in saying that this was a continuous demand presented to the Board since the time of the project.
43. To acquire two additional motor vehicles (M, B).	This action was accomplished 2 or 3 years after the project; however the interviewees considered its accomplishment a direct result of IM.
Actions which were not Addressed	
9. To foster team "consciousness" at all levels (M).	There were no explicit attempts to undertake this action. It was difficult to identify how to proceed. However, most interviewees considered that teamwork was improved as a result of the workshop.
21. To schedule periodical meetings between the board of trustees and the employees so as to jointly solve critical problems (M, B).	Nothing was formally done to carry out this idea.
48. Do not compare us with public agencies (M).	The meaning of this idea was not clear for any of the interviewees. Some of them wondered why and how it became part of the final set of agreed upon actions.

Table 9.5 Implementation Outcomes of the First Project (Continued)

Table 9.5 shows that many efforts were actually made to implement the proposed actions. However, one important feature of the implementation process was that most managers acted independently from each other. Even though there were some follow-up meetings, most managers did not know about the efforts made by the others. Since there were no detailed plans to work with, many of the proposed actions were addressed on an informal basis according to the time availability of the managers and the insights that they could develop to carry them out.

The Administrative Services Manager and one member of the Board worked together to address the actions related to raising salaries but due to financial constraints very little could be done and most people never knew about this effort. Other actions associated with the Board were not undertaken until two or three years after the workshop and the general perception was that the Board did not get interested in the project.

As a result of the lack of communication of the efforts carried out in the different areas and the perceived indifference of the members of the Board, some months after the workshop the managers started to lose their motivation. However, as was mentioned in Section 9.4.3, the General Manager followed up the project at least all through the first year after the workshop and informed the consultant on its progress (Lozano, 1993).

A general concern expressed by all the interviewees was the lack of support from the IM consultants during the implementation phase. Even though it was clear that the participation of the consultants was only related to the workshop, they felt that an external agent was needed to advise and help them to organise the implementation.

9.4.5 The Context of the Intervention

The accounts of the organisational culture given by the interviewees indicated a strong differentiation of status and decision-making capabilities between the Board and the departmental managers. The General Manager being an intermediate agent between these two groups, most formal communication flow vertically across the three levels.

Even though a member of the Board is associated with each service department, the actual relationship between these groups depends heavily on the personality and time availability of the Board members. By the time of the IM project there was a feeling that the Board was not much involved in the operation of the organisation, and the managers had trouble in understanding the reasons behind important decisions made by the Board.

The prevalence of a hierarchical communication mode in 1992 also pervaded the relations between the different managers. Most departments used to work independently from each other; they were not used to sharing their problems and discussing delicate issues.

Because of the Catholic spirit of the organisation, religious practice is constantly encouraged, for example, through a daily morning prayer. According to some interviews, this religious culture posed some communication problems for the workshop since it was difficult for some people to express ideas that could hurt the others' feelings.

During the implementation phase the single most important change that occurred in the situation was the change in the composition of the members of the Board. There are periodical changes in the Board to appoint a new president, but also there are changes when someone leaves the organisation. Some of the proposed actions were carried out only after some significant changes in the Board took place.

9.4.6 Final Results of the Project

By the end of 1993 the General Manager considered that most of the actions had been addressed and that the project had brought important benefits for the organisation. However, no formal assessment of the results was ever made.

According to all the interviewees the most significant changes that resulted from the project were the improvement in communication and the changes in attitudes. The comments made by each one of the interviewees in this respect were the following:

> "This experience changed our working system, we became more participative. This was a tremendous accomplishment..."
> "My team became more integrated in the organisation and reacted positively..."
> "This came to improve the relationships in the group and fostered a sense of identity..."
> "I realised the importance of communication...."
> "It helped us to realise that we did not talk to each other to understand each other and to interact better, I started to work closer with [three managers] ...."
> "By understanding each other's problems it was easier to set priorities and see how our own problems fitted into in the whole...."

Another major contribution of the workshop, according to the interviewees, was the learning of a new way for conducting problem-solving activities. As was shown in Table 9.5, the only single activity considered totally accomplished was the organisation of problem-solving meetings with different groups of employees. The processes used in these meetings were based on the characteristics of the IM process and they were used to address and solve problems of the different areas.

One example of the outcomes of these meetings was the improvement in the quality of the services of the Cases Department. According to the manager in charge, the level of complaints and the waiting lines were dramatically reduced as a result of a couple of meetings of this kind. This is the only example found directly related to the original objectives of the workshop that was associated with the improvement in the quality of the services provided by Caritas de Monterrey.

Regarding the expectations about the project, all the managers interviewed considered that their expectations of the workshop were greatly exceeded. However, as time went by and they did not see many actions being implemented, their enthusiasm diminished dramatically. In their opinion one of the most important issues was the need to improve communication with the members of the Board and this never happened.

9.5 SECOND PROJECT: IMPROVING THE RELATIONSHIP BETWEEN THE CENTRAL OFFICE AND THE PARISH UNITS

Two years after the first project, in 1994, the same IM consultants agreed with the General Manager to carry out another IM project. The initial idea of the General Manager was to address issues related to the mission of the organisation. However, the departmental managers unanimously indicated that there was a more important issue to address. This topic was the improvement of the co-ordination between the Parish Caritas (PC) and the central offices (known as Diocesan Caritas - DC). As the number of PC had been constantly increasing (in 1994 there were 82), the managers felt that there were important co-ordination problems that needed to be addressed.

9.5.1 Planning of the IM intervention

The planning process concentrated initially on the design of a global plan for the whole intervention. The two IM consultants worked with the General Manager (the IM broker) and the Communication Manager. Even though there was a manager in charge of the Parish Caritas, this person was not directly involved in the initial planning activities.

As a part of the planning process of the project, a questionnaire was designed. The questionnaire was applied to all the departmental managers and to some

representatives of the Parish Caritas in order to inquire about their specific concerns regarding the co-ordination between Diocesan Caritas and the Parish Caritas, and to explore which were the most delicate issues of the situation.

Because of the large number of people and organisational units involved and since there were two clearly differentiated groups - the managers and employees of the DC, and the volunteers operating the PC, it was decided to start working independently with each group and then to integrate their perspectives. Thus, the global plan included the organisation of one workshop for each group and a third workshop with representatives of the two groups.

The two first workshops would be focused on the perspectives of each group about the problems between the DC and the PC, and the third one would be aimed at integrating those perspectives and finding out solutions for the problems found. In each one of the two first workshops there would be observers from the different groups so they could have a better appreciation of the concerns and interests of the various people involved.

As in the case of the first project, the plan for the second project did not include any other activity besides the IM workshops.

9.5.2 Characteristics of the Inquiry Process

According to the plan of the project, the inquiry process consisted basically of three workshops. Because of the number of people involved and their time availability, each workshop lasted only one full working day and they were spread through the year of 1994. The general characteristics of each workshop are shown in Table 9.6 in the next page.

CHARACTERISTICS	FIRST WORKSHOP	SECOND WORKSHOP	THIRD WORKSHOP
Duration	One full working day in each workshop		
Date	15 of March, 1994	31 of August, 1994	9 of December, 1994
Participants	• The General Manager • 8 of the 10 managers of Diocesan Caritas • 4 members of Diocesan Caritas who worked closely with the Parish Caritas • The member of the Board who was heading the Parish Caritas Committee • The 2 other members of the Parish Caritas Committee	• 10 representatives of individual Parish Caritas • 2 Parish Priests • The member of the Board in charge of the Parish Caritas • The manager of the Bank of Food (DC) • 1 member representing the Manager of Cases. (DC)	• 12 representatives of individual Parish Caritas • 1 Parish Priest • The member of the Board who was heading the Parish Caritas Committee • 7 managers of Diocesan Caritas • The 2 other members of the Parish Caritas Committee
Observers	• 3 external people interested in learning about the IM process • 1 new member of Diocesan Caritas	• The General Manager • The President of the Board (only present by the end of the day to close the workshop) • 2 members of the Parish Caritas Committee • The manager of Diocesan Caritas in charge of the Parish Caritas	• The General Manager
Facilitation Team	Two IM consultants and two support members in each workshop.		
Methods used	NGT and ISM	NGT and ISM	Ideawriting
IM phases covered	Intelligence	Intelligence	Intelligence and Design
Other activities or methods involved			Review and classification of the results of the previous workshops, classification of actions, definition of projects and responsibilities.

Table 9.6 General Characteristics of the IM Workshops in the Second Project

The plan for the first workshop was developed by the people who designed the whole project. The original objectives of this workshop were to identify and classify the factors that made the co-ordination between the DC and the PC difficult from the point of view of a group of representatives of the Diocesan Caritas. Three members of the Parish Caritas Committee were going to be invited as observers - the fourth member was the manager of the Parish Caritas and he was going to participate directly in the workshop.

A major issue arose at the beginning of the workshop as the members of the Parish Caritas Committee arrived without knowing that they were going to be observers. Apparently, the IM broker had relied on someone else to explain to them the IM process and their expected role but this did not happen. The situation was particularly delicate since one of them was a member of the Board. As a result, the IM broker and the facilitation team decided to invite the three of them to participate in the workshop.

The participation of the members of the Parish Caritas Committee had a rather negative influence on the group climate during the workshop. According to most of the interviewees their presence inhibited the open expression of important issues and it promoted a hostile atmosphere during the first part of the workshop. Their participation also implied a disproportionate representation of the two groups involved.

In spite of the problems posed by the unexpected participation of the members of the PC Committee, by the end of the workshop the participants considered that it had been mutually enriching and the PC Committee became interested in and committed to the project. As a result, a new planning team for the project was formed. The team included the General Manager, the member of the Board who was heading the PC Committee, another member of the committee, and the two IM consultants.

Considering that the majority of the participants in the first workshop were from the DC, the second workshop looked for the participation of a majority of people from the PC but it also included one representative of each one of the two services of the DC which used to have more interaction with the PC. The objectives of the second workshop were the same as in the first one - to identify and classify the factors that made the co-ordination between the DC and the PC difficult - but this time from the perspective of people mostly involved in the Parish Caritas.

After the second workshop, the conceptual outcomes of the two workshops were analysed by the planning team and two major conclusions were derived. First, the

outcomes indicated that it was necessary to review and document the administrative procedures of Caritas de Monterrey, and to initiate a training programme throughout the entire organisation. Secondly, it was agreed that the third workshop should concentrate on addressing the communication and co-ordination problems existing between DC and PC as these were laid down during the two first workshops.

Thus, the third workshop focused on integrating the perspectives of the people from DC and PC, and on identifying possible solutions to their communication and co-ordination problems. The conceptual outcomes of the inquiry phase are summarised in Table 9.7 and are presented in more detail in Appendix G.

FIRST IM WORKSHOP (March 1994)	
1	65 factors which make difficult the effective operation and communication between DC and PC.
2	A "field" of factors showing 35 selected factors grouped in six categories.
3	The explicit commitment of the participants to continue the project.
SECOND IM WORKSHOP (August 1994)	
1	62 factors which make difficult the effective operation and communication between DC and PC.
2	A "field" of factors showing 61 selected factors grouped in eight categories.
3	The explicit commitment of the participants to continue the project.
THIRD IM WORKSHOP (December 1994)	
1	3 different classifications of the previously identified factors related to communication and co-ordination issues between DC and PC.
2	59 actions to undertake in order to solve the communication and co-ordination problems found.
3	A classification of the actions showing the 59 actions grouped in eight categories.
4	11 prioritised projects to improve communication and co-ordination between DC and PC.
5	The establishment of responsibilities and people involved in carrying out each project, together with a set of specific activities required to accomplish them.
6	The explicit commitment of the participants to participate in the follow-up of the outcomes.
ADDITIONAL OUTCOMES	
1	The definition of a project to review and document the administrative procedures within Caritas de Monterrey, and a proposal for a continuous training programme for employees and volunteers.

Table 9.7 Conceptual Outcomes of the Inquiry Phase in the Second Project

Regarding the group composition in the workshops, the interviewees considered that there was some tension and peer pressure during the workshops since there were conflicts between the DC and the PC, and also because there were differences in status between some of the participants. Nevertheless, they also recognised that a major

outcome of the project concerned the positive changes in attitudes derived from the interaction that took place among the people who participated in the workshops.

As for the last two workshops, most of the interviewees estimated that the Parish Caritas from the poorest metropolitan areas were not very well represented. However, the influence of this lack of representation is not clear since they also considered that the final outcomes portrayed the most significant issues of the situation.

At the end of the third workshop the participants expressed their satisfaction with the work done through the year. Most of them wanted to be included in the projects that had been defined to improve the co-ordination between DC and the PC.

From the point of view of the socio-psychological outcomes of the inquiry phase, according to the interviewees the participants in the workshops gained an ample perspective of the problems faced by each group (DC and PC), and the personal interrelationships between many of them improved significantly. In addition, one member of the Parish Caritas Committee considered that being an observer in the second workshop was a most enriching experience and it helped her to realise that the situation was much larger in scope than she had thought.

The IM consultants prepared a report after each workshop. The reports were given to the General Manager to be distributed to the participants but only the members of the Parish Caritas Committee and some managers of Diocesan Caritas received it.

9.5.3 Relationship between Inquiry and Action

At the end of the workshops, the member of the Board who was heading the Parish Caritas Committee presented the final results in one of the meetings of the Board. The outcomes of the project were welcomed but none of the other members of the Board got interested in following-up their implementation.

In spite of the fact that most of the participants in the third workshop were formally assigned and accepted their participation in the implementation of the projects defined, the actual implementation efforts were carried out basically by the members of the Parish Caritas Committee and by the managers of Diocesan Caritas.

After the third workshop, the Parish Caritas Committee started to organise follow-up meetings with the people from the Parish Caritas who had been assigned to the projects; however, the Committee soon realised that these people were not available most of the time and therefore decided to work on the projects on their own.

Even though the General Manager was formally considered as the IM broker and he was assigned as responsible for one specific project, he did not participate directly in the implementation efforts nor in monitoring the progress. Since there was one member of the Board who took charge of leading the global project, this person together with the Parish Caritas Committee became the main actors in accomplishing the final results.

9.5.4. Characteristics of the Action Process (Implementation)

Since the last workshop took place in December of 1994, the implementation efforts started at the beginning of 1995 and were carried out mostly throughout that year.

The implementation outcomes of the eleven projects defined to improve the communication and co-ordination problems between Diocesan Caritas and the Parish Caritas are summarised in Table 9.8. The projects are grouped according to the level of accomplishment of their implementation and the individual numbers associated with each project represent the order of priority assigned to the projects (1 being the most important). In addition, the person responsible for the follow-up of a project is indicated together with the number of activities that were defined as a part of that project.

PROJECTS	IMPLEMENTATION OUTCOMES
Projects which were mostly Accomplished	
2. *Training*: To organise a training programme for all the members of the institution regarding the provision of all the services. Activities: 6 Responsible: M. of Medical Services	Most of the actions involved were done or at least tried out, and they became a continuous programme. Those originally responsible participated to some extent but the members of the Parish Caritas Committee became the leaders and main actors of the implementation. Some of the original ideas were adjusted to become feasible. One interviewee said that she never knew what was done. The interview with the General Manager indicated that he was not aware of most of the efforts.
5. *Information and Communication*: To develop an intensive programme of information about the services, people and problems faced in the Parish Caritas. Activities: 8 Responsible: M. of Communication	There was an important effort to carry out most of the actions involved. Three actions were almost totally accomplished and most people knew about them. There were some contradictions in the interviews regarding the pursuit of two actions. Three other actions were changed to become feasible. The manager originally responsible for this project considered that nothing was done to carry it out, it was the manager in charge of the Parish Caritas who actually organised its accomplishment.
7. *Improvement of Meetings*: To improve the periodical meetings of the Parish Caritas. Activities: 4 Responsible: Undefined	The Parish Caritas Committee worked hard on improving the periodical meetings. Some of the actions proposed in the project were changed but all of them were actually addressed. None of the managers interviewed were aware of the accomplishment of this project except for the General Manager.
Projects Partially Accomplished	
1. *Quality and Motivation*: To motivate the Parish Caritas to improve the quality of the services. Activities: 3 Responsible: General Manager	Some actions were undertaken to carry out this project but not as a part of a structured plan. Instead of those originally responsible, the Parish Caritas Committee took charge of the project. One particular action planned turned out to be infeasible; however two interviewees said that it was actually carried out.
10. *Donations*: To co-ordinate the solicitation of donations. Activities: 2 Responsible: Administrative Services	The manager in charge of this project worked with some specific Parish Caritas in order to co-ordinate the solicitation of donations. However, at the level of all the institution it seemed that nothing seriously was really done because the Parish Caritas Committee was reluctant to establish formal policies on this issue.
4. *Zonification*: To organise the operation of the Parish Caritas according to their geographical location Activities: 4 Responsible: Manager of PC	This project was partially accomplished. The idea of establishing zones for organising the activities of the Parish Caritas was not feasible, but the zonification helped for managerial and control purposes in Diocesan Caritas; the zonification is now part of their management system.

Table 9.8 Implementation Outcomes of the Second Project

PROJECTS	IMPLEMENTATION OUTCOMES
Projects Partially Accomplished but Constrained by Lack of Financial Resources	
8. *Computer System:* To install a computerised information system in the Parish Caritas department. Activities: 1 Responsible: Manager of PC	This project implied the acquisition of computer equipment and the development of an information system to help in managing the Parish Caritas. The computer equipment was acquired some 3 years after the project and it could not be considered a direct result of the IM project.
11. *Finance*: To provide direct financial support to the Parish Caritas so they could become more autonomous. Activities: 3 Responsible: Manager of Administrative Services	At a general level there were not enough financial resources to carry out the proposals involved in this project. However, two specific actions proposed were the basis to implement other initiatives that tried to compensate for the lack of resources and provide more autonomy to the Parish Caritas.
Projects Tried Out or Initiated but Without Success	
3. *Priest' Support*: To foster the participation of the parish priests in the activities of Caritas de Monterrey. Activities: 3 Responsible: One Priest	The Parish Caritas Committee had some meetings with the Priest who volunteered for the project and plans were made to carry it out. However, the Priest was changed to another location and could not continue supporting the efforts of Caritas de Monterrey. The Committee could not get the direct support from other parish churches and the project was abandoned.
9. *Procedures*: To create manuals for all the areas. Activities: 1 Responsible: Undefined	An effort was initiated to develop manuals of procedures for all the departments; however in most cases the manuals were not finished.
Project Carried Out without being Related to the Implementation Efforts	
6. *Mission Statement*: To review the mission and objectives of Caritas de Monterrey. Activities: 1 Responsible: Undefined	The mission statement and the objectives of Caritas de Monterrey were reviewed and distributed within the institution; however, according to the interviews this effort was not directly related to the IM project. The need for reviewing the mission and objectives of the institution was already an issue since the first IM project in 1992, and it seemed that the new president of the Board in 1995 decided to address these issues because of his own initiative.

Table 9.8 Implementation Outcomes of the Second Project (continued)

The most significant efforts to implement the proposed projects were carried out by the members of the Parish Caritas Committee, which included the manager of Diocesan Caritas in charge of the Parish Caritas. The presence of one member of the Board in the Committee together with the strong interest of all the Committee in improving the operation of the Parish Caritas contributed significantly to maintaining the motivation and commitment needed to implement the projects.

Therefore, implementation was mostly concentrated on the projects that could be accomplished through the supervision of the Parish Caritas Committee. However, most of the people of the Parish Caritas never knew about the project and its outcomes, they were only the recipients of the changes that were made.

The managers of Diocesan Caritas who also got involved in the implementation process were the ones whose departments were closely related to the activities of the Parish Caritas. The managers interviewed said that they had some problems with implementation because they were already overloaded with their daily duties, and because they did not have detailed implementation plans to guide their efforts.

The President of the Board and the General Manager were interested in knowing the progress in implementation but did not get directly involved in any activity. It was the manager in charge of the Parish Caritas who used to inform the General Manager when he was asked to do so.

As for the actions that were proposed by the planning team after the second workshop, it happened that during the third workshop these actions were also identified as a part of the eleven prioritised projects proposed by the participants. Thus, these actions got integrated into the set of projects to be carried out.

9.5.5 The Context of the Intervention

Diocesan Caritas and the Parish Caritas Committee were in charge of providing different services and help to co-ordinate the activities of the 82 Parish Caritas and an important aspect of the situation that gave rise to the IM project was the large number of Parish Caritas which had been growing fast in the last years prior to 1992. The Parish Caritas Committee used to work with the Parish Caritas very independently from the activities and management of Diocesan Caritas; however, with the increased number of Parish Caritas, the demand of services from Diocesan Caritas had also increased and they were experiencing important co-ordination problems.

Part of the problems faced by the Parish Caritas Committee were due to the fact that the individual Parish Caritas represented a wide variety of needs and possibilities mostly because of the differences in social and economic status of their members. Some Parish Caritas could operate very independently from the Committee, while others required its support for most of their activities. In addition, since the PC were operated by volunteers, the turnover in their membership used to be very high and the new members had to be continuously trained and familiarised with the organisation.

The relationship between most of the managers of Diocesan Caritas and the Parish Caritas Committee had been marked by some conflicts regarding their corresponding levels of authority to provide and receive services. The linking agent between these two groups was the manager in charge of the Parish Caritas, but this person did not have the power and authority needed to settle the conflicts. This situation was worsened by the perceived differences between the rights and duties of the volunteers and the employees of the institution.

9.5.6 Final Results of the Project

According to the interviewees, the implementation efforts made during this project brought about important positive changes to the organisation. These changes included improvements in different areas as well as improvements in the personal relationships between the managers of Diocesan Caritas and the Parish Caritas Committee.

From the point of view of the services provided by Diocesan Caritas, the Cases Department and the Food Bank were able to address important co-ordination problems that they had with the Parish Caritas. Besides, most of the managers started to work directly with the manager of the Parish Caritas by providing training for the volunteers of the Parish Caritas, and by having meetings to address specific mutual problems.

As for the work done by the Parish Caritas Committee, it represented the most important concentrated effort to carry out the proposals made during the inquiry process. The Committee managed to address all the projects that concerned them and produced significant results.

The managers interviewed who also participated in the first IM project in Caritas de Monterrey considered that this second project produced better results than the first one. In their opinion, the direct involvement of one member of the Board and the

commitment of the whole Parish Caritas Committee contributed significantly to the implementation of the proposals made during the workshops.

Even though the general perception of the interviewees was that the project had been successful in implementation terms, three of them considered that the implementation process could have been much better accomplished if they had had better guidance for its management. The General Manager considered that the project was very successful but he regretted that there were not specific criteria for judging the relevance of the final results.

9.6 COMPARISON BETWEEN THE TWO PROJECTS

Regarding the final outcomes of the two projects it can be recognised that significant implementation results were achieved in both of them. Table 9.9 presents a summary of the results in terms of the levels of accomplishment reached in the implementation of the proposed actions or projects. Even though the proposals made in each project are not necessarily equivalent in terms of their scope and implications, the percentages corresponding to the levels of accomplishment in implementation can be considered as partial indicators of success with respect to implementation.

In terms of those percentages, the second project yielded better results than the first one. The second project had better results in the number of proposals totally accomplished, all the proposals were addressed, and the percentage corresponding to the number of proposals carried out a long time after the project is significantly smaller than in the first project. These results coincide with the perspectives of some interviewees who considered that the second project was more successful than the first one.

LEVEL OF ACCOMPLISHMENT	FIRST PROJECT		SECOND PROJECT	
	No. of Actions	Percentage	No. of Projects	Percentage
Totally accomplished	1	5.6 %	3	27.2 %
Partially accomplished	7	38.8 %	3	27.7 %
Partially accomplished because of lack of financial resources	2	11.1 %	2	18.2 %
Tried out without success	1	5.6 %	2	18.2 %
Carried out long-time after the project and not necessarily related to it	4	22.2 %	1	9.1 %
Not addressed at all	3	16.7 %	0	0 %
TOTAL	18 Actions	100 %	11 Projects	100 %

Table 9.9 Implementation Results of the Two IM Projects

Considering that the two projects were carried out following the methodological guidelines of the IM process according to the practice and experience of the same IM consultants, and within the same organisational context, a comparison was made between the projects emphasising their major differences; at the same time, an effort was made to identify the similarities which may have significantly contributed to the final results. The results of the comparison are presented in the following paragraphs.

a) Planning of the IM Interventions.

Even though both projects were planned only in terms of the activities envisaged for the inquiry phase, they differed in the scope of those activities mainly because the second project involved the two basic groups of the organisation (the Diocesan Caritas and the Parish Caritas) while the first one involved only the central office.

The planning process during the second project also differed from the first one in at least three important aspects. i), the central subject to be addressed during the project was proposed by all the departmental managers while the subject of the first project was an initiative of the General Manager; ii), the planning for the second project included the design of a questionnaire to inquire about the perceptions of different people about the situation to be addressed; the results of the questionnaire were used to design the plan for the first workshop of the second project; iii), after the first workshop the planning team for the project was enlarged to include the participation of two members of the Parish Caritas Committee, one of these members being also a

member of the Board. In the first project the planning activities only involved the conversations held between the General Manager and the two IM consultants.

On the other hand, during the planning process for the first project special attention was given to the preparation of the participants for the workshop. In the second project the attention paid to this factor was significantly poorer and, as mentioned in Section 9.5.2, this caused important misunderstandings in the first workshop of this project.

b) *Characteristics of the Inquiry Process.*

The first project comprised one workshop while the second project included three workshops spread over 10 months. However, the workshop lasted three days in the first project and each workshop of the second project lasted only one day.

The second project involved the participation of two clearly differentiated groups within the organisation. According to some of the interviewees, this difference promoted the formation of subgroups, particularly during the first two workshops, and influenced negatively the group climate at the beginning of the work; however, the interviewees also agreed in considering that this problem disappeared by the end of the workshops. On the other hand, the composition of the group of participants varied in each workshop, and in each of the three workshops in the second project the number of participants was larger than in the workshop carried out during the first project.

Regarding the outcomes of the inquiry phase it is interesting to note that in the first project an important number of actions were proposed to be carried out by people who did not participate in the workshop (members of the Board), while in the second project there was only such one proposal. Also related to the outcomes of the inquiry phase it should be noted that neither of the projects included the development of structured implementation plans for their corresponding proposals for action.

According to the interviewees, in both projects the socio-psychological outcomes were very positive, they perceived that the participants ended-up highly motivated and committed to carry out their corresponding responsibilities; at the same time, in both projects expectations were developed with respect to possible changes in the organisation.

c) *Relationship between Inquiry and Action.*

The relationship between inquiry and action in both projects was characterised by the fact that most people who took part in implementation were directly involved in the workshops. Furthermore, in both projects the most relevant implementation efforts were led by the higher authorities of the organisation who participated in the projects.

Two other major similarities between the projects refer to the lack of participation of the IM consultants in implementation, and to the absence of any formal activities to review the outcomes of the workshops and adjust them to the requirements of implementation. Even though some changes were made to the original proposals in order to implement them, there was no formal iteration between inquiry and action.

The most important differences between the two projects regarding the relationship between inquiry and action refer to the roles of the participants of the workshops and the role of the members of the Board in implementation.

In the second project, although most of the participants of the third workshop accepted various responsibilities for implementation, the implementation effort was mainly carried out by the four members of the Parish Caritas Committee and by some of the departmental managers of Diocesan Caritas; most of the volunteers who accepted involvement did not participate in implementation. This was not the case in the first project where all the participants who had accepted responsibilities for the proposed actions actually became involved in their implementation.

On the other hand, in spite of the fact that the Presidents of the Board (a different person in each project) participated as observers during a short period of time in workshops held during the two projects, they did not provide effective support for the implementation of the proposals. This situation did not inhibit the implementation process in the second project mostly because there was already a member of the Board deeply involved in the project (the Chairman of the Parish Caritas Committee). However, in the first project the lack of direct involvement of the Board in implementation represented a major barrier to the success of the project since there were significant actions that depended totally on the support of the Board.

Related to this last point, a common feature of the two projects regarding the relationship between inquiry and action concerned the definition of proposals that turned out to be infeasible. The two projects included proposals which required financial resources that exceeded the resources available from the organisation, and

in both cases there were proposals which were not accomplished because they involved people who did not participate in the projects and who were not committed to them.

d) Characteristics of the Action Process (Implementation)

The implementation process in the two projects presented contrasting characteristics regarding three major factors: i) motivation and commitment, ii) power and authority, and iii) communication processes. These factors are associated with the position of the people who took part in implementation and with their relationship with the situation.

During the implementation process in the first project, the implementation actors were basically the departmental managers, the General Manager, and two members of the Board who got involved in a couple of proposals. These people undertook their implementation efforts independently from each other and there were no formal communication processes that allowed them to know what the others were doing. The lack of knowledge about the different efforts being undertaken contributed to eroding the motivation and commitment of most of the departmental managers. Furthermore, some important expectations generated as a result of the workshop were poorly satisfied because of the lack of interest of the Board in implementing the actions over which the managers did not have power and authority.

In the second project most of the projects to be implemented were directly related to the typical functions and responsibilities of the Parish Caritas Committee; therefore, the Committee was particularly interested in promoting implementation and had the power and authority to proceed. Besides, since the Committee was formed by a small group of people who used to have periodical meetings, it was easier for them to work together in planning and organising the implementation activities. An interesting point to note in this project concerns the fact that even though the General Manager had been initially considered as the IM broker and the direct client of the project, the leadership of the project was gradually adopted by the Parish Caritas Committee and by the end of the project the General Manager adopted a much more passive role.

A major barrier to implementation that was mentioned by the managers interviewed who participated in the two projects referred to the overload implied by the implementation tasks on their time availability. According to them, it was not

possible to devote all the time required for carrying out the proposals, and the lack of detailed implementation plans was not helpful in making efficient their use of time.

A last point to notice with respect to the implementation process refers to the proposals that were carried out two or three years after the projects. Even though in some of these cases the interviewees considered that the final accomplishment of those proposals was directly related to the outcomes of the projects, in fact it was difficult to find empirical evidence or supportive arguments to establish the direct relationship.

e) *Context of the Interventions.*

Since both projects were carried out within the same organisational context they shared in common important characteristics associated with that context.

In the first place, the leading roles in implementation were adopted by the two persons of higher organisational status in both projects, the General Manager in the first project and, in the second project, the Chairman of the Parish Caritas Committee who was also a member of the Board. Since there were no special initiatives from the departmental managers, nor from the volunteers of the Parish Caritas, to take on leading roles, it could be said that during the projects the hierarchical working scheme of the organisation was reproduced.

Another characteristic of the organisational culture, which was manifested in the two projects, was the lack of open and formal communication processes across the different levels of the organisation and between the same levels. Even though most people considered that the projects contributed to improving communication among the people who participated in the projects, there were no formal efforts to communicate the organisation, proposals and final results of the projects to the members of the organisation who did not participate in the workshops.

Regarding the implementation of some of the proposals which were carried out long time after the projects, it should be noted that most of them were associated with the changes in the members of the Board which took place during the years that followed the accomplishment of the activities directly related to the projects.

Even though in both cases the initiative to carry out the projects came from the IM consultants, a major difference between the two projects is related to the history of the situation that originated the specific objectives of each project. In the first project the objectives were related to the personal interest of the General Manager in

improving the quality of the services provided by Caritas de Monterrey. In the second project the objectives were established by the departmental managers because of the conflicts and co-ordination problems with the Parish Caritas that they were experiencing. This difference indicates that in the second project, the need to address the situation was more clearly identified and shared by a relevant group of stakeholders, while in the first project the interest in addressing the situation in the terms proposed by the General Manager was not necessarily shared by other people.

9.7 CONCLUSIONS

The study of the two IM projects carried out in Caritas de Monterrey during 1992 and 1994 presented in this chapter indicates that even though the formal plans for the two projects only included the inquiry process, the action process (implementation) was also carried out to a large extent. In both projects the people involved managed to implement an important proportion of the proposals made during the IM workshops.

The results of the IM process that contributed to implementation included the specific proposals made as well as socio-psychological outcomes such as motivation and commitment and the improvement of communication between the participants. As for the relationship between inquiry and action, most of the implementation efforts in the two projects were carried out by people who participated in the inquiry. The leading role of the authorities who participated in the projects also represented an important factor which contributed to implementation during the action process; these authorities, the General Manager and the Chairman of the Parish Caritas Committee, participated both in planning the interventions and in the inquiry process itself.

On the other hand, the lack of development of detailed implementation plans and the lack of an open communication culture in the organisation - which the two projects shared in common, represented an obstacle to the total and effective accomplishment of the implementation of the proposals.

Besides the above, the final results indicated that the second project was more successful than the first one in terms of implementation. The main differences between the projects that help to explain the difference in the final results refer to factors related to the planning of the intervention, to characteristics of the inquiry process, to the relationship between inquiry and action, and to characteristics of the action process:

a) The planning of the intervention in the second project was more thoroughly conducted than in the first project and the planning team included people representing different groups with contrasting perspectives about the situation.

b) As for the inquiry process, the workshop carried out during the first project only involved the participation of the departmental managers. However, because of the nature of the situation, many of the issues addressed required the participation of the members of the Board and of the General Manager who, as an observer, could not contribute directly to the content of the workshop. Therefore, the group composition in the workshop lacked the required variety to address the situation.

c) Regarding the relationship between inquiry and action, the first project was characterised by the lack of participation of the members of the Board in the inquiry and in taking action. This lack of involvement of the Board was particularly relevant since there were a number of proposals that were meant to be carried out by the Board.

d) Motivation and commitment were generated as a result of the group work carried out during the workshops; however there were not explicit elements contributing to sustain them during the implementation process in the first project. Two particular factors that seemed to have influenced this situation were the lack of communication and the lack of institutional support during implementation.

According to the results of the case study and considering that IM focuses on the inquiry process, there are no specific factors present in the methodological basis of the IM process which it could be said inhibit implementation. On the contrary, in spite of the fact that IM does not include explicit guidelines for action, the case study indicates that the results of IM contribute to implementation. However, at the same time it is possible to recognise that in order to conduct an IM project oriented to action some additional methodological practices could be incorporated into the process. This possibility will be discussed in Chapter 11 as it is part of the final conclusions for the two research questions.

The two research questions were further elaborated in the light of the results obtained from the interviews with a group of IM practitioners and IM clients that are presented in the next chapter.

CHAPTER 10

FIELD RESEARCH II

INTERVIEWS WITH IM PRACTITIONERS AND CLIENTS

10.1 INTRODUCTION

According to the field research design, a set of interviews was carried out with the aim of exploring the views of different practitioners and clients of the IM process regarding the research questions.

This chapter presents the results of those interviews in terms of the aspects of an IM intervention that were found relevant for implementation purposes according to the opinions of the interviewees. The chapter begins (Section 10.2) with a general description of the characteristics of the interviews. Section 10.3 discusses the results of the interviews with IM practitioners and Section 10.4 presents the results of the interviews with IM clients. In Section 10.5 a general comparison is made between the results of both types of interviews. Finally, Section 10.6 presents the general conclusions of the interviews; these conclusions together with the conclusions from the case study presented in Chapter 9 are the basis for the discussion of the results of the research elaborated in Chapter 11.

10.2 CHARACTERISTICS OF THE INTERVIEWS

As described in Section 8.3.3, the interviews with IM practitioners and clients were included in the field research design with the purpose of complementing the results obtained from the case study. However, the conclusions of the case study were not used to design these interviews since it was considered that doing so could bias the dialogue and results of the interviews. Thus, in order to carry out the interviews as independently as possible from the results of the case study, both strategies of the field research were carried out in parallel.

The interviews with the IM practitioners and clients were planned as semistandardised interviews (Section 8.3.3). The idea was to explore the views of the interviewees regarding the five aspects of an IM intervention considered in the conceptual framework presented in Section 8.4, and to allow the possibility of finding out factors not previously considered. The five aspects of an IM intervention were covered as general topics during the interviews and the emphasis attributed to them varied depending on whether the interviewee was an IM practitioner or client (Figure 10.1).

Aspects of an IM Intervention Relevant for Implementation	Direction of the Emphasis of the Interviews	
	IM Practitioners	IM Clients
i) The Planning Process of the Intervention		
ii) The Characteristics of the Inquiry Component (the IM Process)		
iii) The Relationship Between Inquiry and Action		
iv) The Characteristics of the Action Component (Implementation Process)		
v) The Context of the Intervention		

Fig. 10.1 Different Emphasis of the Interviews with IM Practitioners and Clients

The difference in the emphasis of the interviews corresponded to the differences in experience and interest in the IM process represented by the interviewees. In the case of the IM practitioners the emphasis concentrated on the IM process itself which is most clearly related to items (i) and (ii) in Figure 10.1 (planning of the intervention, and characteristics of the inquiry component). The interviews with the IM clients emphasised the aspects of an IM intervention that would be more well known to the clients, e.g., items (iv) and (v) in Figure 10.1 (characteristics of the action component and the context of the intervention).

Each interview lasted between one and a half, and three hours and all of them were tape-recorded and transcribed; to illustrate this, a transcription of one interview is reproduced in Appendix H. In order to analyse and synthesise the results, the contents of each interview were classified in terms of the five aspects of the intervention shown in

Figure 10.1 and, where possible, according to the 67 relevant factors defined in Chapter 8; to illustrate this, a section of the analysis relating to two of the interviews with IM practitioners is presented in Appendix I. The results of the interviews with each type of subjects (IM practitioners and clients) were then grouped according to their similarity so as to find the common themes mentioned by the interviewees and to find any possible contradiction in their views; to illustrate this, an example of the groupings into common themes is shown in Appendix J. This analysis led to the identification of the main issues considered relevant for implementation purposes in an IM process according to the interviewees. Examples have been presented in the appendices to demonstrate the process of analysis followed. The full analysis and complete set of transcriptions have not been included simply because the amount of material involved was too large and it was not considered that including this would have added significantly to the content of the thesis.

The description of the results obtained through the analysis just described is presented in the following sections.

10.3 INTERVIEWS WITH IM PRACTITIONERS

As described in Section 8.3.3 eight IM practitioners were interviewed on the basis of a purposeful sampling. The people interviewed were the IM practitioners with most ample experience in the USA and in Mexico known to the author; the interviews took place in the USA (Metropolitan area of Washington, D.C. and Philadelphia, PA.) and in Mexico (in the cities of Guanajuato, Leon and Monterrey). The eight IM practitioners interviewed were:

In the USA:

1. John N. Warfield, the intellectual leader in the development of IM. (See for example: Warfield, 1976, 1994a, and Warfield and Cárdenas, 1994).
2. Alexander Christakis, former Director of the Centre for Interactive Management, initially in the University of Virginia and then in George Mason University. Actual CEO of CWA, Ltd., a consulting firm that uses the Cogniscope System™ based on

the IM approach. (See for example: Christakis, 1983, 1991 and Christakis and Shearer, 1997).

3. Benjamin Broome, has organised and led many different IM projects; particularly relevant is his work with various American-Indian Tribes; with different community groups in Cyprus; and more recently with some working groups in the European Union. (See for example: Broome and Keever, 1986, 1989).
4. Henry Alberts, led the introduction of IM in the Defense Systems Management College (Fort Belvoir, VA) and, among other IM interventions, has organised a series of at least thirty-five IM workshops in the context of a study of the United States Defense Acquisition System. (See for example: Alberts, 1995).
5. Scott Staley, led the introduction of IM in the Ford Motor Company (Dearborn, Michigan), promoting and supporting the organisation of IM projects all through the company since 1990. (See for example: Warfield and Staley, 1996).

In Mexico:

6. Carmen Moreno. Together with the author of this research, Carmen Moreno led and promoted the introduction of IM in ITESM and in Mexico at large, carrying out IM interventions and training groups in different Mexican locations and institutions. (See for example: Cárdenas and Moreno, 1993).
7. Carlos Flores introduced the use of IM in the project "Guanajuato Siglo XXI" (Guanajuato XXI Century), a regional planning project of the State of Guanajuato, for which he was general director. Nowadays, as a member of the State Government, he has promoted the use of IM for governmental planning at all levels in the State of Guanajuato. (See for example the document edited by the Fundación Guanajuato Siglo XXI and ITESM, 1994, which presents the results of the regional planning project).

   (During the last part of the interview with Carlos Flores the person in charge of co-ordinating the use of IM for planning purposes in the State of Guanajuato, Carlos Camarena, was also present to participate in the interview).
8. Reynaldo Treviño, as member of the project Guanajuato Siglo XXI participated in the use of IM all through the project; later on, as Head of the Centre for Strategic Studies at ITESM, Campus Leon, he promoted the use of IM in different types of

projects. (See for example the document edited by the Fundación Guanajuato Siglo XXI and ITESM, 1994, which presents the results of the regional planning project).

As a part of the interviews, the IM practitioners were asked to elaborate their comments by making reference to specific examples of applications of IM. The reason for doing so was because according to Weiss (1994) and Maxwell (1996) asking about specific events or situations is helpful in illustrating the ideas of the interviewees and in avoiding superficial generalizations or very abstract opinions.

The results obtained from the interviews are presented in terms of a synthesis of the ideas proposed by the interviewees elaborated according to the method described in the preceding section. In those terms, the contributions of the interviewees were associated with the five aspects of an intervention identified as relevant for implementation purposes in Chapter 8. These aspects are: 1) the planning of the intervention, 2) the characteristics of the inquiry component, 3) the relationship between inquiry and action, 4) the characteristics of the action component, and 5) the context of an intervention.

Within this background the rest of this section discusses the results of the analysis made of the content of the interviews with the IM practitioners. No reference is made to the name of any particular interviewee with relationship to specific ideas because the purpose of the interviews consisted in elaborating a synthesis of all the contributions on an impartial basis.

10.3.1 The Planning Process of the Intervention

Regarding the planning process of the intervention, there were three main issues indicated by the IM practitioners that are considered relevant for implementation. Those issues are: a) the general design of the intervention, b) the scope of the intervention, and c) the selection and definition of the roles of the participants in the IM workshops.

a) The general design of the intervention.

Four of the IM practitioners interviewed stressed the importance of considering how an IM intervention is conceived at the outset of its use in each situation.

One aspect refers to whether an IM intervention is viewed as a process for organising and carrying out workshops, or else, if it is perceived as a project in which one or more IM workshops, as well as other activities, are required to address the situation under study. The fact that the IM literature (see for example Warfield and Cárdenas, 1994) has largely concentrated on describing how an IM workshop should be carried out seems to be misleading regarding the need to conceive an IM intervention in terms of a comprehensive strategy for addressing a complex situation, in particular in view of any implementation purposes.

Another important aspect of the initial conception of an IM intervention mentioned by two interviewees referred to the problems posed to planning a project in a situation of high uncertainty. As IM has been designed to address complex situations it is important to realise that it is precisely in those situations where it is most difficult to be able to plan what kind of activities would be needed. According to these views IM represents a discovery process and it is difficult to envisage the requirements of the project not only for implementation purposes, but even for the inquiry process itself.

In spite of the problems associated with planning in uncertain the situation, three interviewees emphasised the need to plan each IM workshop on the basis of a careful analysis of the situation under study, and to consider carefully what would be the use of the outcomes after the workshops.

Regarding the focus of IM in the inquiry process, as opposed to considering the whole spectrum from inquiry to action, an interesting remark made by one interviewee was the idea that, as a conversational process, IM supports implementation because people need time to meditate and express their concerns and interests regarding a complex situation. In the own words of this person: "You cannot walk it unless you talk it; however, you can talk it and not walk it... So what we try to do is we say we want you to talk it because the likelihood is that you might walk it, and we really engage you in the talk, and we believe that after you talk it you might walk it ... there is no guarantee that after they talk it they will walk it, but we know they wouldn't walk anything unless they talk it."

b) *The scope of the intervention.*

The scope of the intervention was identified as a relevant factor influencing implementation in terms of the number of organisations involved in the intervention as well as in terms of the time framework involved in addressing the situation under study. In particular, two IM practitioners made a distinction between projects in which there is a single organisation involved and those in which several organisations participate in addressing a complex situation.

According to this distinction, in a single-organisation project the implementation process tends to be more expeditious than in a multiple-organisation project, in particular because it is easier to identify and involve the relevant decision-makers. Among other things, this possibility helps to determine the availability of resources for implementation on an almost direct basis.

In the case of projects that involve several organisations, the interviewees noticed that it might be difficult to get the commitment of the different parties involved in the situation, particularly when "the problem-situation is perceived as belonging to everybody and to nobody at the same time".

c) *Selection and definition of the roles of the participants in the IM workshops.*

Regarding the selection and definition of the roles of the participants in the IM workshops, the interviews with six of the eight interviewees coincided in the importance attributed to these factors for successful implementation.

The selection of participants is important because they are supposed to represent the required variety to deal with the different aspects of the situation during the inquiry. At the same time, they represent the actual possibilities of promoting implementation because of their commitment, resources and/or sphere of influence. However, the interviews also pointed out the difficulties involved in selecting and gathering the participants of the IM workshops. Among these difficulties are the uncertainty involved in the situation (i.e., it is very difficult to know in advance who should be a participant for both inquiry and implementation purposes), and the large number of people who are often involved in a complex situation.

One interviewee emphasised also the relevance of distinguishing the type of participants involved in the workshops in terms of their roles in the various

stages of a project (for instance, intelligence and design) due to the importance of the transition from one stage to another. The significance of this idea was further supported by another interviewee who pointed out the need to "bridge gaps" between different IM groups and between the implementation actors. The main issue at stake in these ideas concerns the frequent case in which the participants in an IM intervention are different people in each workshop. Thus, there is a need to provide for adequate means to communicate the results and ensure the continuity of the efforts carried out at the different stages of a project.

10.3.2 Characteristics of the Inquiry Component

The most relevant results of the interviews which relate the characteristics of the inquiry component to implementation indicate the importance of the following issues: a) the consideration of more elements than only the use of IM during the inquiry process; b) implementation plans as a part of the conceptual outcomes of the inquiry process; and c) the socio-psychological outcomes of the IM process.

a) The need to involve more elements than only the use of IM in the inquiry process.

According to seven of the eight interviews, and supporting the ideas mentioned in the preceding paragraphs, most projects aimed at implementation generally involve more than the mere use of IM to carry out the inquiry process. It is recognised that IM represents an important means and could be the major methodological approach to organise the inquiring phase of a project; however, the interviews also indicated the relevance of other factors. Among these factors are: i) the techniques and time devoted to gather information about the situation and to study and synthesise the outcomes of IM; ii) the promotion of meetings (other than IM workshops) with different stakeholders and with the participants; and iii) the role of the IM team during the intervention in activities not directly related to the IM workshops.

In this respect, five interviewees mentioned examples of the use of methodological support other than IM to carry out their projects. Also regarding these ideas, three interviews stressed the role of the IM team, particularly of the

IM facilitator, as a social agent who is in a privileged position to help the group (or groups of concern) to take the best advantage possible of the outcomes of IM. According to this last idea the role of the IM team not only involves the management of IM as a process, but also the provision of support regarding the content and products of the intervention.

b) *Implementation plans as a part of the conceptual outcomes of the inquiry process.*

A major factor influencing implementation according to most of the interviews (seven of eight) is the development of implementation plans. These interviews indicated the importance of developing implementation plans at an appropriate level of detail and documenting them as clearly as possible in order that they could be useful in guiding the implementation efforts.

One of the most critical issues found in the interviews in this respect referred to problems posed by the lack of guidance in the use of the IM products for the development of implementation plans; particularly on how to derive specific action plans from strategic proposals using the IM process.

Even though the typical IM products can in theory be useful for structuring implementation plans, in practice only one of the interviewees indicated the use of IM for this purpose. In contrast, two other interviewees mentioned the use of project management techniques for the development of implementation plans. Furthermore, referring to specific projects in which implementation took place, two interviews described how the corresponding plans were developed by the groups of interest after the IM activity took place without any methodological guidance whatsoever.

In some of these cases, a factor that contributed to the lack of use of the IM process in the development of implementation plans was the long time required for accomplishing such a task as compared with the shorter time involved in doing it without IM. However, the interviewees also mentioned the need to consider carefully how the logical patterns produced through IM are used and could be further developed to support the transition from design to detailed action planning.

c) *The socio-psychological outcomes of the IM process.*

A most significant result of the interviews was the fact that all the interviewees considered that a major contribution of the IM process to implementation stems from the socio-psychological outcomes that it produces. Three specific socio-psychological outcomes were discussed in this respect during the interviews: commitment, satisfaction and changes in behaviour.

According to the IM practitioners commitment to the products of IM develops during the IM process because of three major reasons: i) the communication among the participants improves substantially, ii) they develop a deep understanding of the issues at stake, and iii) they jointly generate sets of clearly organised possible solutions. These ideas were further supported considering that the length of time the IM groups spend working together helps them to assimilate the final outcomes.

In spite of the fact that all the interviewees recognised the suitability of IM in generating commitment, two interviewees also pointed out that there are other factors that influence the development of commitment. In particular, two interviewees mentioned examples of IM applications in which commitment was hardly developed in the participants. In those two cases, even though the participants were interested in and knowledgeable about the situations under study, most of them considered that the implementation of their proposals was the responsibility of other people. The interviewees considered that this was because the participants did not perceive the proposals to implement as a part of the formal responsibilities that they had with respect to the situations under study.

Regarding the levels of satisfaction of the participants with the IM process and its outcomes, five IM practitioners estimated that most of the time the participants are very much satisfied with IM and its products. To support this idea, they emphasised the fact that very often the participants in the IM workshops request professional support from the IM team to address different situations. Furthermore, according to at least two IM practitioners, it is through the advocacy of previous clients and participants that other people get interested in using IM.

Although the evidence provided during the interviews supports the idea that IM normally produces high levels of satisfaction among the participants, it is also important to note that the relationship between satisfaction and the implementation of outcomes was not made clear.

Finally, regarding the socio-psychological outcomes, six of the eight interviews made explicit reference to changes in behaviour produced by the IM process. On the one hand, two interviewees stressed the importance of the learning that takes place during the IM activity, especially as it is related to complex situations. According to these views, in the context of a complex situation, it is learning, and the possible changes in behaviour that it entails, that is one of the most significant outcomes of IM. On the other hand, the interviews also indicated that the IM process tends to produce changes such as the improvement of the relationships among the participants and an awareness of the importance of effective communication processes. Regarding the relationship between the changes of behaviour and the implementation of outcomes, the interviews seemed to imply that the changes of behaviour promoted through IM help to facilitate implementation; however, there was not enough information to establish a clear relationship between the two.

10.3.3 Relationship between Inquiry and Action

Even though most of the IM practitioners interviewed in general are not directly involved in implementation, they do participate in some follow-up activities and were able to identify a set of relevant issues for implementation regarding the relationship between inquiry and action. The issues identified referred to: a) the roles of different actors in inquiry and action, b) the communication needs between inquiry and action, c) the need to iterate between the two processes, and d) the organisation of follow-up activities.

a) The roles of different actors in inquiry and action.

Four of the IM practitioners interviewed stated the relevance of the participants in the IM workshops to implementation. According to these views, the participants are in a particularly good position to become implementers because

of the commitment they develop during the workshops. Furthermore, one of the interviewees considered that all participants have a certain sphere of influence in which they can contribute to implementation. Reinforcing this idea from another point of view, another IM practitioner commented about difficulties found in gaining the support of people who do not participate in the IM activity.

These ideas, together with the issues discussed in Section 10.3.3 (the planning of the intervention), point out the relevance of the selection of participants and the clarification of their roles in view of the implementation process.

Another important aspect of the roles involved in inquiry and action that was mentioned during the interviews referred to the need of leadership from relevant authorities. In this respect, one IM practitioner indicated that there is a particular need of leadership at the beginning and at the end of an IM intervention. At the beginning because it is important to promote the conditions to carry out a good project; at the end because very often the people need guidance and motivation to continue the efforts.

A final interesting point noticed during the interviews regarding the role of different actors in inquiry and action was the fact that only one of the IM practitioners attributed an active role in the implementation process to the IM team. In this case, the interviewee commented on the kind of support that could be given to the IM clients during the transition from inquiry to action and during the implementation process.

b) *The communication needs between inquiry and action.*

Acknowledging the relevance of the communication of the outcomes of IM to people who do not participate in their production, two interviewees commented the need to develop appropriate communication means for this purpose. In particular, they referred to the possibility of having a facility that would allow a large audience to attend the workshops as observers and, after the workshops, to have access to the material produced by means of large displays and some extra support to understand the IM products.

An additional outcome to these ideas was that in spite of the desirability of having a facility like the one just described, the effective communication of results could also be achieved through other means.

c) *The need to iterate between inquiry and action.*

The need to iterate between inquiry and action as a means to review and adjust the outcomes of the inquiry process was found as an important factor to support implementation in at least two interviews. One IM practitioner reported specific instances in which iteration took place because the original proposals generated during the IM process turned out unfeasible when the people tried to implement them. In other cases, the interviewees commented examples of situations in which the participants generated proposals that were unrealistic at the implementation stage; however, in these cases there was no mention of any iteration to adjust the initial outcomes.

d) *The organisation of follow-up activities.*

In terms of the activities required to follow-up on the implementation of the outcomes of IM, three IM practitioners commented the kind of activities in which they get normally involved after an IM intervention. In the three cases the interviewees indicated that they normally organise a series of follow-up meetings to discuss the outcomes of the IM activity and to support the group to elaborate implementation plans. The constituency of these meetings may vary from case to case, but they normally include an important proportion of the participants as well as other relevant actors for the implementation process.

Also related to the organisation of the follow-up, one interviewee referred to a case in which the people involved in implementation had the action plans derived from IM displayed in their offices as a direct guidance to work on the implementation tasks.

10.3.4 Characteristics of the Action Component

In the case of the characteristics of the action component, six of the IM practitioners interviewed described some events and circumstances of projects in which implementation took place. Based on those descriptions it was possible to identify three general factors that seemed to contribute to implementation in the situations concerned.

These factors are: a) motivation and commitment, b) leadership, and c) access to the required resources.

a) *Motivation and Commitment.*

During the interviews, the IM practitioners referred to four examples of projects in which implementation activities took place due to a large extent to the strong motivation and commitment of the people involved. In some projects motivation and commitment were related to individual interests in improving the situations; this was the case for example, in projects with some American Indian Tribes who were addressing important community problems. Besides the above, motivation and commitment were also related to organisational and market concerns, which represented sources of external pressure to carry out the proposals.

b) *Leadership.*

Referring to two specific projects in which important implementation tasks were carried out, two interviewees observed the importance of the roles played by the clients of the corresponding projects. These persons, besides being the direct clients of the IM interventions, were also the executives in charge of the organisational areas concerned with the projects. According to the interviewees, an important factor that contributed to successful implementation in these projects was the leading role played by those people. They managed to involve and motivate their subordinates to participate in implementation and they were personally committed to the implementation effort themselves.

c) *Access to the Required Resources.*

Regarding the access to the resources required for implementation, two interviewees illustrated specific examples in which implementation took place only after the groups of concern were able to obtain external funds for accomplishing the proposals derived from the IM activity. In one of these cases, the IM practitioner interviewed mentioned the difficulties involved in obtaining such external funds and said that the project did not progress to implementation

during the first two years of efforts until the group found the means to get financial support.

These ideas were further supported in another interview where a distinction was made between the projects that require external sponsors, and those in which the resources can be assigned directly by the people involved in the inquiry process. In the second case it is expected that the implementation process would be more expedite than in the first case.

10.3.5 The Context of the Intervention

The interviews with IM practitioners helped to identify the relevance for implementation of a set of issues that are directly related to the context of an intervention. These issues are: a) the characteristics of the organisation(s) concerned, b) political issues associated with the people and groups involved, c) the dynamics of the situation, and d) the relationship between the actions proposed during the IM process and the normal activities of the organisation.

a) Characteristics of the organisation(s) concerned.

The relevance for implementation of the characteristics of the organisation(s) concerned was pointed out during the interviews with the IM practitioners most of all in terms of the number of independent organisations that are involved in an IM project. According to this view, as the number of organisations involved increases, it becomes more difficult to lead and co-ordinate the efforts required to implement the proposals derived from IM. As stated in Section 10.3.1, the number of organisations involved in an IM project is also directly related to the scope of the project.

b) Political issues.

Two of the interviews with IM practitioners illustrated the importance of the role in implementation of the political setting prevailing in the situation under study. These interviews provided a number of examples of IM projects in which some important political issues operated as inhibitors of the implementation effort. One of those examples referred to a case in which one of the participants in the

IM process refused to explicitly endorse the outcomes of the group activity because it was "politically dangerous" for his position in the organisation concerned. In another example, the IM project involved the participation of two social groups belonging to different organisations that had a history of competition and power struggles among themselves. In this case, according to the interviewee who described this situation, the IM process was helpful to improve the relationships between the groups involved, but it could hardly help to lay down the basis for these groups to undertake a common action effort.

c) *The dynamics of the situation.*

The dynamics of the situations addressed through an IM process represent an important issue that impinges upon the implementation process. Three IM interviewees emphasised this idea by referring to the complex nature of the situations addressed with IM and to the time framework involved in carrying out an IM project. One interviewee pointed out that a complex situation generally involves a long time period to change and this entails that many unforeseen changes may take place during the intervention period. Another interviewee exemplified a number of major changes that took place in the situation under study during the time he was conducting an IM project, and he noted that the type of changes that occurred were an important feature of the context of the situation being studied.

d) *The relationship between the actions proposed as a result of the IM process and the on-going activities of the organisation.*

The relevance of this factor for implementation was particularly illustrated by one of the interviewees who explained a case in which the IM process and the implementation of its outcomes took place as a part of the required official activities of the institution concerned. In this particular case IM was chosen as the main process to develop the strategic and annual plans on which all the efforts of the institution were based. As opposed to other cases in which the use of IM is part of an exceptional effort that deviates from the normal activities of an organisation, in this case the IM process and its outcomes got integrated into

the on-going activities of the institution. Thus, implementation was facilitated because it was a requirement for the continuous operation of the institution.

10.4 INTERVIEWS WITH IM CLIENTS

According to the design of the field research (Section 8.3.3), the interviews with IM clients were aimed at providing additional support to the research regarding the implementation results of an IM intervention. Thus, these interviews concentrated mostly on exploring the experiences of various clients of the IM process as they were involved in implementing the outcomes of IM.

As originally planned, the idea was to interview between five and ten different people who had been clients of the IM process for addressing different situations. However, as mentioned in Section 8.3.3, the only clients of IM who were available for the interviews within the restrictions of the research were five people located in the city of Monterrey.

The names of the IM clients interviewed and a brief description of the nature of the situations using IM in which they were involved are the following:

1. Fernando Jaimes, Dean of the School of Research and Graduate Studies of ITESM (Monterrey Campus). Fernando Jaimes has been the direct client of three IM workshops related to three different situations. The first workshop was an exploratory study aimed at the identification of the major areas of opportunity for the technological development of the Northeast Region of Mexico. The second and the third workshops were associated with curriculum design for two different master programmes, one on Natural Resources Management and the other one on Architecture.
2. Silverio Sierra, Head of the Department of Architecture of ITESM (Monterrey Campus). Silverio Sierra is considered also as a direct client of one of the IM workshops organised and sponsored by Fernando Jaimes, the one related to the design of a master programme on Architecture.

3. Javier García de Anda, General Director of Industrias Monterrey, S.A. (IMSA). Javier García de Anda was the direct client and sponsor of two IM workshops aimed at establishing a plan for the eco-efficient operation of the Monterrey plant of IMSA.
4. Tomas Sánchez, as Head of the Department of Mathematics in ITESM (Monterrey Campus) he promoted and lead an improvement project for the Department of Mathematics using the IM approach.
5. Ruth Angel, Head of the Department of Humanities in ITESM (Monterrey Campus). Following the suggestions of Tomas Sánchez and of the Dean of the School of Sciences and Humanities, Ruth Angel promoted and led an improvement project for the Department of Humanities using the IM approach.

Thus, according to the descriptions just given, the interviews with these five persons included the consideration of a total of six cases in which IM has been used to address different types of problematic situations. Three of these six cases represented situations in which important implementation efforts took place. Two other cases referred to situations in which implementation could not be accomplished. Only one case represented a situation in which the interest in implementation did not apply since the main purpose in using IM was to explore a particular issue, and not to elaborate proposals for action.

A more detailed discussion of these results is presented in the following paragraphs. Sections 10.4.1 to 10.4.5 present the results of the interviews that referred to the cases in which implementation took place; these results are organised in terms of the five aspects of an intervention identified as relevant for implementation purposes in Chapter 8. Section 10.4.6 discusses the results of the interviews related to the situations in which implementation was not carried out, and Section 10.4.7 describes briefly the situation in which the aims of the IM activity could not be related to any implementation purpose.

10.4.1 The Planning Process of the Intervention

Regarding the planning process of the intervention, it was interesting to note that in the three cases where implementation took place, the IM team and the IM brokers devoted particular attention to prepare the participants for the workshops. This

preparation consisted mainly in the organisation of at least one meeting prior to the IM workshops. During these meetings the participants were introduced to the IM process and the objectives of the workshops were discussed and clarified with them. Even though the preparation of the participants for the workshops cannot be directly related to the implementation process, it is nevertheless worth noting that through these efforts the participants had the opportunity to clarify their expectations regarding the purpose of the IM intervention.

10.4.2 Characteristics of the Inquiry Component

The characteristics of the inquiry component that were specifically related to implementation during the interviews with the IM clients referred to the conceptual and the socio-psychological outcomes of IM.

a) *Conceptual Outcomes.*

A general perception among the interviewees referred to the usefulness of the conceptual outcomes of IM to understand the situations under study and to derive ways to address them. The three interviewees indicated that the conceptual outcomes helped the groups to develop a good understanding of the situations under study and to have a clear idea of the work that should be done to address those situations. They also emphasised that at the beginning of the work with IM the situations seemed very confused and explained that the process helped them to organise their ideas and produce workable solutions. One of the interviewees mentioned that the outcomes had been useful, not only because of the actions that were implemented but also because they helped them to improve decision-making.

In spite of the general agreement between the interviewees regarding the usefulness of the conceptual outcomes of IM, it was interesting to note that in the three cases the outcomes of IM had to be further developed to become useful guidelines for implementation. The way in which the outcomes were further developed is discussed in Section 10.4.3.

b) *Socio-psychological Outcomes.*

As in the case of the interviews with the IM practitioners, the interviews with the IM clients indicated that there are three major socio-psychological outcomes that derive from the IM activity: commitment, satisfaction and changes in behaviour.

According to the interviewees the development of commitment as a result of the work with IM was manifested by the fact that most of the people who participated in the workshops decided to get involved in implementing the outcomes. In the case of the work carried out in the academic departments of ITESM, the IM clients considered that the participants were committed to the outcomes of the workshops because they could attribute an important meaning to the IM outcomes for their professional activities. One of these interviewees also stated that this was one of the major achievements of the intervention.

Regarding the satisfaction of the participants with the IM process and its outcomes, all the IM clients interviewed considered that at the end of the IM activity all the people were very satisfied with the experience and its outcomes. One interviewee expressed that some people were very tired at the end of the days during the workshops, but nevertheless considered that the group appreciated much the work that they had done. Another interviewee remembered that after the IM workshops he asked the IM team to present a proposal to his organisation to train a group of people in IM because everybody was very satisfied with the process and its outcomes.

Finally, regarding the changes in behaviour, the two heads of academic departments interviewed considered that as a result of the IM activity the relationships between the faculty members of each department improved significantly; the departments got more integrated and their members were willing to co-operate in the implementation efforts. In both cases the clients mentioned that their departments used to be fragmented in two or more clearly differentiated social groups and as a result of these efforts the differences tended to dissipate.

10.4.3 Relationship between Inquiry and Action

In the interviews with the three clients whose cases reported implementation results there were three factors identified as relevant for implementation regarding the relationship between inquiry and action. These factors are: a) the institutional support for implementing the outcomes of inquiry, b) the role of the IM consultant in the follow-up, and c) the organisation of follow-up activities.

a) *Institutional support for implementing the outcomes of inquiry.*

In the three cases concerned the IM clients indicated that they received the support of their immediate authorities to carry out both the inquiry and the implementation processes. The case of the development of an eco-efficiency plan for IMSA was marked by the fact that the President of the Board of Trustees of the company was also the President of the Latin-American Office of the Business Council for Sustainable Development and he had been personally promoting the commitment of IMSA to ecological initiatives. Therefore, he had a particular interest in the development and implementation of an eco-efficiency plan for the company.

In the cases of the academic departments of Mathematics and Humanities of ITESM, as these departments belong both to the School of Sciences and Humanities, the corresponding initiatives to use IM to foster the development of these departments were enthusiastically supported by the Dean of the School. This support was particularly manifested through the fact that it was the Dean who advised the Department of Humanities to proceed with the same approach (IM) that had been previously applied in the Department of Mathematics.

b) *The role of the IM consultants in the follow-up.*

An important feature of the relationship between inquiry and action that was mentioned by two interviewees referred to their relationship with the IM consultant after the IM workshops took place. This was the case of the heads of the departments of Humanities and Mathematics. Even though their initial agreement with the IM consultant referred only to the organisation and realisation of the IM workshops, once the IM process was finished these two

persons kept in contact with the consultant in order to ask her advise on how to proceed with implementation. According to one of the interviewees it was very important for them to have the guidance of the consultant during the implementation process since it was difficult for them to get organised and envisage the kind of activities that were needed to proceed.

c) *The organisation of the follow-up activities.*

The organisation of the follow-up activities was different in the three cases, but in all of them the main issue concerned the definition of responsibilities and specific activities to proceed with the implementation.

In the case of the development of the eco-efficiency plan, after the last IM workshop the participants reviewed the outcomes and decided to select and concentrate their efforts on a particular set of goals that were present in the final structure developed through IM. The selected goals were incorporated into the operational (annual) plan of the company and as such, they became part of the normal operation of the plant. As a part of the operational plan of the company, these goals were translated into specific actions, responsibilities and measures of performance.

In the case of one of the academic departments, a subgroup of the participants got organised to initiate the follow-up activities and the first thing they did was to derive a mission statement for the department based on the outcomes of the IM activity. Once the mission statement was agreed among all the members of the department, the responsibilities to work on the goals that were present in the final structure obtained through IM were distributed among various members of the department. Each responsible was in charge of developing his/her own implementation plan and the head of the department organised periodical meetings to report progress. Besides the above, the head of department asked each faculty member to state their own personal plan within the institution for the next five years considering the results of all the planning activities that they had made at the departmental level.

In the third case, the members of the academic department concerned decided to get organised in various committees. Each committee was assigned a set of responsibilities associated with the outcomes of IM and they developed their

own implementation plans. All the faculty members of the department decided to get involved in at least one of those committees and some of them got registered in more than one.

10.4.4 Characteristics of the Action Component

Regarding the characteristics of the action component the interviews with the IM clients indicated that there were at least three factors which played an important role on implementation. These factors are: a) motivation and commitment, b) the availability of time, and c) the power and authority of the people involved in implementation.

a) Motivation and commitment.

According to the interviewees, implementation was possible because the people involved were strongly committed and motivated to achieve the goals that were defined through the IM activity. Two of the interviewees commented that most of the proposals had already been implemented, and one of them indicated that to the date of the interview there was progress on all the proposals (the interview took place one year after the IM activity was carried out).

b) The availability of time.

The lack of time to work on the implementation process was the major problem reported by two of the interviewees. This was the case of the academic departments of ITESM. In one of these departments the faculty members agreed to eliminate their weekly departmental meetings in order to use the corresponding time to work on the activities required to achieve the goals that they defined through IM.

c) The power and authority of the people involved in implementation.

Even though none of the interviews directly referred to any issue related to the power and authority of the people involved in implementation, it was possible to identify that this factor played a role in implementation. In two of the three cases where implementation took place there were specific examples of actions that

were not accomplished because their control laid outside the competence of the people directly involved in the implementation process.

10.4.5 The Context of the Intervention

There were two factors identified as relevant for implementation with respect to the context of the interventions: a) the opportunity of the intervention and b) the relationship between the actions proposed as a result of the IM process and the on-going activities of the organisation.

a) *The opportunity of the intervention.*

According to one of the interviewees, an important factor that contributed to the successful implementation of the outcomes of IM and to the whole intervention in general, was the appropriate moment in which this effort took place. This case refers to one of the interventions in the academic departments of ITESM. At the time of the IM intervention the head of the department had been recently appointed in substitution of a previous head of department who had been in charge during many years. In accordance with the interview, this situation fostered the willingness of the faculty members to participate in a major departmental change.

b) *The relationship between the actions proposed as a result of the IM process and the on-going activities of the organisation.*

There were two situations mentioned during the interviews that suggested the importance of the relationship between the actions to be implemented and the on-going activities of the organisation concerned.

One of these situations referred to a problem faced by one of the academic departments as they were trying to implement their plans. Some members of the department became aware of a specific initiative within the institution which was directly related to their plans, and which could represent an obstacle to some of their proposals.

In the case of the other department, the situation was the opposite in the sense that the members of the department were able to envisage the relevance of

harmonising their efforts with those of the institution. In order to satisfy this requirement, they decided to develop and adjust their plans in the official terms and specific formats used in the institution for the periodical planning reports. Thus, the results and progress of the department in the implementation of the outcomes of the IM activity are now reported as a part of the official planning format normally used in the institution.

10.4.6 Situations in which Implementation was not Carried Out

The two situations in which implementation was not carried out were the two cases in which the Dean of the School of Research and Graduate Studies of ITESM requested the use of IM to work on the design of two different master programmes that had never before been offered in ITESM. One of these programmes referred to a Master on Natural Resources Management and the other one was a Master on Architecture.

As in the previous cases, the results of the corresponding interviews are discussed in terms of the five aspects of an intervention identified as relevant for implementation in Chapter 8.

a) *The planning process of the interventions.*

The planning process of both interventions was characterised by an emphasis in designing the IM workshops in order to address directly the content of the masters' programmes. In these terms, the characteristics of the organisational and professional market contexts of the programmes were not considered as an important part of the planning activities of the workshops. This situation turned out to be a major issue during the interviews since it was considered that the main obstacles for the implementation of these programmes were related to contextual factors. Thus, in retrospect a major weakness of the planning process of the intervention concerned the lack of attention to the development of a better understanding of the situations in which IM was to be used.

b) *The characteristics of the inquiry component.*

Regarding the characteristics of the inquiry component, the interviews focused on the appropriateness of the outcomes derived from the IM process. In the case

of the conceptual outcomes, according to the Dean of the School of Research and Graduate Studies the outcomes of both projects were not very useful for making the decision that were needed to proceed with implementation. However, he also stated that the workshops and their outcomes were most useful and insightful to identify the difficulties involved in starting the two master programmes.

In the case of the design of a Master programme on Architecture, both interviewees coincided in considering that at the end of the workshop the group did not arrive to a clear consensus on which should be the main focus of the programme. There were two clearly differentiated positions among the participants and that situation made it more difficult to decide how to continue the required efforts to implement the programme. Even though it was difficult to proceed with implementation based on the results of the IM activity, the Head of the Department of Architecture mentioned that the outcomes of the process were very useful to review the characteristics of the undergraduate programme on Architecture and that the report of the workshop is one of the most widely used documents in his department.

As far as the socio-psychological outcomes of the IM activity were concerned, the interviewees considered that the participants were very satisfied with the process. In spite of the fact that in the case of both master programmes it was difficult to envisage the continuity of the effort, most participants indicated their willingness to be involved in the follow-up.

c) *The relationship between inquiry and action.*

In the case of the Master programme on Architecture, even though the outcomes of the IM activity did not yield a definite consensus among the participants, a group of members of the Department of Architecture proceeded with the detailed design of the programme on the basis of the outcomes of IM that they considered relevant. Five of the twelve participants in the IM activity were involved in this process and they were able to arrive to the specific design of each of the courses that would be part of the master programme. A major problem faced by the Department of Architecture in trying to proceed with the implementation of the programme was the lack of institutional support to start the programme in the short term. This lack of support was related to some

contextual issues associated with the Architecture programmes in ITESM (see the context of the interventions below).

In the case of the master programme on Natural Resources Management the Dean of the School of Research and Graduate Studies commented that one of the main problems encountered was the fact that most of the people involved in the IM process belonged to different institutions or to different campuses of ITESM, and had come to Monterrey from different cities. As these persons were already committed to specific responsibilities within their institutions and were located in different cities it was particularly difficult to organise the continuity of the effort.

d) *The characteristics of the action component.*

Even though in the two cases discussed here the corresponding programmes had not been implemented yet, it is worth noting that in both cases there have been actual efforts to proceed with implementation.

In the case of the Master on Natural Resources Management, among the concrete actions that were carried out was the initiative of two of the participants in the IM activity to apply for international funding. These people presented a couple of proposals to different international agencies to get their financial support for developing the master programme. Unfortunately none of these proposals was accepted and the initiative for starting this programme was abandoned.

The case of the Master on Architecture has been different since it is expected that the programme will actually be implemented in the short term (August of 1999 or January of 2000) as a part of the graduate programmes of ITESM. In this regard, the main problems to work on implementation that were reported by the Head of the Department of Architecture concern the lack of time of the faculty members of the Department to get deeply involved in the design and organisation of the programme.

e) *The context of the interventions.*

According to the two interviews related to the design of the master programmes, a major contextual factor that made difficult the implementation of these programmes was the novelty of the nature of these programmes at the graduate

level within the institution. This novelty concerned not only the lack of experience of ITESM in managing this kind of programmes, but also their novelty with respect to the professional markets involved.

In the case of the Master on Natural Resources Management Mexico as country did not have any previous experience in running such a programme and there was a lot of uncertainty regarding the possible market demand for the possible graduates of this type of programmes. In the case of the Master on Architecture, the Head of the Department of Architecture emphasised that within the Architecture profession there was no tradition on specialised graduate programmes. Opening a graduate programme on Architecture represented a big professional and economical challenge for the institution.

According to the Dean of the School of Research and Graduate Studies it was precisely because of the difficulties that were envisaged in starting these graduate programmes that he considered the possible usefulness of the IM process to address the situations.

Finally, also related to the context of the interventions, another factor that was identified as relevant for implementation during the interview with the Head of the Department of Architecture referred to some important initiatives that were taking place in ITESM. Specifically, the undergraduate programme on Architecture was to be opened in different campuses of ITESM and the authorities of the institution decided to slow down the work on the graduate programme until the undergraduate programme would be established in those campuses. The idea in this case was to be able to integrate all the efforts of ITESM concerning the Architecture programmes.

10.4.7 A Situation in which the IM Intervention was not aimed at Implementation

The only situation explored during the interviews in which the implementation process was not relevant referred to the case of an IM workshop aimed at exploring the views of various specialists regarding the technological development of the Northeast Region of Mexico.

The purpose of using the IM process in this case was related to an interest of the Dean of the School of Research and Graduate Studies of ITESM to understand better

which were the challenges and opportunities of technological development in the Northeast of Mexico. As a result, the IM process was focused on the identification of the major areas or topics in which technological development was perceived as relevant for that Region. The areas identified were grouped in several categories and prioritised according to the views of the participants.

From the point of view of the client of this project the results of the IM activity satisfied his expectations since he was able to understand the different issues involved in promoting the technological development in the Northeast of Mexico, and to appreciate the various positions of the specialists who participated in the process. According to the interviewee, the outcomes of the process were used in several occasions as supportive material to present proposals to the Mexican Council of Science and Technology, and also to organise public discussions on the opportunities and challenges of the region.

10.5 RELATIONSHIP BETWEEN THE INTERVIEWS WITH IM PRACTITIONERS AND WITH IM CLIENTS

In view of the results obtained from the interviews with the IM practitioners and with the IM clients, a comparison was made to identify the similarities and differences in the factors that were found as relevant for implementation in both types of interviews. The results of this comparison are summarised in Table 10.1. The Table includes two columns; the first column refers to the results of the interviews with the IM practitioners and the second column to the results of the interviews with the IM clients. Both columns are organised in terms of the same five aspects of an intervention that were analysed in all the interviews and they include the specific factors that were associated to implementation in each case.

IM PRACTITIONERS	IM CLIENTS
A) The Planning Process of the Intervention.	
• The design of the intervention. • The scope of the intervention. • Selection and definition of the roles of the participants in the IM workshops.	• The aims of the intervention • Understanding of the situation. • Preparation/introduction of the participants to the project
B) The Characteristics of the Inquiry Component	
• The need to involve more elements than only the use of IM in the inquiry process. • Implementation plans as a part of the conceptual outcomes of the inquiry process. • The socio-psychological outcomes of the IM process.	• Clarity and usefulness of the conceptual outcomes. • The socio-psychological outcomes of the IM process.
c) The Relationship Between Inquiry and Action	
• The roles of different actors in inquiry and action. • The communication needs between inquiry and action. • The need to iterate between inquiry and action. • The organisation of follow-up activities.	• The institutional support for implementing the outcomes of inquiry • The organisation of follow-up activities. • The role of the IM consultant in the follow-up
D) The Characteristics of the Action Component	
• Motivation and commitment • Leadership • Access to the required resources	• Motivation and commitment. • The availability of time. • Access to the required resources • The power and authority of the people involved in implementation.
E) The Context of the Intervention	
• Characteristics of the organisation(s) concerned • Political issues • The dynamics of the situation • The relationship between the actions proposed as a result of the IM process and the on-going activities of the organisation	• The history of the situations. • The opportunity of the intervention. • The relationship between the actions proposed as a result of the IM process and the on-going activities of the organisation. • Changes in the situation during the intervention.

Table 10.1 Factors Identified as Relevant for Implementation Purposes in the Interviews with IM Practitioners and with IM Clients

As it can be noted in Table 10.1, there were important similarities and differences in the results of the interviews. According to the initial design of the interviews the results indicated that the perspectives of both types of interviewees, IM practitioners and IM clients, represented complementary views on the factors that influence the implementation of the outcomes of IM.

The similarities between the results of both types of interviews concentrated on the relevance of the socio-psychological outcomes of IM, the organisation of the follow-up activities, the need for motivation and commitment during the action process, the access to the required resources, and the relationship between the actions to implement and the on-going activities of the organisations concerned.

The aspects in which the complementary views of the interviewees were more evident include the planning process and the context of the interventions. In these cases the interviews with the IM practitioners and the IM clients indicated the relevance for implementation of different factors.

Another interesting result of the interviews was the fact that in most projects aimed at implementation there was a need to work further in order to develop the guidelines (implementation plans) required to proceed to the action process.

10.6 CONCLUSIONS

The results of the interviews with IM practitioners and with IM clients presented in this chapter indicate that there are many different factors that can influence the implementation of the outcomes of IM and that these factors may be closely interrelated.

As a result of the interviews it was possible to recognise that there are situations in which the outcomes of the IM process are implemented in spite of the fact that IM concentrates only in the inquiry component of an intervention. However, at the same time it was clear that there are also circumstances in which these outcomes are not implemented in spite of the interest of different parties in accomplishing such task. Therefore, these results helped to confirm the idea that in order for implementation to take place the establishment of action proposals is not enough (Section 7.4).

Regarding the factors that were identified as relevant for implementation purposes in this chapter, it is worth noting that the relative influence of these factors is

often mediated by the specific circumstances that characterise each situation. Also, in this respect, it was interesting to realise that the differences between the professional practices of the IM practitioners represented by themselves another relevant factor for implementation.

The implications of the results of the interviews for the research questions are discussed together with the results of the case study in the next chapter.

CHAPTER 11

DISCUSSION OF THE RESULTS OF THE FIELD RESEARCH

11.1 INTRODUCTION

Based on the conclusions of the case study and the interviews with IM practitioners and IM clients, this chapter discusses the results of the field research regarding the statement of the two research questions.

Section 11.2 offers a general description of the results of the field research. Section 11.3 presents the conclusions derived from the field research regarding the first research question and Section 11.4 discusses the conclusions concerned with the second research question. Finally, Section 11.5 summarises the conclusions of the field research.

11.2 GENERAL RESULTS OF THE FIELD RESEARCH

As a result of the comparison between IM and STST one major conclusion referred to the identification of a particularly significant difference between these two approaches. While both approaches are concerned with the design of participative processes to deal with complexity, STST focuses in the design of action systems and IM concentrates in the design of inquiry systems (Chapter 6).

The identification of these perspectives to deal with complexity (i.e., inquiry and action) led to the analysis of the complementarity between inquiry and action in the context of systemic interventions in complex situations. Based on this analysis, inquiry and action were related to the possibility of addressing three different dimensions of complexity: a cognitive, a social, and an empirical dimension. The inquiry component of a systemic intervention was associated with an emphasis on the cognitive and social dimensions of complexity, and the action component was associated with an emphasis on the social and empirical dimensions. In these terms, inquiry represents the endeavours involved in developing a good understanding of a situation and designing

appropriate solutions to address it, while action encompasses the implementation of the designed solutions. From this perspective, a systemic intervention aimed at holistically addressing complex situations should incorporate both components inquiry and action (Chapter 7).

According to these ideas, two research questions were defined to formally explore the relationship of the IM inquiry process with the action process required to implement the outcomes of inquiry. In order to address those questions a field research was designed and a preliminary conceptual framework was developed (Chapter 8). The field research involved the analysis of a case study (Chapter 9), and the organisation and analysis of a set of interviews with IM practitioners and IM clients (Chapter 10).

As stated in the conceptual framework on which the field research was based (Section 8.4), there are five aspects of an intervention that were considered as relevant for implementation purposes. These aspects are: i) the planning process of the intervention, ii) the characteristics of the inquiry component, iii) the relationship between inquiry and action, iv) the characteristics of the action component, and v) the context of the intervention. According to the conceptual framework, each one of these aspects involves a number of factors that were supposed to have a significant influence on implementation. Thus, the field research was aimed at exploring the actual relevance of those factors for implementation purposes, and at finding out if there were any other relevant factors not originally included in the conceptual framework.

The results obtained from the field research were compared and synthesised, and the corresponding conclusions represent the answer attained for the first research question. These conclusions are presented in Section 11.3.

The second research question was aimed at exploring how an IM project could be organised and managed in order to promote the implementation of the outcomes of the IM process. This question was addressed on the basis of the conclusions of the field research regarding the first research question, and the corresponding outcomes are discussed in Section 11.4.

11.3 RESEARCH QUESTION NO. 1: FACTORS THAT CONTRIBUTE TO AND/OR INHIBIT THE IMPLEMENTATION OF THE DECISIONS THAT DERIVE FROM THE IM PROCESS

As stated in Chapter 7, in order to understand better whether and why implementation takes place as a result of an IM project the first research question was aimed at finding out what factors contribute to or inhibit the implementation of the decisions that derive from the IM inquiry process. This question was addressed in the field research by adopting two complementary research strategies: a case study and a set of interviews with IM practitioners and IM clients. Chapters 9 and 10 presented the results obtained from each one of these research tasks, and this section presents the conclusions derived from both strategies of the field research.

The results of the case study and of the interviews with IM practitioners and IM clients led to the identification of the influence on implementation of a number of factors associated with the five aspects of an intervention mentioned in the preceding section. The factors identified were compared in order to find out the similarities, differences, and/or contradictions in the findings of each research strategy.

As a result of this comparison, there were more similarities than differences found and no substantial contradictions were encountered between the results of the case study and the interviews with IM practitioners and IM clients. Furthermore, as it was anticipated in the design of the field research, the differences found indicated some important areas where the results of each strategy of the field research complemented each other. Another significant outcome of the comparison showed that there were a number of relevant factors that were not considered in the original conceptual framework and which were identified through both the case study and the interviews. In addition, the analysis of the results in the light of the conceptual framework originally developed revealed that some of the factors initially defined could not be differentiated from one another during the field research. The factors that were in this category were grouped according to their similarities.

Based on this analysis, a final list of factors that have a significant influence on implementation was derived. Besides the above, in order to complete the synthesis of the results of the field research, the mutual influence of those factors was established

based on the support of the field research. This task led to the development of an influence structure that included the thirty-four factors comprised in the final list.

The results of the field research that have been mentioned in the preceding paragraphs are presented in more detail in Sections 11.3.1 to 11.3.7. Sections 11.3.1 to 11.3.5 describe the results of the field research as these are associated with each one of the five aspects considered relevant for implementation in the conceptual framework. Each one of these sections presents a table that shows a list of the factors that were found relevant during the field research. The lists include the relevant factors that were initially considered in the conceptual framework together with the additional factors identified during the field research. The tables indicate the sections of the thesis which discuss the evidence that supports the relevance for implementation of each factor. Besides these tables, Sections 11.3.1 to 11.3.5 also include diagrams which indicate the relationships between the relevant factors. In order to maintain a logical reference to identify each factor, the factors are numbered sequentially according to the numbers shown in Table 11.1. For example, the factors associated with the planning process of an intervention are numbered 1.1, 1.2, 1.3, and so on.

1. The Planning Process of an Intervention
2. Characteristics of the Inquiry Component 2.1 Global characteristics of the inquiry process 2.2 Characteristics of each workshop 2.3 Socio-psychological processes 2.4 Conceptual outcomes 2.5 Socio-psychological outcomes
3. Relationship Between Inquiry and Action
4. Characteristics of the Action Component
5. The Context of the Intervention

Table 11.1 The Five Aspects of an Intervention that were Studied

11.3.1 The Planning Process of an IM Intervention

According to the description of the conceptual framework presented in Section 8.4, a set of eleven factors associated with the planning process of an IM intervention

was initially considered as having a relevant influence on implementation (Table 8.3). However, as a result of the field research the initial set was reformulated and the final set only included seven factors. Table 11.2 shows the final list of factors that were identified as relevant for implementation in accordance with the results of the field research.

1. The Planning Process of the Intervention	Case Study	Interviews w/IM Practitioners	Interviews w/ IM Clients	Final results
1.1 Aims of the intervention	Sec. 9.4, 9.5		Table 10.1	✓
1.2 Scope of the intervention		Table 10.1		✓
1.3 The design of the intervention	Sec. 9.7	Table 10.1		✓
▸ The planned work sequence		Sec. 10.3.1		
1.4 General characteristics of the planning process	Sec. 9.7	Sec. 10.3.1		✓
▸ People involved in the planning process	Sec. 9.6			
▸ Understanding of the situation	Sec. 9.6	Sec. 10.3.1	Table 10.1	
1.5 Definition of participants and their roles in the whole intervention		Table 10.1	Sec. 10.4.6	✓
▸ Selection of participants for the IM workshops	Sec. 9.7	Table 10.1		
1.6 Preparation of the participants			Table 10.1	✓
▸ Briefing the participants in the IM process				
1.7 IM practitioner(s) leading the intervention		Sec. 10.6		✓

	Factors not originally considered in the conceptual framework
✓	The results of the field research supported the relevance for implementation of this factor

Table 11.2 Factors Associated with the Planning Process of an IM Intervention

Table 11.2 shows that Factors 1.4 and 1.5 have been grouped with a number of factors that were considered individually in the initial conceptual framework. The groupings were formed because the characteristics and relative influence in implementation of each factor could not be differentiated during the field research.

In the case of the people involved in the planning process and the understanding of the situation (grouped with factor 1.4) the results of the field research indicated that

these two factors could not be clearly differentiated from the general characteristics of the planning process (factor 1.4). During the case study it was found out that the activities involved in the planning process in the two projects studied were closely associated with the people involved in planning and that this was precisely one of the major characteristics of the planning process. Regarding the understanding of the situation, the interviews with IM practitioners were particularly insightful for concluding that the development of a rich understanding of the situation under study is a crucial task of the planning process. Therefore, the understanding of the situation under study was also considered as a part of the general characteristics of the planning process.

The selection of participants for the IM workshops was grouped with the definition of participants and their roles in the whole intervention (factor 1.5) because during the case study and the interviews with IM practitioners such selection was recognised as a subtask of the more general task implied in factor 1.5.

Table 11.1 also shows three factors not identified in the initial conceptual framework. Factor 1.3, the design of the intervention, represents a major finding of the interviews with IM practitioners. This factor refers to the global conception of an IM intervention (Section 10.3.1). In particular it points out the distinction between planning a single IM workshop and planning an IM project that might include several workshops. Due to the global connotation of this factor, the planned work sequence is considered as a part of it.

Factor 1.6, preparation of the participants, was introduced as an enlarged version of the factor initially formulated as "briefing the participants in the IM process". The new version was derived because the interviews with the IM clients revealed that an appropriate introduction of the participants to an IM project contributes to clarifying their expectations and to developing their motivation. The interviews also made it clear that this is not only a matter of briefing the participants in the IM process, it also entails promoting effective communication at the outset of a project regarding all its major implications for the people who would be involved.

The third factor not originally considered in the conceptual framework refers to the IM practitioner(s) who lead the intervention (factor 1.7). This factor was identified as relevant as a result of analysing the different perspectives of the IM practitioners. Among other things, the interviews with IM practitioners indicated that there are

significant differences in the way the IM practitioners conceive and negotiate their roles in the different phases of a project (inquiry, follow-up, and action).

Besides the evidence found during the field research that supported the relevance of the factors shown in Table 11.1, the outcomes of the field research were used to establish if those factors influence each other in the context of implementing the outcomes of an IM project. For this purpose, an influence structure was developed with the use of the ISM process (Figure 11.1).

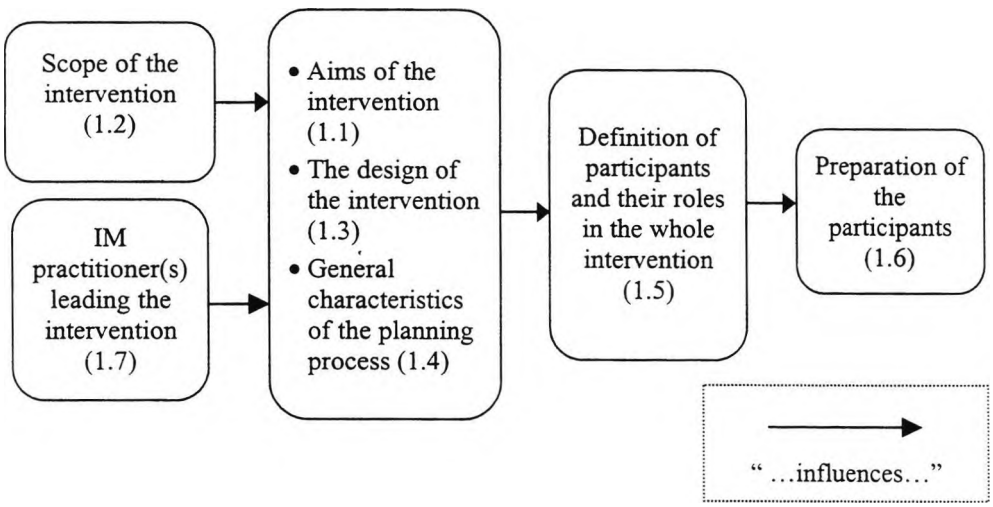


Fig. 11.1 Influence Structure of the Factors Related to the Planning Process of the Intervention

Figure 11.1 shows that, according to the results of the field research, the scope of the intervention (Factor 1.2) and the IM practitioner(s) leading the intervention (Factor 1.7) have an influence on all the other factors related to the planning process of the intervention. Also, this figure indicates that there are three factors, the aims of the intervention (Factor 1.1), the design of the intervention (Factor 1.3), and the general characteristics of the planning process (Factor 1.4), that mutually influence each other (this is represented by the three factors included in the same box).

The influence relationships of these factors with the rest of the factors found relevant for implementation will be discussed in Section 11.3.6.

11.3.2 Characteristics of the Inquiry Component

As described in Section 8.4.2, there were thirty-four factors associated with the characteristics of the inquiry component of an IM intervention initially considered in the conceptual framework. In order to facilitate their analysis those factors were classified in five groups (Table 8.4) and the analysis of the results of the field research regarding this aspect was based on such classification. The following paragraphs present the results of the field research regarding the characteristics of the inquiry component in terms of the five groups of factors involved in the classification.

a) Global Characteristics of the Inquiry Process.

In accordance with the conceptual framework (Section 8.4.2), the general characteristics of the inquiry process refer to the most distinctive elements of the inquiry process as a whole, i.e., these characteristics represent a synthesis of the inquiry process. Out of an initial list of ten factors belonging to this group, only four factors were found as relevant for implementation according to the results of the field research. These factors are shown in Table 11.3.

2.1 Global Characteristics of the Inquiry Process	Case Study	Interviews w/ IM Practitioners	Interviews w/ IM Clients	Final results
2.1.1 Activities carried out during the inquiry process	Sec. 9.4, 9.5	Table 10.1		✓
2.1.2 Participants	Sec. 9.6	Sec. 10.3.1		✓
2.1.3 Observers		Sec. 10.3.1		✓
2.1.4 Appropriateness of the products developed	Sec. 9.6		Table 10.1	✓
▸ Documentation	Sec. 9.4			

✓ The results of the field research supported the relevance for implementation of this factor

Table 11.3 Factors Associated with the Global Characteristics of the Inquiry Process

The four factors shown in Table 11.3 represent the three major elements involved in the realisation of the IM inquiry process: The activities carried out as a part of the inquiry (Factor 2.1.1), the people involved in the project (Factors

2.1.2 and 2.1.3), and the appropriateness of the outcomes (Factor 2.1.4). Table 11.3 also shows that the documentation of the results of an IM project, originally considered as an individual factor, is now included as a part of Factor 2.1.4 (appropriateness of the products developed). According to the interviews with the participants in the case study and with IM clients, the documentation is an integral part of what they perceive as the products of IM.

Besides the above, there were five factors initially considered in the conceptual framework that are not present in Table 11.3. In view of the results of the field research it was not possible to establish a direct influence of those factors in implementation. These factors include: i) the time framework of the inquiring effort, ii) the total duration of the IM activity, iii) the IM facilitation team, iv) the consistency of the actual process with the IM plan, and v) iteration in defining the conceptual outcomes (Table 8.4). The results of the case study and the examples and comments offered by the interviewees (IM practitioners and IM clients) indicated that most of these factors are relevant characteristics of the IM process; however, their influence on implementation could not be established.

b) *Characteristics of each Workshop.*

Regarding the characteristics of each workshop, the field research revealed that the factors that influence the possibilities of implementation in an IM intervention cannot be specifically associated with the individual workshops (except in the case in which only one workshop is organised). Instead, according to the results of the field research, the factors that were initially associated with the characteristics of each workshop should be considered in relationship to the whole intervention. In particular, it was found that the factors belonging to this group have an equivalent factor associated with other more general aspects of an IM intervention. Thus, as a result of the field research the initial list of factors considered relevant for implementation regarding the characteristics of each workshop was discarded because of their correspondence with other factors already considered in other aspects of an IM intervention.

Table 11.4 shows the list of factors associated with the characteristics of each workshop that was initially identified in the conceptual framework indicating their equivalent factors in other aspects of an intervention.

Characteristics of Each Workshop	Equivalent Factors Associated with other Aspects of an IM intervention
i) Objectives of each workshop	1.1 Aims of the intervention (Table 11.2)
ii) Other activities or methods used besides IM iii) IM methods used	2.1.1 Activities carried out during the inquiry process (Table 11.3)
iv) Participants	2.1.2 Participants (Table 11.3)
v) Observers	2.1.3 Observers (Table 11.3)
iv) Time distribution of each workshop	• Total duration of the IM activity (not considered relevant for implementation as a result of the field research).

Table 11.4 Factors Associated with the Characteristics of Each Workshop

c) Socio-psychological Processes.

The set of factors associated with the socio-psychological processes that take place during the IM activity and which were considered relevant for implementation according to the conceptual framework initially developed is shown in Table 11.5.

i) Individual attitudes and expectations
ii) Group climate
iii) Group development processes
iv) Sub-group formation
v) Group cohesion
vi) Conflict present and its resolution

Table 11.5 Factors Associated with the Socio-Psychological Processes

Due to the nature of these factors involved, their actual influence on implementation could not be established as a result of the field research. The interviews carried out during the analysis of the case study, and the interviews with IM practitioners and IM clients indicated that, as a group activity, the IM process promotes an appropriate atmosphere for group work. According to some interviewees, it is common that at the outset of the IM group activity the groups may experience some difficulties in establishing open and efficient

communication patterns. However, most of the interviewees agreed in considering that during the IM activity, the group processes tend to stabilise and the participants develop effective patterns of interaction.

In spite of the perspectives offered by the interviewees regarding the socio-psychological processes occurring during the IM activity, the results of the field research in this matter do not allow a clear conclusion to be derived regarding the possible influence of these processes in implementation. The main reason for this is that no evidence was found indicating any difference in these processes associated with projects in which implementation took place.

Even though the factors associated with the socio-psychological processes during the IM activity could not be related to implementation during the field research there was evidence relating implementation to the socio-psychological outcomes of IM as is discussed in the following paragraphs.

Given the results of the field research concerning the socio-psychological processes and outcomes of IM, it is considered that in order to carry out an in-depth assessment of the influence of the socio-psychological processes in implementation it would be necessary to undertake an observational study of these processes as they occur during the IM workshops.

d) *Conceptual Outcomes.*

The results of the field research indicated that the characteristics of the conceptual outcomes of the IM process have an important influence in implementation. Table 11.6 shows the two factors associated with the conceptual outcomes that were found relevant in this respect. The table shows that most of the factors that were initially considered in the conceptual framework were found relevant according to the field research.

2.4 Conceptual Outcomes	Case Study	Interviews w/ IM Practitioners	Interviews w/ IM Clients	Final results
2.4.1 The "transparency" of the conceptual outcomes regarding their implementation	Sec. 9.4.2		Table 10.1	✓
▸ Characteristics of the ideas generated		Sec. 10.3.2		
▸ Characteristics of the structural models developed		Sec. 10.3.2		
▸ "Transparency" of the structural models			Table 10.1	
2.4.2 Implementation plans	Sec. 9.6	Table 10.1	Sec 10.4.3	✓
▸ Responsibility for follow-up				
▸ Follow-up specific commitments				

✓ The results of the field research supported the relevance for implementation of this factor

Table 11.6 Factors Associated with the Conceptual Outcomes of the Inquiry Process

The two factors presented in Table 11.6 include the characteristics of the conceptual outcomes of IM as they are related to a project aimed at implementation. Factor 2.4.1 refers to the products that are typically obtained as a result of the IM process; as can be noted in the table, Factor 2.4.1 groups four of the original factors identified in the conceptual framework. Factor 2.4.2 involves an explicit interest in the development of implementation plans as a part of the IM process. In both cases, the conclusions of the field research clearly indicated the relevance of these factors for implementation purposes as was discussed in Chapters 9 and 10.

e) *Socio-psychological outcomes.*

As discussed in Chapter 7, the socio-psychological outcomes of IM concern the changes in worldviews, ideas and beliefs experienced by groups and individuals as a result of their participation in the IM group activity. The factors that were found as relevant for implementation in this category are shown in Table 11.7.

2.5 Socio-psychological Outcomes	Case Study	Interviews w/ IM Practitioners	Interviews w/ IM Clients	Final results
2.5.1 Level of consensus			Sec. 10.4.6	✓
2.5.2 Level of commitment for action	Sec. 9.6	Table 10.1	Table 10.1	✓
2.5.3 Other socio-psychological outcomes of the IM workshops		Table 10.1	Table 10.1	✓

✓	The results of the field research supported the relevance for implementation of this factor

Table 11.7 Factors Associated with the Socio-psychological Outcomes of the Inquiry Process

Regarding the list of factors initially identified as relevant for implementation in this category, the only factor that could not be related to implementation as a result of the field research was the level of satisfaction of the participants in the IM workshops (Table 8.4). As discussed in Chapters 9 and 10, the IM projects considered during the field research indicated that the participants in the IM workshops normally arrive at a significant level of satisfaction regarding the IM process and its outcomes. However, as was particularly illustrated in the interviews with IM clients, the participants are satisfied with the process and outcomes of the IM activity even if the aims of the intervention are not oriented towards implementation. Furthermore, there was a particular case in which the level of satisfaction of the participants estimated by an IM client was very high, even if they realised that the conceptual outcomes of the process would not be useful for the implementation interests of the group.

As indicated in Chapter 10, Factor 2.5.3 - other socio-psychological outcomes of the IM workshops - refers particularly to the changes in attitudes and in the interaction processes between the participants. According to the interviewees these types of socio-psychological outcomes contribute to implementation in so far as they promote positive attitudes towards the decisions made by the group and help to improve the relationships between the participants.

Given the results of the characteristics of the inquiry component just presented, the corresponding list of factors that were identified as relevant as a result of the field

research include a total of nine factors. Figure 11.2 shows an influence structure of these factors indicating a relationship of mutual influence for implementation purposes.

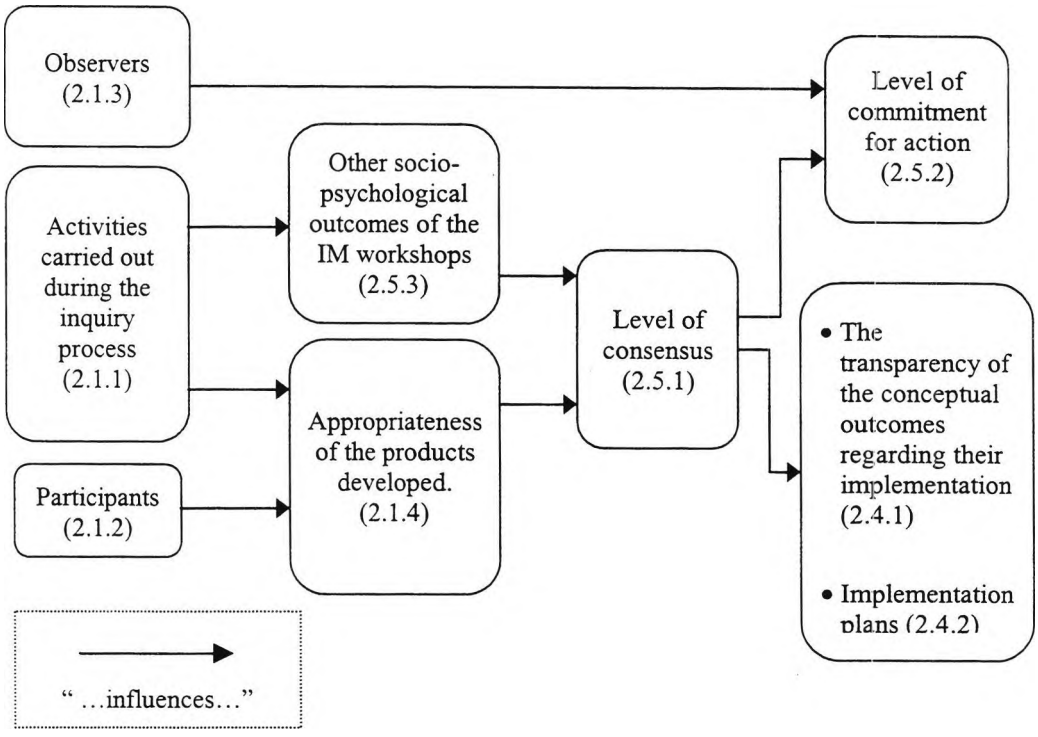


Fig. 11.2 Influence Structure of the Factors Related to the Inquiry Component of an IM Intervention

The relationships illustrated in Figure 11.2 imply that, according to the results of the field research, the people involved in the inquiry process (participants and observers) together with the activities carried out during this process have an influence on all the factors associated with the inquiry process. It should be noted that this structure indicates, among other things, that the role of the observers is particularly effective for supporting the commitment for action required to accomplish the implementation tasks.

11.3.3 Relationship between Inquiry and Action

The factors associated with the relationship between inquiry and action in the conceptual framework presented in Section 8.4.3 included a total of eight items (Table 8.5). As a result of the field research, seven of the eight factors were confirmed as

relevant for implementation purposes. In addition, two factors not originally considered in the conceptual framework were found as relevant. All these factors are shown in Table 11.8.

3. The Relationship Between Inquiry and Action	Case Study	Interviews w/ IM Practitioners	Interviews w/ IM Clients	Final results
3.1 Role in implementation of the people involved in the IM process.				✓
▸ Role of the IM participants in implementation	Sec. 9.6	Table 10.1	Sec. 10.4.3	
▸ Role of the IM observers in implementation	Sec. 9.4	Table 10.1		
3.2 Role of relevant authorities in inquiry and implementation	Sec. 9.6	Table 10.1		✓
3.3 Role of IM consultants in the follow-up.	Sec. 9.6	Sec. 10.3.3	Table 10.1	✓
3.4 Relationship of other implementation actors with the inquiry process.	Sec. 9.6, 9.7	Table 10.1		✓
3.5 Institutional support for implementing the outcomes of inquiry	Sec. 9.6		Table 10.1	✓
3.6 Iteration between action and inquiry		Table 10.1		✓
3.7 Organisation of follow-up activities	Sec. 9.4	Table 10.1	Table 10.1	✓
▸ Communication of results		Table 10.1		

	Factors not originally considered in the conceptual framework
✓	The results of the field research supported the relevance for implementation of this factor

Table 11.8 Factors Associated with the Relationship Between Inquiry and Action

The factors shown in Table 11.8 include most of the factors initially considered in the conceptual framework except for the role of the IM broker in the follow-up. During the field research, the relevance of this role for implementation was associated only with the projects in which the IM brokers were also the direct clients of the IM activity. Moreover, these clients also coincided with the people who were in a position of formal authority in the situations under study. Therefore, even though the methodological guidelines of IM (Warfield and Cárdenas, 1994) suggest the importance

of the role of the IM broker in the follow-up, there was no evidence to support the individual influence of this factor in implementation.

Regarding the role of the participants and the observers in implementation, the results of the field research confirmed the idea that when these people have specific responsibilities assigned during implementation, the likelihood of implementation increases as their involvement in the IM process helps to develop their commitment to action. These two roles were grouped under one single factor called "role in implementation of the people involved in the IM process" (Factor 3.1) because, according to the field research, it is the direct involvement of the people in the inquiry process that facilitates their participation in implementation.

Factors 3.3 and 3.7 were identified as a result of the field research, they were not considered in the initial conceptual framework. According to the field research, the formalisation of a role for the IM consultants in the follow-up (Factor 3.3) can be very helpful in enabling the IM clients to take full advantage of the outcomes of IM and to support the organisation of follow-up activities. The organisation of follow-up activities (Factor 3.7) was also identified as a significant factor for implementation as it includes the detailed preparation and co-ordination of groups and individuals for the implementation tasks. The communication of results of the inquiry to the implementation actors - originally considered as an individual factor - has been grouped with the organisation of the follow-up activities because, according to the interviews with IM practitioners, an important emphasis of the follow-up activities should be concerned with the communication of the results of inquiry to the implementation actors who do not participate in the inquiry process.

Figure 11.3 shows the influence structure that portrays the relationships of mutual influence among the factors found as relevant regarding the relationship between inquiry and action.

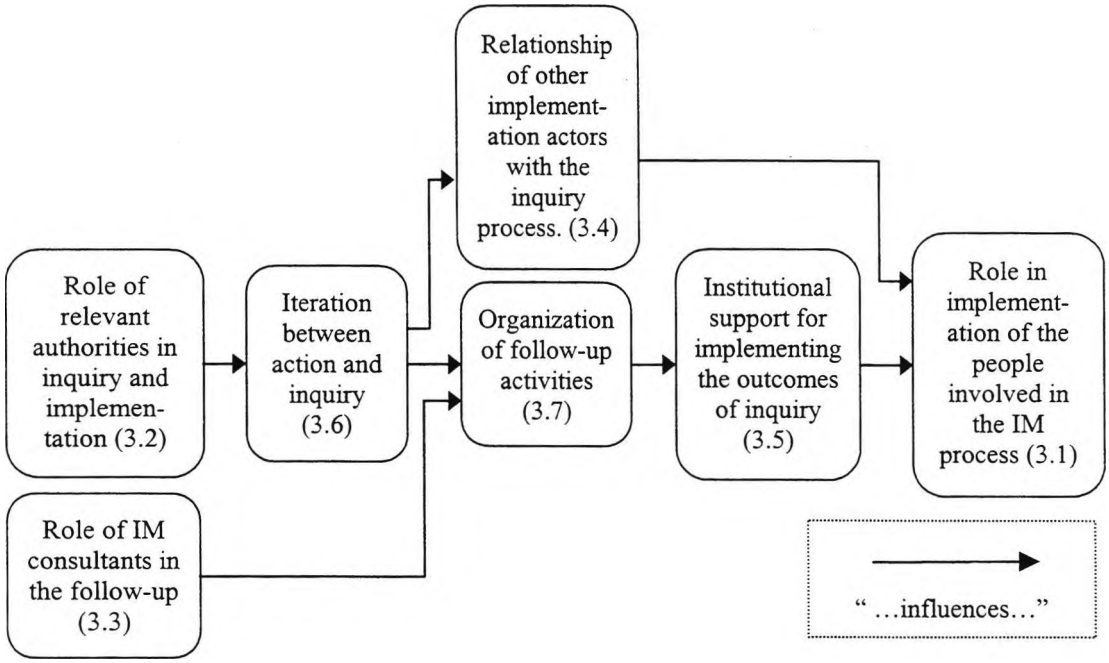


Fig. 11.3 Influence Structure of the Factors Associated with the Relationship between Inquiry and Action

Figure 11.3 indicates, among other things, that a major factor influencing the effectiveness for implementation of the relationship between inquiry and action is the role of relevant authorities in inquiry and implementation (Factor 3.2). This factor was identified as relevant in Section 8.4.3 mostly based on the socio-technical principle of *Support Congruence* (Sections 5.6.3 and 5.7) and the results of the case study and the interviews with IM practitioners provided substantial support to corroborate the relevance of this factor. This factor points out the importance of the involvement of people with decision-making authority in activities related to both the inquiry and the implementation processes.

11.3.4 Characteristics of the Action Component

The factors associated with the characteristics of the action component that were initially identified as relevant in the conceptual framework (Table 8.6) included a total of six items. The results of the field research supported the relevance for implementation of most of those factors with the exception of the factor labelled "learning and adjustments". As originally conceived, this factor was related to the mechanisms

through which learning is supported and adjustments are made to the original plans during implementation (Appendix D). Even though the relevance of this factor for implementation was conceptually derived from the importance attributed to learning and self-regulation in STST and in the discussion of implementation concerns presented in Section 7.6.1, the results of the field research did not explicitly support any specific conclusion regarding the influence of this factor in implementation. The factors that were found as relevant as a result of the field research are shown in Table 11.9.

4. Characteristics of the Action Component	Case Study	Interviews w/ IM Practitioners	Interviews w/ IM Clients	Final results
4.1 Implementation actors	Sec. 9.6		Sec. 10.4.3	✓
4.2 Motivation and commitment	Sec. 9.6, 9.7	Table 10.1	Table 10.1	✓
4.3 Availability of resources	Sec. 9.6	Table 10.1	Table 10.1	✓
4.4 Power and authority	Sec. 9.6		Table 10.1	✓
4.5 Communication processes	Sec. 9.6, 9.7			✓
4.6 Leadership of relevant authorities	Sec. 9.7	Table 10.1		✓

	Factors not originally considered in the conceptual framework
✓	The results of the field research supported the relevance for implementation of this factor

Table 11.9 Factors Associated with the Characteristics of the Action Component

Table 11.9 shows that besides the factors initially considered in the conceptual framework, the leadership of relevant authorities during implementation was also found as relevant during the field research (Factor 4.6). According to the results of the case study and the interviews with IM practitioners, the support and appropriate guidance of relevant authorities are significant to the extent that they represent a steering function for the accomplishment of the implementation tasks.

Regarding the total list of factors shown in Table 11.9 it is interesting to note that all of these factors were found as relevant for implementation as a result of the case study. The two projects analysed as a part of the case study supported the relevance of these factors for implementation in two senses. For example, in the first IM project carried out in Caritas de Monterrey the lack of power and authority (Factor 4.4) of the departmental managers regarding some major implementation tasks was an obstacle for successful implementation. Conversely, the power and authority of the Parish Caritas

Committee in the second project was an enabling factor for achieving important implementation goals.

The influence relationships between the factors associated with the action component are shown in Figure 11.4.

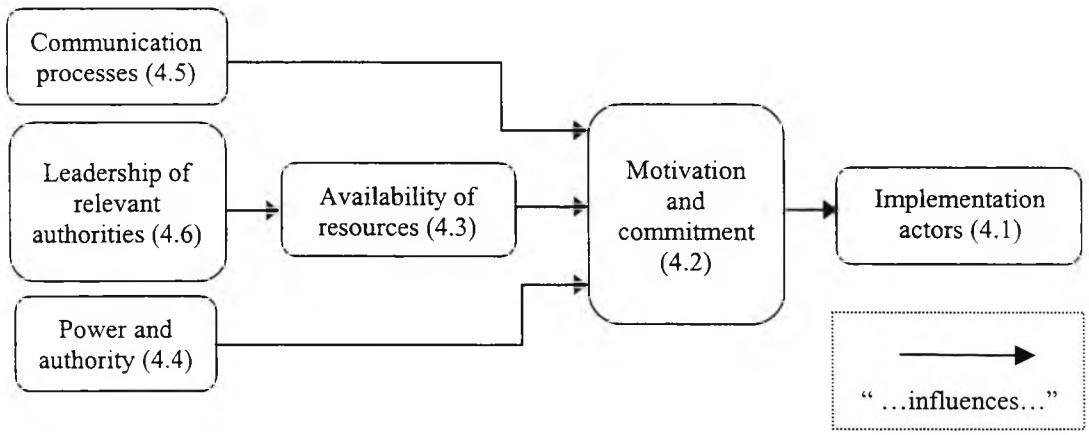


Fig. 11.4 Influence Structure of the Factors Associated with the Action Component of an IM Project

Based on the results of the field research, Figure 11.4 illustrates that factors 4.5, 4.6, 4.4 and 4.3 affect the levels of motivation and commitment that are maintained during an implementation effort (Factor 4.2). In turn, motivation and commitment have an influence on the possibility of having people engaged in the implementation tasks (Factor 4.1) which represents the basic means to accomplish implementation.

11.3.5 The Context of the Intervention

The factors associated with the context of an intervention that are relevant for implementation according to the field research are shown in Table 11.10.

5. The Context of the Intervention	Case Study	Interviews w/ IM Practitioners	Interviews w/ IM Clients	Final results
5.1 History of the situation	Sec. 9.6		Table 10.1	✓
5.2 Characteristics of the organisation(s) concerned		Table 10.1	Sec. 10.4.3	✓
▸ Organisational culture	Sec. 9.7			
▸ Power structures and political issues	Sec 9.5	Table 10.1		
5.3 Communication processes	Sec. 9.6			✓
5.4 Major changes in the situation	Sec. 9.6	Table 10.1	Table 10.1	✓
5.5 The relationship between the actions proposed as a result of the IM process and the on-going activities of the organisation.	Sec. 9.6	Table 10.1	Table 10.1	✓
▸ Implications of the proposed changes for the organisation(s) concerned				

	Factors not originally considered in the conceptual framework
✓	The results of the field research supported the relevance for implementation of this factor

Table 11.10 Factors Associated with the Context of the Intervention

Out of the eight factors initially identified as relevant for implementation (Table 8.7) only one factor is not included in Table 11.10. That factor was originally labelled as "stakeholders not involved in the intervention process" and it referred to the influence on implementation of the people who are affected by, but not involved in, the intervention process. The results of the field research did not provide any specific example or argument to support the influence of that factor on implementation; therefore, it was excluded from the final list of relevant factors.

Table 11.10 indicates that as a result of the field research two factors initially considered on an individual basis were finally grouped together with Factor 5.2 (characteristics of the organisation(s) concerned); those factors are "organisational culture" and "power structures and political issues". During the analysis of the case study and the interviews with IM clients it was not possible to differentiate clearly the characteristics and relative influence on implementation of each one of these factors from the characteristics of the organisations concerned. As an example, in the case study, the existence of two clearly differentiated groups within Caritas de Monterrey, i.e., the volunteers and the employees, which is a characteristic of the organisation, was

closely associated with the implicit working norms and habits of the organisation (features of the organisational culture). At the same time, the differentiation of these groups was related to political conflicts that prevented a better co-ordination of these groups during implementation in the second IM project. Another perspective on organisational issues that contributed to grouping the organisational culture and the power structures and political issues together with the characteristics of the organisation referred to the examples in which the IM projects involved the participation of more than one organisation. In those cases, the number and nature of the organisations involved entail the development of particular political settings that become an important feature of the context of the interventions.

Table 11.10 also indicates that there is one factor that was not initially considered in the conceptual framework: Factor 5.5, the relationship between the actions proposed as a result of the IM process and the on-going activities of the organisation. In view of the factors initially identified in the conceptual framework, Factor 5.5 is in fact a re-statement of the factor originally stated as "implications of the proposed changes for the organisation(s) concerned". The results of the case study and the interviews with IM practitioners and IM clients suggested that the influence on implementation of the implications of any proposed change could be more clearly understood in terms of the relationship of the actions proposed and the on-going activities of the organisation. When the actions proposed are closely related to the current responsibilities of the people involved in the intervention, the likelihood of implementation increases. However, when those proposals represent a major departure from the normal activities of the organisation, their implementation becomes more difficult because they tend to involve additional requirements on time and economic resources, as well as new arrangements in the prevailing structures of power and authority.

As in the previous sections, an influence structure was developed based on the results of the field research to illustrate the relationships of influence between the factors associated with the context of an intervention. The corresponding structure is shown in Figure 11.5.

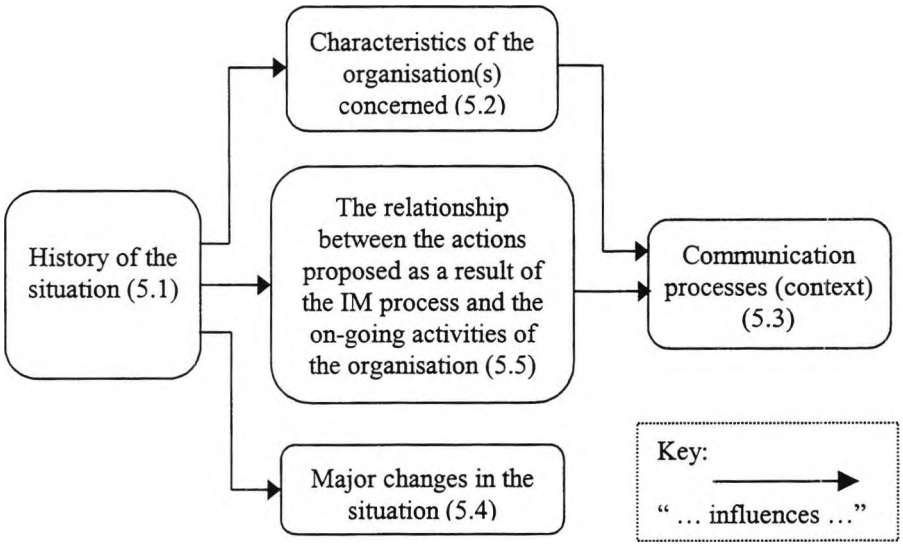


Fig. 11.5 Influence Structure of the Factors Associated with the Context of the Intervention

According to Figure 11.5 the history of the situation (Factor 5.1) is a major element influencing all the other factors associated with the context of an intervention. The results of the field research indicated that the history of the situation has an important influence in the whole intervention process because, first of all, it embodies the needs and/or interests that give rise to the intervention itself.

11.3.6 Relationships between the Factors Identified as Relevant

The discussion presented in sections 11.3.1 to 11.3.5 indicates that the results of the field research supported the consideration of thirty-four factors as relevant for implementation and, according to Figures 11.1 to 11.5, the influence of each factor on implementation is not independent of the influence of other factors.

As described in sections 11.3.1 to 11.3.5, the ISM method was used to establish whether or not, according to the support provided by the field research, each factor has a significant influence on every other factor in the context of an IM project aimed at implementation. Based on the structure derived with the use of the ISM method, Figures 11.1 to 11.5 show a set of partial influence structures that portray the relationships of the factors associated with each one of five major aspects of an intervention that were

studied. Correspondingly, Figure 11.6 shows the structure that portrays the relationships of influence among the thirty-four factors identified as relevant.

In order to establish whether or not the influence relationship holds true for each pair of factors related through the ISM method, the results of the field research were used to find specific examples and/or arguments that supported the existence of the relationship. Appendix K shows all the pairs of factors that were related using the ISM method indicating whether or not the influence relationship was established together with a brief reference to the source of the field research that supported the relationship.

Considering that all the factors identified are associated with one of the five aspects of an intervention that were studied, the factors displayed in Figure 11.6 have been depicted with a shadow pattern that represents the aspect of the intervention associated with each factor. The shadow patterns corresponding to each aspect are shown in Table 11.11.

SHADOW PATTERNS	ASPECT OF AN INTERVENTION REPRESENTED
	1. The planning process of the intervention
	2. The characteristics of the inquiry component
	3. The relationship between inquiry and action
	4. The characteristics of the action component
	5. The context of the intervention

Table 11.11 Patterns Representing the Five Aspects of an Intervention

Fig. 11.6 Influence Structure of the Factors that are Relevant for Implementation Purposes

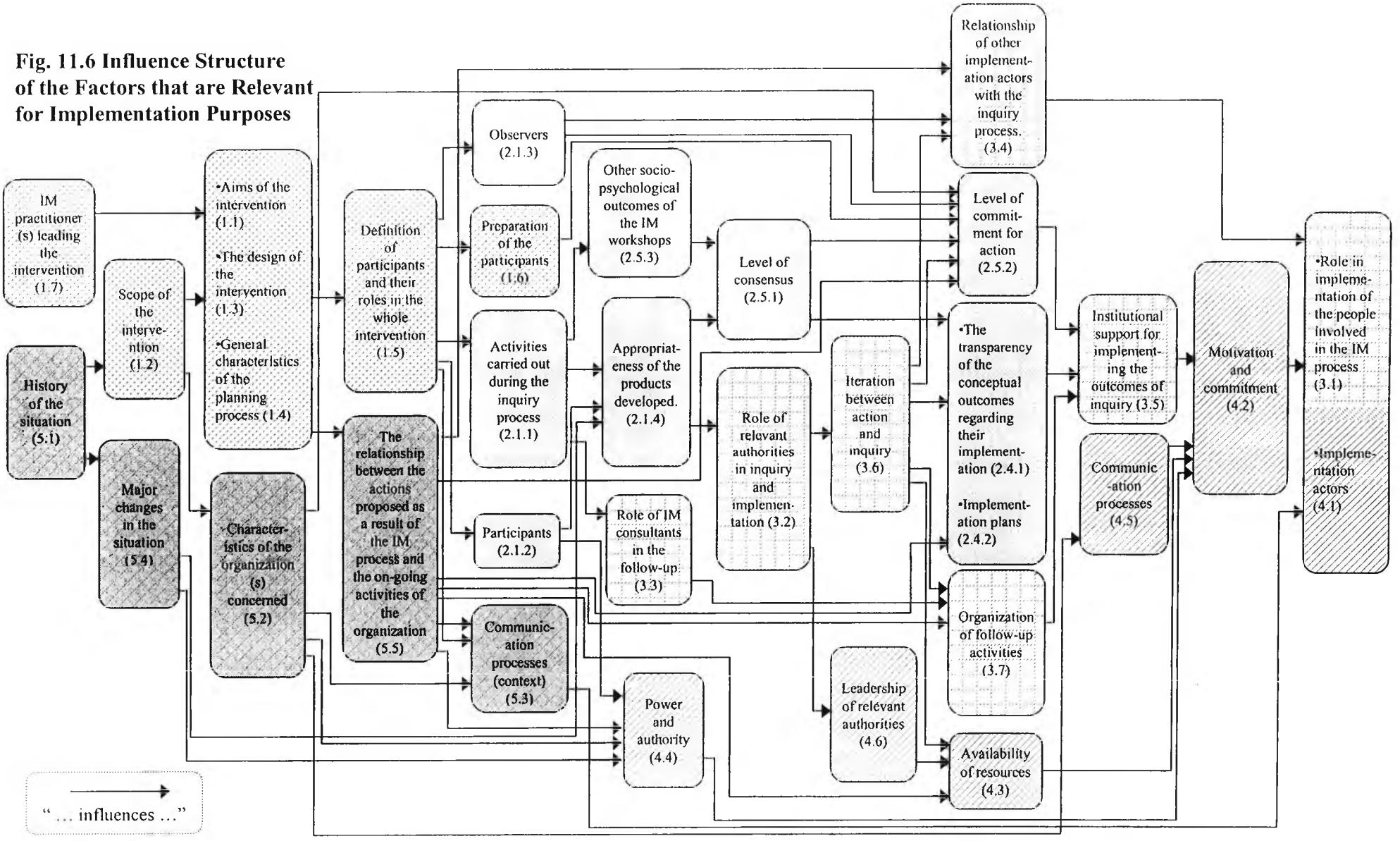


Figure 11.6 illustrates the interactions between the relevant factors that could be explicitly supported as a result of the field research. In developing this structure it was assumed that the influence relationship that was established could be treated as a transitive relationship, i.e., the relationship propagates its effects through the different factors associated with it in the direction of the arrows. Within this view, the factors that are positioned to the left of the structure have an influence on the factors positioned to the right according to the flow indicated by the arrows.

The structure in Figure 11.6 represents a complex array of interactions between the relevant factors and it helps to identify which factors exert a broader influence on an intervention effort in terms of the propagation of their influence to other factors. In this sense, the shadow patterns shown in the structure help to visualise that the factors associated with the context of an intervention and with the planning process - most of them positioned to the left of the structure - have a significant influence on the rest of the factors identified as relevant.

Based on the distribution of the relevant factors in the structure shown in Figure 11.6 it is possible to identify the interactions between the five aspects of an intervention that have been studied. The discussion of the conceptual framework initially developed (Section 8.4) supposed a particular set of relationships between these five aspects (Figure 8.2). Figure 11.7 presents the diagram of those relationships together with a diagram that illustrates the relationships that were found as a result of the field research.

Figure 11.7 illustrates that there are two basic changes to the initial conceptual framework that were derived as a result of the field research. The first change refers to the nature of the relationships between the five aspects of an IM intervention. In this respect, the results of the field research led to the establishment of a more general relationship between the five aspects, an influence relationship that could have a positive or a negative connotation for implementation purposes. The second change concerns the identification of the mutual influence between the characteristics of the inquiry component and the relationship between inquiry and action, as well as the mutual influence between the relationship between inquiry and action, and the characteristics of the action component.

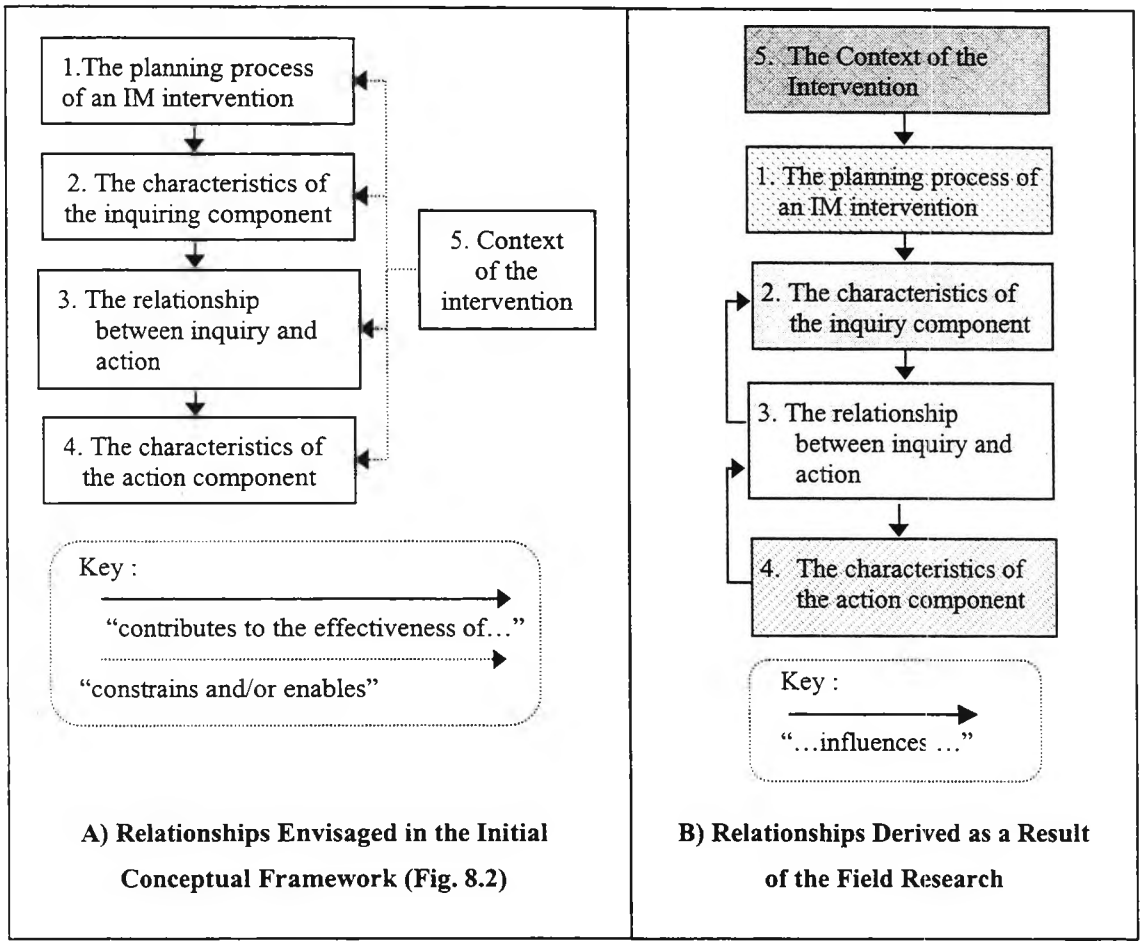


Fig. 11.7 Relationships Between the Five Aspects of an IM Intervention Relevant for Implementation

11.3.7 Summary of the Results of the Field Research Regarding the First Research Question

As stated in Section 7.4, the first research question was concerned with the identification of the factors that inhibit or facilitate the implementation of the decisions derived from the IM process in order to find out whether and why implementation takes place as a result of an IM project. In this respect, the results of the field research support the general conclusion that it is likely that an IM project aimed at the design of changes or solutions for a particular situation lead to implementation at least on a partial basis.

The purposes behind the organisation of an IM project, the characteristics of the IM planning process and of the IM inquiry process itself support the establishment of agreed-upon proposals to implement, and the development of commitment for action

among the people involved in the project. These features of IM contribute significantly to implementation. However, the field research also helped to corroborate the idea that an implementation effort involves much more than the endeavours involved in an inquiry process.

According to the ideas presented in Chapter 7, a holistic perspective on systemic interventions in complex situations implies that the cognitive, the social and the empirical dimensions of complexity be addressed. The results of the field research illustrated the contributions of the IM process in dealing with the cognitive and the social dimensions of complexity in an inquiry setting. At the same time, the case study and the interviews with IM clients indicated that the empirical and the social dimensions (the social dimension in an action setting) of complexity represent a challenge that is not explicitly considered in the methodological basis of IM.

Regarding the specific factors found in an IM project that have a significant influence in implementation, the results of the field research helped to support the relevance of the factors discussed in Sections 11.3.1 to 11.3.5. Table 11.12 shows a summary of the number of factors found as relevant in each aspect of an intervention. The table includes the number of factors initially identified as relevant in the conceptual framework (Section 8.4), together with the results of the field research. These last results include the number of factors whose relevance could not be supported during the field research; the number of factors that were grouped with other factors because they could not be individually differentiated; the number of factors that were found as a result of the field research (new factors); and the final number of factors that are considered relevant according to the field research.

The numbers shown in Table 11.12 illustrate the contributions of the field research to the revision of the initial conceptual framework, in particular because they show that eight factors not previously considered were identified during the field research. The table is also helpful to point out that even if the field research resulted in a reduction of the initial number of factors considered as relevant (from sixty-seven to thirty-four), the final number of factors still represents a significant source of different influences that affect the implementation of the outcomes of an IM project. In addition, as a summary, the table indicates that the relevance for implementation purposes of the five aspects of an intervention initially considered is supported in the final results of the field research.

	Section 8.4	Results of the Field Research			
		Not Supported	Grouped with others	New	Final
1. The planning process of an intervention	**11**	**1**	**5**	**3**	7
2. Characteristics of the inquiry process	**34**				**9**
2.1 Global characteristics of the inquiry process	10	5	1	0	4
2.2 Characteristics of each workshop	6	0	6	0	0
2.3 Socio-psychological processes	6	6	0	0	0
2.4 Conceptual outcomes	8	1	5	0	2
2.5 Socio-psychological outcomes	4	1	0	0	3
3. Relationship between inquiry and action	**8**	**0**	**3**	**3**	**7**
4. Characteristics of the action process	**6**	**1**	**0**	**1**	**6**
5. The context of the intervention	**8**	**1**	**3**	**1**	**5**
TOTAL	**67**	**16**	**23**	**8**	**34**

Table 11.12 Summary of the Number of Factors Relevant for Implementation Purposes

The support found in the field research regarding the relevance of the factors discussed in Sections 11.3.1 to 11.3.5 also helped to identify a number of influence relationships between the relevant factors. Figure 11.6 shows the total pattern of interactions of the thirty-four relevant factors, and Figures 11.1 to 11.5 represent the interactions found between the factors associated with each one of the five aspects of an intervention that were studied. A detailed analysis of each figure indicates which factors have a broader influence in the corresponding structure.

Besides the structured results of the field research that have been discussed so far, the interviews with IM practitioners and with IM clients suggested the consideration of an issue associated with the action consequences of an IM project. This issue refers to the fact that the action efforts that may derive from an IM project are not necessarily related to the decisions or designs comprised in the conceptual outcomes of IM. According to three interviews, it is common that, based on the understanding of a situation developed during the IM workshops, the participants or the observers take

different initiatives to advance the possibilities of improving the situation. In these cases, it can be said that the IM inquiry process contributes directly to the development of an action process even if the actions involved do not correspond to any shared agreements derived from the IM process.

As discussed in Chapter 8, the results of the field research that have been discussed in this section were derived on the basis of a qualitative research approach. According to Section 8.3, the relevance of these results is contingent upon the quality of the research regarding its purposes and a set of three specific validity issues (Creswell, 1994). These issues are the internal validity (conceptual and empirical basis), the external validity (generalisability), and the reliability (possibility of replication) of the research.

The internal validity of the research has been fostered throughout the research by paying attention to the validity threats discussed in Section 8.3.4, and by preserving the same pattern of analysis in the conceptual framework and in the field research. The study of the relationship between inquiry and action in the context of an IM intervention has been based on the identification of five aspects of an intervention that encompass all the factors identified as relevant for implementation in the relevant literature. The use of these five aspects of an intervention as a frame of reference in the conceptual framework allowed for designing the field research and the analysis of its results in the same general terms, thus maintaining the consistency of the analysis all through the research. However, it is important to point out that within the qualitative approach used, and according to the assumptions of the research discussed in Section 8.2.2, the identification of the factors that were found as relevant for implementation followed a flexible approach to the use of specific terms in order to uncover the wide variety of issues associated with the subject of the research.

Regarding the generalisability of the conclusions of the research it is clear that the design of the field research does not account for a statistical study of a representative sample of the phenomena under study. However, according to the philosophy of a qualitative research, the interest of the results obtained lies in the possibility of their analytic generalisation as opposed to their statistical generalisation (Maxwell, 1996; Yin, 1994). In this sense, it is important to recognise two significant features of the research. On the one hand, the conclusions derived from the field research were based not only on the study of a particular case, but also on the perspectives of various IM

clients and experienced IM practitioners. This feature of the research, together with the fact that there was not any significant contradiction found in the results of the field research help to support the analytical generalisability of the conclusions. On the other hand, it also should be acknowledged that the large number of factors involved in the study and the range of their possible variations precluded the possibility of considering many different situations that could illustrate the relevance of additional factors. This feature of the research indicates that within the subject studied there are still many areas of opportunity for further research.

11.4 RESEARCH QUESTION NO. 2: HOW TO ORGANISE AN IM PROJECT IN ORDER TO PROMOTE THE IMPLEMENTATION OF ITS RESULTS

As described in Section 7.4, the second research question was conceived as a logical complement to the first research question. In this case, the emphasis lies in identifying some basics ideas that should be considered in the organisation and management of an IM project in order to promote the implementation of the decisions derived from the IM activity. According to Section 8.2, the design of the field research concentrated on addressing the first research question and the corresponding results would be used to support a proposed answer for the second research question. Thus, the discussion presented in this section could be considered as a corollary of the conclusions of the preceding section as applied to the second research question.

The analytic approach followed to address the second research question was based on the use of the same conceptual framework used to address the first research question, i.e., the focus on the five aspects of an intervention considered relevant for implementation. The only aspect not included in this analysis was the context of an intervention as it represents a set of factors that generally lies outside the boundaries of the design of an intervention. Based on the identification of the factors found relevant within each one of the four aspects considered and on the relationships of mutual influence established between those factors (Section 11.3), this section emphasises the need to explicitly consider in the design of an IM project the factors that so far have not been formally incorporated into the design of the IM process.

Sections 11.4.1 to 11.4.4 discuss the factors associated with each one of the four aspects of an IM intervention included in the analysis of the second research question and Section 11.4.5 presents some general remarks on the proposals made to address this question.

11.4.1 The Planning Process of an IM Intervention

Figure 11.8 reproduces the influence structure of the factors associated with the planning process of an IM intervention (Figure 11.1) indicating with a grey shadow the factors that may be considered in a complementary perspective with respect to the current characteristics of the IM process.

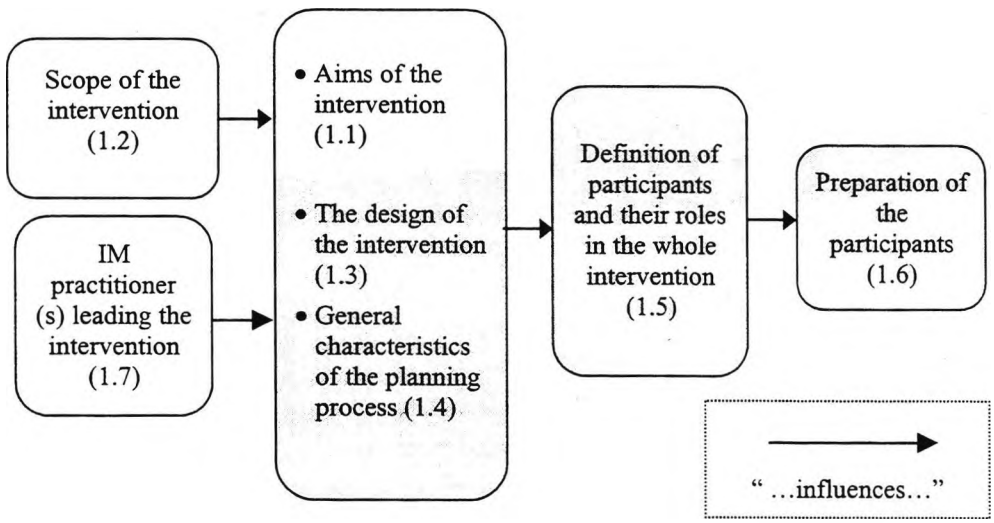


Fig. 11.8 Factors Related to the Planning Process of an IM Intervention Considered Relevant for the Second Research Question

Factors 1.2 and 1.1 in Figure 11.8 are not indicated in grey since they are already considered in the methodological guidelines of IM (Warfield and Cárdenas, 1994). Since Factor 1.7 stands for the variations in the professional styles and backgrounds of the IM practitioners it has not been included in the set of factors to discuss in the context of the second research question.

Regarding the factors illustrated in grey in Figure 11.8, the following considerations can be made with respect to the possibilities of promoting implementation within the context of an IM intervention:

a) *The design of the intervention (Factor 1.3).*

According to the results of the interviews with the IM practitioners, in order to promote implementation, an IM project should be approached as an integrated intervention effort and negotiated in such terms. If implementation is to be fostered, IM should not be conceived only in terms of the organisation of one workshop or even a series of workshops, but in terms of a comprehensive strategy to address a particular complex situation. Such a conception of an IM project implies, among other things, the requirement that the IM practitioners require to devote special efforts to remain oriented towards the problematic situation as opposed to be biased towards the use of IM as an end in itself.

b) *General characteristics of the planning process (Factor 1.4).*

The interviews with the IM practitioners and IM clients indicated that the planning process of an intervention entails a major dilemma regarding the possibilities of a comprehensive planning effort. Most IM practitioners agreed in indicating the relevance of planning for a whole project based on a thorough understanding of the situation to be addressed. However, at the same time it was noted that the uncertainty involved in a complex situation requires an exploratory approach to develop a deeper understanding of the situation as an IM project unfolds. Thus, the dilemma lies in the constraints operating against the possibilities of developing a sufficient understanding of the situation under study in order to elaborate a thorough plan to carry out an IM project without first having to carry out an IM project to develop a sufficient understanding of the situation. In these terms, it is important to pay attention to an appropriate balance of the efforts devoted to plan and organise an IM project and the costs involved in carrying out a poorly organised IM activity.

c) *Definition of participants and their roles in the whole intervention (Factor 1.5).*

The definition of participants and their roles in the whole intervention represents a crucial factor in the possibility of a successful implementation effort. This factor involves two complementary facets of the planning process. On the one hand, the selection of the people who would be involved in an IM project is one

of the major challenges of the IM process. There are social, political, economic and logical constraints operating against an adequate selection of participants. On the other hand, the identification of the roles needed to successfully address a complex situation in IM has been concentrated on the consideration of the roles required to fulfil the tasks involved in the IM process; these roles basically comprise the participants, the observers, and the facilitation team. In this respect, the contributions of one of the IM practitioners interviewed was particularly insightful in visualising the possibility of relating the phases of an IM project (intelligence, design, choice and plan for action - as discussed in Chapter 3) with the required roles in the intervention. This consideration involves the identification of people who should be involved in the different phases of the inquiry process as well as in the implementation tasks. Besides the above, the interview with another IM practitioner suggested the possibility of introducing the analysis of the elements used in Checkland's Soft Systems Methodology (Checkland, 1981) to help in identifying the people who need to be involved in an IM intervention. These elements include the "customers" of the situation (victims and beneficiaries of the current state of affairs), the "actors", and the "owners" or relevant decision-makers.

d) Preparation of participants (Factor 1.6).

The preparation of the people who will participate in the IM process has been addressed in IM in terms of the need to familiarise the participants with the IM process and to present them with a "white paper" that summarises the background of the situation (Warfield and Cárdenas, 1994). However, as a result of the case study and the interviews with the IM clients it was found that the preparation of participants may also involve a deeper sensitisation of the would-be participants to the relevance of the intervention effort and, where possible, to promote their involvement in the planning process of the intervention.

11.4.2 Characteristics of the Inquiry Component

As discussed in Section 8.4.2, the characteristics of the inquiry component of an IM intervention coincide basically with the characteristics of the IM process itself. This

situation in conjunction with the results of the field research indicates that most of the factors associated with the characteristics of the inquiry process are already considered in the methodological basis of IM. Thus, only three of the nine factors identified as relevant in this category have been considered in relationship to the second research question. Figure 11.9 shows the influence structure of the factors associated with the inquiry process (Figure 11.2) indicating with a grey shadow the three factors of interest. The consideration of those three factors regarding the second research question are discussed in the following paragraphs.

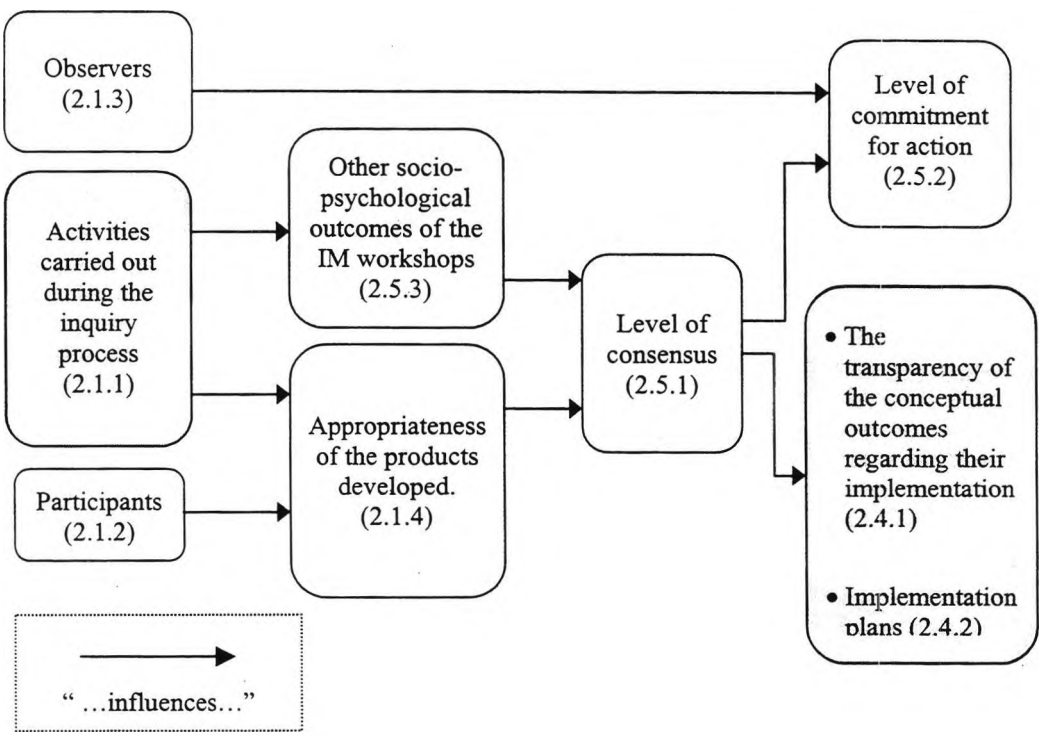


Fig. 11.9 Factors Related to the Inquiry Component of an IM Intervention Considered Relevant for the Second Research Question

a) *Activities carried out during the inquiry process (Factor 2.1.1).*

The results of the field research suggested the importance of the activities carried out during the intervention process. In particular, in order to support the organisation of the IM group activities and the follow-up of its outcomes, the need to incorporate the use of complementary techniques and/or specialised knowledge was illustrated in various examples of IM projects that led to

implementation. As a generic approach, the IM process does not provide specialised technical or conceptual support to complement, analyse and/or synthesise the products of the IM activity. Even though this issue is explicitly recognised in the foundations of IM (Warfield, 1994a), an additional emphasis should be made in the methodological guidelines of IM regarding the importance of the methodological tools and conceptual support that is commonly required to complement the IM process. During the field research, the interviews with four IM practitioners indicated that this need has been already recognised in their practice of IM.

b) *The transparency of the conceptual outcomes regarding their implementation (Factor 2.4.1) and the implementation plans (factor 2.4.2).*

A major factor found during the field research as relevant regarding the possibilities of promoting implementation referred to the lack of detailed methodological support in the IM process to translate the definition of general or strategic proposals into detailed implementation plans. In this respect it is interesting to note that even though the documented products of IM include a structure called "DELTA Chart" that is aimed at organising and portraying the information involved in a comprehensive implementation plan (Warfield, 1994a), in practice this structure is not currently used in the IM projects. Therefore, according to the results of the field research, the possibility of developing a set of logically-supported detailed guidelines to bridge the gap between strategic proposals and specific implementation plans represents an interesting area of opportunity for advancing the contributions of the IM process to implementation.

11.4.3 Relationship Between Inquiry and Action

The relationship between inquiry and action is one aspect of an intervention that represents a major area of opportunity for improving the contributions of IM to implementation. Most of the factors associated with this aspect of an intervention suggest the importance of follow-up activities and issues that need to be addressed after the IM group activity takes place. Figure 11.10 illustrates that out of the seven factors

identified as relevant for implementation in this category, four of them can be considered as relevant in the context of the second research question. Those factors are discussed in the following paragraphs.

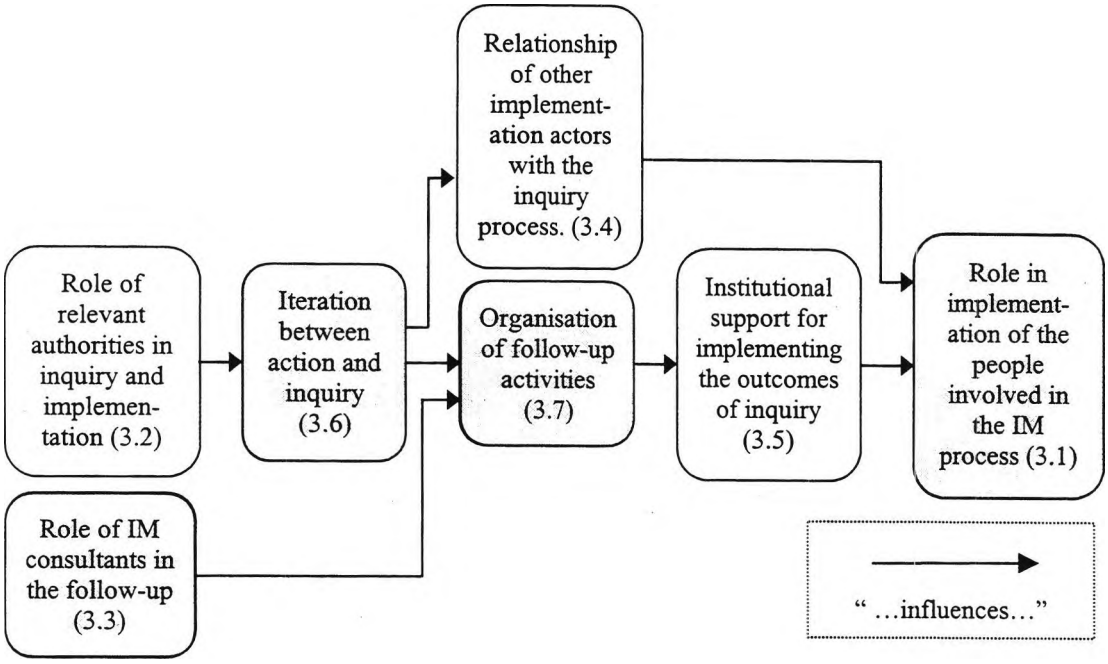


Fig. 11.10 Factors Associated with the Relationship between Inquiry and Action Considered Relevant for the Second Research Question

a) *Role of the IM consultants in the follow-up (Factor 3.3).*

An important element that influences the possibility of implementation that was reported in the analysis of the case study as well as in the interviews with IM clients concerns the role of the IM consultants in the follow-up. Most of the IM clients (including the IM clients involved in the case study) attributed an important role in the follow-up to the IM consultants. The issue at stake here is the support required by the IM clients to organise the follow-up activities and to take a full advantage of the outcomes of the IM process. According to the interviews with some IM clients and with the participants in the case study another reason for the relevance of the participation of the IM consultants in the follow-up lies in the lack of time of the people working in an organisation to undertake the additional tasks implied in an implementation effort. On the other side, the perspectives of most of the IM practitioners indicated that the view of

IM strictly as an inquiry process is a prevailing perception among the practitioners. In this respect, the results of the field research suggested that it is important that the IM practitioners should visualise their professional responsibility also associated with the implementation of the outcomes of IM.

b) *Iteration between inquiry and action (Factor 3.6).*

The need to encourage the continuous iteration between inquiry and action was evinced in various ways during the field research and in most of the cases it was related to the problems posed by the proposal of infeasible actions as a result of the IM process. Since the IM process normally implies an important deployment of resources and the mobilisation of a varied number of individuals, the iteration between inquiry and action represents a fundamental means to ensure that the efforts invested in the IM activity and its outcomes could actually pay off in terms of implementation. Besides the above, the encouragement of iteration between inquiry and action also reflects a global conception of an intervention to the extent that iteration can only be promoted as a part of an integrated effort to bring about relevant changes in a situation.

c) *Organisation of follow-up activities (Factor 3.7).*

Regarding the organisation of follow-up activities, the interviews with IM practitioners indicated that an important challenge faced in the transition from inquiry to action involves the co-ordination of different groups of people, including the incorporation in the project of people who are not engaged in the inquiry process. Besides the need to review or develop, if needed, the detailed implementation plans, the organisation of the follow-up activities also entails the management of adequate communication processes between the various groups and individuals affected by the intervention process.

d) *Role in implementation of the people involved in the IM process (Factor 3.1).*

In order to encourage the realisation of an implementation process, an important issue associated with the role of the people involved in the IM process refers to the definition of proposals that are congruous with the power, authority and capabilities of the participants in the IM process. The field research illustrated a

couple of examples of IM projects in which the proposals of the participants turned out to be infeasible partly due to an overestimation of the possibilities of the group of participants. Thus, it is advisable to assess carefully the implication of the outcomes of IM in terms of the possibilities of the participants being involved in their implementation.

11.4.4 Characteristics of the Action Component

The characteristics of the action component of an intervention that were found relevant for the organisation and management of an IM project aimed at implementation include three factors that are related to the management of the action process itself. Figure 11.11 shows those factors indicated with a grey shadow.

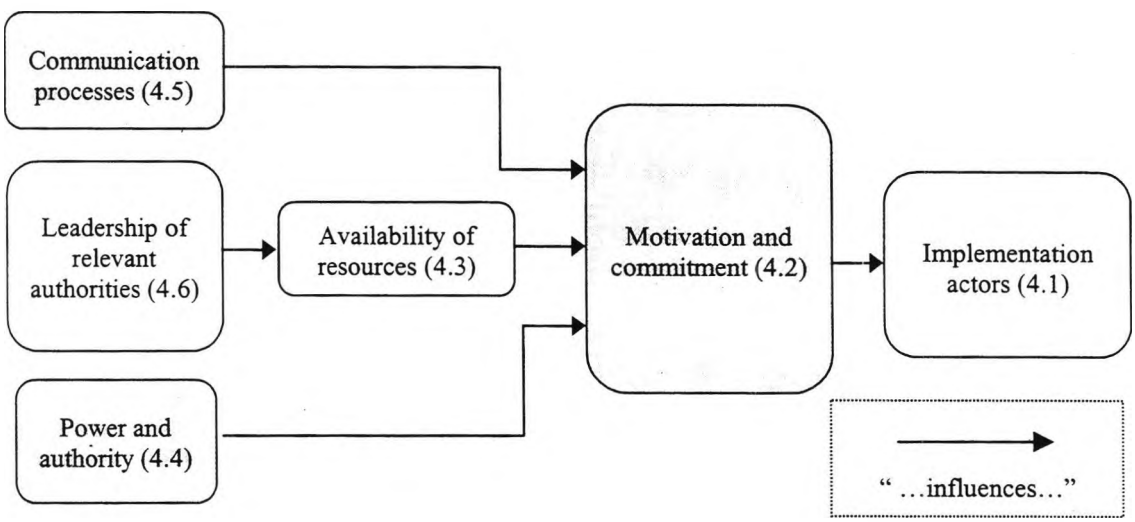


Fig. 11.11 Factors Associated with the Action Component of an IM Project Considered Relevant for the Second Research Question

a) *Communication processes (Factor 4.5).*

As exemplified in the analysis of the case study (Chapter 9), the management of communication between the people involved in an implementation effort represents a major factor in supporting (or inhibiting) the effectiveness of implementation, and in providing a good basis for the continuous motivation and commitment of those participating in implementation. Thus, the organisation of

an implementation process should continuously support the functioning of open and expeditious communication mechanisms between the implementation actors.

b) *Power and authority (Factor 4.4).*

The comparison of the results of the two IM projects involved in the case study indicated that there is a significant difference in implementation depending on the autonomy of the implementation actors in making decisions and exercising the authority required by the implementation tasks. Independently of the relevance of this factor for any type of implementation effort, in the case of an IM project the possibility of exercising power and authority is additionally associated with the characteristics of the IM process itself. As a participative process, IM incarnates a set of democratic features within an inquiry context and the equivalent features in an action context are represented, among other things, by the actual possibilities of the implementation actors of being empowered to make the decisions required. In these terms, and based on the contributions of STST (Chapter 5), the autonomy of the implementation actors becomes a necessity of the action process not only to respond to the specific requirements of the implementation tasks but also in order to maintain the consistency between the characteristics of the inquiry and the action components of an intervention. According to the results of the field research, the power and authority of the implementation actors are typically related to the characteristics of the context of the situation being addressed and not to any explicit efforts to designing the action component of an intervention.

c) *Motivation and commitment (Factor 4.2).*

The discussion of the socio-psychological conditions for action presented in Section 7.6.3 emphasised the relevance of motivation and commitment to bring about changes in a situation. According to the results of the field research the development of motivation and commitment is clearly promoted during the IM process. However, the results of the case study suggested that the preservation and further development of motivation and commitment need to be explicitly addressed during the action effort. Figure 11.11 illustrates that most of the factors associated with the action process can play an important role in

supporting the continuous development of motivation and commitment. Nevertheless, it is considered that the design of the action component of an IM intervention should incorporate specific provisions to maintain and further develop the motivation and commitment of the people involved in implementation.

11.4.5 General Considerations Regarding the Second Research Question

As can be noted in the discussion of Sections 11.4.1 to 11.4.4, the strategy followed to address the second research question led to the identification of a set of general proposals and reflections regarding the possibility of addressing a number of factors not explicit, or only partially, considered in the IM process. These ideas are presented at a very broad level of detail because the analysis undertaken to address the second research question pointed out the need to pursue an experimental approach in order to develop a precise and more detailed account of the possible ways of organising an IM project so as to promote implementation.

The analysis carried out to address the second research question helped to visualise that the conceptual framework of IM actually considers some of the factors that the results of the field research suggested as possible new additions to IM. These factors include, among others, the use of the Delta Chart for the development of implementation plans and the recognition of the relevance of leadership to carry out a successful project. However, in spite of the identification of these factors within the IM framework, the results of the field research indicated that they are not always considered in the actual practice of IM. Among the reasons that could help to explain this situation are the difficulties involved in putting in practice some IM concepts (such as the development of a Delta Chart), and the fact that some ideas are treated in IM in very general terms (such as the relevance of leadership).

Regarding the ideas discussed in Sections 11.4.1 to 11.4.4, Table 11.13 shows the list of factors that were considered to provide a significant area of opportunity to develop methodological guidelines that would be useful in promoting implementation in the context of an IM intervention.

ASPECTS OF AN INTERVENTION	FACTORS INVOLVED IN ADDRESSING THE SECOND RESEARCH QUESTION
1. The planning process of an IM intervention.	1.3 The design of the intervention 1.4 General characteristics of the planning process 1.5 Definition of participants and their roles in the whole intervention 1.6 Preparation of participants
2. Characteristics of the inquiry component	2.1.1 Activities carried out during the inquiry process 2.4.1 The transparency of the conceptual outcomes regarding their implementation 2.4.2 Implementation plans
3. Relationship between inquiry and action	3.1 Role in implementation of the people involved in the IM process 3.3 Role of the IM consultants in the follow-up 3.6 Iteration between inquiry and action 3.7 Organisation of follow-up activities
4. Characteristics of the action component	4.2 Motivation and commitment 4.4 Power and authority 4.5 Communication processes

Table 11.13 Factors Involved in Addressing the Second Research Question

As discussed in Section 11.4.1, in order to promote implementation the planning process of an IM intervention should consider the design of the intervention in such a way as to include provisions to satisfy the requirements of both the inquiry and the action processes. A major factor involved in those requirements refers to the identification of the people associated with roles that are relevant for the various phases of the inquiry process (intelligence, design and plan for action), as well as for the action process itself (relevant authorities and implementation actors).

Among the characteristics of the inquiry component, the results of this research suggest the importance of developing precise guidelines to develop implementation plans in terms of the products derived from the IM process.

The relevance of the relationship between inquiry and action for implementation indicates, among other things, that the IM practitioners should pay attention to the role that they may play in supporting the organisation of follow-up activities in order to help the IM clients to take full advantage of the products of an IM intervention, and to promote the continuity of the efforts of the intervention.

As for the characteristics of the action component, the ideas discussed in Section 11.4.4 suggest the need to consider the socio-technical design principles for addressing the design of the action component of an intervention. In accordance with this view, the three factors identified as particularly relevant for the action component indicate the importance of maintaining the consistency of the participation principles used in the IM process during the implementation process.

11.6 CONCLUSIONS

The results of the two strategies followed during the field research to address the first research question - the case study and the interviews with IM practitioners and IM clients - were helpful in supporting the conclusion that the IM process does contribute to promoting the implementation of the proposals that derive from it. However, the field research also indicated that there is a significant set of factors that affect the possibilities of implementation that are not considered within the IM framework.

According to the field research, the five aspects of an intervention that were initially considered as relevant for implementation in the conceptual framework presented in Chapter 8 do represent a comprehensive set of categories that encompass the most relevant factors that impinge upon implementation:

a) Regarding the planning process of the intervention, seven factors comprised in this aspect were found relevant for implementation during the field research; three of those factors were identified as a result of the field research. Besides the above, according to Figures 11.6 and 11.7, the planning process of an IM intervention represents one of the two aspects that have an overall influence in an IM intervention regarding the possibility of implementation.

b) The characteristics of the inquiry component comprise the characteristics of the IM process itself, and the field research indicated the relevance for implementation of nine specific factors associated with this aspect. However, due to the characteristics of the field research, there was a set of factors whose relevance for implementation could not be assessed during the field work. These

factors are related to the socio-psychological processes occurring during the IM activity. Even though the direct influence of these factors in implementation could not be assessed, the field research indicated the relevance of the socio-psychological outcomes of the IM process and those results suggest that the socio-psychological processes are also relevant for implementation.

c) Seven factors associated with the relationship between inquiry and action were found relevant for implementation during the field research. Two of those factors represent a re-formulation of factors initially identified in the conceptual framework and there was a new factor identified as relevant in this category as a result of the field research. In general terms, the relationship between inquiry and action represents an aspect of an IM intervention that is poorly supported in the IM methodological framework.

d) The results of the field research supported the relevance for implementation of six factors associated with the characteristics of the action component. One of those factors was identified as a result of the field research, and it points out the significance of the leadership of relevant authorities during implementation.

e) Together with the planning process of an IM intervention, the context of the intervention exerts an overall influence in an IM intervention regarding the possibilities of implementation (Figures 11.6 and 11.7). The field research indicated that there are at least five factors associated with the context of an intervention that have a major influence in implementation.

Regarding the second research question, the results of this research pointed out a set of general considerations that need to be incorporated into the practice of IM in order to foster the possibilities of implementation. The corresponding analysis also suggested the need to carry out further research in order to develop more precise guidelines to support the ideas proposed regarding the second research question.

CHAPTER 12

CONCLUSIONS

12.1 INTRODUCTION

This final chapter of the thesis presents a synthesis of the results obtained during the research. Section 12.2 discusses how the research work contributed to the achievement of the objectives set forth at the outset of the thesis. Section 12.3 describes the main contributions of this work to knowledge in the fields of Systems Thinking, Systems Practice and Interactive Management, and to the methodology of the research. Section 12.4 explains the most relevant limitations of the thesis and Section 12.5 proposes a set of relevant areas for further research associated to the outcomes of the research. Finally, Section 12.6 presents some personal lessons learned by the author of the research while conducting this work, and Section 12.7 elaborates on some final comments regarding the relevance of the conclusions of the research.

12.2 ACHIEVEMENT OF OBJECTIVES

On the grounds of the work carried out during the course of the research and given the results derived from that work, it is considered that the two objectives of the thesis presented in Chapter 1 (Section 1.3) have been accomplished in a satisfactory way.

As described in Section 1.4, the research work was carried out in two parts and each part was directly associated with one of the objectives of the thesis. The structure of the thesis reflects this organisation, Table 12.1 indicates the chapters of the thesis that present the conclusions corresponding to each objective, and they are discussed in the following paragraphs.

OBJECTIVES OF THE RESEARCH	RELATED CHAPTERS	CHAPTERS WHERE CONCLUSIONS ARE PRESENTED
1. To develop a better understanding of the process of Interactive Management in the light of Socio-technical Systems Theory and based on such an understanding, to define specific areas where further research on IM would be relevant.	2, 3, 4, 5	6 and 7
2. To find out whether and why implementation takes place as a result of an IM project and, on the grounds of the possible findings, to derive conclusions regarding the way in which an IM project could be planned and organised in order to promote implementation.	2, 3, 4, 5, 6, 7, 8,	9, 10, 11

Table 12.1 Achievement of Objectives

a) Achievement of the first objective.

As shown in Table 12.1, the first objective of the thesis was mainly concerned with the identification of areas for further research on IM based on its comparison with STST. While chapters 2 to 5 describe the theoretical framework on which the whole research was based, chapters 6 and 7 concentrate specifically on the achievement of the first objective of the thesis. In particular, Chapter 6 presents the results of the comparison made between IM and STST.

The results of the comparison between IM and STST presented in Chapter 6 indicated that both approaches share in common important systemic principles for dealing with complex situations. Two major systemic features shared by these approaches are the idea of conceptualising the social and the technical components of a system as an integrated unit of study, and the importance attributed to participation and individual and group learning. A major difference found between IM and STST refers to the distinction between a subjectivist and an objectivist perspective on reality; this difference is reflected in the nature of the tasks of the group designs proposed by each approach: inquiry and action.

These results led to the idea of looking at the IM process not only from the point of view of an inquiring system which helps to understand complex situations and to develop alternatives for addressing them, but also from the point of view of an

action system concerned with the implementation of the decisions and/or designs that derive from the inquiring process.

Within this view of IM, and since most of its theoretical developments and methodological prescriptions do not reflect an emphasis on action concerns, Chapter 7 discussed the implications of studying IM from the point of view of an action system in terms of a holistic perspective of systemic interventions in complex situations. Thus, two specific research questions were identified regarding the relationship of IM with an implementation process.

b) Achievement of the second objective.

Once the first objective of the thesis was achieved, the second objective consisted of addressing the two research questions that were defined as a result of the first objective and it was stated as shown in Table 12.1. The two research questions concerned the relationship between the IM process and the implementation of the outcomes that derive from it.

In order to explore the possible answers to the research questions a field research was designed based on a qualitative research methodology, and a preliminary conceptual framework to respond to the research questions was established (Chapter 8). As the design of the field research entailed the realisation of a case study and of a set of interviews with IM practitioners and with IM clients, these tasks were undertaken in parallel (Chapters 9 and 10).

The results of the two strategies followed during the field research to address the first research question were helpful in supporting the conclusion that the IM process does contribute to promoting the implementation of the proposals that derive from it. However, the field research also indicated that there is a significant set of factors that affect the possibilities of implementation that are not considered within the IM framework.

According to the field research, the five aspects of an intervention that were initially considered as relevant for implementation in the conceptual framework (Chapter 8) do represent a comprehensive set of categories that encompass the most relevant factors that impinge upon implementation. These aspects are the following:

i) The planning process of the intervention. Seven factors within this aspect were found relevant for implementation during the field research:

1. Aims of the intervention.
2. Scope of the intervention
3. The design of the intervention
4. General characteristics of the planning process
5. Definition of participants and their roles in the whole intervention
6. Preparation of the participants
7. IM practitioner(s) leading the intervention

Besides the above, the planning process of an IM intervention was found as one of the two aspects that have an overall influence in an IM intervention regarding the possibility of implementation.

ii) The characteristics of the inquiry component. These comprise the characteristics of the IM process itself, and the field research indicated the relevance for implementation of nine specific factors associated with this aspect:

1. Activities carried out during the inquiry process
2. Participants
3. Observers
4. Appropriateness of the products developed
5. The "transparency" of the conceptual outcomes regarding their implementation
6. Implementation plans
7. Level of consensus
8. Level of commitment for action
9. Other socio-psychological outcomes of the IM workshops

Due to the characteristics of the field research, there was a set of factors within this aspect whose relevance for implementation could not be assessed during the field work. These factors are related to the socio-psychological processes occurring during the IM activity.

iii) The relationship between inquiry and action. Seven factors were found relevant for implementation during the field research associated with this aspect:

1. Role in implementation of the people involved in the IM process.
2. Role of relevant authorities in inquiry and implementation
3. Role of IM consultants in the follow-up.
4. Relationship of other implementation actors with the inquiry process.
5. Institutional support for implementing the outcomes of inquiry
6. Iteration between action and inquiry
7. Organisation of follow-up activities

In general terms, it was found that the relationship between inquiry and action represents an aspect of an IM intervention that is poorly supported in the IM methodological framework.

iv) The characteristics of the action component. The results of the field research supported the relevance for implementation of six factors associated with this aspect:

1. Implementation actors
2. Motivation and commitment
3. Availability of resources
4. Power and authority
5. Communication processes
6. Leadership of relevant authorities

v) The context of the intervention. The field research indicated that there are at least five factors associated with the context of an intervention that have a major influence in implementation:

1. History of the situation
2. Characteristics of the organisation(s) concerned
3. Communication processes
4. Major changes in the situation
5. The relationship between the actions proposed as a result of the IM process and the on-going activities of the organisation.

According to the field research, together with the planning process of an IM intervention, the context of an intervention exerts an overall influence in an IM intervention regarding the possibilities of implementation.

Regarding the second research question, the results of this research pointed out a set of general considerations that need to be incorporated into the practice of IM in order to foster the possibilities of implementation. The corresponding analysis also suggested the need to carry out further research in order to develop more precise guidelines to support the ideas proposed regarding the second research question.

12.3 CONTRIBUTION TO KNOWLEDGE

Considering all the ideas and information generated and organised during the course of the research it is possible to identify a set of specific conclusions of the thesis which represent an original contribution to the fields of knowledge that were involved in this research.

The contributions identified are discussed in the following paragraphs grouped into four categories: a) contributions to Systems Thinking; b) contributions to Systems Practice; c) contributions to Interactive Management; and c) contributions to the methodology of research.

a) Contributions to Systems Thinking.

With respect to Systems Thinking there were two topics developed during the course of the research which bring new perspectives into specific systems ideas. These topics refer to the analysis of the relationship between two systems methods (i.e., Interactive Management and Socio-technical Systems Theory), and to the identification of three dimensions of complexity.

As described in Chapter 6, the conceptual comparison between IM and STST helped to identify the possible complementarity of these approaches in terms of their corresponding orientations towards the design of inquiry and action systems. The identification of these different orientations of each approach was

consistent with the study of systems methodologies reported by Jackson (1991) and it helped to visualise the implications of studying an inquiry process such as IM from a socio-technical perspective. Thus, the subtitle of this thesis - "a Socio-technical approach to Interactive Management" - reflects the emphasis given to the study of the action component of a systemic intervention, and to the interest in exploring the applicability of the socio-technical design principles in the context of an inquiry-oriented systems intervention such as IM.

The three dimensions of complexity identified in Chapter 7, the cognitive, the social and the empirical dimensions, were derived as a result of the consideration of the different challenges faced by the people involved in a complex situation as implied in the conceptual frameworks of IM and STST. The identification of these three dimensions of complexity as an analytical framework to study a systemic intervention was helpful in formulating the idea that a holistic perspective on systemic interventions implied the consideration of the cognitive, the social and the empirical dimensions of complexity.

b) *Contributions to Systems Practice.*

The holistic perspective on systemic interventions mentioned in the preceding paragraph led to the recognition of the significance of the three components of an intervention: inquiry, action and evaluation for addressing a complex situation. Furthermore, the inquiry component was associated with a particular interest on addressing the cognitive dimension of complexity, while the action component was associated with an emphasis on addressing the empirical dimension of complexity. Within a systemic perspective, both components are necessarily related to the social dimension of complexity. Taken together, the inquiry and the action components of an intervention are viewed as the inquiry and the implementation processes required in a problem-solving effort (Chapter 7).

In these terms, it is considered that the most important single contribution of this research regarding Systems Practice refers to the acknowledgement and justification of the importance of the implementation process of a systemic intervention. According to the discussion of systemic interventions presented in Chapter 7, the Systems literature – in particular soft systems literature - hardly

pays attention to the consequences of applying systems methods in terms of empirical changes or improvements in the situations that triggered their use. Most of the work published that refers to systems practice concentrates on providing guidelines or examples on how to manage the inquiry processes that are proposed by each particular approach.

c) *Contributions to Interactive Management.*

Regarding the study of Interactive Management carried out during the course of the research, a major conclusion derived from the comparison of IM with STST was the acknowledgement that, as a systems method to deal with complexity, IM represents basically an inquiry system (Chapter 6). Focused on the exploration of the implications of this perspective on IM from the point of view of a holistic systemic intervention, this research represents the first formal attempt to understand the factors and processes that relate the IM process to an implementation effort (Chapters 9 and 10).

Thus, as a result of the research, the characteristics of the IM process that contribute to implementation were assessed, and a set of factors relevant for implementation not currently considered in the IM framework were identified. On the basis of the results of the field research the relationships of mutual influence between all the factors found as relevant for implementation in the context of an IM intervention were also identified (Section 11.3).

Derived from the identification of the factors that are relevant for implementation according to the field research, a set of general proposals were presented to be considered in the design of an IM intervention in order to promote implementation (Section 11.4).

Besides the central focus of the research regarding the relationship between the IM process and implementation, the comparison between IM and STST (Chapter 6) and the results of the field research (Chapter 11) suggested the relevance of carrying out further research on IM. The topics on which further research would be relevant are discussed in Section 12.5.

d) Contributions to the Methodology of Research.

The design of the field research presented in Chapter 8 indicates that the methodological basis of this study followed a qualitative research approach. The specific research strategies used during the course of the field research were a case study and a set of interviews with IM practitioners and IM clients. Within the procedures used to organise, analyse and synthesise the results of the field research, a novelty introduced in this research concerned the use of the Interpretive Structural Modelling (ISM) method contained within the IM methodological framework. ISM was used as an analytic tool for establishing the relationships of mutual influence between the factors that were found as relevant for implementation during the field research (Figures 11.1 to 11.6). As a qualitative modelling method, ISM helped to visualise the patterns of influence between the relevant factors according to the field research, and this supported some of the major conclusions of the research (Chapter 11).

12.4 LIMITATIONS OF THE STUDY

The main limitations of this study concern methodological issues as well as conceptual and empirical matters associated with the field research. From the point of view of the methodological approach followed during the research, the most important limitations of this study have been already discussed in Section 1.5.

From the point of view of the design and results of the field research, it could be said that due to the large scope of the objectives of the research and the wide range of elements involved in the achievement of these objectives, the design of the field research did not allow for an in-depth investigation of a number of relevant issues. Among these issues are the detailed analysis of the factors associated with the socio-psychological processes occurring during the IM group activity and the learning and adjustment mechanisms associated with the action component of an intervention.

12.5 SUGGESTED AREAS FOR FURTHER RESEARCH

The investigation of the topics studied during this research together with the results derived from the field work suggested the possibility and relevance of pursuing

the line of research followed in this thesis through the formal exploration of several topics. Those topics are presented in the following paragraphs.

a) According to the discussion about the contributions to Systems Practice of this work (Section 12.3), it is considered that similar studies should be carried out regarding the implementation of the conceptual outcomes derived from other soft systems methods. In particular, it would be very helpful for the Systems professional community to find out about the implementation results that are obtained from the application of some of the most well-known systemic approaches such as Soft Systems Methodology (Checkland and Scholes, 1990) and Interactive Planning (Ackoff, 1991).

b) With respect to the results of the field research concerning the factors that were found as relevant for implementation in the context of an IM intervention, it could be said that most of the factors identified deserve an individual in-depth study. However, according to the discussion of results presented in Chapter 11, there are three areas in which further research would be particularly valuable to complement the results of this research. These areas include: i) the development of implementation plans using the IM methodological framework, ii) the analysis of the IM group activity in order to understand better the influence on implementation of the factors associated with the socio-psychological processes, and iii) the study of the processes involved in learning from action during the course of an implementation effort.

c) As indicated in Section 11.4.5, the conclusions derived as a response to the second research question have been presented at a broad level of detail. These conclusions need to be further developed and analysed through an experimental approach in order to become operationalised as methodological guidelines to promote implementation.

d) An important aspect of the research carried out has been the emphasis given to the possibilities of implementing the conceptual outcomes that derive from the IM group activity. Thus, the research concentrated on exploring why and to what

extent implementation takes place as a result of an IM intervention. However, this study did not lead to any assessment of the relevance of implementation in terms of the actual improvements in the situations addressed through an IM intervention. Therefore, it is suggested that the theory and practice of IM could be significantly enriched with the realisation of studies based on an evaluation research approach.

e) The research on IM carried out focused on the study of an intervention from the point of view of the methodological practices involved in carrying out a specific project. However, it is possible to identify other points of view that could profoundly enrich the existing knowledge about the advantages and limitations of soft systems methods. In this respect at least two types of study are envisaged. One type of study would be focused on adopting a sociological perspective to investigate the cultural and political constraints operating on the application of soft systems methods as well as the implications of using these methods in particular social settings. Another type of study would be devoted to analysing systemic interventions from a strictly economic perspective in order to understand better the contributions (if at all) of soft systems methods in this respect.

12.6 PERSONAL LESSONS LEARNED DURING THE RESEARCH

Regardless of the possible contributions to knowledge of this work, the personal learning that has been derived during the course of the research represents the most valuable result of this study for the author of the research.

Even though there are a number of ideas that are often acknowledged as a part of the public domain of knowledge, the actual experience of these ideas represents an individual achievement that cannot be truly shared. Among these ideas, the author of the research found out that a most important contribution of a serious reflection on relevant matters does not lie in the answers that are found, but in the new questions that are raised.

Regarding the personal interest and background of the author in studying and putting into practice the Systems Approach the work undertaken during the research illustrated for her, as never before, that "when pulling out a thread you find out that it is tied to the rest of the universe".

12.7 FINAL COMMENTS

As described in the first chapter, the idea of undertaking doctoral research on Interactive Management was based on the recognition of the relevance of IM within the approaches found in the Systems Movement, and on a personal interest in advancing the effectiveness of Systems Practice. In arriving at the end of this path it is rather curious to find out that one returns to the beginning. For the author of this research there were basically two critical beginnings:

> Twenty years ago she was exposed for the first time to an idea that has constantly remained in her systemic thinking, i.e., the need to maintain continuously the "heroic mood" of the systems practitioner advocated by Churchman (1979) in order to respond to the world's challenges and opportunities in a responsible way (Chapter 1).
>
> Nine years ago she was exposed for the first time to an idea that for her represents the heart of Interactive Management. This idea was found in Warfield's kitchen, literally in the kitchen of Rose and John Warfield on a poster hanging on the wall. The idea stated: " None of us is as smart as all of us".

These beginnings mark the end since they are still the best justification for the relevance of the task carried out during this research, and because they provide the motivation for the continuity of the work started here.

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APPENDIX A

SOME APPLICATIONS OF INTERACTIVE MANAGEMENT

#	TITLE	IM PRACTITIONER(S) IN CHARGE
	SOME APPLICATIONS IN 1998	
	Mexico	
1	Annual Review of Governmental Plans in the State of Guanajuato. (1996-1998)	Carlos Flores, Carlos Camarena. CODEREG, Governor's Office.
2	Developing a Quality Plan for Electrodos Monterrey, S.A.	Ma. Carmen Temblador, Carmen Moreno, ITESM, Monterrey Campus.
	SOME APPLICATIONS IN 1997	
	Ghana	
3	Linkages between Users and Producers of Technology in Ghana. CSIR (Council for Scientific and Industrial Research)	John N. Warfield, Carol Jeffrey, Roxana Cárdenas.
4	Fostering Positive Work Attitudes within the CSIR in Ghana	John N. Warfield, Carol Jeffrey, Roxana Cárdenas.
5	Integrating efforts between the implementing agencies of the Capacity Building Programme for Ghana. Private Enterprise Foundation	John N. Warfield, Roxana Cárdenas.
	Mexico	
6	Setting objectives for a program on Leaders for Manufacturing at ITESM-EGADE	Carmen Moreno, ITESM, Monterrey Campus.
7	Setting Objectives and Priorities for the Department of Mathematics. ITESM, Monterrey Campus.	Carmen Moreno, ITESM, Monterrey Campus.
8	Water Provision Services in the city of Irapuato.	Reynaldo Treviño, ITESM, León Campus.
	SOME APPLICATIONS IN 1996	
	Liberia	
9	Disarmament and demobilisation in Liberia.	Carol Jeffrey, The Jeffrey Group.
10	Women's development in Liberia.	Carol Jeffrey, The Jeffrey Group.
	Mexico	
11	Designing a Master Programme on Architecture at ITESM.	Roxana Cárdenas, Carmen Moreno. ITESM, Monterrey Campus.
12	Developing a Master Plan for the Government of the State of Guanajuato.	Carlos Flores, CODEREG, Governor's Office.

SOME APPLICATIONS IN 1995

	Mexico	
13	Developing a Plan for Improving Eco-efficiency in IMSA.	Carmen Moreno, José Luis Parra, Roxana Cárdenas, ITESM - BCSD (Business Council for Sustainable Development)
14	Developing the Mission and Strategic Plan for the Rosario Fernández Foundation.	Cristina Salas-Porras, Carmen Moreno, Roxana Cárdenas.

SOME APPLICATIONS IN 1994

	Mexico	
15	Regional Development Plan for the state of Guanajuato (Guanjuato Siglo XXI) (1993-1994)	Carlos Flores, Reynaldo Treviño, ITESM, León Campus.
16	First Mexico Interloquium, World and Mexico Future in the Year 2,010 -- Planning for the 21st. Century.	Governor of Guanajuato and Carlos Flores, ITESM, León Campus.
17	Strategic Planning with the Tarahumara Indian Tribe in Northwest Mexico.	Benjamin Broome, Carmen Moreno, Cristina Salas-Porras, ITESM, Cd. Juárez Campus.
18	Understanding the Factors Involved in Planning a Self-development project with the Tarahumara.	Cristina Salas-Porras, Carmen Moreno, Roxana Cárdenas, ITESM, Cd. Juárez Campus.
19	Improving the Relationship between Cáritas Parroquiales and the General Office.	Roxana Cárdenas, Carmen Moreno, ITESM, Monterrey Campus.
	USA	
20	Strategic Planning for the Food and Drug Administration.	Alexander Christakis, CWA.
21	Product Information Management at Ford.	Scott Staley, Ford Motor Company Research Laboratory.
22	Diagnosis and Re-design of the Defense Acquisition System (more than 30 workshops) (1989-1994).	Henry Alberts, Defense Systems Management College (DSMC) and Alexander Christakis, CWA.

SOME APPLICATIONS IN 1993

	Mexico	
23	Developing a Graduate Program on Natural Resources Management at ITESM	Roxana Cárdenas, Alfredo Molina, Carlos Villanueva, ITESM, Monterrey Campus.
24	Setting Priorities for Regional Products Development in the State of Chihuahua.	Leonel Guerra, Roxana Cárdenas, ITESM Chihuahua Campus.
25	Diagnosis and Planning for the self-development of the Yaqui Tribe.	Héctor Cortés, Carmen Moreno, Roxana Cárdenas, ITESM, Cd. Obregón Campus.
26	Diagnosis and Planning for the Municipality of Jilotepec.	Henio Millán, Roxana Cárdenas, ITESM, Toluca Campus.

	USA	
27	Americans for Indian Opportunity, Ambassador Program.	Benjamin Broome, George Mason University (GMU) and Ms. LaDonna Harris, Americans for Indian Opportunity (AIO)
28	Rapid Response Manufacturing Joint Application Development.	Scott Staley, Ford Motor Co.
29	Systemwide Planning for Analytical Powertrain (1992-93).	Scott Staley, Ford Motor Co.

SOME APPLICATIONS IN 1992

	Brazil	
30	Policy Directives for a Telecommunications Holding Company.	James Wright, University of Sao Paulo (USP); Bruce Johnson, Fundaçao Instituto de Administraçao (FIA); TELEBRAS
31	Planning a Hospital's Growth to the Year 2000.	James Wright, USP and HCRP
	India	
32	Impact of Information Technology on Organisation Structures and Processes (1991-92).	Mr. S.K. Batra, Tata Consultancy Services (TCS), as a part of a doctoral program
	Mexico	
33	Academic Development of the Architecture Department, ITESM, Monterrey Campus.	Carmen Moreno, Carlos Villanueva, ITESM, Monterrey Campus.
34	Improving Quality Service at Cáritas Monterrey.	Carmen Moreno, Roxana Cárdenas, ITESM, Monterrey Campus.
	UK	
35	Intervention in a Building Services Co-Partnership.	Derek Hitchins, Royal Military College of Science (RMCS).
	USA	
36	Design of Strategic, Managerial, and Operational Plans -- National Oceanic and Atmospheric Administration (NOAA) Coastwatch Program's Inter-Agency Satellite Ocean Color Project.	Alexander Christakis, CWA.
37	Designing an Action Plan in Anticipation of Bringing a Pharmaceutical Product to the Market with Speed and Prudence.	Alexander Christakis and Robert J. Whitehouse, CWA and Schering-Plough, Inc.
38	Community-Based Design for the Future of the Pawnee Tribe: Problem Definition, Vision Statement, and Integrated Plan.	Iola Hayden, Oklahomans for Indian Opportunity (OIO), Normal, Oklahoma and Benjamin Broome, GMU
39	Community-Based Design for the Future of the Apache Tribe: Problem Definition, Vision Statement , and Integrated Plan	Iola Hayden, OIO, and Benjamin J. Broome, GMU.
40	Definition of Stakeholder Issues to be Considered in the development of a Comprehensive Fishery Management Plan for Pacific Coastal Pelagic Fisheries	David J. Mackett, Southwest Fisheries Science Center (SWFSC).

SOME APPLICATIONS IN 1991

	Brazil	
41	Objectives for the Electric Utility R & D Centre	James Wright, USP, Bruce Johnson, FIA-USP; CEPEL
42	Proposal for the Restructuring of the Port of Santos	James Wright, USP, Bruce Johnson, FIA-USP; Longshoremen's' Union
	Greece	
43	Designing a Strategic Plan for Privatising Three Companies in Greece	Alexander Christakis, CWA, and Spyros Megápanos of EUROTRANSFORM.
	Mexico	
44	Planning for a Total Quality Program at Química del Rey, S.A.	Carmen Moreno, Carlos Villanueva, ITESM, Campus Monterrey.
45	Social and Economic Development in the Area of the New Bridge Between the USA and Mexico	Carmen Moreno, Roxana Cárdenas, ITESM, Campus Monterrey.
46	Fostering the Use of Computer Technology in Education ITESM	Roxana Cárdenas, ITESM, Campus Monterrey.
47	Management of Construction Projects at ITESM	Roxana Cárdenas, Héctor Rincón, ITESM, Campus Monterrey.
	UK	
48	Development of Objectives and Intent Structures for an Urban Police Force	Derek Hitchins, RMCS.
49	Planning for the Department of Systems Science at City University.	Ross Janes, Ken Hammer, Interactive Management Unit (IMU), City University.
	USA	
50	North American Defense Industrial Base Critical Technologies Workshop	Henry Alberts, DSMC.
51	Concurrent Engineering Workshop.	Henry Alberts, DSMC.
52	Contractor Integrated Technical Information Service Workshop.	Henry Alberts, DSMC.
53	Defense Industrial Base Workshop.	Henry Alberts, DSMC.
54	Department of Defense Fuze Industry Workshop.	Alexander Christakis, CWA, and David Dierolf, Institute for Defense Analysis (IDA).
55	Designing Improvements for the Human Performance Enhancement Systems of Niagara-Mohawk Power Company.	Alexander Christakis, CWA, and Paul Wilde, Niagara-Mohawk Power Company.
56	Community-Based Design for the future of the Cheyenne/Arapaho Tribe: Problem Definition, Vision Statement, and Integrated Plan.	Iola Hayden, OIO and Benjamin J. Broome, GMU.
57	Promoting Greater Participation in Comanche Tribal Governance.	Ladonna Harris, AIO and Benjamin J. Broome, GMU.
58	Design of a Tribal Issues Management System.	Ladonna Harris, AIO, and Benjamin J. Broome, GMU.

59	Klamath River Basin Fisheries Task Force: Design of a Watershed-based Task Force Management System for Carrying out the Klamath River Basin Fishery Restoration Program.	David J. Mackett, SWFSC.
60	Klamath River Basin Fisheries Task Force: Definition of Priorities for Implementing Policies of the "Long-range Restoration Plan".	David J. Mackett, SWFSC.
61	Design of an Inter-Agency Cooperative System for Planning and Execution of Tuna Research and Management in Response to Changes in the Magnuson Fisheries Conservation and Management Act.	David J. Mackett, SWFSC.
62	Design of an Improved Planning and Budgeting System for the National Marine Fisheries Service.	David J. Mackett, SWFSC.

SOME APPLICATIONS IN 1990

	Brazil	
63	Strategy Setting for a Telecommunications Equipment Manufacturer.	James Wright, USP, Bruce Johnson, FIA-USP, NEC do Brazil
64	Establishing an Industrial Policy for the Electric Utilities Sector.	James Wright, USP, Bruce Johnson, FIA; ELETROBRAS
65	Directives for Restructuring a Medical School Curriculum.	James Wright, USP; FMRP-USP
	India	
66	Implications of Vocational Training for Advanced Technology in India (1990-1991).	S.K. Batra of TCS; International Labour Organisation/Asian and Pacific Skills Development Programme
67	Impact of Telecommunication and Data Services on Software Services (1990-1991).	S.K. Batra of TCS; Atwater Institute, Montreal, Canada
68	Development of Integrated Cooperative Development Project for Two Districts of a State of India (1990-1991).	S.K. Batra of TCS; and Department of Co-operatives of the Government of Himachal Pradesh.
	Mexico	
69	Re-defining the extra-curricular activities of the students in the ISE programme ITESM.	Roxana Cárdenas, ITESM, Monterrey Campus.
70	Developing Systems Education at the ITESM System.	Roxana Cárdenas, Carmen Moreno, ITESM, Monterrey Campus.
71	Fostering Technological Development in the Northeast Region of Mexico.	Roxana Cárdenas, Carmen Moreno, ITESM, Monterrey Campus.
72	Operational Planning at the International Division of BANORTE.	Roxana Cárdenas, Ma. Carmen Temblador, Carlos Villanueva, I ITESM, Monterrey Campus.
73	Diagnosing the Industrial Development of the State of Nuevo León.	Héctor Moreira, Carmen Moreno, Roxana Cárdenas, ITESM, Monterrey Campus.
	UK	
74	Characteristics and Identity of the Organisation Development Group of a Professional Management Consultancy.	Ross Janes, Keith Ellis, Ken Hammer, IMU, City University.

75	Objectives and Priorities for a Quality Program in a Regional Bank in the United Kingdom.	Richard Jeffery, PA Consulting Group.
	USA	
76	Redesigning the Defense Acquisition System (1990-1991).	Henry Alberts, DSMC and Alexander Christakis, CWA.
77	Smart Munitions Acquisition Management.	Alexander Christakis, Center for Interactive Management (CIM), GMU.
78	Investigation of Nuclear Unit 2 Design Issues.	Alexander Christakis, CWA and Jack Benson, Niagara-Mohawk Power Corporation.
79	Problem Definition and Goal Setting for the Economic Future of the Menominee Tribe.	Ladonna Harris, AIO, and Benjamin J. Broome, GMU
80	Problem Definition and Resolution for Comanche Tribe.	Ladonna Harris, AIO; Kenneth Saupity, Comanche Tribe; and Benjamin J. Broome, GMU
81	Klamath Fishery Management Council: Strategic Plan for the Management of the Harvest of Anadromous Fish Populations of the Klamath River Basin.	David J. Mackett, SWFSC.

SOME APPLICATIONS IN 1989

	Ghana	
82	Diagnostic Study on the Energy Sector of Ghana.	S.K. Batra, TCS, and the Technology Transfer Centre, CSIR.
	UK	
83	Designing a University Centre for Enterprise Management.	Ross Janes, Derek Hitchins, Richard Jeffery, and Ken Hammer, IMU, City University.
84	Issues, Objectives, and Priorities for a University Department of Civil Engineering.	Ross Janes, Richard Jeffery, Ken Hammer, IMU, City University.
85	Solutions and Priorities for a Community-Based Speech Therapy Service in a Health Authority.	Ross Janes, Richard Jeffery, Ken Hammer, IMU, City University
	USA	
86	Research Initiatives in the Photonics Field.	David Keever, CIM, GMU.
87	Strategic Plan for Research Needed to Meet the Goals of the Convention for the Conservation of Antarctic Marine Living Resources by the Year 2000.	David J. Mackett, SWFSC.
88	Design of a United States Agency for International Development Program for Developing and Maintaining Viable Fisheries in Developing Countries Utilizing Fish Aggregating Devices.	David Mackett, SWFSC.
89	Design of an Administrative Information Management System for the Southwest Fisheries Science Center.	David Mackett, SWFSC.

SOME APPLICATIONS IN 1988

	UK	
90	Issues, objectives, priorities and mission for the University's Accommodation and Conference Service.	Ross Janes, IMU, City University

91	Planning for the Short Course Unit of City University.	Richard Jeffery, Ross Janes, IMU, City University
92	Setting Requirements and Priorities for a Speech Therapy Service in a District Health Authority.	Richard Jeffery, Ross Janes, IMU, City University
	USA	
93	Long-Range Planning Guidebook for the Communication Department, George Mason University.	Benjamin Broome and Don Boileau, Communication Dept., GMU.
94	Forum on the Future of Pediatric Nursing: Looking Toward the 21st Century.	Alexander Christakis, CIM, GMU and Veronica Feeg, Dept. of Nursing, GMU
95	Developing a Design Culture in Higher Education.	Alexander Christakis, CIM, GMU and Ioanna Tsivakou, Univ. of the Aegean
96	Shared Governance in Selected Pennsylvania Schools Districts.	Alexander Christakis, CIM, GMU.
97	Human Service Needs: Setting Priorities for Fairfax/Falls Church United Way.	Alexander Christakis, CIM, GMU.
98	National Atmospheric Administration/National Marine Fisheries Service Program Development Plan for California Current and Pacific Ocean Regional Marine Ecosystems.	David J. Mackett, SWFSC.
99	Design of the SWFSC's Eastern Tropical Pacific Dolphin Survey.	David J. Mackett, SWFSC.
100	Operational Plan for National Marine Fisheries Service Research on the Demersal Fishery Resources of the California Current Ecosystem.	David J. Mackett, SWFSC.
101	Joint US/Canada Strategic Plan for Research on the International Squid Drift Gillnet Fishery and Protected Species Entanglement Problem in the North Pacific.	David Mackett, SWFSC.

SOME APPLICATIONS IN 1987

	Brazil	
102	Department Chain Objectives.	James Wright, USP, Bruce Johnson, FIA, SUSA Group.
	UK	
103	Business Planning Workshop for the Regional Managers of an Industrial Training Board.	Ross Janes and Keith Ellis, Department of Systems Sciences, City University.
104	Priority Setting for a County's Highway Scheme.	Ross Janes, IMU, City University
	USA	
105	American Public Power Association Fuel Cell Market.	Alexander Christakis, CIM, GMU.
106	Building a Consensus on a Winnebago Self-Sufficiency Plan.	Ladonna Harris, AIO; Reuben Snake, Chairman, Winnebago Tribe; and Alexander Christakis, CIM, GMU.
107	Operational Plan for SWFSC Research on Tunas and Large Pelagics.	David J. Mackett, SWFSC.

108	Strategic Plan for a Joint State of California/National Marine Fisheries Service Program for Marine Recreational Fisheries.	David Mackett, SWFSC.
109	Operational Plan for Improving Availability to the Scientific Community of the Historical Ichthyoplankton Data Base of the California Cooperative Oceanic Fisheries Investigation.	David Mackett, SWFSC.
110	Designing a Computer Science Curriculum for the 21st Century.	John N. Warfield, Alexander Christakis, and David Keever, CIM, GMU

SOME APPLICATIONS IN 1986

	Brazil	
111	Strategic Objectives for the Sao Paulo State Bank-BANESPA.	James Wright, USP, Bruce Johnson, FIA; BANESPA
	UK	
112	Planning for the Department of Systems Science at City University.	Ross Janes, IMU, City University
	USA	
113	Redesigning the National Marine Fisheries Service for the 1990's.	Alexander Christakis, CIM, GMU.
114	Identifying and Mapping Tribal Governance Issues.	Ladonna Harris, AIO and Alexander Christakis, CIM, GMU.
115	Strategic Plan for the National Marine Fisheries Service's Research Program on Tuna Resources.	David Mackett, SWFSC.
116	Operational Planning for the Analysis of Tuna Vessel Observer Data for Porpoise Stock Assessment.	David Mackett, SWFSC.
117	Investigation of Forces of Change in the Hawaiian Aku (Skipjack Tuna) Fishery.	David Mackett, SWFSC.
118	Moving Toward a Consensus of Nursing in Virginia.	Alexander Christakis, CIM, GMU.
119	Southwest Fisheries Science Center's Affirmative Action Plan.	David Mackett, SWFSC.

SOME APPLICATIONS IN 1985

	UK	
120	Planning for an Industrial Training Board Development Team.	Ross Janes, IMU, City University.
121	Setting and Structuring Objectives for an Industrial Training Board Fellowship Program.	Ross Janes, Philip M'Pherson, IMU, City University.
122	Factors Affecting the Expansion of a Military Reserve Force.	Ross Janes, Brian McCormack, IMU, City University.
123	Planning for the Management Support Department of a City Police Force.	Ross Janes, Philip M'Pherson, IMU, City University.
124	Objectives, priorities, mission and activities for the Institution's Technical Activity Committee on Managing Innovation. Institution of Mechanical Engineers.	Ross Janes, IMU, City University.
	USA	

125	Agricultural Research Service Management Retreat.	Alexander Christakis, Interactive Management Corporation.
126	Tuna Fisheries Forum.	Alexander Christakis, CIM, and David Mackett, SWFSC.
127	Operational Plans for the Southwest Fisheries Science Center's Pacific Coast Groundfish Research Program at Tiburon and La Jolla.	David Mackett, SWFSC.
128	Strategic and Operational Planning for a Joint State of California/ National Marine Fisheries Service Program for Research and Management of Coastal Marine Mammals.	David Mackett, SWFSC.
129	Strategic and Operational Plan for a Research Proma on the Fisher Resources of Pacific seamounts.	David Mackett, SWFSC.
130	Strategic Plan for Fisheries Habitat Research and Conservation in Hawaii.	David Mackett, SWFSC.

SOME APPLICATIONS IN 1984

	UK	
131	Planning for a Technical Advisory Committee of a Professional Engineering Institution.	Ross Janes, Philip M'Pherson, IMU, City University.
	USA	
132	Strategic Planning for the National Fisheries Service's Pacific Coast Groundfish Research and Management Program.	David Mackett, SWFSC.
133	Plan for Research Program for the Recovery of the Endangered Hawaiian Monk Seal.	David Mackett, SWFSC.
134	Strategic Planning for the New Management Regime for the Tuna/ Porpoise Fishery.	David Mackett, SWFSC.

SOME APPLICATIONS IN THE PERIOD 1974-1983

	Brazil	
135	Sugar Cane Harvest Extension-- Bottlenecks and Critical Issues (1983).	James Wright, USP, and Bruce Johnson, FIA-USP: IAA-MIC.
136	Business School Curriculum: Course Precedence Requirements (1982).	James Wright, USP.
137	Impacts of Brazil's Fuel Alcohol Program (1981).	James Wright, USP.
	Saudi Arabia	
138	Long-Range Planning Workshop for Saudi Arabian National Center for Science and Technology (SANCTS) (1980).	J.N. Warfield, R.J. Waller, K. Kawamura, and Hashim Yemani of SANCST.
	USA	
139	Non-Industrial Private Forest Lands Forum-Issues, Options and Responsibilities, US Forest Service (1983).	Alexander Christakis, CIM, University of Virginia (UVA), and Robert McDonald, US Forest Service.
140	Definition of the Mission of the Southwest Fisheries Science Center and the Development of the Strategy for Carrying it Out (1982).	Alexander Christakis, CIM, University of Virginia and David Mackett, SWFSC.

141	Structure of Technology Assessment (1975).	Alexander Christakis and Sherry Arnstein, Academy for Contemporary Problems.
142	Planning for the future of engineering education. School of Engineering and Applied Science, UVA (1983).	Ross Janes, CIM, UVA.
143	Making Decision on Reducing Public Expenditures: Kent City Council (1979).	Carl Moore, Kent State University.
144	Transportation Planning for Dayton Ohio (1974).	Brother Raymond Fitz, Kettering Foundation.
145	Management of the Learning Disabled (1975).	Robert J. Waller, University of Northern Iowa.
146	Priority Setting in Urban Systems Management (1974).	Robert J. Waller, University of Northern Iowa.
147	Climax Agriculture in the Sahel Region of Africa (1975).	Zamierowski, Hornback, and Fitz, University of Dayton.

APPENDIX B

TWENTY-ONE LAWS OF COMPLEXITY ASSOCIATED WITH THE DEVELOPMENT OF INTERACTIVE MANAGEMENT

No.	LAW	STATEMENT
		Laws Associated with the Individual
1	Triadic Compatibility	"The human mind is compatible with the demand to explore interactions among a set of three elements, because it can recall and operate with seven concepts, these being the three elements and their four combinations; but compatibility cannot be presumed for a set that both has four members and for which those members interact." (Warfield, 1993:25)
2	Requisite Parsimony	"Every individual's short-term brain activity lends itself to dealing simultaneously with approximately seven items (a number that is reached with three basic items and four of their joint interactions) ... Attempts to go beyond this scope of reasoning are met with physiological and psychological limits that preclude sound reasoning..." (Warfield, 1993:26)
3	Requisite Saliency	"The design process must incorporate specific provision for uncovering the relative saliency of the factors in the Design Situation and the factors that characterize the [Design] Target...". (Warfield, 1993:51-52)
4	Small Displays	"Individuals ... will typically fail to distinguish complexity from normality in their choice of media for displaying their work, and will continue to accommodate their behavior to the constraints imposed by small display media (e.g., 8 1/2 x 11 inch ...), instead of insisting on matching the size of display space to the complexity of the subject matter." (Warfield, 1998b-20)
		Laws Associated with the Group
5	Diverse Beliefs	"...at the outset of group consideration of [a complex] issue, the individual members of the group will have quite diverse beliefs about the issue...". (Warfield, 1993:39)
6	Inherent Conflict	"No matter what the complex issue, and no matter what the group involved in its study, there will be significant inherent conflict within the group stemming from different perceptions of the relative significance of the factors involved in the complex issue." (Warfield, 1993:47)
7	Structural Under-conceptualisation	"No matter what the complex issue, and no matter what the group involved in its study, the outcomes of ordinary group process (i.e., process in which computer support for developing the formal logical structure of the issue is lacking) will be structurally underconceptualized (as evidenced, for example, by the lack of delineation of the cycles and of any structural connections among them)" (Warfield, 1993:31)
8	Uncorrelated Extremes	"No matter what the complex issue, and no matter what the group involved in its study, the initial aggregate group opinion concerning the logical pattern of the factors involved in the issue and the final aggregate group opinion concerning the logical pattern of the factors involved in the issue ... will be uncorrelated; showing that significant learning takes place through the application of the generic design processes." (Warfield, 1993:54)

9	Induced Groupthink	"The pathological behavior described as "Groupthink" ... can be predictably induced in groups by the behavior of individuals who put pressure on groups to produce results under a time limit; where complexity is paramount." (Warfield, 1998b-20)
10	Requisite Variety	This law refers to the need to identify all the major factors involved in a complex situation, in order to produce system designs that could be properly specified (Based on Ashby, 1956).
		Laws Associated with Organisations
11	Organisational Linguistics	"As an organization grows, linguistic separation grows both laterally and vertically [...]. At the higher vertical levels, metaphors and categories become progressively disconnected from the relevant components at lower levers, leading to decisions based on perceived relations between categories that are not borne out by relations between category members." (Warfield, 1993:33)
12	Forced Substitution	"Structural underconceptualization and inherent conflict lead to policy vacuums in an organization into which authority injects forced substitution for absent and inadequate conceptualization, in order to avoid institutional paralysis and for self-protection." (Warfield, 1993:59)
13	Precluded Resolution	" ... i) structural underconceptualization, ii) inherent conflict and diverse beliefs, and iii) dysfunctional organizational linguistics, [...] combine to preclude resolution of complex issues." (Warfield, 1993:62)
14	Vertical Incoherence	"For any large organization (that is unaware of this Law), there are invisible-but-potentially-discoverable patterns of vertical coherence awaiting discovery; which when discovered, will show how key features of that organization are (a) many in number, (b) can be structured into categories that are much fewer in number, and (c) whose categories can be structured into areas that are again much fewer in number ...This structure will be an "inclusion structure" from the class of Application Structural Types described in A Science of Generic Design." (Warfield, 1998b-20)
15	Escalation of Complexity	"As organizations move towards the team-based, non-hierarchical, collaborative approach to problem-solving and design, the situational complexity escalates exponentially, with a concomitant exponential decrease in the capacity of the team members to engage in communicative action." (Christakis and Shearer, 1997)
		Laws Associated with the Process
16	Gradation	"Any conceptual body of knowledge can be graded in stages, such that there is one simplest stage, one most comprehensive stage ... and intermediate stages whose content lies between the two extremes." (Warfield, 1993:41)
17	Success and Failure	"There are seven critical factors in the SUCCESS BUNDLE for the Design Process. Inadequacy in any one of these factors may cause failure. The seven factors are: leadership, financial support, component availability, design environment, designer participation, documentation support, and design processes that converge to informed agreement." (Warfield, 1994f:180)
18	Triadic Necessity and Sufficiency	"Relations are characterized by the number of distinct relational components, but no matter how many such components a relation may have, the (complex) relation can always be expressed by component relations having no more than three relational components; but triadic relations exist that cannot be expressed in terms solely of dyadic and monadic relations." (Warfield, 1993:63)
19	Universal Priors	"The human being, language, reasoning through relationships, and archival representations are universal priors to science." (Warfield, 1993:44).

20	Validation	"The validity of a science depends upon substantial agreement within the scientific community of meaning at its highest grade, i.e., meaning attained through Definition by Relationship." (Warfield, 1993:35)
Law Associated with the Individual, the Group, Organisations and the Processes		
21	Limits	"To any activity in the universe there exists a corresponding set of Limits upon that activity, which determines the feasible extent of the activity." (Warfield, 1993:49)

APPENDIX C

EXAMPLES OF STRUCTURAL MODELS DEVELOPED THROUGH THE INTERACTIVE MANAGEMENT PROCESS

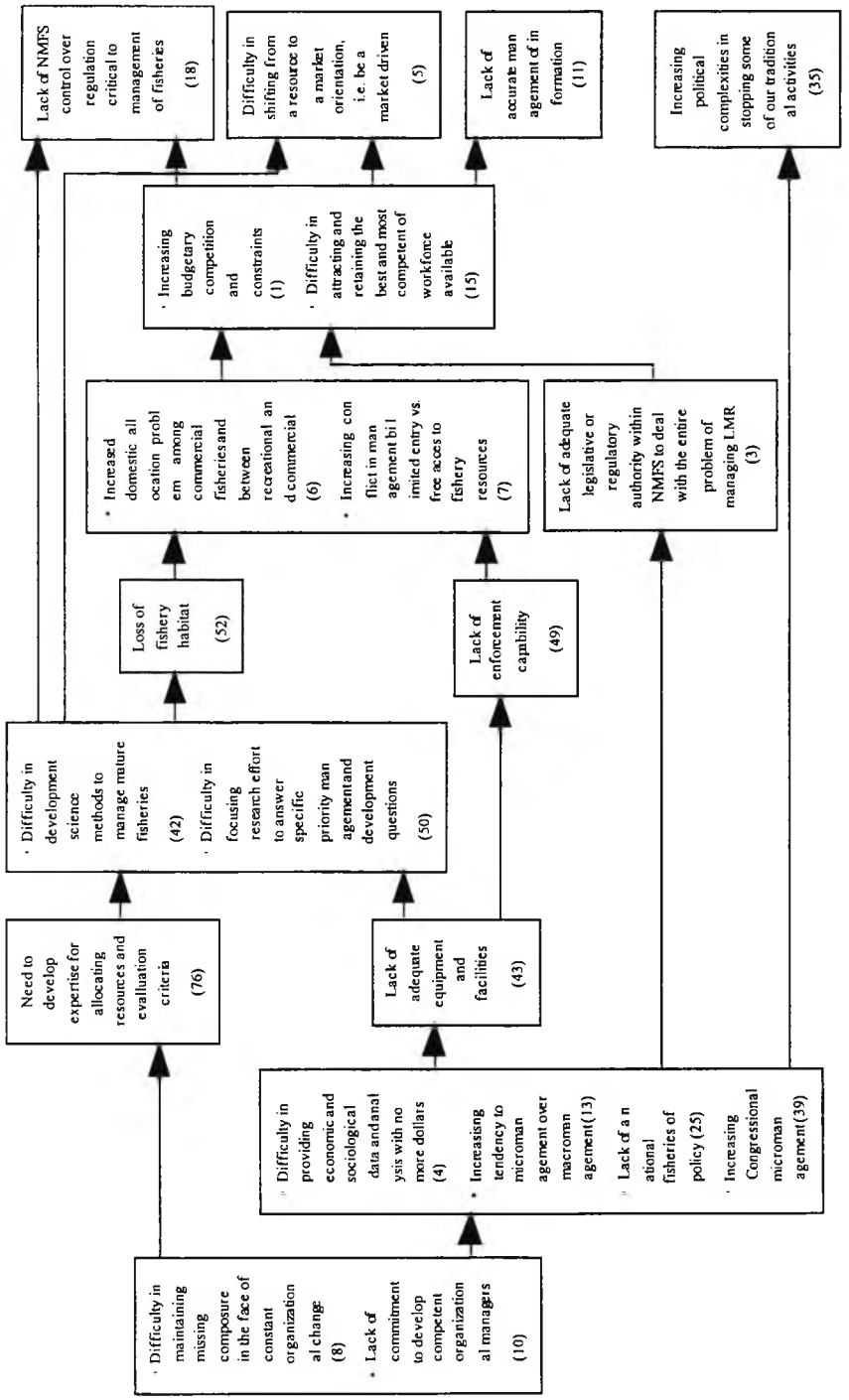


Fig. C.1 Partially Reproduced Problematique for the National Marine Fisheries Service (Source: Warfield, 1994a:359)

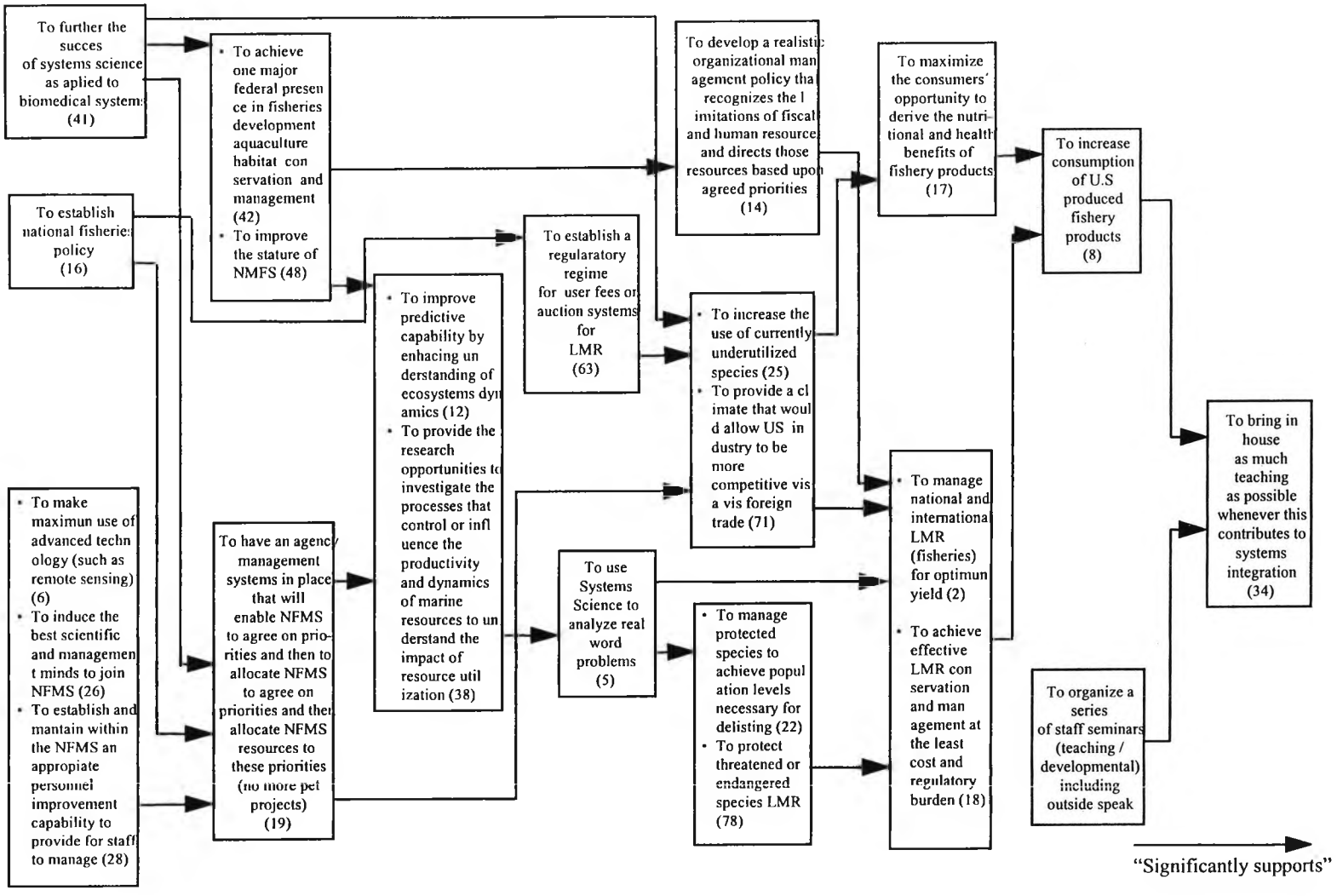


Fig. C.2 Partially Reproduced Intent (support) Structure for the National Marine Fisheries Service (Source:Warfield, 1994a:360)

1)Policies/ legislation	2A) Data/ information	2B) Living Marine Resouces Management	5) User Conflicts	6) Personel	7) User Fees/ Revenues
• Evaluate existing legislation and authorities dealing with the fisheries and habitat (1)	• Participate in an in ternational systems for the collection of economic, social and political data ... (95)	• Improve management /regulatory process (National Marine Fisheries Service and Councils) (61)	• With Council participation, establish a process to develop policies to resolve user conflicts (18)	• Develop a program to send National Marine Fisheries Service to work in industry (17)	• Establish a team to make recommendations concerning user fees/auction systems (32)
• Clarify role of goverment in common property (7)	• Establish as number one priority a data management system to allow proper coll ection and use of fisheries data (67)	• Improve mechanisms to rapidly asses and adjust fishery management measures to meet goals /objetives	• For priority resources units, specify and report options to minimize or mitigate conflict among resource user groups (65)	• Promote hiring/ training to increase the acceptance of economic/bussines expertise in Living Marine Resources decision-making (26)	• Identify and gain acceptance for user-fees as a means of financing all our programs (63)
• Identify National Marine Fisheries Service control and catalityc roles (28)	• Establish a national mandatory reporting system for all marine resource users (89)	• Have and informed region al /national fisheries man agement decision body that takes into account the stock assesment, social /economic, and resource utility options (73)		• Establish an equitable performan ce-based personnel systems troughout fisheries (45)	• Provide for public access to real-time and historical data under user-pay systems (84)
• Realistically examine our current activities with a view of stopping or tran sferring those in consistent with our mission goal and objetives(23)	• Establish a national fishing craft/vessels federal permit system (95)	• Where practical, transfer harvest rigth and resource management responsabil ities to user groups (92)		• Structure and initiate a comprehensive training program to prepare our managers for the 1990s (52)	• Replace the foreign allocation systems with auction systems (94)
• Improve man agement institution s /infraestructure by focusing on end-use/users (36)	• Establish a non-en forcement domestic inspection service to reduce vessel survey (97)				

TIE LINE

Fig. C.3 Partially Reproduced Options Field for Designing the National Marine Fisheries Service of the 1990s. (Source:Warfield, 1994a:3363-364)

APPENDIX D

MAJOR FACTORS ASSOCIATED TO THE POSSIBILITY OF IMPLEMENTING THE OUTCOMES OF AN IM INTERVENTION

D.1 THE PLANNING PROCESS OF THE IM INTERVENTION

No.	RELEVANT FACTORS	DESCRIPTION
1	Aims of the intervention.	Basic intentions for undertaking an IM intervention, such as exploratory, diagnostic-oriented, design, or oriented towards immediate action. This is related to the levels of success that may be sought through IM as well as to the purpose of undertaking action.
2	Scope of the intervention.	The scope concerns the envisaged implications of the intervention in terms of the number of individuals and groups being affected, the time framework, the resources involved, and other possible issues associated with the scale of the intervention.
3	People involved in the planning process.	Total number, positions and roles of the people involved in promoting and planning the intervention. Their perceptions and interests regarding the situation.
4	General characteristics of the planning process.	This includes, among other things, the main activities involved, their duration and the use of particular techniques (if any).
5	Understanding of the situation.	Level of definition of the situation at the outset of the intervention. Activities devoted to understanding the situation being addressed before developing a plan for the project.
6	Objectives of the project.	Formally acknowledged objectives of the whole project.
7	Definition of participants and their roles for the whole intervention.	Identification of the people directly involved in the intervention, the roles they are expected to perform and the basis for their involvement. Of particular importance in IM is the appointment of the IM broker.
8	Selection of participants for the IM workshops.	Identification of the individuals who will participate in the different IM workshops and the basis for their selection.
9	Broker's training.	Activities devoted to introducing the broker to the IM process and to understanding the role expected from him or her.
10	The planned work sequence.	Logical sequence of the planned activities and their outcomes regarding the inquiry (intelligence, design, choice, planning for action), the action, and the evaluation components of an intervention.
11	Briefing the participants in the IM process.	Activities devoted to introducing and preparing the participants for the IM activity, including the documentation prepared and provided to them prior to the IM workshops.

D.2 THE CHARACTERISTICS OF THE INQUIRY COMPONENT (THE IM PROCESS)

No.	RELEVANT FACTORS	DESCRIPTION
1 Global Characteristics of the Inquiry Process		
1.1	Activities carried out during the inquiry process.	Total number of workshops held during the project and all other major activities involved in the inquiry.
1.2	Time framework of the inquiring effort	Total duration of the inquiring process (weeks, months, etc.).
1.3	Total duration of the IM activity	Number of days devoted to group work. This represents the sum of the duration in days of each workshop and is related to the time the group members spend together. It should be noted that group composition might vary from one workshop to another.
1.4	Participants	People who participate directly in the inquiry process and their relationship with the situation under study.
1.5	Observers	People who only participate as observers during the IM workshops and their relationship with the situation under study.
1.6	IM Facilitation Team	Members of the IM facilitation team responsible for conducting the workshops.
1.7	Consistency of the actual process with the original plan	Comparison between the original plan and the actual activities and outcomes accomplished during the inquiry process.
1.8	Iteration in defining the conceptual outcomes.	Whether or not iteration takes place: between intelligence and design, and for reviewing the conceptual outcomes already developed in each phase.
1.9	Documentation	Timeliness and adequacy of the documentation (final reports and on-site material) provided to the participants and other people involved in the project.
1.10	Appropriateness of the products developed.	Perspectives of the participants and the other people involved in the project regarding the appropriateness of the conceptual outcomes derived from the IM process (clearness, relevance, feasibility)
2. Characteristics of Each Workshop		
2.1	Objectives of each workshop	Stated objectives for each workshop and their relationship with the levels of success sought at each stage and with the general purposes of the intervention.
2.2	Time distribution of each workshop.	Duration in days (or hours) of each workshop. Time devoted to carrying out each of the major activities involved in an IM workshop, such as idea generation and structuring. It is important to consider the match between the time allotted and the time required producing the expected outcomes from each workshop.

2.3	Participants	Group size and composition (status and other possible differences between participants, and their relationship with the situation).
2.4	Observers	People attending each workshop as observers, their relationship with the situation, and their roles within the whole intervention.
2.5	IM methods used	IM specific methods used for carrying out the main activities of the workshop (NGT, ISM, the options field and options profile methods, etc.)
2.6	Other activities or methods used besides IM	Any other technique or method used not included in the typical set of consensus methods of IM and its outcomes.
3. Socio-Psychological Processes		
3.1	Individual attitudes and expectations	Attitudes and expectations that the participants bring to group activity
3.2	Group climate	Emotional atmosphere characterising group activity (such as co-operation, aggressiveness or enthusiasm).
3.3	Group development processes	Occurrence of, characteristics of and restrictions to the developmental group processes: forming, storming, norming, performing and adjourning.
3.4	Sub-group formation	Formation of coalitions or other forms of sub-group formation and their characteristics.
3.5	Group cohesion	Development or inhibition of group cohesion and its basis. Existence and relevance of peer pressure.
3.6	Conflict present and its resolution	Identification of major emotional or substantial conflicts during group activity and the ways used to deal with them.
4. Conceptual Outcomes		
4.1	Characteristics of the ideas generated	Type and number of the different sets of ideas generated during the IM workshops: such as problems, barriers, issues, objectives, goals, options or desired features for a design, actions, initiatives, organisations and so on.
4.2	Characteristics of the structural models developed	Type, number and size of the structural models developed during the IM workshops, such as problematiques, priority structures, support structures, fields, profiles, sequences, or delta charts.
4.3	"Transparency" of the structural models	Perception of the participants regarding their understanding of the structural models developed
4.4	Other conceptual outcomes	Other conceptual outcomes generated besides those typically recognised as a part of the IM process.
4.5	Responsibility for follow-up	Specific individual(s) responsible for follow-up of the IM outcomes and their corresponding responsibilities.
4.6	Follow-up specific commitments	Specific commitments made for follow-up of the IM outcomes, such as: none, actions and the people responsible for them, actions with no responsibilities assigned, or general guidelines to be further developed later on.
4.7	Implementation plan	Formal development of an implementation plan and its characteristics. The structural models used, the type of ideas included (such as actions, responsibilities, time framework and resources), and any additional consideration made.

4.8	The 'transparency' of the conceptual outcomes regarding their implementation	Logic and clearness of this relationship as perceived by the participants and the would-be implementers. Need to consider the appropriateness of the conceptual outcomes regarding their levels of detail, completeness and documentation.
5. Socio-psychological Outcomes		
5.1	Level of consensus	Participants' level of consensus, including the development of mutual understanding and shared meanings, as well as their opposite in terms of the existence of conflict.
5.2	Level of satisfaction	Participants' level of satisfaction (or dissatisfaction) with the content and the process of the workshop
5.3	Level of commitment for action	Participants' level of commitment (or refusal to commit) to the decisions made.
5.4	Other socio-psychological outcomes of the IM workshops	Other aspects considered as important socio-psychological outcomes of an IM workshop such as the changes in perspectives and attitudes of the participants.

D.3 THE RELATIONSHIP BETWEEN INQUIRY AND ACTION

No.	RELEVANT FACTORS	DESCRIPTION
1	Role of the IM broker in the follow-up	Responsibilities and activities of the IM broker concerning the follow-up of the outcomes of IM.
2	Role of the IM participants in implementation	Responsibilities and activities during implementation of the participants in the IM process.
3	Role of the IM observers in implementation	Responsibilities and activities during implementation of the people who participate as observers in the IM process.
4	Role of relevant authorities in inquiry and implementation	Responsibilities and activities of people with decision-making authority in both the inquiry and the implementation processes.
5	Relationship of other implementation actors with the inquiry process.	Nature of the involvement (if any) of the implementation actors in the inquiry process, especially for those actors who do not participate directly in IM group activity.
6	Communication of results	Means of communication (and their effectiveness) of the results of IM, to those involved in implementation and those who did not participate in the IM process
7	Institutional support for implementing the outcomes of inquiry	Observable indications of the support (or lack of support) given to the implementation of the outcomes of inquiry on a formal/institutional basis
8	Iteration between action and inquiry	Provisions and actual occurrence of iterations between inquiry and action in order to review previous decisions and adjust to new or changing requirements of the action process.

D.4 THE CHARACTERISTICS OF THE ACTION COMPONENT

1	Implementation actors	People who participate in implementation, their roles and relationships with the situation under study.
2	Motivation and commitment	Levels of motivation and commitment of the implementation actors while carrying out the activities involved. These issues are associated with the provisions and characteristics of the action situation that promote their development.
3	Availability of resources	Availability and restrictions on the resources needed to carry out the implementation plans. These include resources such as time, information, money, equipment and materials.
4	Power and authority	Characteristics of and restrictions on the power and authority of the implementation actors to perform their tasks.
5	Communication processes	Communication processes through which the implementation actors interact and exchange information about the progress and results of the implementation.
6	Learning and adjustments	Mechanisms through which learning is supported and adjustments are made to the original plans during implementation.

D.5 THE CONTEXT OF THE INTERVENTION

No.	RELEVANT FACTORS	DESCRIPTION
1	History of the situation	General background of the situation, specially regarding the need to change and the previous efforts undertaken to bring about some improvement.
2	Characteristics of the organisation(s) concerned	General characteristics of the organisation(s) involved such as their number, nature, background, structure, size, geographical distribution of the concerned units, and the relationship of these elements with the scope of the intervention.
3	Organisational culture	Norms, habits, ideas and beliefs that characterise the social setting of the organisation(s) or groups involved. Their unity or diversity. The relationship of these elements with the processes and outcomes of the intervention effort.
4	Power structures and political issues	Characteristics of the way power is exercised and distributed within the organisation(s) or group(s) involved. Leadership styles, existence of different interest groups and ways of dealing with conflict situations within the organisation.
5	Stakeholders not involved in the intervention process	People affected but not directly involved in the intervention effort. Their roles in the situation and their responses to the intervention process and its outcomes.
6	Communication processes	Means of communication (if at all) of the intervention effort and its characteristics to those affected by it but not directly involved.

7	Major changes in the situation	Unforeseen changes occurring during the intervention process which may affect the project and its outcomes.
8	Implications of the proposed changes for the organisation(s) concerned	Nature and scope of the proposed changes: opportunities and threats posed by the proposed changes to the different groups and individuals involved in the situation; time framework and resources needed to implement those changes.

D.6 FINAL RESULTS OF THE INTERVENTION

No.	RELEVANT FACTORS	DESCRIPTION
1	Level of accomplishment of implementation	Percentage of the agreed decisions/changes that get implemented.
2	Effectiveness of implementation	Correspondence between the agreed decisions/changes and the actual implementation results.
3	Changes in the situation	Actual changes which take place in the situation as a result of the intervention (includes planned and unplanned changes).
4	Socio-psychological changes	Changes regarding people's perceptions, attitudes and behaviours regarding the situation under study.
5	Relevance of the final results	Most significant changes which take place as a result of the intervention. Their effectiveness in terms of the original objectives of the intervention. Time span of their effects.
6	People's reactions to the intervention effort.	Positive and negative responses to the implementation results and to the whole intervention effort in general.
7	Negative consequences of the project	Measurable or intangible costs of the intervention representing consequences of the intervention effort. Problems posed by the intervention.
8	Final assessment of the intervention	Characteristics and results of any explicit effort to assess the final outcomes of the intervention.

APPENDIX E

GUIDELINES USED DURING THE INTERVIEWS CARRIED OUT IN THE CASE STUDY

E.1 INTRODUCTION

1. Do you remember the two IM projects carried out here in 1992 and 1994?
2. Do you recall the general circumstances, which gave rise to these projects?

E.2 THE PLANNING PROCESS OF THE INTERVENTION

1. General description of the planning process (this point was to be emphasised only with the client of the projects).
2. What were the objectives of the project?
3. How were you informed about the project? How clear were the objectives and process to be followed?
4. How clear was your role?

E.3 THE CHARACTERISTICS OF THE INQUIRY COMPONENT (THE IM PROCESS)

1. Do you think that somebody else should have been present during the workshop(s)? Who ? Why ?
2. General perspective on the duration of the workshop.
3. Major positive features observed during the workshop.
4. Main problems perceived.
5. How clear was the information obtained (structures)? How appropriate was the documentation (reports and on-site documents)?
6. Did you receive the final report?
7. How did you perceive the atmosphere of the workshop? Did you feel that there were any conflicts between the participants?

8. Were you satisfied with the outcomes of the workshop(s)? What was the level of satisfaction of the other participants? Their level of commitment with the decisions made?
9. What were the main non-tangible outcomes of the workshop?
10. What's your opinion about the appropriateness of the agreed upon actions or projects regarding the initial objectives? How significant were they?
11. Differences between each one of the three workshops. (only for the second project)
12. How clear was the relationship between the workshops? (only for the second project)

E.4 THE RELATIONSHIP BETWEEN INQUIRY AND ACTION.

1. Who else (besides the participants and observers) in the organisation was informed about this initiative? On which basis?
2. Which people had responsibilities assigned and did not participate in the workshop? Why ? How were they informed?
3. Were there any modifications to the original agreed upon actions?
4. What was the role of the Board regarding these efforts?

E.5 THE CHARACTERISTICS OF THE ACTION COMPONENT

1. How was the implementation organised?
2. Was there any effort to monitor the progress on implementation?
3. Which were the main problems with implementation?

E.6 THE CONTEXT OF THE INTERVENTION

1. How involved/affected was the whole organisation? Who in particular?
2. Did the project imply any significant change in the management style of the organisation? And in the personal style of the General Manager? Were there any feelings of threat because of the democratic approach used?

3. How did the people perceived this effort in general? Who was aware of it? Did they perceive it all?

E.7 THE FINAL RESULTS OF THE PROJECTS

1. Are there any formal documents showing evidence of the implemented actions?
2. Which of the chosen actions were implemented? To what extent?
3. How effective were the results of the implemented actions?
4. Which were the most significant changes? Were there any minor changes?
5. Expectations about the project and its scope. How were they accomplished?
6. How did people react to the implementation of results? Were there any particularly negative reactions to the whole effort?
7. Which were the main problems posed by this project?
8. Were the final results evaluated?

APPENDIX F

CONCEPTUAL OUTCOMES OF THE FIRST IM PROJECT IN CARITAS MONTERREY

F.1 FACTORS THAT INHIBIT OR MAKE DIFFICULT THE PROVISION OF A QUALITY SERVICE IN CARITAS DE MONTERREY

1. **Lack of internal communication.**
   In some areas there is the need of communicating the existing constant changes to all the areas of Caritas. With this communication, many of the current problems of the Institution will be finished.

2. **The socio-economic problems that underprivileged population suffers in all country are multiple, support programmes do not solve the basic problems and our resources are limited.**
   The very basic problems have seen affected mainly on poor people because of the Government actions. For this reason we have been forced to address problems that we cannot solve. In this country, there are no programmes to cover some health problems, for example psychiatric problems; therefore Caritas has faced the responsibility for performing them.

3. **Lack of supervision at the main field of work (in the streets).**
   Most of our administrative personnel need a larger contact with outside reality, to make better decisions. For example, on the lotteries we must experience the information written in the reports.

4. **Lack of integration with the base staff working outside the general offices.**
   Social workers, for example, when they get to the office they feel as if they were strangers that are not part of the Institution. In this way we have a lack of identification, with the Institution, by the people that are not inside of it.

5. **Lack of knowledge about the philosophy, mission, vision, objectives and programmes that the Institution manages at all levels.**
   External people to the Institution, when getting to it do not have orientation about the ways to solve their needs. The personnel in charge to attend external people don't have adequate knowledge about the philosophy, characteristics and personnel from Caritas, making people unsatisfied.

6. **Increasing demand from people requiring help.**
   There is an existing image that Caritas is here to help everybody; this results in a higher support service demand. With this Caritas looses its good image, as it cannot solve all the problems because of the limited resources.

7. **Lack of a more adequate organisational chart.**
   Inside of our organisational chart there is the need of creating halfway positions between the Institution leading head and the "under-heads" who are, hierarchically speaking, below, in order to be more expedite with decision-making matters.

8. **Need and difficulty to have more commitment from the volunteers.**
   There is no commitment identification from the volunteers towards the Institution. The volunteer's commitment is a key factor to make daily activities efficiently, so it is necessary a solid structure to manage the matters related to the volunteers. Most of all in the area of Diocesan Caritas.

9. **Difficulty (lack of commitment) to give a better and fast service.**
When a bad service is offer in Caritas, particularly regarding internal procedures involving the donors, it would arise the consequence of losing volunteers.

10. **Lack of responsibility and commitment with the Institution at all levels.**
The variety in objectives and purposes of each individual that take part of Caritas, have caused a non-equal performance and commitment regarding our daily activities: lack of enthusiasm, lack of professionalism and punctuality, among others.

11. **Lack of support from the priests inside the parish churches.**
The Caritas personnel come along with the priests to offer them support, and the last ones do not correspond to the efforts at least with spiritual counselling to the Caritas personnel. The Parish Caritas must collect funds to address the cases, gather stocks of food and other needs.

12. **Lack of a human resources area that could select, hire, induce, train, motivate and seek the spiritual support for the personnel.**
There is no human resources area to perform these functions.

13. **Lack of vehicles to give the right service to our work demand.**
For the departments that do not have their own vehicle there are serious difficulties to cover the activity programmes previously planned to give an adequate and effective service to the community. The vehicles cannot be used neither with Caritas inside departments, even though they could be free and with no use.

14. **Lack of motivation at work.**
Inside Caritas we make decisions without considering the people of lower hierarchy, this have occasioned a global personnel discouragement and detriment on their performance.

15. **Insufficiency (relative to quantity and quality) on personnel.**
It's very related with the idea of lack of definition of functions. The lack of personnel has occasioned the non-fulfilment of the planned programmes.

16. **Existing relationships between voluntary personnel and the heads of department.**
When the voluntary personnel of the community have friendship with certain departmental managers do not accomplish their tasks properly. Thus, they become an obstacle for the adequate provision of services.

17. **Lack of donations in cash.**
It is too hard to convince people to collaborate with donations. These donations are present while disgrace periods, however it is difficult to do it continuously in a long-term basis.

18. **Lack of spiritual information at all levels of Caritas to follow the Caritas spiritual path.**
Personnel at all levels of the organisation do not have with the continual spiritual nourishment from a priest. This nourishment it is necessary for the people that act inside the action field with the idea of feeling motivated inside their work.

19. **Diversity of opinions at the Board level.**
Inside the Board of Trustees there are differences on the decisions criteria, this hinders the performance of many tasks and provokes problems between the members of the Board.

20. **Lack of support from the community because they consider us as millionaires.**
The community has in mind that Caritas, through finance campaigns, has unlimited resources without thinking on the expenses and needs of the Institution. This has even discouraged the donators and volunteers.

21. **Lack of effective communication and teamwork between the departmental managers.**
It has been seen an individualist attitude that have brought a lack of communication and co-operation between managers.

22. **Delay on decision-making between the members of the Board and the departmental managers.**
Since the members of the Board have a lot of activities there is a delay on important decisions, giving place to premature and quick decision making.

23. **Excess of "attentions" to certain areas.**
The interests are focused, preferably towards the departments of Parish Caritas and Cases; this causes a "carelessness" towards other areas that have their own needs and problematic situations.

24. **Lack of recognition of the work done.**
We are not valued at all levels equally. For example, the Board does not have in mind that we have to face many situations to make the work go on, the only thing that they have in mind are the results and not the difficulties to achieve them.

25. **While giving importance to the budget, the objectives and purposes of the programme get lost.**
When we are by the first half of the year suddenly we are low in funds. Thus, some projects are left unfinished or else some others are abandoned, and we forget that the main thing at our institution is to serve the community.

26. **The computer viruses**
(Eliminated because it is a problem already solved)
When viruses appear on the personal computers, the person who works with me feels that the others will consider him guilty of the work delays.

27. **To consider that we are great.**
All of us working in Caritas must be humble, even more so because of the nature of the institution. However, many times we do not care about the feelings, and the worthiness of personnel, we are arrogant with the people who come to ask for help. I would like to take away all our arrogance to be capable of serving people.

28. **Inadequate follow-up of issues to be solved.**
We should not pass the responsibility of things from one another; we already known our responsibilities and therefore we can give a good service, that is to say, we have to avoid the bureaucracy and the slowness.

29. **Lack of definition of guidelines and criteria to apply in certain areas.**
At Caritas there are no guidelines or clear criteria to apply in certain situations. For example, when a situation occurs like the things that have happened with credit cards – among others - they prevent work from being done very often, and generate contradictions in the decisions made.

30. **Difficulty to find personnel because of the low wages.**
It refers to trying to find personnel well trained to receive low wages. Usually when we select personnel they feel discouraged by the wages.

31. **Lack of motivation in the community to give us help.**
It is necessary to invite, promote and promote the achievements of Caritas to increase the participation of the community in our work.

32. **Lack of practical knowledge to give a good service.**
There are two types of training: training and development. We have forgotten about the training and it has been done emphasis on development; for example, the promoter is not exposed to different situations, or else to instruct with key aspects the telephone operators.

33. **Lack of standard salaries for the employees.**
This is related to the standards at all levels of the employees; an appropriate standard to offer salaries using a catalogue of the different positions/jobs.

34. **Lack of support, attentions and follow up by the managers and those responsible for the programme to the volunteers and the social service suppliers.**
The departmental managers think that social service suppliers are ready to work, and they do not feel good because they do not feel attended, this is the same case as with the volunteers.

35. **Time exceeds working hours.**
Most personnel works more than the 8 hours established for working done, and this causes performance to go down, there is physical wear, and the quality service decreases.

36. **Poor interaction between the Board of Trustees and the fieldwork.**
The Board decisions affect directly the management and the operation of the Institution. The members of the Board have a vision of the situations and looks like there is no understanding of the work field reality; this affects the work of the personnel.

37. **To accept commitments that surpass the budget.**
These are decisions taken by the Board, for example, external institutions. This affects the institution's deficit and decreases the resources to address the departmental needs. Besides, afterwards they forget that the decision was made (at board level).

38. **Not taking good care of the management expenses.**
Usually there are more internal expenses than the incomes. This at the level of the departmental managers.

39. **To consider our own department interests at the expense of the institution.**
There are decisions made that affect the institution as a whole, for example, to collect donations by department, or using the name of the Institution for commercial purposes, or to make promotion at a department level. We're very "departmentalised".

40. **High cost of the services that are demanded.**
The requests for help are more expensive each time. For example, the medical services that are based on first world countries and is hard to adapt them to our society.

41. **Lack of continuity in the communication between the Department of Lotteries and its collaborators.**
Other institutions have methods to maintain collaborators helping continuously. We do not have a specific system to promote the help of people, for example at lottery. We do not have taken advantage of the images of the reality that can move people more than words.

42. **Lack of job descriptions/profiles**
Some persons have a lot of functions; this is because we do not have a description of jobs, and the people do not know what are their functions. Sometimes this causes the waste of time and work of other people.

43. **Extraordinary situations that obstruct the work sequence.**
Because of many functions we do not follow a work sequence; there are always extraordinary situations.

44. **Lack of definition of the functions of the personnel**
(Joined with the idea No. 42)

45. **Lack of participation of the personnel (from managers to lower level)**
There must be a special spiritual emphasis, and to give them more information about what happens in Caritas by organising more events. The emphasis is in the personnel of lower levels.

46. **Lack of support from the Board.**
There are members of the Board that are giving themselves to their function and others call us only once a year, and then the departmental managers do not know if they can make or not a decision.

47. **There is not enough information through the media about the activities done in Caritas and its mission.**
It is important to better inform the community about the things we do with their donations.

48. **Lack of strategies in the Board to get funds.**
They do not approve extra events to attract funds neither to organise new projects.

49. **Lack of economic and material resources.**
It is one of the biggest obstacles that limit the performance of all managers. We can't acquire computers, VCRs, etc.

50. **The volunteers do not know the philosophy, mission, vision, objectives and programmes that the institution manages.**
There is no diffusion programme to get to all levels, achievements, objectives, philosophy, etc.

51. **There is no a formal system to motivate personnel.**
We do not count on a motivation system to encourage the personnel at all levels.

52. **There is no a formal system to obtain incomes.**
We do not count on a formal and continuous system to attract funds to the institution.

53. **Lack of spiritual support at all levels of the organisational chart.**

F.2 PROBLEMATIQUE

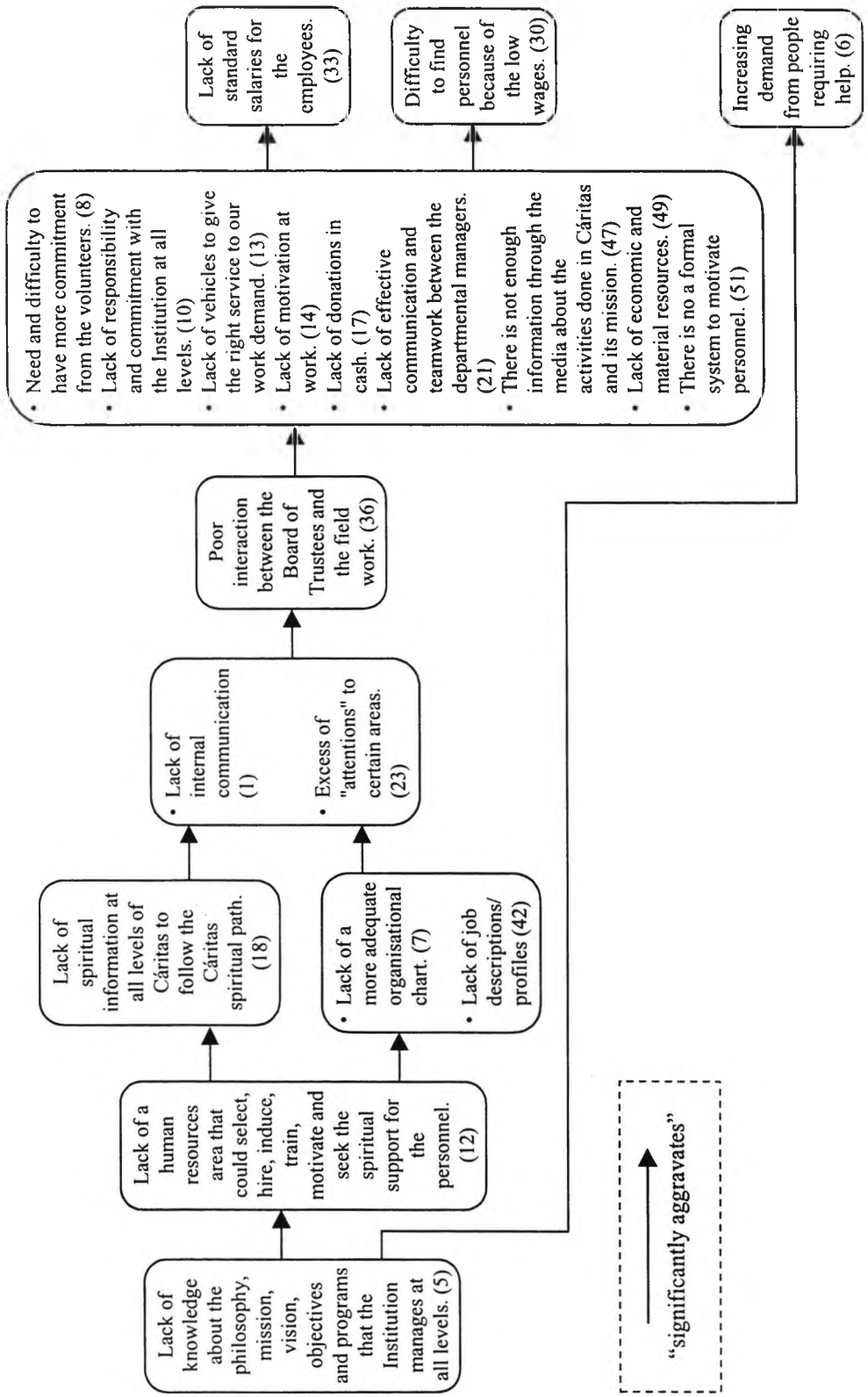


Figure F.1 Problematique of Cáritas de Monterrey regarding the Quality of its Services

F.3 ACTIONS THAT COULD BE UNDERTAKEN TO ELIMINATE THE FACTORS THAT MAKE DIFFICULT THE PROVISION OF A QUALITY SERVICE IN CARITAS DE MONTERREY

1. **To develop an intensive and continuous programme of promotion and information at all the levels of the institution.**
   Through different communication means such as bulletins, mass media, magazines, etc., it must disseminate what Caritas is, its programmes, its projects, etc.

2. **To consider the seniority and quality of work.**
   (Joined with the idea No. 6)
   There is uneasiness for not considering seniority in the payroll when making salary assignments. There is evidence of people who do not have much experience, and they earn more than others with higher experience, this is discouraging to the ones with lower paid.

3. **To create a highly committed commission of incomes**
   We do not have a commission truly committed to obtain funds for the Institution; this commission must insure that incomes and donations being permanent. We have not had the incomes commission truly committed; we have only one person that truly works, the commission really does not have been working.

4. **To create a human resources department**
   One common issue that we all defined is the creation of this department, since the problematique shows the strong impact of training, motivation, instruction, etc., on Caritas performance. The human resources department has activities as like to promote and carry on social gatherings

5. **To develop a research design to analyse and evaluate how do the present programmes work.**
   On the basis of the community needs we could update and evaluate continuously to see if such or which project is still appropriate. To see if a programme is working or not and removed it or give it more support.

6. **To create a salary table considering the position, seniority, efficiency, etc.**
   To have a salary table that could make easier the assignment of salaries and wages.

7. **To carry out workshops with the employees to find out about the actual situation**
   To have these workshops so that the departmental managers or the general manager - persons who are in key positions - could know the real expectations and constrains of the people working in the field. They do not know about the feelings or thinking of these people regarding the institution. In others words, every departmental manager must have direct contact with people.

8. **To change the idea of top level management that since Caritas is a poor Institution it cannot generate a motivation plan for its employees.**
   The success in most organisations is determined by their people, then when the institution give the adequate attention to every one of its employees, volunteers, members of the Board, etc., it provides an incentive that encourages them to give their best.

9. **To foster team "consciousness" at all levels**
   If the team works harmoniously it's for sure that the institution is going to work efficiently. Overall, we, the people in the office need of others departments, we must have a spirit of collaboration to share resources. We cannot close ourselves to individualism.

10. **To establish a programme of spiritual help according to the current needs of the institution**
    Because of the commitment to serve with love, it is necessary to have a spiritual counsellor who supports the personnel to see and understand their situation to act in consequence. Some times there are personnel that really do not understand people situations, practical situations that lead us to offer a better service.

11. **Establish a continuous programme of information at all levels.**
(Joined with the idea No. 1)

12. **To study systems that other institutions have tested and are having results on incomes.**
Nowadays several systems are being tested, but it can be very useful that we use successful programmes already tested on other situations.

13. **To create special reserves to acquire equipment and other requirements outside the budget.**
To create reserves for urgent cases. It arrives one moment in which things are used more than necessary, and nobody knows if it is really helping or if it is a vice.

14. **To restructure the organisational chart**
The type of organisational chart that we have isn't the most suitable. Its design must be on the proper hands. According to our practice we know that it is necessary to create more intermediary positions.

15. **To elaborate a programme to invite other assistance institutions, privates and governmental, to participate on support programmes to community.**
It is necessary to develop the consciousness in other institutions about the help demands that there are in the community. We must get together with other institutions and invite them to participate with us, give them information, etc. To make agreements in order to co-ordinate our help. There is emphasis on other private institutions.

16. **To establish better relationships: managers - board - functional areas**
The members of the Board must know very well the things being done in each area. With mere conferences they do not get to understand what is happening. We do not really care about insisting a little so they can know and be conscious about the problems existing to obtain the final results.

17. **To develop a sensitisation programme to express the need of all departments of accomplishing their purposes harmoniously.**
In most of the departments there is need for a vehicle, but there is a limited number of departments that have their own vehicle. There must be a way to co-operate and make it possible to do this harmoniously. To support Caritas to accomplish its purpose.

18. **To develop a structured motivational programme at all the levels of the institution**
We have seen that there are members of the Board who start with a great enthusiasm but suddenly they forget about it, the same thing happens with the collaborators. We cannot have maintained them motivated on a continuous basis. The same thing with personnel, volunteers, etc., we have been too focused on the managerial tasks.

19. **To inform all the departmental managers about the events and projects in which Caritas participates institutionally.**
When there are meetings about Caritas we do not know about them, we managers have the right to know about what the institution is doing. We have the right to be invited and informed as professionals that are working on the institution. It is necessary that they take us more into account.

20. **To implement a computer system to speed up the activities.**
With the institution growing and the required information it's necessary a system that involves all the institution. We have to see if the departments that count on computers are compatible.

21. **To schedule periodical meetings between the board of trustees and the employees so as to jointly solve critical problems**
At the Board meetings there are no time to see many problems and there are situations that require specific attention. It is necessary to analyse as a whole with such persons these situations. All services have operations meetings more frequently. The areas of communication area and life protection never have an answer to specific problems because they do not have specific people to deal with. The emphasis is in the idea of having meetings with the board and the managers to expose the problems and to set up solutions, not merely to inform.

22. **To programme sport or cultural activities for the personnel, or individual courses about internal operations.**
Most people in Caritas want to develop themselves. Individual courses about different topics, even cultural entertainment, or else plain training, would allow them to develop themselves.

23. **To improve wages and salaries**
There is a concrete interest in the improvement of the salary levels to improve performance.

24. **To avoid the authorisation of programmes that do not have an incomes source established.**
Nowadays there is no budget to run new projects. I think that there must exists a secure and continuous incomes' source when undertaking a project, so this can be the support through the end.

25. **To generate more options at the Board level to collect incomes.**
The Board generally concentrates on the commission of incomes and lottery, but there are many other sources of funds that could be proposed by the employees.

26. **To present the institutional policies and general statements to the personnel and the Board of Trustees.**
Statements and policies must be well defined and must be known from the lower levels of the institution to the top management.

27. **To foster the support of young people to the Caritas mission.**
Most groups that are in the parish churches are concentrated on certain activities that do not let them understand the needs of their surroundings. We know that the force of the young groups is very big and we have to use it in such as to support Caritas to give more help to the needy.

28. **To make more flexible the working conditions of the Caritas personnel**
It must be a standard for all the personnel in Caritas in terms of the flexibility needed in the timetables, holidays, etc.

29. **To install a telephone service with improved capacity**
We are at the stage in which we had lost many donations because of our communication problems. I think we must buy a new telephone exchange that allows capturing the exterior calls. This idea must be analysed carefully to see what is more adequate for the type of calls that have to be controlled or limited and which is the adequate equipment too.

30. **To define the functions of every department and respect the areas**
We have to define well the functions of every department to respect them and do not entry on territories that do not correspond to us. Besides we put lower attention in our direct responsibilities.

31. **To improve the environment and furniture of the people who come to ask for help.**
Persons who come to Caritas are needy people and then when they get at our place, we can't supply the adequate comfort because there is lack of furniture and comfort. We need to supply them with a better environment, more warm and comfortable. Besides, we could use the moment of the people waiting; we could show instructive movies to cheer them, fill them with love, etc. This applies to all service departments in order to give a higher quality service.

32. **To convince our Church to participate more with in our mission.**
(Joined with the idea No. 51)

33. **To create a capable commission to analyse the expenses by department.**
At this moment we are passing through a stage of lack of resource and nowadays the budget approval isn't analysed in depth. It is for this reason that we need a commission to analyse the expenses to balance them and to give to each department what it requires. To do not let activities without monitoring because of the lack of resources when other departments may be exceeding the expenses or expending on things that are not very important. The ideal would be to have an agreement among all the departments to give higher priority to some projects and thus to assign the resources optimally.

34. **To design a more adequate system to accept the members of the Board in the Institution.**
There are members of the Board who say, "I'm on the Board" but they never go to any meeting. When electing them we have to be aware of their ideas and contributions; the functions and projects of Caritas depend on them.

35. **To make the volunteers a part of the institution**
When attending different cases, sometimes we forget the volunteers as time passes by. It would be very good if we could follow up their activities.

36. **To inform to community more frequently about the services that the institution gave with the donations that were received.**
(Joined with the idea No. 1)
We collect donations from many people for the programmes of Caritas and we really do not inform the community appropriately.

37. **To diminish the administrative tasks and increase the service in the work field.**
Sometimes the office activities consume a lot of time, and they are activities that can be delegated. We could accomplish more important activities, for example, field activities on direct contact with our collaborators or people who can function and help us more.

38. **To do not require that the service departments obtain their own resources to cover their budget.**
We, working in the service departments, are much concerned about the incomes. Do not demand from us to cover our own budget. Although we can have creativity to propose new actions and to obtain incomes these should not be our main objectives.

39. **To involve the apostolic organisations with Caritas.**
Caritas is part of a laic community, and at meetings we talk about collaboration but when this was to be done, nobody wanted to be involved. We have to take into account other organisations.

40. **To strongly involve each member of the Board in his/her area.**
(Joined with the idea No. 6)

41. **To have small attentions before the members of the Board (for motivation)**
(Joined with the idea No. 18)
When a member of the Board is relegated or if it is only expected to get something from him/her, they are not motivated. We must have details like one call, one greeting card, etc., to get them closer to the organisation.

42. **To create a commission for the quality control of our services.**
Caritas needs to go to the field to verify the quality of the services that we are giving, related to food, medical services, the Centre for Life Protection, etc. Not because we have public dinning rooms we are going to give food in bad conditions, for example.

43. **To acquire two additional motor vehicles**
It is urgent to have more vehicles, particularly for freight purposes.

44. **To create action strategies for team work.**
(Joined with the idea No. 9)

45. **To create a research commission.**
To create a feedback mechanism to assess the programmes, to know what programmes are accomplishing the purposes of the institution, to find out about our deficits, what resources are needed. To carry on surveys to know what sponsors to select, which are the best communication means.

46. **To follow-up the outcomes of the workshop in the short and medium terms according to the needs**

To know the answer and follow-up the budgets and projects that have been proposed to the departmental managers and the members of the Board. To present all the proposals before the Board and know the reasons for their acceptance or refusal.

47. **To assign priorities to the programmes of the Institution.**
Caritas has grown so much and it has been running so many projects that its objective has been forgotten. We have to know clearly which is the Caritas mission in order to know which are the priority projects. Based on this we could know which programmes are our responsibility and which ones can be transferred to other institutions.

48. **Do not compare us with public agencies**
Generally we have the error of compare ourselves with other institutions like the DIF (Integral Family Development Agency) and it's not convenient because we have another objective, another foundations. We are an institution completely different because we are part of the Church and not of Government.

49. **To change the idea that because we are a poor institution, we do not give maintenance to the institution' facilities.**
As we see that we do not have money, we do not pay attention to the small details of the facilities. There are ideas not very expensive and easy to carry out to improve the appearance of the building. For example, to get collaborators to paint the building,

50. **To promote the creation of projects and insure follow-up.**
To state if the proposed projects are going to be carried out or not and if it is the case to tell us why. We could have a project "mailbox". To promote the creativity at all levels; this would improve the experience of teamwork.

51. **To provide continuous information and involve the Seminary and Presbytery on the Caritas work.**
The priest has a lot influence on his parish; the collaboration of the people with Caritas depends a lot on him. On the other hand when they meet the institution can send to us the people who requires help. The new priests are the present seminarists, and when they'll get to the churches they would know Caritas.

52. **To provide continuous training for all the employees**
The people who have professional education need continuous training, and even more the people who do not have it. To create a budget for training in the work that each person carries out, not development. Including personnel that work outside the normal timetable.

53. **Mutual co-operation between the vice-presidencies of incomes and services to solve the demands for help required by the population.**
(Joined with the idea No. 54)

54. **Mutual co-operation among vice-presidencies of incomes, services and parish Caritas to solve the requests of the population.**
There is a marked division in the vice-presidencies. There must be a closer collaboration to know the needs to assign the resources because there are departments with larger expenses.

55. **To involve the Board and the personnel in collecting incomes captions.**
We really need to involve the Board and the full-time personnel to get funds. To use the possibilities that we have. Even if it not the responsibility of the managers, they need to be open to collaborate.

56. **To train personnel that work beyond the institution' normal hours to give a quality service.**
(Joined with the idea No. 52)

57. **To merge the vice-presidencies of Services and the Parish Caritas.**

58. **The departmental managers also assign time to apply the Interactive Management system in each department.**

We have to see that Caritas problems come from people at the work field. Working only with the managers is like seeing the trees without analysing their roots.

59. **To restructure the meetings of the departmental manager.**
These must not only be communicative, but to present information that could help to improve the performance of each area.

60. **To organise a department of financial resources that include lottery, public relations and all the matters related to incomes.**

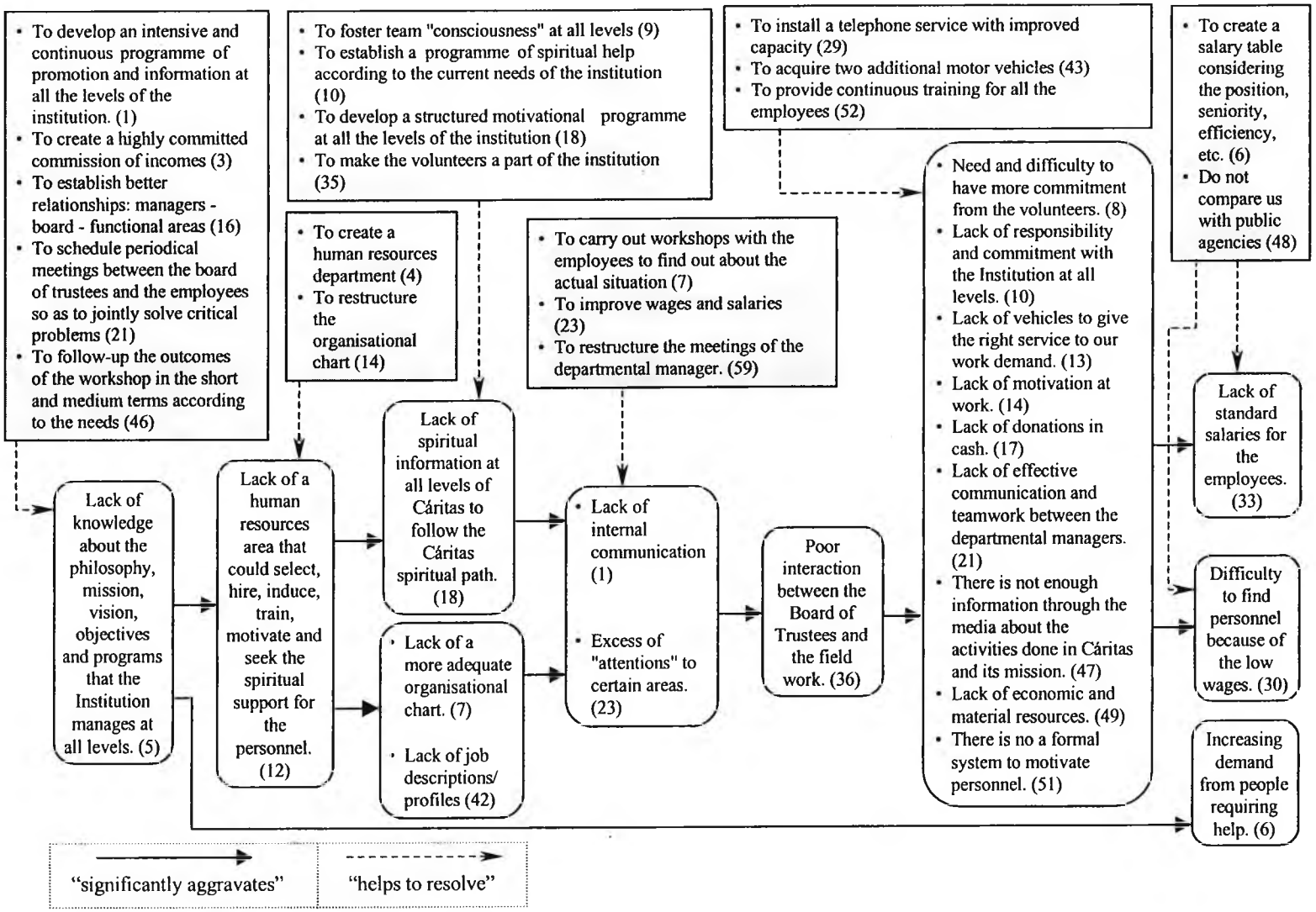


Figure F.2 Resolution Structure for Cáritas de Monterrey regarding the Quality of its Services

APPENDIX G

CONCEPTUAL OUTCOMES OF THE SECOND IM PROJECT IN CARITAS MONTERREY

G.1 CONCEPTUAL OUTCOMES OF THE FIRST WORKSHOP

G.1.1 List of factors that inhibit or make difficult the functioning and effective co-ordination between Diocesan Caritas and Parish Caritas

1. **Do not consider the volunteer as a part of the organisation.**
   At the Board and among us we talk about the PCs as the vertebral column of the Institution, however in practice there's another thing. In our current organisational chart the volunteers' dimension is missing, from the organisational point of view we are leaving them apart. The volunteers' work should be more emphasised so that the administrative personnel and the people who visit us can notice this immediately.

2. **The volunteers have a wrong idea about the task of Diocesan Caritas.**
   (This idea was joined with the idea No. 21)
   This refers to the mission of Caritas. There is the idea that Caritas is a foundation or an institution to turn to only looking for resources. There is no consideration of it in terms of its commitment of being a link. They (the volunteers) let all the responsibility to DC as "father government".

3. **Lack of communication between internal and external personnel.**
   This applies to volunteers as well. It is very important to be informed about every thing that we do. Many times the external people do not know to which department go to ask for help or an advise.

4. **Different administrative requirements for DC and PC.**
   Considering that the personnel working at DC are full time employed and paid, we are required to clearly back every help. PCs do not have to take care of the budget while we are required to be very careful in using it. Nothing could be done without order. The administrative differences influence the satisfaction of the service that we provide.

5. **Lack of economic resources in PC.**
   It is frequent that PC does not count on resources. When people require help and there are no means to give it, PC feels rejected; this creates frustration and people gets separated.

6. **PCs feel like being "used" by some DC departments.**
   When the PCs are required they are looked for, but afterwards if there was any problem there is not any follow-up, there is no teamwork. PC and DC must work in team. When something specific is required there is teamwork, but afterwards this vanishes. For example: the nurseries. These started operated by people from DC, but there was no follow-up. Sometimes the PC feel they are being used.

7. **High turn over of the members of the PCs (Volunteers)**
   When a group starts there are, for example, 10 members. These persons start quitting because of several reasons. They were give some information at their introduction, but the people who joins later is not introduced the same way and this creates some conflicts.

8. **Indifference of some priest regarding the endeavour and programmes of DC.**
When a Parish Caritas is formed the priest is the one who encourages the people, however, afterwards he gives away the responsibility and does not pay the same attention. Then people begin to quit. I believe this is one of the main reasons because people quit.

9. **We do not attribute the due importance to the volunteers of Caritas considering their different preparation.**
(This idea was joined with the idea No. 27)
Most of these volunteers are senior people, of low socio-economic possibilities, or young people that work too much, when they go to DC they do not know how to express themselves and they get frustrated. Many times we forgot that this is because of their preparation. The reports for example, many times they do not know to write.

10. **Conflict between efficacy and/or efficiency and charity.**
The important mission of Caritas is the Christian communication of goods, however, Caritas is doing a big effort to be efficacious and efficient and sometimes charity is sacrificed.

11. **Lack of knowledge among the personnel and the Board of what a PC really is.**
Everybody must be involved in the courses given to the PC, they should know the tasks of each PC since they are different in each case. At Wednesdays' meetings much information is given that could clarify this.

12. **Lack of knowledge of each other among the people.**
There are no interrelations among us, we do not know who is who. Example: when they are coming to deliver tickets, we do not know who they are. This is very difficult for us because there is an economic compensation at stake.

13. **Lack of personnel in DC to provide timely follow-up to all the concerns of PC.**
DC is providing an enormous quantity of services, this generates a lot of needs and concerns and it is very difficult to manage them. The Diocesan personnel is very few for such an amount of issues to deal with.

14. **Conflict with some PCs who always wish to be considered first.**
Some PCs loose sight of the mission and they demand charity, they do not care about the existence of other cases before them; they always demand in an arrogant manner to be served ignoring the people who is before them.

15. **Lack of knowledge in the PCs regarding their commitments when they participate in the different programmes.**
The obstacle we have in making the reports is that some members of the PC do not know the commitment implied in becoming a volunteer, they do not realise all the things that should be done in order to fulfil the requirements of each program.

16. **Difficulty of DC in continuously training the enormous amount of volunteers.**
There are too many volunteers and the programme to inform them about all the activities carried out in DC has not been developed. There is a need to train people and follow-up their training.

17. **Some people think that the volunteer's work does not have quality because of the documents they present to us.**
In the offices we assess the quality of the work of the volunteer through their reports, while we promote that the opportunity and promptness in satisfying the needs of the community is what matters. May be a report cannot capture the information of a case and when we receive that information we questioned its quality.

18. **The frustration experienced by the volunteers when not being able to solve immediately the problems of the cases which they face.**
I think that the volunteers have the idea of dealing with the cases and those that they cannot solve are sent to DC. We need to provide them with basic techniques on how to assess a case. They feel bad for not being taken into consideration and they want immediate solutions. They do not know the procedure and they consider it as a rigid rule. This causes frustration.

19. **Lack of preparation (in DC) to assist more efficiently the volunteers in general.**
We, the departmental managers, must have a preparation to assist the volunteers so that they feel that they are taken into consideration. Often a volunteer comes and as his/her case does not correspond to our areas we send him/her with other people. That's where the charity should begin. The volunteers should be our main concern.

20. **A disassociated vision of the tasks between DC and PC and lack of understanding on both parts.**
The tasks are not evaluated in any way, a simply lack of communication between the ones and the others. We do not feel that we belong to the same institution. Just as we are asked to be patient and understandable with the volunteers they must be patient when they go to ask some service.

21. **Lack of knowledge in the PCs of the mission, objectives, functions and limitations of each department or unit of DC.**
Each time a PC is formed, information about DC is given to them but it is necessary to have a deeper vision of all the departments and what they do.
Ideas that were joined with this one:
(2) The volunteers have a wrong idea about the task of Diocesan Caritas.
This refers to the mission of Caritas. There is the idea that Caritas is a foundation or an institution to turn to only looking for resources. There is no consideration of it in terms of its commitment of being a link. They (the volunteers) let all the responsibility to DC as "father government".
(24) The volunteers in the PCs do not know the institutional limitations.
The volunteers think generally that when they turn a case or ask for support to DC the problem will be solved; they are not well informed of our limitations as an institution, for example: they send a person to the Home of Mercy and there is not any place left. They think that because we are in Caritas thousand of things can be done and it is not the case.

22. **Division between DC and PC due to a lack of communication.**
On the part of DC there is demand for many regulations and the PC say yes because they fear retaliation. From that moment on there are barriers.

23. **Lack of knowledge on the part of the volunteers of the programmes managed by DC.**
Many times the volunteers do not know the programme that we have in the Institution. I know Caritas because I have long time in the Institution and still I sometimes get confused with all the information. In an occasion they invited me to a PC event to speak about the Bank of Volunteers and they left me until the end, people did not pay attention, they were tired.

24. **The volunteers in the PCs do not know the institutional limitations.**
(This idea was joined with the idea no. 21)
The volunteers think generally that when they turn a case or ask for support to DC the problem will be solved; they are not well informed of our limitations as an institution, for example: they send a person to the Home of Mercy and there is not any place left. They think that because we are in Caritas thousand of things can be done and it is not the case.

25. **Many times the DC employee lose sight of the reason why he/she is working.**
Working in Caritas is an apostolic task, working here means that we want to serve the Lord. It is necessary to treat all the volunteers well. It does not matter if all the requests cannot be met, it is necessary to treat them with love and to make them feel very well. We all have the obligation to work with charity, DC is the oldest brother, that is why DC must give the example.

26. **We forget that in DC we all are servers of the PCs and not their heads or supervisors.**
When a PC team is formed, first they must be aligned with the authority of the parish priest. Sometimes we forgot that the members of that team must serve the parish priest and DC. DC is there to help the team and support them, no to impose its demands on them. There is no authority in line, everything must be on the basis of giving advice and provide sound reasons, nothing can be imposed. DC is there to improve its service. We must try to do not have our limitations to influence here.

27. **We do not attribute to the correct value to the time and the work of the volunteers (they are generally people who lack resources such as time or economic, those are replaced with love).**
DC must be understandable and patient with the volunteers to solve their requests.
Ideas that were joined with this one:
(9) We do not attribute the due importance to the volunteers of Caritas considering their different preparation.
Most of these volunteers are senior people, of low socio-economic possibilities, or young people that work too much, when they go to DC they do not know how to express themselves and they get frustrated. Many times we forgot that this is because of their preparation. The reports for example, many times they do not know to write.
(35) Not always take into account the importance of the volunteers as they are the heart of Caritas Monterrey.
The value of the volunteers must be a very important issue for us. They must receive training about what they are going to do and about Caritas. They can participate in different areas, but that depends on how they are treated. We must become aware of their importance.
(39) We underestimate the work of the volunteers, because he/she is only a volunteer or because he/she lacks professional training.
(41) Lack of patience or charity with the volunteers who do not know how to express themselves.

28. **Lack of a manual of operations to guide the activities of the PCs (and to unify)**
There are many isolated efforts, if there were a guide on how to act we could join those efforts to obtain better results including at least some suggestions that would help them.

29. **Affective cross-transference on the part of the diocesan personnel.**
Cross-transference means to return something that somebody sent to me, it is a counterattack. There are occasions in which there is an infinity of things to do and there are expressions of displeasure. We must have the capacity to handle those situations. It implies to have much understanding of the situations so as to do not respond in a negative form. It is necessary to break that circle of negative attitudes, it is necessary to have a positive attitude in face of the negative attitudes.

30. **Interference between some PC and DC in the request of donations to the community.**
Because the PC are independent they look for their own resources, sometimes a request to a donor exists and he/she has also been asked something by DC and the donor gets annoyed.

31. **Lack of definition regarding the aspects in which a PC is independent and in which others it is not.**
The PC assumes that it is independent, but it cannot do everything what it wants to do since there are points in which it must co-ordinate with DC in order to avoid transgressing the work areas.

32. **Lack of motivation to the PC volunteers and recognition of their work.**
Sometimes the priests do not motivate their parochial team, not only in their parish but also on the part of DC. It is necessary to have a program of motivation for the volunteers to establish in which areas is necessary to motivate them, both individually and in groups. The priest also has to do something on the matter. Many volunteers quit because of the lack of motivation, there is much conflict because they work so much and they do not get recognised.
Ideas that were joined with this:
(34) The feeling of a lack of recognition of the work of the volunteers.
Lack of motivation and lack of recognition. We need to be recognised. Recognising the PCs made them feel very well and made them feel as part of the Institution.

33. **The time and the means to operate the parochial groups are different from DC.**
Parochial groups work different and they move in different means, we work in different schedules and we move in different forms which causes conflict between the operative part and the voluntary part.

34. **The feeling of a lack of recognition of the work of the volunteers.**
(This idea was joined with the idea: # 32)
Lack of motivation and lack of recognition. We need to be recognised. Recognising the PCs made them feel very well and made them feel as part of the Institution.

35. **Not always take into account the importance of the volunteers as they are the heart of Caritas Monterrey.**
(This idea was joined with the idea No. 27)
The value of the volunteers must be a very important issue for us. They must receive training about what they are going to do and about Caritas. They can participate in different areas, but that depends on how they are treated. We must become aware of their importance.

36. **Requests of aid that favour friendships without taking into account if the case will proceed or not.**
It occurs with people who are not motivated by a charity spirit, it harms due to the damage in the image of the Institution.

37. **Conflicts among the different departments that integrate Caritas Monterrey, priests and volunteers.**
We do not realise the consequences of the conflicts that arise between PC and DC. The results depend on the communication.

38. **PCs are pressed forgetting that the harmed ones are the needy persons.**
When they do not obtain their objectives they go to DC and problems arise when, for some reason, it is not possible to be helped. If there is an urgent need, the help must be given. We need to prioritise the cases.

39. **We underestimate the work of the volunteers, because he/she is only a volunteer or because he/she lacks professional training.**
(This idea was joined with the idea No. 27)
To underestimate the work made by the volunteers because they are only volunteers or because they lack professional training.

40. **Non-existence of schedules of service in some PC (for the volunteers)**
In some PCs there are no service hours and then the volunteers go away to other centres to ask for help. There must be at least one or two hours formally respected so that people have a place to go, keeping them from walking around.

41. **Lack of patience or charity with the volunteers who do not know how to express themselves.**
(This idea was joined with the idea No. 27)

42. **We need to still take more advantage of the resource of the Bank of Volunteers to shorten the costs of the Institution.**
We are aware that there is a good work in the Bank of Volunteers, but it can be improved even more. As long as there are more volunteers involved in the areas in which they are needed and they can serve better, they should be assigned to the most urgent areas.

43. **Lack of respect to the autonomy of the PC.**
The volunteers do not have priority in their promotion work. It is necessary to respect their initiatives. They are in competition for their autonomy. There are different areas of the work that are violated.

44. **Conflict of economic interests: parish versus PC**
It is a good way for the PC to obtain resources from the lottery, but for example, sometimes the activities of the parish priests stop them from selling tickets, and they cannot generate the resources they need.

45. **Existence of other different motivations than charity on the part of some volunteers who work in the parochial area.**
There was an occasion in which a person clung to her/his position in the PC. It was not clear which were the reasons for the volunteers to be participating. That stops the support that can be given. They are not necessarily because of charity. Situations occur in which they are in interested in the status or

economic interest and this causes many troubles. It also happens in DC, some people work only for the money.

46. Lack of planning and integration, induction, qualification and training between the PC as a department and the other departments of DC.

Sometimes there is lack of internal communication in order to be more efficient in the services offered to the PCs. The PCs have their meetings well institutionalised, the opportunity to participate in those meetings takes place at the end of them and the people no longer pay attention.

47. The need of the PCs to obtain their own resources and the difficulty to find them.

The fact that a PC must obtain its own resources makes difficult the relationship between PC and DC. Some feel that they are invading each other.

48. In some PCs there is excessive work to do and few volunteers.

There are PCs with very few volunteers, the members are something like "all-in-one" and there are very few the volunteers. This creates a conflict because there is no team and the people get tired.

49. To define the degree of dependency or independence of the PCs.

In DC there is the idea that the PCs belong to the Institution, however in practice they are independent. It is not clear to what extend DC has constrains the PCs. They feel themselves very tied up.

Ideas that were joined with this:

(31) Lack of definition regarding the aspects in which a PC is independent and in which others it is not.

The PC assumes that it is independent, but it cannot do everything what it wants to do since there are points in which it must co-ordinate with DC in order to avoid transgressing the work areas.

50. Desire to help on the part of the volunteers but with a lack of knowledge in the aid processes.

Regarding the Department of Cases the volunteers have so many desire to help that they do not care about following the procedures. They feel that there is much bureaucracy. They do not understand why those procedures must be respected.

51. Insufficient enrolment and training of more volunteers.

52. Unequal training to the people in charge of the PCs.

This idea was joined with the idea No.16.

53. Lack of time of the volunteers to participate in the activities that DC organises.

It is frequent that the volunteers are very time limited and that does not let them participate in all the training activities. Need to plan in an organised way the courses to be offered. The courses offered by PC are different from those offered by DC. It is necessary to recognise that they have that limitation. If they are compelled to participate, they might refuse to do it.

54. Most of the members of the PC belong to others parochial groups, they are housewives and they work.

At the level of the Catholic Church, everybody wants to do something that does not represent work. Those who desire to serve do participate but they participate in other voluntary groups due to that same spirit of service.

55. Lack of organisation and communication between the members of the PCs.

The members are either very few or too many and do not have their tasks assigned. The president must carry out many functions, he/she holds many responsibilities, all the information to the members is not transmitted and communication problems are generated.

56. To define the interference of the clergy in the programmes of DC and PC.

The Institution depends on the Church. The priest is the maximum authority of the PC. There are cases where the priests demand certain things to be done. Is it possible to express that what they say must be done? How far does this authority go?

57. Too much bureaucracy and demands to obtain some of the benefits that DC offers to the PCs.

It is supposed that there must be a of organisation to be efficient but that should not influence the services that are offered.

58. **Lack of induction and direct involvement of the members of the Board regarding the work done by the PCs through their volunteers.**
The members of the Board have a very important function, to be able to guide the Institution appropriately it is necessary to give them a manual of induction, to take them to the parishes so that they could have an idea of what they are going to do.

59. **To take into account in DC that the maximum authority in the PCs is the priest not the president.**
DC suggests and supports the PCs but the parish priest has the authority. If he does not agree with what DC proposes them, his views should prevail, that is the function of DC.

60. **"Activism" on the part of diocesan that sometimes makes us inaccessible to the voluntary.**
There is no balance of the time devoted to work in the offices and the time for visits and other functions.

61. **Lack of fulfilment of the commitments made by the PCs regarding the programmes offered by DC and that they asked for and accepted.**
As the PCs are autonomous, they cannot be asked to participate in the programmes. If they want to participate in a programme they must fulfil certain commitments. Sometimes they do not fulfil the commitments.

62. **Some members of some PCs consider that by being volunteers they do not have to respect or to fulfil the commitment and the obligations acquired.**
Due to their being volunteers, some people do not hold their commitments if other matters get in their way.

63. **Lack of interest of some members of the personnel of DC in the urgent needs of the PCs.**

64. **Diocesan departmental absenteeism.**
Each department recognises that they must go to the field but they should not leave the office alone, otherwise the PCs would not know where to go.

65. **Lack of knowledge by the PCs of the help priorities in the Bank of Food.**
They go to the Bank of Food, but there are more people waiting for help. But it is not known who must be served first. For the Bank of Food the priority are the PCs and the sisters institutions. There are situations that create confusion regarding the procedures to follow. This idea refers to the time, they are served according to the time of their arrival.

G.1.2 Field of the Selected Inhibiting Factors (1st. Workshop)

A. LACK OF PROCEDURES FOR TRAINNING AND CONTINUOUS COMMUNICATION		B. TO VALUE THE VOLUNTEERS
• Lack of communication between internal and external personnel. (3) • Different administrative requirements for DC and PC. (4) • High turn over of the members of the PCs (Volunteers) (7) • Lack of knowledge among the personnel and the Board of what a PC really is. (11) • Conflict with some PCs who always wish to be considered first. (14) • Difficulty of DC in continuously training the enormous amount of volunteers. (16) • Lack of knowledge in the PCs of the mission, objectives, functions and limitations of each department or unit of DC. (21) • Division between DC and PC due to a lack of communication. (22) • We forget that in DC we all are servers of the PCs and not their heads or supervisors. (26)	• Lack of a manual of operations to guide the activities of the PCs (and to unify) (28) • Lack of definition regarding the aspects in which a PC is independent and in which others it is not. (31) • The time and the means to operate the parochial groups are different from DC. (33) • Non-existence of schedules of service in some PC (for the volunteers) (40) • Lack of planning and integration, induction, qualification and training between the PC as a department and the other departments of DC. (46) • Desire to help on the part of the volunteers but with a lack of knowledge in the aid processes. (50) • Lack of time of the volunteers to participate in the activities that DC organises. (53) • Lack of induction and direct involvement of the members of the Board regarding the work done by the PCs through their volunteers. (58)	• Do not consider the volunteer as a part of the organisation. (1) • We do not attribute to the correct value to the time and the work of the volunteers (they are generally people who lack resources such as time or economic, those are replaced with love). (27) • Lack of motivation to the PC volunteers and recognition of their work. (32) • We need to still take more advantage of the resource of the Bank of Volunteers to shorten the costs of the Institution. (42) • Too much bureaucracy and demands to obtain some of the benefits that DC offers to the PCs. (57) • To take into account in DC that the maximum authority in the PCs is the priest not the president. (59) • Lack of interest of some members of the personnel of DC in the urgent needs of the PCs. (63) • Diocesan departmental absenteeism. (64)

Fig. G.1 Field of the Selected Inhibiting Factors (1st. Workshop)

C. DIFFICULT CHURCH HIERARCHY	D. LACK OF HUMAN RESOURCES	E. COMMITMENTS AND DUTIES OF PC	F. ECONOMIC SHORTAGES IN PC
• Indifference of some priest regarding the endeavour and programmes of DC. (8) • Conflicts among the different departments that integrate Caritas Monterrey, priests and volunteers. (37) • To define the interference of the clergy in the programmes of DC and PC. (56)	• Lack of personnel in DC to provide timely follow-up to all the concerns of PC. (13)	• Existence of other different motivations than charity on the part of some volunteers who work in the parochial area. (45) • Lack of organisation and communication between the members of the PCs. (55) • Lack of fulfilment of the commitments made by the PCs regarding the programmes offered by DC and that they asked for and accepted. (61) • Some members of some PCs consider that by being volunteers they do not have to respect or to fulfil the commitment and the obligations acquired. (62)	• Lack of economic resources in PC. (5) • The need of the PCs to obtain their own resources and the difficulty to find them. (47)

Fig. G.1 Field of the Selected Inhibiting Factors (1st. Workshop) (Continued)

G.2 CONCEPTUAL OUTCOMES OF THE SECOND WORKSHOP

G.2.1 List of factors that inhibit or make difficult the functioning and effective co-ordination between Diocesan Caritas and Parish Caritas

1. **Refusal of decisions and/or solutions previously agreed by the Parish Caritas.**
   Sometimes the PC have a case and get to an agreement. They find a solution among themselves but when they notice the lack of resources, they go to DC and there comes the refusal because there was not enough research about the situation and the case does not fulfil the existing requirements. The love involved in the making the decisions is not taken into account.

2. **Lack of initiative from the PC to know the different departments of DC and promote them in the parish.**
   CD has a very wide but unknown program; generally it is more outstanding the supporting factor and the parish needs promotion.

3. **Lack of communication and social gatherings between the parish Caritas and diocesan Caritas.**
   There is a lot of work in CD, some caritas must have gatherings to discuss problems at CD. More frequent gatherings to get to know each other between the PCs on appropriate hours for CD. To be better acquainted and communicated.

4. **Avoid so many paperwork in urgent cases.**
   Give immediate help when there are very urgent cases.

5. **There is no service at DC for the cases arising during the weekends.**
   If a case in which a person died, arises, what are they going to do if there is no one. Often we do not know what to do and a case cannot be solved since we do not know where to turn it.

6. **Lack of a representative team from PC including representatives in DC.**
   Representatives might be the bonds with PC. The current meetings do not accomplish any communication function at all.

7. **Lack of volunteers in both PC and DC.**
   DC and PC have grown so much that there is still the need to know how to motivate people for participating in services.

8. **Conflicts and disagreements between PC and the Food Bank.**
   The programmes raised the cost of the food packages and the people cannot afford it. Requirements to provide food are too strong. People requiring food packages must be valued.

9. **As there is an increasing demand of support there is a delay in trying to offer immediate solutions.**
   When a case is sent to DC, people do not understand the urgency of other cases and other parishes.

10. **Lack of consciousness regarding what is a PC.**
    Most of the time a person says that she/he works in Caritas but she/he is not really conscious of what Caritas is. Everyone does her/his own Caritas in her/his way. There is a very strong commitment since the Caritas represent an image of the Catholic Church. Sometimes people get involved only partially and form workteams as if they were the best, but they do not really know the responsibilities acquired. We have to have good judgement to give help or not in some cases.

11. **Lack people trained to motivate teams to work.**
    We require well-prepared persons to develop consciousness on how are we going to serve God, as well as to motivate and impulse the parish teams.

12. **There are many centralised training seminars**

There are people in the parish groups who do really wish to participate but they are not prepared and the seminars are given in places too difficult to get; besides, they are programmed in periods that not everybody can attend. Seminars could be programmed for parishes that are far away from the central office.

13. **Lack of individual attention to every PC according to their distance, zone, problems or needs.**
Need to see the individual problems of the Parish Caritas, the more distant they are, the least resources and least preparation they have. To analyse problems on each area.

14. **Lack of advice from DC to the PCs.**
There is a lack of voluntary responsible people who want to help. There is a need of more unity, have the people get in love with their work. We do not know which means to use to keep people participating.

15. **PC does not know the kind of support provided by DC.**
Sometimes, as the kind of support provided is not clear, people is sent to DC with high expectations but their cases cannot be solved due to the kind of support required. They ask for things that Caritas does not provide.

16. **Some PCs do not know the internal procedures and policies operating in DC.**
Some PCs have a way of working in which they try to give service in all possible areas. But it is necessary to know the internal regulations proposed by the Board, so they can know how to manage and what kind of restrictions are operating.

17. **DC does not recognise the autonomy and the parish authority in the decisions of the PCs.**
The organisational chart clearly establishes the hierarchies in Caritas. In DC we are servers of PC There is a lack of knowledge on the personnel in DC. They think that the PCs are branches of Caritas and impose many demands on them, but their immediate authority is the parish priest. He is the one who has to be served. The parish team must gain the confidence of the parish priest. The PCs have limitations and the requirements of each parish are different. Their autonomy must be respected.

18. **Prevalence of the assistance factor over the promotional factor.**
Maybe due to the lack of preparation, some priests reject the PCs. There are very important needs, so the support from Caritas is required to help distinguish people who really need help. To what extent can DC distinguish which people do really need help and which people need to be told how to help themselves ? For example, some time ago, there was a campaign to cultivate family farms, and while visiting houses I was surprised to find out that in my parish almost all houses have at least one fruit tree. There is the need of promoting the development of promotional activities, not only the ones related to providing direct assistance.

19. **Lack of communication between the case department at DC and the PCs regarding the cases that have been dealt with.**
There are people who ask for help at the same time in PC and in DC. As there is no communication, the assistance is given twice or else if one denies it, the other one provides it. The jurisdiction of the PC must be respected. There is no way to know if one Caritas is solving one case. This also happens between different PCs not only with DC.

20. **Lack of communication from the DC to the PCs regarding internal changes.**
If someone does not attend the monthly meetings, he/she will never know the recent changes. The Caritas missing should be informed about those changes.

21. **Lack of communication among the PC.**
For example, long time ago I tried to contact another PC and it had been already closed down. We must be informed about which Caritas have been closed and we should have an updated directory of the PCs that are presently working.

22. **The distance between DC and PC provoke inadequate information and communication.**
If you do not attend the monthly meeting, you are not informed; due to their work or personal matters, the participants from the PCs not always can attend those meetings. In our case we work isolated from DC and even from the parish priest.

23. Lack of acquaintance among the PCs.

To work in team it is necessary to get better acquainted. There are no interaction among the PCs. The people who always participate are always the same. In the monthly meetings only reports are handed out but there is no place for social interaction.

24. Limitations for the support in the case department.

There is a lack of resources. There are very different kind of applications received but there are not always the resources to satisfy all of them.

25. Sometimes people asking for help get tired and quit due to the excess of administrative procedures.

Because of the requirements sometimes people go from parish to parish asking for help. The procedures in DC must not be so slow, if the case is urgent help must be provided without so many administrative requirements.

26. There is no training to the PCs on how to obtain incomes through Caritas lottery.

There is no training. Some time ago the promoters invaded everywhere. Nowadays the area is already being respected. With more training the PCs would sell more, representing good incomes.

27. Lack of information about the programmes organised by DC.

The Food Bank has good programs. There's a need to promote what the Bank has to keep helping.

28. At the PC groups there is a lack of well trained people in order to have good communication between PC and DC.

The presidents must get capable people, good persons because the work is apostolic. We have to pay attention to the quality and not only to the quantity of the people helping.

29. There is a limited period of time to pick food packages at the Food Bank.

They forget that we are volunteers and that we cannot go to pick up the food packages, they should be more flexible at the Food Bank. There are no resources to pick up the food packages, we ask for understanding. It is necessary to have trucks and volunteers that are not always available; we need to be more flexible.

30. Lack of information about the results of the Caritas lottery to the PCs.

People lost enthusiasm in selling tickets because they did not know the previous results of the lottery. Information should be sent to the PCs.

31. Lack of budget at the case department for the PC cases.

There are 89 PCs, most of them solve their own cases, but there are PCs that do not have enough resources; since DC has to attend its own cases the budget is not longer enough.

32. There is duplicity in the collection of donations in the PCs and DC.

We all are God's hands and depend on the Catholic Church. A PC goes and asks for help to a donator who has been already contacted by another Caritas and the donator gets annoyed.

33. Lack of humility of the employees regarding the volunteers.

Sometimes the employee thinks that volunteers are subordinates and do not treat them well; but in reality is to whom they have to serve.

34. Lack of volunteers.

It is necessary to promote the Caritas idea and recruit people.

35. Difficulty to fill in the papers of the programme "Self-sufficient".

They ask to fill in a monthly report and ask to fill a lot of reports. Lack of flexibility.

36. Lack of flexibility on the recuperation quote of the "Self-sufficient" program.

In our case it was necessary to abandon the program because of the high costs involved. It has never sold anything on this Caritas, thus it was decided to do not participate in the program.

37. In lotteries, the PCs are not considered at all

It is necessary to have immediate information of the lottery results but it takes time to get it. People get angry for it. Seeing the house of the lottery would help in having larger enthusiasm to sell tickets.

38. There is bureaucracy already.

They take too much time in answering the phone and they switch you from one line to another, so you have to explain everybody your problem, it is like calling a Government office. A lot of time is wasted filling the papers required and there are many persons assigned to this task.

39. Lack of cordiality towards the people who ask support at the PCs as well as in DC.

People at the PCs forget that they serve God and they feel as if they were in a high position. PC people must be also polite and put themselves in the place of the people at DC. They should treat well not only those persons coming to ask for help at DC, but also the personnel at DC.

40. Little or not knowledge of organisations or agencies where to re-direct several situations.

If the PCs were informed on which agencies to visit, DC would have less work and it would be decentralised.

41. Lack of consciousness in the physicians that their work in Caritas is a service and not a business.

When hiring doctors or accepting their help, they must be conscious that there are going to help a brother. There are people who cannot afford the bill and PC has to pay the doctor for his services. Just in the case that the person cannot really afford it.

42. Lack of recognition from the PCs to all the support given by DC.

Also the PCs must be conscious of the help received form DC. Every PC could show its gratitude to the people helping them in service.

43. Lack of more food (variety) in the Food Bank.

When we pick up the food packages we see other articles and ask for them, but they are not given since they are assigned to other things (dinning rooms). To have more variety.

44. Lack of knowledge as to how to manage the dispensary.

The campaigns of DC have helped the communities a lot. There was not knowledge on how to pay a doctor, but during the clarification, this point was clearly understood.

45. Increase in help petitions

There is not enough budget and major help petitions have increased.

46. There is no shared vision of the situation both parts are having.

PC has so much love to our brothers, but DC also made an effort. If both parts share the same vision, thing are going to be better done. Both parts of the institution are volunteers, not everything is an obligation, this helps to understand the differences.

47. The volunteer is asked to have more quality in paper work than charity in his/her action.

DC puts a lot of emphasis in the reports without knowing the action of love which is more important than the paper handed in.

48. Lack of the use of fax to make procedures faster.

A fax saves time and trips.

49. Lack of information about the help given at the bus station stand of Caritas.

The PCs do not know if the help they were asked for is already offered, if they are working on it or not.

50. Lack of updated information about the mission and what is being done in Caritas.

The priest asks the whole group to take the course on what is DC.

51. There are problems with the opening hours in the bus station desk.

There is a lot of help needed in the morning but they have to wait until they open the desk.

52. **There is a need to decentralise the attention and resources that provide DC to the PCs' cases.**
We need to search for our own resources and DC must to leave its paternal attitude. The PCs must not depend so much on DC.

53. **Lack of attention to the suggestions that PC makes about the nursery programme.**
If the program is not conducted as originally planned. The teachers accept children that can afford to pay. Children must be investigated to know if they cannot really afford the payment. Each parish must analyse its own needs to see what courses are to be given. The purpose of helping poor children is not fulfilled.

54. **Lack of consciousness in the people working in the PC regarding the service quality they offer.**
There is a fear to making clear the responsibilities of the volunteers. Fearing that they might leave, they are not informed about all the work involved, and after all these volunteers leave anyhow.

55. **Lack of the volunteer's attendance to the seminars and meetings organised by DC in order to have them well informed and trained.**
It is worthless to organise seminars if people from PC do not attend them.

56. **There are no places to share work experiences among the different PC**
On meetings, they only inform about the work done, it would be better to give only the report, and use the time to share experiences.

57. **Lack of spiritual retirements to fill ourselves with charity and love in our groups to continue working.**
It was said that spiritual retirements with the groups of each PC were to be done. That is useful to feel spiritually filled up and to be able to give others.

58. **Need to develop awareness in the community as to what is Caritas doing (for example a video).**
There is a lack of collaborators, people forget about the others' problems. The community must change

59. **Lack of understanding about the time given to each PC case at DC.**
Several cases come at the same time and all of them want to be taken care of at that moment but they have to understand that it is necessary to follow the waiting line. The volunteers arrive asking to be assisted immediately even when there are other people waiting.

60. **Lack of continuous training to the new members of the PC on the part of DC.**
DC has made an effort to train them, but when they do not attend the seminars they do not have all the information about what is happening.

61. **Lack of resources in the Institution.**
Sometimes DC has no resources, nor even for the payroll; there is a huge lack of resources this year. There are no benefactors; the economic situation and the unemployment aggravate the situation. We must understand that sometimes there are no resources to solve the cases.

62. **Need to take into account the available time table of the people to organise the events of the Bank of Food.**
They cannot attend events due to the schedules. Sometimes people get sick because of the meals served in the meetings. We need a better programming in the food preparation.

G.2.2 Field of the Selected Inhibiting Factors (2nd. Workshop)

A. COMMUNICATION		B. BUREACRACY
• Refusal of decisions and/or solutions previously agreed by the Parish Caritas. (1) • Lack of initiative from the PC to know the different departments of DC and promote them in the parish. (2) • Lack of communication and social gatherings between the parish Caritas and diocesan Caritas. (3) • There is no service at DC for the cases arising during the weekends. (5) • Lack of a representative team from PC including representatives in DC. (6) • Lack of communication between the case department at DC and the PCs regarding the cases that have been dealt with. (19) • Lack of communication from the DC to the PCs regarding internal changes. (20) • Lack of communication among the PC. (21) • The distance between DC and PC provoke inadequate information and communication. (22)	• Lack of acquaintance among the PCs. (23) • Lack of information about the programmes organised by DC. (27) • Lack of information about the results of the Caritas lottery to the PCs. (30) • There is duplicity in the collection of donations in the PCs and DC. (32) • In lotteries, the PCs are not considered at all. (37) • Little or not knowledge of organisations or agencies where to re-direct several situations. (40) • Lack of attention to the suggestions that PC makes about the nursery programme. (53) • There are no places to share work experiences among the different PC(56) • Lack of understanding about the time given to each PC case at DC. (59) • Need to take into account the available time table of the people to organise the events of the Bank of Food. (62)	• Avoid so many paperwork in urgent cases. (4) • Sometimes people asking for help get tired and quit due to the excess of administrative procedures. (25) • There is a limited period of time to pick food packages at the Food Bank. (29) • Difficulty to fill in the papers of the programme "Self-sufficient".(35) • There is bureaucracy already. (38) • Lack of cordiality towards the people who ask support at the PCs as well as in DC. (39) • The volunteer is asked to have more quality in paper work than charity in his/her action. (47) • Lack of the use of fax to make procedures faster. (48) • There are problems with the opening hours in the bus station desk. (51)

Fig. G.2 Field of the Selected Inhibiting Factors (2nd. Workshop)

C. AWARENESS	D. TRAINING	
• Lack of consciousness regarding what is a PC. (10) • Lack of humility of the employees regarding the volunteers. (33) • Lack of consciousness in the physicians that their work in Caritas is a service and not a business. (41) • Lack of recognition from the PCs to all the support given by DC. (42) • There is no shared vision of the situation both parts are having. (46) • Lack of consciousness in the people working in the PC regarding the service quality they offer. (54) • Need to develop awareness in the community as to what is Caritas doing (for example a video). (58)	• There are many centralised training seminars. (12) • Lack of individual attention to every PC according to their distance, zone, problems or needs. (13) • PC does not know the kind of support provided by DC. (15) • Some PCs do not know the internal procedures and policies operating in DC. (16) • DC does not recognise the autonomy and the parish authority in the decisions of the PCs. (17) • There is no training to the PCs on how to obtain incomes through Caritas lottery. (26)	• At the PC groups there is a lack of well trained people in order to have good communication between PC and DC. (28) • Lack of knowledge as to how to manage the dispensary. (44) • Lack of information about the help given at the bus station stand of Caritas. (49) • Lack of updated information about the mission and what is being done in Caritas. (50) • Lack of the volunteer's attendance to the seminars and meetings organised by DC in order to have them well informed and trained. (55) • Lack of continuous training to the new members of the PC on the part of DC. (60)

Fig. G.2 Field of the Selected Inhibiting Factors (2nd. Workshop) (Continued)

E. ECONOMIC RESOURCES	F. VOLUNTEERS	G. MISSION	H. SPIRITUALITY
• Conflicts and disagreements between PC and the Food Bank. (8) • As there is an increasing demand of support there is a delay in trying to offer immediate solutions. (9) • Limitations for the support in the case department. (24) • Lack of budget at the case department for the PC cases. (31) • Lack of flexibility on the recuperation quote of the "Self-sufficient" program. (36) • Lack of more food (variety) in the Food Bank. (43) • Increase in help petitions(45) • There is a need to decentralise the attention and resources that provide DC to the PCs' cases. (52)	• Lack of volunteers in both PC and DC. (7)	• Prevalence of the assistance factor over the promotional factor. (18)	• Lack of spiritual retirements to fill ourselves with charity and love in our groups to continue working. (57)

Fig. G.2 Field of the Selected Inhibiting Factors (2nd. Workshop) (Continued)

G.3 CONCEPTUAL OUTCOMES OF THE THIRD WORKSHOP: CLASSIFICATION OF THE ACTIONS TO SOLVE THE PROBLEMS OF COMMUNICATION, INTERRELATIONSHIPS AND MUTUAL KNOWLEDGE IN CARITAS MONTERREY

A.	INFORMATION AND DIFFUSION	
	A1	To define clearly the mission and objectives of Diocesan Caritas
	A2	To establish a manual of procedures and description of functions of DC and PC.
	A3	To distribute the policies and rules of procedures of Caritas among all the team participants (internal and external) and supervise their accomplishment
	A4	To make a directory with phone numbers and addresses of the PC and deliver it to all of them.
	A5	To establish an information system to inform about all the messages, changes, project initiation, etc. (from Diocesan Caritas towards the Parish Caritas)
	A6	To create an data base that can be used as support for the PC, which could be consulted to manage their cases as well as to know about the type of support that they can receive.

B.	FUNCTIONS IMPROVEMENT	
	B1	Make zones of Parish Caritas among 6 or 10 of the same area.
	B2	Implement meetings at zone level with DC and PC
	B3	Respect the territorial area in the cases of PC and when necessary ask DC for help.
	B4	Change on monthly meetings, reports must be faster.
	B5	Demand punctuality on monthly meetings, not only at the start but also at the end.
	B6	Call PC when it does not attend to the monthly meeting and ask the reason.
	B7	Promote autonomy of PC teaching them to work alone.
	B8	Make conscious to persons that are part of PC, about the fact that it is not only giving help but training too to offer a more quality help.
	B9	Install a suggestions mailbox so PC can suggest and publish their opinions on the "Noti-car" and on the monthly bulletin.
	B10	Define which are the requirements a person must have to perform several positions inside a PC, for example: President, Secretary, Treasurer, taking into account the parish priest decision or counsel.
	B11	Insist on having PC be promoted as them like PC and not as DC.
	B12	Make PC Responsible to the PC about the good function of their nursery school, giving all the necessary support to the nursery school committee and the instructors.
	B13	Create vocally on lottery on PC to be sure that it is being dealing with the right person.
	B14	Have PC to inform monthly (attached to the ordinary report) the status of the ticket sales of the Caritas Lottery.
	B15	Follow-up the cases that are sent to the Bus Station.

C.	PRIEST SUPPORT	
	C1	Get a closer participation from the priests by visiting them from DC side every one or two months.
	C2	Organise an event to the priests involved on the Caritas work.
	C3	Invite a priest to get integrated to the support group at Diocesan Caritas
	C4	Involving the clergy on the mission and objective definition through work sessions.
	C5	Have the archbishop to clarify in detail the rights and obligations of PC before DC and spread it.
	C6	Get more evangelised the leading people of PC and the cases.
	C7	Infuse on bigger scale the love transmitted at Caritas, giving motivational lectures to all personnel and voluntary with a defined program.

D.	CLOSENESS AND MUTUAL SUPPORT	
	D1	Develop an intra Caritas newspaper that stand out situations as: birthdays, board changes, necessities, etc.
	D2	Integrate a larger number of counsellors and volunteers to the Parish Caritas Committee.
	D3	Promote the manager assistance to the PC monthly meetings.
	D4	Promote the DC member participation on the PC retirements.
	D5	Capitalise the monthly meetings of PC and DC (share experiences, etc.)
	D6	Support the different DC departments with voluntary personnel. (make visits, etc.)
	D7	Assign a person on the DC different departments at DC to attend PC. (Cases, and Bank of Food)
	D8	Develop a volleyball internal tournament to encourage good fellowship.

E.	TRAINING AND DEVELOPMENT	
	E1	Establish the "Caritas School", giving, once a month, functional themes to the new members as a requirement to enter.
	E2	Develop an intensive course about what is Diocesan Caritas (Mission, objectives, rules, organisation chart, etc.)
	E3	Increase the frequency of training programs about Caritas, different areas to the Parish Caritas
	E4	Develop an intensive course about what is a Parish Caritas.
	E5	Give an initiation and update course to counsellors, Diocesan Caritas personnel and Parish Caritas volunteers.
	E6	Establish continuous information among PC departments and Diocesan Caritas departments else.

	E7	Ask to PC to fill a questionnaire every 6 months where they report to DC about the problems they had while that time and by then avoid recurrence.
	E8	Include on PC meetings a section of "My problem and how I solve it" to promote the idea of interchanging experiences.
	E9	Develop an equipment with volunteers of every Parish Caritas, by decants, to interchange problems, solutions and experiences.
	E10	Establish a "interchange" program in which members of PC "live" the Experience of staying a day on the Cases, Bank of food departments and that Diocesan Caritas personnel know, visit and live the Parish Caritas problems.

F. ECONOMIC RESOURCES		
	F1	Increase the social work personnel at Parish Caritas (that every PC has a person being social worker)
	F2	DC implement an economic resources support to the PC to make them solve their parish cases and do not canalised them through Diocesan Caritas
	F3	Sponsor with an initial contribution to PC and provide them with economic resources for bigger cases.
	F4	Co-ordinate donation demands from PC and DC. (Try not to have duplicity, to avoid giving bad image)
	F5	Define which companies or physic persons are going to attend DC and PC on the funds collection.

G. LOTTERY		
	G1	Every PC expresses their problematic with ticket sales.
	G2	Respect the collaborator portfolio that PC have and encourage them with a bigger commission.
	G3	Courses to the PC about how to sell and organise the lottery ticket sales.
	G4	Define procedures of the Lottery department and announce them previously to the PC.

H. HUMAN RESOURCES		
	H1	Provide every PC with a phone line and fax (To have access wherever it is possible)
	H2	Implement a computer system at the PC department
	H3	Define that needs to be satisfied on a PC before being established.
	H4	Planning the functions that is going to make the PC recently established and which are going to be their specific activities to collect funds to get self sufficiency.

APPENDIX H

TRANSCRIPTION OF THE INTERVIEW WITH DR. ALEXANDER CHRISTAKIS

Roxana: Well, let me tell you. What I would like to do first is to ask you some questions related to IM projects, but I would like you to, if possible, to talk about a particular project, it might be whichever you prefer, but I would like it to be may be an important project, and a project that has to do with implementation, in the sense that not only diagnosis or definition things, something that might be ...

Dr. Christakis: Ok, I will talk to you about the Food and Drug Administration project (FDA), which has been going on for three years now and we go on and on may be for some seven more years. So this is the longest tenure of this project. We started in 1994, we've been working with all kinds of different applications within the FDA and we've just been awarded a seven year multimillion project, 20 million a year.

Roxana: And since 1994 you have held many ...

Dr. Christakis: We had from 1994 till 1996, we had held oh.. we started with a project we called: Designing the Good Review Practice Initiative", which involved the process of reviewing drug applications by an entity within the agency called the Center for Drug Evaluation and Research, this entity employs about a 1000 people, more than 70% of them have Ph.D.'s or M.D.'s they are very very well educated, it's like a think-tank and their business is to evaluate drug applications for approval, and .. they've been under a lot of pressure to redesign the process of reviewing this applications that would speed up the review process and the quality of the process. So the first assignment was to assemble a representative group of this Center for Drug Evaluation and engaging them in designing or re-designing .. something called the Good Review Practices, the GRP, and ... I'll give you, as a I mentioned to you, a paper that describes a good summary of this that I submitted with a colleague for publication at Systems Research and in that summary you will see some of the products and also some of the consequences of the products. But the interest about that is that we started in 1994 with the design of the good review practices action plan which is a collaborative action plan, working with 60 people over a period of 3 months and about 6 days of dedicated group work, having completed that action plan, that became the context for implementing aspects of that with sub-teams, as I mentioned to you earlier, and .. within the scope of this GRP we've done about 5 or 6 more projects, all of which are implementation of the GRP. So they're all follow-up projects with different scope of work, one for example had to do with training people, reviewers, we designed a training programme; another had to do with designing some scientific approaches for improving the quality of the review process; another had to do with automating the administrative management files, so there's a lot of follow-up all of which comes from this, ok ?

Roxana: So let's then go back, if you don't mind, to this first project. The specific client for this project, I mean in terms of the organisation and the person who was your direct client, who was ?

Dr. Christakis: Well, the client is the Center for Drug Evaluation and Research (CDER), the sponsor was the Office of the Commissioner of the FDA, the commissioner is the leader of that Agency, he is the number one person.

Roxana: And in the original centre, there was a special group, a special person who was the client ?

Dr. Christakis: Well, we worked with brokers, the broker came from the office of the commissioner and is a person named Judy Carlston, Judy was the broker, she was the linkage to the Office of the Commissioner; the leader of the Center for Drug Evaluation and Research is a woman by the name of Dr. Janet Woodcock, so she was really the leader of the Centre, but the client was the whole Centre, the community of the centre .

Roxana: And ... well, 2 questions: how the decision for using IM was taken ? I guess you were may be trying to convince them or to sell, or, how was the initial contact ?

Dr. Christakis: Well, the way this worked out is, we've been doing work with pharmaceutical companies, and we had helped pharmaceutical companies developed drugs, which is what they do, we're actually enhancing the drug development process by using Cogniscope, and they were the ones that called the office of the Commissioner and said that we will be ... the best people to help them ... improve the review process, so we got called by the office of the commissioner and we went there and we presented to them what we were doing with the pharmaceutical companies and that's how it played out, they said all right. So in essence, the entry point was the constituents of a Government agency told the agency hire these people because they are good.

Roxana: And, did you ever evaluated the possibility that may be IM was not a good approach for approaching this particular project ?

Dr. Christakis: No, because the way actually it played out, is that I was asked to go and listen to the various committees, they have made up committees and they actually got a big committee, all of whom were trying to design or re-design the good review practices, so my first entry was to listen to these committees, they took me around and listen to them, and listen to them. and after I listen I decided they were all screwed-up (****), and there was nothing happening and they needed us ... in fact I told them that the only survival for them was if they were able to use the Cogniscope and IM and have what we called focused and open dialogue. So the whole entry point was legitimise that they need a dialogue, they couldn't get it because they didn't have the support system for dialogue.

Roxana: And, at that moment, from the point of view of the broker, do you think the expectations they had about this re-redesigning project were clear for them ?

Dr. Christakis: No, nobody understands what we do, nobody understands ... they never understand it unless they experience it, and that's one of the difficulties, it is formidable only the people who have experience the process that we espouse and we practice become advocates and they produce more clients for us. We have never been able to make a sell without advocacy by previous clients.

Roxana: Yes, but from the point of view of this broker, or may be the client, the leader of the Centre, what do you think were... or may be they were clearly stated... their expectations, not particularly regarding the process, but the outcomes they were expecting ?

Dr. Christakis: Oh, yes. Well, even that was ambiguous, they don't really know you see, they really don't know, they are so much confused with all the alternative ways of doing things like that. You see from our perspectives what we did is we essentially designed the social system called Centre for Drug Evaluation and Research, that's really what we do, we design social systems. But you cannot talk to them about designing social systems because they don't understand it; however, going back to your question about the leader , that same woman, Dr. Janet Woodcock, after we finished the first application and the first product, she then became the spoke person to do all the follow-up work that we did, not only she introduced us to other activities within the centre, she promoted the Cogniscope to the office of this Chief Council of FDA , so we redesigned the office of the Chief Council, in which we worked with 70 lawyers, all the work that we are doing with FDA has been advocated by inside people and Janet Woodcock is one of those. So the essence of my answer is only because she was intelligent and a very good leader, she really understood the distinction between IM and other offerings, experientially however, not because she read the book of IM, or John's work, nobody understands a God dammed thing.

Roxana: Oh, that's right...

Dr. Christakis: I hope you are not offended by the way.

Roxana: no, no

Dr. Christakis: I cannot be ... I can only be authentic you see, I'm only telling you how I see it and how I feel it. And that's the only beauty of this interview, it's that you hear it from my mouth exactly how I see it.

Roxana: Yes, that's wonderful, thank you. Well, let me ask you something about the planning, again concentrating on the first project, in designing the centre, who was involved in planning for that workshop ? oh well, for the project ?

Dr. Christakis: For the project. Actually, it's also another linguistic distinction that I want to make, is that we do workshops but we are embedded in a project and that is the only way we can survive, this is one of the problems that people have in terms of promoting the business that we are trying to

establish here, is that ... once you talk about workshops, they can have a workshop for one third of cost and not the quality or whatever we do and what we deliver, the deliverables of another alternative workshop are of marginal utility but nevertheless they can get and they say we got a workshop, but so comparing workshops is silly, because we become non-competitive with the marketplace, not because you are expensive, in fact I donate my time, I've been donating my time, but I still have to pay some people you see, to do this work, and usually when we do this work with this method that we espouse we have teams of 5 to 9 people dedicated to work, we have project teams, and the project teams have doctors, they have organisational development experts, all of whom work with the client, and some of them come to the workshops, some of them never show up to the workshop, they don't have to be there because they give us expertise around the project you see ? content expertise, some of them can do ... some research on a new whatever, a new device, or some of them can do research about a drug .. a new drug, all of whom are members of our project team, and we combine the experience of the project, so the project includes for us the workshop, but the project is not the workshop.

Roxana: yes, I totally understand what you mean. In fact that's in my opinion one of the most important distinctions to make.

Dr. Christakis: yes, and we have discussed that, do you remember ? you and I talked about it even in London, and even before, actually you were influential early on when you visited Philadelphia the first time whenever it was, one of your first questions to me is how do you develop an IM consultancy that is sustainable, you had seen that by the way, at least I thought you had, may be you didn't . It doesn't matter, now it's too late anyway...

Roxana: No, I've been concerned about ...

Dr. Christakis: you have seen it now

Roxana: the whole thing because originally, when I first got in contact with IM I perceived it, and even during our training, I perceived it mainly as a training for conducting workshops and my concern was that it wasn't really enough for dealing with ...

Dr. Christakis: correct

Roxana: the kind of problems we were trying to deal with.

Dr. Christakis: well that is to a large extent, is a big mistake that has been promulgated by among others, you and John Warfield, because in your Interactive Management Handbook, you talk about workshops...

Roxana: yes

Dr. Christakis: and workshops, and workshops. And John talks about workshops all the time, but John has not been out in the field you see, that's a problem, if you go out in the field you won't really offer a service that is reasonably comprehensive and sustainable, you cannot do it ... unless you have somebody pay you, continuously pay you, you cannot say I'm going to do a workshop because every workshop, to prepare it, to plan it, to schedule it, sometimes takes three months...

Roxana: yes

Dr. Christakis: so if a company is going to exist by making a workshop every three months and there are twelve months in a year, you got four workshops, how do you pay anybody ?

Roxana: yes

Dr. Christakis: you see my point ?

Roxana: sure, yes, and I see it from many points of view, not only that one. But anyhow, let us continue with the interview.

Dr. Christakis: ok

Roxana: Well, I was asking you about the people who were involved in planning for this particular project

Dr. Christakis: yes, so the people was the broker, and ... we had actually for this project, we had an M.D., a member for the planning committee from CWA, we had Ph.D. a from Wharton...

Roxana: a PhD on what ?

Dr. Christakis: from Wharton School ... in social systems design, with Ackoff's S3 group ... and also we of course interface with Dr. Woodcock, it was about 5 people involved, 5 people. We also conducted interviews.

Roxana: oh, yes, that's the other question, which kind of activities were involved in planning ?

Dr. Christakis: well ... the planning was first of all I went around and listen to what everybody was doing all right?, I told you that, second thing was we got to go ahead to do it, we then reviewed documentation that have been previously about review practices and so on and so forth, then we conducted interviews with about 20 of the people within that agency, or within that centre and wrote a white paper

Roxana: ok

Dr. Christakis: which was both, very well received and very controversial. It's unfortunate, I don't think we have a copy of that report, I don't think we have a copy, it was a best seller we have exhausted our copies. But in any rate I gave you now, and that was the completion of the planning phase, one. And then we went into phase two...

Roxana: ok, but before, that means that the white paper included a plan ? a detailed plan for the project ?

Dr. Christakis: no, the white paper doesn't include a plan. The plan, we do write a plan, but the plan is only for the team, the facilitation team or what we call now the Cogniscope team. The plan for the workshop, or for the project if you like, is developed by us and only distributed to the Cogniscope team and that includes the broker. It's not incorporated in the white paper.

Roxana: yes, I'm sorry, I was confused.

Dr. Christakis: you didn't mean that.

Roxana: no, I didn't mean that. No, but the final outcomes of your planning phase let's say, were on one side the white paper, and on the other side the plan ...

Dr. Christakis: correct.

Roxana: for conducting the project, that's ok ?

Dr. Christakis: correct, correct.

Roxana: and... from the beginning the results or the kind of outcomes that were planned for implied on one side the design of the centre, and on the other side how the design should be implemented? or what was more or less the scope of the plan as far as the outcomes of the project were concerned ?

Dr. Christakis: you see, we are designing a process that is embedded within an organisation called the Center for Drug Evaluation and Research, so the design situation that we are confronted is how to design a process which is embedded within an organisation called the Center for Drug Evaluation and Research and we were successful to design this process through the dialogue, to the satisfaction of the client and to the surprise of the client, in the sense that nobody knew in advance how the outcome would be, and all we did, it's we believed in the process of the design of the process. So I don't know whether I'm answering your question, but I also don't relate to your question, I don't know what are you asking me right now, although you can revisit it and telling me what you are asking me. I gave a sort of an answer which is trigger by your question, but I'm not so sure that it's the answer to your question.

Roxana: well, more or less, may be I haven't been clear. I was wondering whether in the plan that you set out for, there was, not a detailed statement of what the final outcomes would be, but at least an idea of what the scope of the design activity should be.

Dr. Christakis: ok, the answer to that is yes. We have got to the point we know by the time we start the workshops, we really have a pretty good idea of the outcomes of this dialogue, we have a very good idea and we have got to the point we can preplan them, in other words, if one looks at our so called project plan and visits us goes by and says did you do everything ? the answer is 90% of the time we implement those plans as we have designed them in advance, so I don't know whether that answers your question

Roxana: yes

Dr. Christakis: did that did ?

Roxana: yes ... well, more or less.

Dr. Christakis: more or less ?

Roxana: yes, more or less

Dr. Christakis: a 100 % is impossible

Roxana: yes, I know, that would be too pushy. And, well, you told me about those interviews and the meetings you had with different people in order to state your plan or ... to produce your plan, but among the things that you considered in stating this plan, I would like you to tell me if you had certain criteria or activities that were specifically devoted to define who should participate in the different workshops or in the different activities.

Dr. Christakis: right. Yes, that is something that is always very difficult and very painful I would say, very painful, the way we have been doing it, is ... as soon as we learn about the situation, we then have the capacity to draw distinctions between what we call the four stages of our system, which we call the Cogniscope system, and I have to talk to you about that because this is what I know, I used to know or I know Interactive Management and I like to think that what we do is sort of founded *** and add an extension of IM, brought about because of the application in the commercial enterprises, ok ? and that's the utility of you doing field work, is that you are talking to somebody like me that I've been in the field ... very intimately involved with the field. So to respond to your question, in the Cogniscope application we draw distinctions between what we call the definitional stage, the design stage, and the action plan, what we call the action plan or the collaborative action plan stage. So with those distinctions ... we have the capacity of even, not the capacity, we actually colour-coded those distinctions, and we colour-coded the distinctions in order to make them more transparent to our clients, so we can talk about the red, the blue, and the green stages, because of those distinctions we can talk about red people, blue people and green people, and in some cases we use dots on the foreheads of these people so they know that they are a red person, or they're a blue person or a green person, and sometimes a person has three dots because ... he is qualified to make contributions in the red domain, in the blue domain and in the green domain, very few people are of that type, but we definitely have some people that have red and blue dots, also have some people that have blue and green dots, and we have some people that have only red, only blue or only green, those who have two dots are transfer agents, they transfer knowledge from one domain to the other, so my response to you is what we do is we design with the anticipation that there are different domains of knowledge, that there are transfer agents between those domains and on and on and on, and those transfers happen to be also within even the bigger context, that we have people that will be present when we are doing the big scope, so when we go to the sub-scope or the sub-teams there is a memory of the biggest scope, you got it ?

Roxana: yes, I have this idea, but there are two questions left. One is that you mentioned four stages and I only noted three.

Dr. Christakis: yes, there is a yellow stage too between the blue and the green, there is also a yellow stage.

Roxana: and this is...

Dr. Christakis: yellow, yellow.

Roxana: yes, but what is it about ?

Dr. Christakis: well, the yellow stage is the one that is also very difficult and very tricky, and I should also point out that between each stage we also conduct sometimes interviews, and also sometimes Delphi's, so the transfer from one stage to the other is a non-trivial transfer ... that's why I talk about projects, and that's why I talk about continuity, because we do something, we learn, we make some adjustments and go to the next stage, and the next stage might be all different people too ...

Roxana: yes...

Dr. Christakis: with some transfer agents. The yellow stage is the stage which is very very tricky in the sense that it requires what we call the explication of criteria. It's only at that stage that criteria enter the conversation. So ... we can call the yellow stage if you like, the choice stage. They're beginning to make choices now, up to that point you don't make any choice, you see my point ?

Roxana: yes

Dr. Christakis: actually, we are sticking by the notions, the definition stage it doesn't have to be diagnosis necessarily you see, it can be... not only if you like problematiques, but we have even introduced the notion of an idea ***leak*** which is an idealisation.

Roxana: ah, ok, yes.

Dr. Christakis: so we really actually promote in many cases ...we do more idealisation.

Roxana: ok, let me go back then to this particular project. Then in order to define who would be the red, blue or green persons...

Dr. Christakis: right.

Roxana: what was your approach, how did you decide that ?

Dr. Christakis: well, actually, this is part of the preparation, namely when ... we prepare the plan and the white paper, we have enough knowledge now of the situation that we can make determinations of how or who should be classified as red, blue or green , and who should be transfer agent, and again that is not done in may be what you might call scientific or rigorous way, it is very situational and that's the challenge of the planning team or the preparation team, but we know that we have to be very careful in doing that, and in fact when we fail doing that right, we fail, ok ?

Roxana: yes. And, once the people who would be participating in the different stages were defined ... and before the actual IM took place, were they somehow sensitised or prepared for participating in ...

Dr. Christakis: no, no we don't do that, and may be we should be doing more and more of that. This is something now that my partner Alex is advocating. It could be that this is a new thing for us, I'm beginning to realise that that could become a very important thing, but so far we have not done that.

Roxana: So, normally they arrive with just the white paper may be and the invitation ....

Dr. Christakis: right

Roxana: and a general idea of the objectives. Now, let me ask you about the IM activity itself, meaning this time the workshops themselves. How many workshops were held for the design of this centre ?

Dr. Christakis: For ... now is not the design of the centre, it's the design of a process within the centre.

Roxana: ah ! sorry, yes.

Dr. Christakis: I want you to be careful, that was the previous complication between you and me, you confused. We could design the centre and we have designed centres or departments, but this particular application that I'm describing with you is the design of a process within a centre. It happens to be the main business of that centre, but we were not engaged in designing the centre, in fact they have used another consultant for designing the centre which was fine, ok ? So, how many workshops, you asked me how many workshops ?

Roxana: yes

Dr. Christakis: Well, we did, three workshops, two days per workshop. Three, two-day workshops.

Roxana: ok. And within those three-two day workshops, did you cover the...

Dr. Christakis: the whole thing, yes

Roxana: all the phases that you mentioned.

Dr. Christakis: I called them stages.

Roxana: sorry, stages.

Dr. Christakis: I'll tell you what, I'll give you this, this might be the best handout from another client. You see, ... we talk about phases and stages, the stages for us, what should we do, how can we do it, and when will we do what we can do; also is described here, if you were to read it, you see this is the colour-coded too, so it happens to be here and I'm giving it to you.

Roxana: let us go back to the project. We were talking about the actual workshops that took place during that project and you told me they were three workshops lasting two days each and during those workshops you passed all through the three stages ...

Dr. Christakis: four stages.

Roxana: four stages ?

Dr. Christakis: right.

Roxana: ok. Can you tell me about the kind of products that were developed in those stages, in those workshops.

Dr. Christakis: right. Actually... the first workshop is dedicated to definition as I said, definition, so we defined the situation by responding to the triggering question, so we had a list that is... responses to the triggering question, we have an explanation of those ideas, namely the discussion for clarification, that's one product, we also have a classification of all these ideas, that's another product, and we also have an influence pattern and that represents the end of the definitional stage, so in terms of specific products, we have a list of ideas, explanation of ideas, classification of ideas and influence among ideas.

Roxana: And these you developed them in two days, or it took...

Dr. Christakis: two days.

Roxana: ok. And was this the same pattern more or less for each stage, or...

Dr. Christakis: No, the second stage, the blue stage, we had blue ideas, explanation of blue ideas, classification of blue ideas and what we call superposition of blue ideas on red ideas. That's the blue stage and then the yellow and the green is when we select the preferred alternative and then we map out the temporal order for the preferred alternative and that's it. But some of these I have given you, I know I have sent you a report from one of those projects or a sub-project within the one I'm describing, it's a report that is called designing a conceptual plan for the AMF project for the Food and Drug Administration, I'm advising you to look that up because essentially you will see the products in that report, very clearly you will see them in that report and I'm sure I sent you that report because John asked me to do that, you might be able to find it...

Roxana: yes, I know I have it.

Dr. Christakis: It's a blue report.

Roxana: yes, I have it.

Dr. Christakis: So ... that report will give you more tangible explanation of what comes out from each one of those stage.

Roxana: ok. And how many people were there as participants ?

Dr. Christakis: As participants for the project that I'm describing we had 65 people.

Roxana: 65 people ? spread or...

Dr. Christakis: spread over those days. We also have a way of distinguish between what we call active, supportive and observers, a total of 65 yes.

Roxana: but not all at the same time in each...

Dr. Christakis: well, eventually we will get them all together, yes. By the time we get into the 4th. stage everybody is working together. We actually have pictures to show that too but that's what happened. Initially we started with a sub-group, then we got bigger and bigger, by the end everybody is involved, and everybody is fearful.

Roxana: fearful ?

Dr. Christakis: yes.

Roxana: how come ?

Dr. Christakis: because they are afraid of me.

Roxana: ah ! that's your facilitation style !

Dr. Christakis: yes, they learn that they won't talk unless I give them permission. So that's what happens, not the first day, it happens the third day. The reason I am responding to you like that, and for the tape, is because the notion of participation expands to the point that the person that has something to say, will say it, and I don't have to be visible in the room, I can be in a closet, behind the whole thing, and they won't talk... why that happens ? this is a significant transformation, and the only explanation that I have is it happens because they recognise that the situation is overwhelming. They're actually overwhelmed by the confusion and the complexity, and they discover humility in ways that I cannot explain except that humility emerges and they don't want a talk unless they have something to say.

Roxana: I see. And ... well, may be that sounds as a trivial question for you, but, because I have seen you facilitating, but ... concentrating in that particular case, did you ever feel that there was some kind of peer pressure among themselves or some kind of social inhibitor for their participation within the workshops ?

Dr. Christakis: no, no, no. You mean in terms of... inhibitor in terms of talking ?

Roxana: of talking yes, or even not necessarily only talking, but saying things that they need to say.

Dr. Christakis: Well, that is a thing that that's why some people advocate anonymity, but ... and I'm not discarding the possibility that there could be an instance or cases, and we have experienced some cases, that they are reluctant to surface some of their inner feelings, however, we have experiences that one can even design for those feelings to be articulated if one has not expected it to happen instantaneously with the client from the beginning ... that's why I'm talking about the continuum as opposed to... a continuum of intervention as opposed to instantaneous intervention, which in my opinion is very artificial and almost silly, and it's so stupid in fact that anybody who advocates that needs to have his head examined.

END OF SIDE A OF THE CASSETTE

SIDE B OF THE CASSETTE

Dr. Christakis: ... the answer to the question is yes, there are cases or instances that people might be inhibited, but then again it depends on the situation ... that's something that my good friend Reynaldo brings up repeatedly in terms of the distinctions between the emotional and the cognitive, and in those distinctions to what extent people really talk but they really don't get emotionally involved, that is something that needs to be investigated, that could be an interesting research topic I might say, but ... my kind of thinking in opposition about that is that ... if one works within a particular sponsor or client over time and develops some kind of intimacy and some comfort it is not unlikely that even things that people were inhibited to surface gradually will be surfaced, so in the context of this client there was a lot of emotional dissonance for designing that process, there was a lot, however, over time that was dissipated and I'm saying over time meaning over a period of let's say two years, initially there was an emotional dissonance that was a barrier to, or an inhibitor, to the idealisation or the ideal design of this so called GRP process, over time however we dissipated a lot of that dissonance so in a sense, by designing the process we also designed the centre because we changed the culture of that organisation you see, although the focal point was the process, we actually redesigned the centre.

Roxana: But, let me ask you one thing... In this process of, let's say, unfolding these emotional issues during the group activity, was there any need, need on one side or evidence on the other side, that conflict appeared between the participants and that somehow it was resolved or not ?

Dr. Christakis: well, I guess I should point out that some of those so called conflicts are... may be I should make the distinction between real and pseudo, pseudo meaning unreal or illusionary .... again, in this case. because we are constraining on this case, I believe that in this case we were able to surface ... without having to engage in anonymity if you like, anonymity ... to surface most, I don't know about 100%, but may be 90% of emotional concerns and they surfaced during the dialogue, because I happen to believe, and that's another thing, that dialogue is not only cognitive or intellectual, it also has a very strong emotional, almost spiritual dimension, so as long as one creates

a climate of dialogue one actually brings out the emotional dimensions not in a distractive way, but in a very constructive way.

Roxana: Well ok, let me go back may be to more trivial matters, like in the final stages when you worked with the yellow and green colours, the outcomes, no the products that you produced -the ideas and the different structures- ... did you include other things, not only ideas but for example definition of responsibilities may be... since you were already talking in terms of action plans, responsibilities, time frame, and...

Dr. Christakis: yes, yes, all of those are included

Roxana: so they are normally ...

Dr. Christakis: yes.

Roxana: and... this is a general question, this is not specifically for this project, but, do you have ever devised or identified someway of identifying the level of consensus or satisfaction among the participants ?

Dr. Christakis: only in the sense that we ask them to fill up an evaluation form, we have developed an evaluation instrument that we distribute at the end for them to fill out anonymously and ... we actually in this instrument, we have someway of determining the level of satisfaction or fulfilment with everything that transpired during the workshop, and we have a question there in which we ask them for example, how do they relate to the final product which is the action plan, it is the one where we really focus our attention and we can look at the responses, and we usually get very positive identifications with the action plan, so that is the only measure of let's say satisfaction with the final product, meaning the action plan you see. Consensus during the deliberation is an on going flooding thing you see, so we don't know, we don't know.

Roxana: and ... well, earlier on you mentioned the importance of the transfer between stages, how do you pass from one stage to another, in that transfer I understood that sometimes you have different kinds of activities added to the group activity...

Dr. Christakis: right

Roxana: in this particular project, did you have any sort of iteration or review of previous products ?

Dr. Christakis: yes, continuously.

Roxana: ... what's the shape that that iteration takes ?

Dr. Christakis: well ... we have ... everything is for us very flexible, even they can actually revisit and modify something that they did in the first stage while we are working on the final stage, while we are doing the yellow for example, we ... never constraint them, in fact not only we never constraint them, we promote it, so we always, continuously, told them whatever you see on the wall, nothing is frozen and should not be frozen, so we really promote total flexibility, and ... because of the capability that we have built ... that's what the team comes in ... part of the team is to go around to tell people if they want to change something we will change them, so we continuously iterate, we really iterate continuously, the only time we freeze it and we tell them is when we write the report, so the report is a snapshot, is a picture of what transpired and is only needed for documentation purposes and there of cause you have to build them too, that's the only thing that is frozen, it's asked in and paid....

Roxana: ok... but let me ask you, in this case where there actual modification of previous...

Dr. Christakis: yes

Roxana: and when did they take place ? during the workshops ? during the group activity ? or between the stages ?

Dr. Christakis: during and between, yes, for this project that happened really all the time.

Roxana: and ... for example when they take place, or when they took place between stages, how were the ideas or structures modified ?

Dr. Christakis: how they were modified ?...

Roxana: they had reports ? or where the products always displayed ?

Dr. Christakis: yes, we gave them the new versions you see, we always give them version 1, version 2, version 3 of everything, so in essence, when a version changes that means that there is another version, and they have them in the book, we give them what we call project books and you haven't seen ... have you seen a project book ? we have project books, every project has a project book you see, I'll show it to you.... this is a project book, it happens to be Diane's, everybody who comes in there has a project book beforehand, with their names, the project title, ...the project title: .... for defining the ideal of a society, an image, and designing an inquiring program for designing it... very interesting.. they open the book and they have in the book ... their roles, some of the project scope, the context or whatever it is, the role of supporters, then they have what we call the red stuff and here it is what they get, so for example here this should be... I guess she ran out of red paper there, that's why she didn't do that because we were doing this in California, so she didn't have... but here you see the table of the ideas and the discussions, ok ? and then, I guess it goes on and on, triggering question... marker one... probably this is another version ... this is version one and that's version one too ... then we get this product which is what I call the classification or the clustering and that's the table, the red table, and then we finish with that table, and the votes, the red votes, and all this things that you know about, and then we go into the blue ideas, so then we have blues, and they generate the ideas, now what they do here you can see ... it also includes some of their stuff, a participant came that up and we put that as a part of the explanation you see, so that's the blue stuff, everything is here, then we go into the yellow stage, in this project we did not any green because we didn't have time you see, but we did some yellow... at any rate you see here that we have a book that have all kinds of stuff they gave us, they and Diana ... that's the preparation stuff that we got and they reviewed it and so on and so forth. So you see the general idea is that they have a book, this book and another book, and I can give you another book that has greens too. But you have the general idea, this is the white paper and so on and so forth... so I ran out of time now.

Roxana: oh no, no. Let me ask you now about the outcomes and what happen to them. You said as a result of this first project with this Centre there were many other small projects that derived, but first of all, as a result there were some responsibilities assigned already and you said that there was this team which was formed...

Dr. Christakis: yes, we called it implementation team, CIT, like a committee actually, yes.

Roxana: and some of the results implied other IM projects, but I guess some other didn't imply IM projects, am I right ?

Dr. Christakis: well, it depends on the actual item or the actual activity, they only ones that we claim that they are applicants or candidates for applications of the IM process are those that required teams and we identify as being complex. So only a subset of the general action plan are candidates for the application of the Cogniscope, others are not and we coach them, for example in one this thing could be improve the Library, improve the library of the centre, and that might be done by a librarian an another person, allocate more money to essentially buy more books or automate it or whatever it is, they don't really need an IM application for that, that's the example.

Roxana: and in the case where there was a need for an IM application, do you know of any evidence that the actions were actually implemented ?

Dr. Christakis: absolutely, we actually know very well that... because only about two months ago we revisited them, we are still in contact with them, and we are getting more work from them and we know what has been done and what not has been done yet. They actually have declared this is finished, this is finished, this is finished, this is not finished, we are now getting involved with a new project which is very challenging, very very challenging, and they recognise that they have not been able to do it, in fact they tried that to do without IM although we advised them to do with IM and a year later they recognise that they have failed. So now they recognise that they could have used IM for that project, initially they thought they didn't need it.

Roxana: and this part of the project, the original design of the process, when the IM part of it ended, two years ago or so ?

Dr. Christakis: well it ended in August of 1994, right ? and started getting orders for follow-up work in November of 1994. And we went on and on and on, until now ... that's one reason I might be going to Washington on Thursday, to get into another follow-up activity.

Roxana: ok. And ... regarding all the actions that should be undertaken as a result of the project, the participants and the observers are being part of the implementation then?

Dr. Christakis: yes

Roxana: are they being part of the new IM projects or ...

Dr. Christakis: absolutely yes, and not only those of the original 60, but we have reached out, we have actually exposed half of the population of that Centre, as I said there were about a 1000 people, about 500 of these people have already been participating or connected with an IM project.

Roxana: and may be more involved in the other projects as well ?... I mean in the other actions that they took that didn't involve IM projects ?

Dr. Christakis: All these 500 are actually those that have been participating or observing IM projects.

Roxana: But I mean, were there any other people involved in the results who have not participated in the IM activities ?

Dr. Christakis: I'm not so sure, what is the ...

Roxana: for example, you gave me some examples of actions that didn't involve IM...

Dr. Christakis: right, and I don't know about those people, I don't know about those people.

Roxana: well, if this started as an implementation project in August 94, do you know of any formal assessment of the results of the whole activity that have taken place ?

Dr. Christakis: hmmm..... they tried to do something like that, I don't know, they told me about it, I don't know to what extent... they did some... they hired another consulting group which is much more in the sort of change management area, they invited them ... now they are talking about the major re-design of the Centre and in the redesign of the Centre using a different approach, a much more ordinary facilitation, you know like the vision of the centre, and the mission of the centre, and that went on for may be 6 to 9 months using this consultant that they called some kind of a Government excellence consulting firm in Washington DC, the only thing that I know from the broker who was involved with that is that most people always remember their experience with GRP and everything that happened, and it was given continuously, it was been surfaced as an example of performance within the centre and so on and son. But I am not really taking the time to do much about that because on the basis of verbal commentary and the follow-up, we are satisfied that they are all very satisfied you see.

Roxana: and the type of changes for the organisation that were implied by this project, what would you describe them in terms of their importance for them ? were they sort of major changes ?

Dr. Christakis: they keep revisit it, very revolutionary, they talk about that as being a major revolution and a major breakthrough in terms of their project, because they needed to that .. have to do a lot with congressional pressure for reforming that organisation For the whole idea of reinventing the Government here, there's a movement by this administration to re-invent the Government, and the main business of this centre is reviewing drugs, if they did not improve the process of review and show that as an example of re-inventing themselves, they might have been in real trouble, there was talk about abolishing that centre by Congress, to abolish the whole review process because it was too slow and too cumbersome, and right now as we speak the congressional committees, they're going to give them... they gave them four years, they actually approved legislation in September - October of 1993 to improve themselves, they told them if you don't improve yourselves, we are going to abolish you. They started working with us in January of 1994, when I started to go around and observing what they were doing, now they are being re-evaluated by Congress and most indications is that they will be extended, as opposed to abolished. 4 years later ... they gave them 4 years and now they are being re-evaluated and all the indications are Congress is happy with their performance.

Roxana: and then that means, that there were major changes in the...

Dr. Christakis: major, major, major changes, to the point that they will get more ... I mean they were given what is a ***saset close, if they don't perform they were going to close it, so now they are not only not closing them, but they are giving them more money too.

Roxana: and, given these major changes that were implied in the results of the project, do you ever worked with them about the need for ... designing an strategy for implementing the changes or was that part of the design process ?

Dr. Christakis: well, actually that's a very good question, what we actually do ... that's a very good question and that's a question that has been touched briefly in that report, if you look at the report that I gave you, I sent it to you after the London meeting. In that report there is an example of what to do once this thing is conceptualised, we recognised that... it has to be revisited because the fact that they have come up with a design that doesn't mean that it will ... and once we start implementing that design everything will start changing you see, so the result of that intervention and this designing ... the outcome of the design is that it creates a new world for them, so the moment the world is being changed, we recognise that's part of the things that we embedded into the continuity, that we can go back and either revisit some things and change them, just like the iterations that happened within the unfolding, but only that, we can actually revisit and say now tell us what are inhibitors or barriers to implementing the idealisation, and that's another intervention, it's an intervention that is actually embedded by the idealisation or within the idealisation, we intervene and we say now you have this idealised design, are they components of it that you want to change, and are things that inhibit you to implement it.

Roxana: and you try to..

Dr. Christakis: right, right.

Roxana: and for them, the expected benefits were in the most part non-tangible, intangible benefits, they didn't have for example in this reviewing process, specific targets in terms of time for reviewing a drug or things like that ?

Dr. Christakis: oh actually... well the intangibles are very valuable as you know, I mean sometimes are more valuable than the tangibles, but the tangibles here is the implementation of the action plan that they agreed ... they designed a collaborative action plan and the most tangible in fact what they did, is they had this in their offices, they displayed it everywhere as a visual, very tangible way of what they were supposed to do, that then became their agenda for action you see, and there's nothing more tangible than action that comes as a result of cognition you see, this is described a little bit in that paper that I gave you, a paper where I talk about the people science and that is described a little bit of how action and cognition are very very closely linked and if people talk it they can walk it you see, I don't know if you can ... you cannot walk it unless you talk it, however, you can talk it and not walk it..

Roxana: yes, I have heard that from you.

Dr. Christakis: right, so what we try to do is we say we want you to talk it because the likelihood is that you might walk it, and we really engage you in the talk, and we believe that after you talk it you might walk it, now after you finish talking it if you experience problems with walking it, we are here to help you too, which is the answer to your question you see, in other words, there is no guarantee that after they talk it they will walk it, but we know they wouldn't walk anything unless they talk it, specially if it is not going to be a conversation that involves everybody you see, that's the breakthrough.

Roxana: yes. Well, regarding the whole context of the project, I would like you to tell me, in your opinion, which were the major problems that you faced in this project ? in carrying out this project ?

Dr. Christakis: In terms of ... this project ? the whole thing ? in the beginning ? the whole thing ? or the beginning ?

Roxana: the whole thing.

Dr. Christakis: the whole thing ? the major problems that we encountered with this whole thing ... well, there are some individuals within that centre, fortunate it's a minority, that they are very upset with the outcomes because they lost power and control, and what we do by definition as you know, is democratise, we have democratised everybody there and we have liberated people, so as a result of democratisation and liberation of the powers, the people who had power are very angry with it, so I void these people when I go to this agency, I usually take some bodyguards with me...

Roxana: I see, but haven't they made explicit action against the results ? or...

Dr. Christakis: they have tried, yes they have tried to undermine the results, and one of them who has been very powerful, I mean we have tracked him a long-time ... you see what happened is his territory was very big , we really reduced his territory, because of his expertise we said ok you will be, ... that is your turf, your territory, the rest is to be distributed to others, he then made a declaration... oh well this territory is really the essence of everything so when I finish with that I finish with everything else, however they let him believe that and they let him work on that but when he finished, the director said ok thank you very much, now we are going to see how it fits the rest of it, so she in essence allowed him the illusion or the freedom or whatever to believe that his was everything, when he produced his object which actually happens to be a report, she then said that report is to be distributed and see how it fits with everything else that is going on and if it doesn't we're going to modify it ,you see ? So although he tried to come back ... in a sense, re-inventing his role by declaring that he's still the dominant person or he can still dominate the discourse, just because he has that pocket you see, he has not won ... in fact with time he has been, not demoralised, but his role has been redefined as an important role but not the universe you see.

Roxana: so these kind of problems were the most relevant ?

Dr. Christakis: these were the most important problems, the most difficult problems, they always are, and they always come back, and this is why this is a very hard work because ... the work really is a continuous revolution for me, as far as I am concerned, to democratise everything and as you know for example, you know if you think about what's happening in your country and why your country is in bad shape, it is in bad shape because of the dominance of an elite and a minority and the power has been concentrated in these people, and that concentration of power is in essence the antithesis of what the situation requires for progress, so what happens in the large in Mexico, happens all over the planet, people who in fact gained power in the name for protecting democracy and the moment they gain the power they declare that we don't need democracy anymore, we've got now ! I am in power... So that's the most significant and exhausting problem of how do you actually legitimise sort of not representative, but participative democracy in many many organisations, in communities, everywhere, that's why I refer to the book.. you see Banathy does a very good job about democracy in his book, in terms of designing social systems, so you should look at that book ... you can order it ... may be is in the Library in Mexico, may be they have it yes.

Roxana: I think I ordered it for the library, but I'm not sure we have it already.

Dr. Christakis: ok, it's an interesting thing, that's why I am raising it, yes.

Roxana: Well, last question regarding the project is ... you mentioned that sometimes you make other activities besides the IM group activity, did you happen to make some of those in this case ?

Dr. Christakis: no, this is something that my partner Patakos is going to do.

Roxana: ok.

Dr. Christakis: he is going to start that and I can't wait. So we have not yet... that's really what we call now the expansion of this company, this company so far has really state within IM, but you recognised ... he persuaded me that in our website we have included the other activities...

Roxana: ok, that's very important.

Dr. Christakis: very important, very smart and I'm grateful for doing that.

Roxana: yes.

Dr. Christakis: oh... another page, I thought we have done...

Roxana: oh... we are done, these are just general questions that I might discuss with you later on, among these ones, there is only one which is related to the project...

Dr. Christakis: ok

Roxana: and it is, when would you consider, if ever, that an IM project might be a failure ? or might be, well may be not a total failure but ...

Dr. Christakis: yes

Roxana: as opposed to really being a success.

Dr. Christakis: yes, that's a good question. Well, I really think that that's the indicator that I use, not only in terms of the closure or the finale, but even as it unfolds, as it unfolds ... really the indicator is the learning from each other, how the people who are engaged learn from each other, so success is really for me a cumulative learning experience, so the failure would be if people spend whatever time they spend and you ask them did you learn anything ? and I do ask them, did you learn anything ? that's all I ask during breaks, are you learning ? informally, are you learning anything or what's going on ? are you learning ? that's the only thing that I expect, while they are learning, they can also determine that through the learning they can actually become more competitive, in projects that have to do with product development the indicator is are we learning faster that our competitors and if we are going to produce this, would it come on in the market place to be competitive in terms of price and quality so that we get a return on our investment, or we would generate something that is useless and not good quality and we have invested half a million dollars, so in those arenas however the learning is important, because they can learn to discontinue it you see ? as you know, they can say I learned enough that this is absolute bullshit and we should not go ahead doing it, so is not only a matter of coming up with it, it's also saying we should not doing it, that is a good indicator, we in fact, our great successes have been discontinuing projects, products, we have not yet anybody to produce anything ... ja, ja, ja...,

Roxana: I don't believe that...

Dr. Christakis: but we have helped them to say stop it.

END OF SIDE B OF THE CASSETTE

APPENDIX I

TWO EXAMPLES OF THE ANALYSIS OF THE INTERVIEWS

	Practitioner	**ALEXANDER CHRISTAKIS**		**HENRY ALBERTS**	
	Main project:	*Designing the good review practice initiative*	*General Comments*	*Defense Acquisition System*	*General comments*
	Planning the Intervention				
1	Aims of the intervention.	Designing or re-designing the GPR - good review practices		The Secretary of Defense wanted to know why the acquisition process wasn't producing on time in cost delivery. Henry started to work on what the programme managers do as a part of another initiative. Both aims converged at some point in time.	
2	Scope of the intervention.	We work in terms of projects, not workshops. The Handbook (IM) promotes the idea of working only with workshops and that is a wrong perspective for dealing with complex issues.		It was an unfolding process of inquiry with no predeter-mined scope. It initiated because DSMC wanted to know what the programme mana-gers do in order to better train them.	
3	People involved in the planning process.	The broker, an MD, someone from CWA, a PhD (S3), Dr. Woodcock - around 5 people			
4	General characteristics of the planning process.	They conducted interviews (approxi-mately with 20 people), attended the meetings, reviewed documentation.	Planning a workshop sometimes takes 3 months.	There was no plan for the whole pro-ject, it progressed on the basis of "pulling the thread". The more we learn, the more we learn what to look for.	

5	Understanding of the situation.	Aleco went to listen to the meetings of various committees that were already working on the GRP; it legitimised that they needed an open and focused dialogue			
6	Objectives of the project.				
7	Definition of participants and their roles for the whole intervention.				
8	Selection of participants for the IM workshops.	It's a situational work, nor scientific or rigorous.	We distinguish a definitional (red), design (blue) & action plan (green) stages, & identify people based on their roles in these stages. Those w/ 2 colours are transfer agents There's a choice (yellow) stage between the blue & green	They asked the commanders to send the cv's to get the experience they need to investigate the issues	Roxana: as in the case of Guanajuato there were people who wanted to participate when they knew about the workshops, Henry said they refused some of them
9	Broker's training.				
10	The planned work sequence				
11	Briefing the participants in the IM process.	Production of a white paper, but not specific work with the future participants			
	Client of the project	Center for Drug Evaluation and Research (the leader was Dr. Janer Woodcock), the sponsor was the Office of the Commissioner of the FDA	The clients usually don't have a clear idea of what to expect from the IM work	There were different clients for the workshops at different stages. First, DSMC, then the under-secretary, then the Inspector General, and so on, but everything was related to the same system. In the end the client was the people of the US, the Congress.	

	Characteristics of the Inquiry Component				
1	*Characteristics of the Inquiry Process as a Whole*				
1.1	Activities carried out during the inquiry process.	3 workshops, interviews and others		N workshops. The section 800 panel to study the related laws as a system. In the design work Henry used the Hay method to organise functions and calculate costs	
1.2	Time framework of the inquiring effort	1st. 1994 - 3 months		6 years	
1.3	Total duration of the IM activity	1st. 6 days of dedicated work (2 days per workshop)		On average each workshop lasted 5 days; smart munitions lasted only 3 days and a fourth day for summation. Sometimes they gathered in the evenings to continue the exploration of issues. The design process took 3 conventions: 5, 3 and 2 days	
1.4	Participants	1st.: 65 people, starting with a subgroup and during the following stages the group kept on growing, by the end everybody was involved	They distinguish between active, supportive and observers	We restricted the grade levels of the participants.	
1.5	Observers				

1.6	IM Facilitation Team	We have project teams -5 to 9 people - they have doctors, OD experts, they give us expertise - content expertise - about the project, sometimes they go to the workshops to observe		The facilitator should have an understanding of systems. The IM practitioner is the only way to put all together (outcomes of various work-shops) on a pro-blem of great com-plexity. He/she's been in all the workshops, under-stands the dynamics of the group and has a stake in the usefulness of the products	
1.7	Consistency of the actual process with the original plan	90 % of the time we implement the plans for the projects as we have designed in advance			
1.8	Iteration in defining the conceptual outcomes.	Yes, there was continuous iteration and review, nothing is really frozen until the last report, it is a snapshot. In this case there were changes	Sometimes conducted interviews or Delphi's bet-ween the sta-ges, the tran-sfer between stages is non-trivial		
1.9	Documentat-ion		We produce a project book which incor-porates all the material pro-duced around the project. It is organised by colours in the sections related to the workshop, but it includes all kinds of supportive materials		
1.10	Appropriat-eness of the products developed.	1st. an action plan			
2.	*Characteris-tics of Each Workshop*				

2.1	Objectives of each workshop				
2.2	Time distribution of each workshop.			1st day: contextual (previous results)	
2.3	Participants				
2.4	Observers				
2.5	IM methods used				
2.6	Other activities or methods used besides IM				
3	*Socio-Psychological Processes*				
3.1	Individual's attitudes and expectations		Nobody understands what we do, its through the advocacy of previous clients that others get interested		
3.2	Group climate				
3.3	Group development processes				
3.4	Sub-group formation				An issue was when we had votes of 7 to 5 and people getting together and holding to opposition, you need to reframe the issue to get an agreement

3.5	Group cohesion	There was a lot of emotional dissonance, but it dissipated over time (2 years).	Peer pressure to inhibit expression can only dissipate after a while, you need to talk about a continuum (project) and not only a workshop		
3.6	Conflict present and its resolution		Distinguishes between real and pseudo (unreal or illusionary) conflicts		
4.	*Conceptual Outcomes*				
4.1	Characteristics of the ideas generated				
4.2	Characteristics of the structural models developed	1st: influence, 2nd. superposition, 3rd. temporal order		Most workshops did problematiques and some actions to solve the problems.	
4.3	Transparency of the structural models				
4.4	Other conceptual outcomes			The workshops created an opportunity to understand the situation in breadth to see where it was going to	
4.5	Responsibility for follow-up			Very often action should be taken by people not present in the workshops	
4.6	Follow-up specific commitments				
4.7	Implementation plan	Yes			
4.8	The 'transparency' of the conceptual outcomes regarding their implementation				

5.	*Socio-psychological Outcomes*				
5.1	Level of consensus		This is built throughout the process, we don't know how to measure it		
5.2	Level of satisfaction		We have an instrument at the end, an evaluation form, among other things we ask how do they relate to the final products, usually we get very good results	There's a story about a Colonel who refused the process at the beginning and then became a sponsor for a workshop in the West Coast	
5.3	Level of commitment for action				
5.4	Other socio-psychological outcomes of the IM workshops	We changed the culture of the organisation, at the end they were able to idealise the process			If you want a guess I would suggest that either their behaviour cannot help but be modified by the experience, but that's true of any experience
	Other reactions to the workshop			People kept on coming because the individual participants got benefits for their areas from learning about the situation	
	The Relationship Between Inquiry and Action				
1	Role of the IM broker in the follow-up			Henry was responsible for the follow-up	

2	Role of the IM participants in implementation	Some of them participated in implementation		Example: 1 participant contacted his senator to tell him about the problems found in the workshop	All participants have their sphere of influence in which they can act. If IM is set up correctly it'll have the people who can begin the implementation, they will understand what they need to do and will become implementers in their own way
3	Role of the IM observers in implementation	Some of them participated in implementation			
4	Role of relevant authorities in inquiry and implementation				
5	Relationship of the implementation actors with the inquiry process.	An implementation team was formed (CIT), through this and other projects around half of the people (a total of 1000) have been exposed to IM. Aleco did not know about people involved in implementation who did not participated in the IM project			An implementer is anybody who can take action that affects what is done. The best way to get implementation of a group product is to make sure that a lot of people know the outcomes... More than 1 has a good probability of picking it up...

6	Communication of results			After the first 5 workshops Henry briefed the Secretary and he recognised that it was not a quick fix problem. Henry distributed the reports of the workshops to different people who could do something about the outcomes	
7	Institutional support for implementing the outcomes of inquiry				
8	Iteration between action and inquiry			There was a case in which a proposal was made to eliminate and agency, the executive could not accept it and the group had another workshop to propose an alternative solution	
	Role of the IM team in implementation	Some outcomes required further IM work because they implied team work and were complex issues			
	The Characteristics of the Action Component				
1	Implementation actors				
2	Motivation and commitment				
3	Availability of resources				
4	Power and authority			The Secretary introduce new offices in different areas to help speed up the process. The ultimate issues had to do with Congress	
5	Communication processes				

6	Learning and adjustments				
	Follow-up	The organisation worked on some proposals and used IM (CWA) for others			
	The Context of the Intervention				
1	History of the situation	CWA was contacted because of the work they had done with the pharmaceutical industry			
2	Characteristics of the organi-sation(s) concerned				
3	Organisational culture				
4	Power structures and political issues			Even though 1 participant agreed with the process and outcomes of a particular workshops, he didn't signed the final proposals because he though they were not politically acceptable, his boss would fire him if he did	
5	Stakeholders not involved in the intervention process				
6	Communicat-ion processes	They had the plan displayed in their offices , it became an agenda for action			
7	Major changes in the situation			Constant changes were happening in DoD and in the world economy and political situation	
8	Implications of the propo-sed changes for the organisation(s) concerned	The organisation considered the project a major revolution.			There's no permanent solution

	Final Results of the Intervention				
1	Level of accomplishment of implementation	After three years there were proposals already implemented and some that were not			
2	Effectiveness of implementation				
3	Changes in the situation	"you cannot walk it unless you talk it; however, you can talk it and not walk it..."			
4	Socio-psychological changes				
5	Relevance of the final results	The centre had 4 years to change or else it would be abolished by Congress, then 4 years later they were likely to be extended by giving them more money	Success if for me a cumulative learning experience. That's the only thing I ask all the time, did you learn anything ?		IM is a bounded system of inquiry... it provides as close as you can come to a standard meter bar - as a consistent process it gives you confidence in that the process capability to elicit results that are useful (a repeatable process)
6	People's reactions to the intervention effort.	There were some people who lost power and control, this process democratise, therefore there were negative to the outcomes. In particular one person was opposed, but the leader of the centre handled the situation	The main problem is how to legitimise a participative democracy (not representative)	The final changes were too distant from the project (congressional changes) to react negatively to the project	
7	Negative consequences of the project				
8	Final assessment of the intervention				

	Various comments				The most important lesson: if you start with a plan you would be limited by the plan, if you start to develop knowledge ... Understanding is an iterative sequential process. You start with something and find out other things that are needed

APPENDIX J

EXAMPLES OF GROUPINGS INTO COMMON THEMES OF THE RESULTS OF THE INTERVIEWS

SOME GROUPINGS OF THE IDEAS PROVIDED DURING THE INTERVIEWS WITH IM CLIENTS

a) Implementation / usefulness of the outcomes

- The results (technology project) were used for other purposes than the original ones (F. Jaimes)
- The report was most useful, I keep a copy of it among the documents I use the most (S. Sierra)
- The report was used a lot to check the characteristics of the undergraduate programme (S. Sierra)
- They've worked on most of the goals, there is progress on all of them though not the same. (T. Sanchez)
- Important things have been implemented: a newsletter, a research unit was created, more consulting (T. Sanchez)
- I think we implemented about the 80% of the goals stated (the majority) (J. Garcia)
- Today there's only one major eco-problem left but it has to do with a large investment and new technology. (J. Garcia)
- The only goal which was not touched was the one related to suppliers (J. Garcia)
- 2 of the participants presented proposals to international agencies but they didn't manage to get the resources from various international funds (F. Jaimes)

b) Satisfaction

- People was pretty satisfied with the experiences (F. Jaimes)
- The participants ended up very happy even though there was no clear consensus (S. Sierra)
- Everybody was very happy with the results (T. Sanchez)
- We were very happy with the results, they were rich and insightful (J. Garcia)
- By the end of the workshop we were all very tired (R. Angel)

- Very good climate (T. Sanchez)
- We wanted to be trained in IM (J. Garcia)

c) External contextual obstacles

- For the two masters: these were whole new programmes with no traditional (existent) professional market, the need outside the university was not clear. These programmes were particularly difficult. (F. Jaimes)
- Architecture has no tradition in graduate programmes – the situation is very complex (S. Sierra)
- A master on architecture has low profitability (S. Sierra)
- As a part of the operational plans they became part of the responsibilities of someone (J. Garcia)

d) Time availability.

- The faculty and head of dept were involved in too many activities (S. Sierra)
- The major problem is the lack of time since we are all involved in too many activities (Ruth Angel)
- People is involved in too many activities (Tomas Sanchez)

e) Internal support (context)

- There was no pressure to open up the programme (S. Sierra)
- The architecture undergraduate programme was to be opened in other campus and the authorities decided to stop the graduate initiative until knowing how to integrate all the efforts (S. Sierra)
- The president suggested to pursue one of the paths the faculty didn't choose (R. Angel)
- The provost initiated the design of a new career that affected the departmental plans to work on their own idea. The department was not aware of this initiative until very late (R. Angel)
- The Dean supported the outcomes and process, he recommended it to Humanidades (T. Sanchez)
- They tried to adjust their plans to those of ITESM in order to harmonise their efforts with those of the institution (T. Sanchez)
- The results and progress are now reported in terms of the official planning format of ITESM – this has been on purpose in order for them to be accepted (T. Sanchez)
- The timing was very appropriate because of the change in head of department (T. Sanchez)
- The president of the board was leading this effort and has been pushing the organisation in the direction of ecological matters (J. Garcia)

f) Relationship between inquiry and action (implementation plans and follow-up)

- Follow up consisted in designing in detail the master programme – 5 of the participants were involved in this design (S. Sierra)
- Carmen is helping them with the follow-up, "we'll continue by her hand all through the end" (R. Angel)
- Based on the results of the workshop each faculty made a personal development plan (T. Sanchez)
- Tomas was in charge of follow-up and of many details to start implementation.
- They have periodical meetings to report progress and follow up (T. Sanchez)
- They had several facilitated meetings and some on which they worked on their own (T. Sanchez)
- They established a mission statement without the facilitator's support (T. Sanchez)
- They took the goals and distribute the responsibilities for them among the faculty members. Each person made his/her own plan. Some goals were assigned to everybody. (T. Sanchez)
- They didn't make specific implementation plans, these were up to the responsible of each goal (T. Sanchez)
- The results of the workshops were incorporated into their operational plans. They were translated into specific goals, actions, responsibilities and measures of performance. (J. Garcia)
- We selected some goals of the final structure and decided to concentrate on them. We made a prioritisation (J. Garcia)

g) Planning

- They never made a quantitative study for the masters (good wishes) (F. Jaimes)
- Planning was carried out only by Carmen and Ruth (R. Angel)
- Carmen and Tomas made the planning. Carmen consulted some 2 other faculty members (T. Sanchez)
- Tomas worked on sensitising the faculty during several months (T. Sanchez)

h) Commitment

- All the faculty members decided to get involved (committees) (R. Angel)
- People is motivated because they see a sense in what they are doing – this was a great achievement (T. Sanchez)
- They tried to involve other people from ITESM but they didn't commit (F. Jaimes)

i) Conceptual outcomes (clearness)

- We didn't have a clear consensus after the workshop (architecture) so it wasn't clear the way to proceed (F. Jaimes)
- The outcomes of the two workshops (masters) were not useful for making the needed decisions; however, the dialogue helped Jaimes to realise the difficulties in managing such a programme (natural resources) (F. Jaimes)
- The original issue (splitting the dept in 2) was not even considered in the outcomes and process of the workshop (R. Angel)
- We now have a clear idea of were we are going (R. Angel)
- Decision making has improved because there is now a guiding vision (T. Sanchez)
- The goals defined were very clear, concrete and feasible (J. Garcia)
- We used to perceive the situation as "shapeless", we knew there were areas of opportunity but didn't know how to tackle them (J. Garcia)

j) Socio-psychological outcomes

- It helped to integrate ourselves within the dept (R. Angel)
- There were 2 differentiated groups in the dept and the project helped to integrated them as a team (T. Sanchez)
- The department got more united and integrated (T. Sanchez)

APPENDIX K

RELATIONSHIPS ESTABLISHED BETWEEN THE RELEVANT FACTORS THROUGH THE ISM PROCESS

FACTORS		YES	NO	Field Research Support
A	*B*			
1.30	1.10	y		Int's w/practitioners - case
1.10	1.30	y		Int's w/ pract's and clients
1.30	1.20		n	
1.20	1.30	y		Int's w/ pract's and clients
1.30	1.40	y		All: interviews and case
1.40	1.30	y		Case Study
1.30	1.50	y		Int's w/practitioners
1.50	1.30		n	
1.30	1.60	y		Int's w/ IM clients
1.60	1.30		n	
1.50	1.60	y		Int's w/practitioners
1.60	1.50		n	
1.30	1.70		n	
1.70	1.30	y		Int's w/practitioners
1.20	1.70		n	
1.70	1.20		n	
1.30	2.10	y		Int's w/practitioners – case
2.10	1.30		n	
1.60	2.1.1		n	
2.1.	1.60		n	
1.50	2.10	y		Int's w/practitioners - case
1.30	2.12	y		Int's w/practitioners - case
2.12	1.50		n	
1.60	2.12		n	
2.10	2.12		n	
1.50	2.12	y		All: interviews and case
2.12	1.60		n	
2.12	2.10		n	
1.30	2.13	y		All: interviews and case
2.13	1.50		n	
1.60	2.13		n	
2.10	2.13		n	
2.12	2.13		n	
1.50	2.13	y		All: interviews and case
2.13	1.60		n	
2.13	2.10		n	
2.13	2.12		n	
1.30	2.14	y		All: interviews and case
2.14	1.50		n	
1.60	2.14		n	
2.10	2.14	y		Int's w/practitioners
2.14	2.10		n	
2.12	2.14	y		All: interviews and case
2.13	2.14		n	
1.30	2.41	y		Int's w/practitioners
2.41	2.10		n	

FACTORS		YES	NO	Field Research Support	FACTORS		YES	NO	Field Research Support
A	*B*				*A*	*B*			
2.10	2.41	y		Int's w/practitioners	2.53	2.10		n	
2.41	2.14		n		2.53	2.14		n	
2.12	2.41	y		Case Study	1.50	3.10	y		Int's w/practitioners
1.60	2.41		n		3.10	2.51		n	
2.13	2.41		n		2.14	3.10	y		Int's w/ pract's and clients
2.14	2.41	y		Case Study	2.41	3.10	y		Case Study
1.50	2.42	y		Int's w/practitioners	3.10	2.41		n	
2.42	2.14		n		2.13	3.10	y		Case Study
2.10	2.42	y		Int's w/practitioners	1.60	3.10	y		Int's w/ IM clients
2.14	2.42	y		Int's w/practitioners - case	2.52	3.10	y		All: interviews and case
2.41	2.42	y		Case Study	1.50	3.20	y		Int's w/practitioners - case
2.42	2.41	y		Case Study	3.20	2.41	y		Int's w/practitioners – case
1.50	2.51	y		Int's w/ IM clients	2.10	3.20	y		Int's w/practitioners - case
2.51	2.14		n		2.14	3.20	y		Int's w/ IM clients
2.14	2.51	y		Int's w/ IM clients	2.51	3.20		n	
2.51	2.41	y		Int's w/ IM clients	3.20	2.51		n	
2.41	2.51		n		2.53	3.20		n	
1.50	2.52	y		Int's w/practitioners	3.20	2.52	y		Int's w/practitioners – case
2.52	2.51		n		1.50	3.30	y		Int's w/practitioners
2.14	2.52	y		Int's w/ IM clients	2.14	3.30		n	
2.52	2,41		n		3.30	2.51		n	
2.41	2.52		n		3.30	2.41		n	
1.60	2.52		n		2.10	3.30	y		Int's w/practitioners
2.13	2.52	y		Int's w/practitioners - case	3.30	2.52		n	
2.51	2.52	y		Int's w/ IM clients	1.60	3.30		n	
1.50	2.53	y		Int's w/ IM clients	2.12	3.30		n	
2.53	2.51	y		Case Study	2.13	3.30		n	
2.10	2.53	y		Int's w/practitioners	2.53	3.30		n	
2.12	2.53		n		3.30	3.10	y		Int's w/practitioners - case

FACTORS		YES	NO	Field Research Support	FACTORS		YES	NO	Field Research Support
A	*B*				*A*	*B*			
1.50	3.40	y		Int's w/practitioners - case	3.20	3.60	y		Int's w/practitioners
3.40	2.41		n		3.60	2.52	y		Int's w/practitioners
2.14	3.40	y		Int's w/practitioners	3.60	3.40	y		Int's w/practitioners
2.41	3.40		n		2.10	3.70	y		Int's w/practitioners - case
2.51	3.40		n		3.70	2.41		n	
					2.51	3.70		n	
3.40	2.52		n		2.14	3.70	y		Int's w/ IM clients
1.60	3.40		n		3.70	3.50	y		Int's w/practitioners - case
2.13	3.40	y		Int's w/practitioners	3.30	3.70	y		Int's w/ mex practitioners
2.53	3.40		n		3.20	3.70	y		Case Study
3.20	3.40	y		Int's w/ IM clients	2.13	3.70		n	
3.30	3.40		n		2.53	3.70		n	
3.40	3.10	y		Case Study	3.60	3.70	y		Int's w/practitioners
2.10	3.50	y		All: interviews and case	2.10	4.10	y		All: interviews and case
3.50	2.41		n		4.10	2.41		n	
2.51	3.50	y		Int's w/ IM clients	2.51	4.10	y		Int's w/ IM clients
2.41	3.50	y		Int's w/ IM clients - case	2.41	4.10	y		Int's w/ IM clients - case
2.52	3.50	y		Int's w/practitioners - case	3.50	4.10	y		Int's w/ IM clients - case
3.10	3.50		n		1.60	4.10	y		Int's w/ IM clients
1.60	3.50		n		3.10	4.10	y		Int's w/practitioners - case
3.30	3.50	y		Int's w/practitioners	4.10	3.10	y		
3.40	3.50		n		2.10	4.20	y		Int's w/practitioners
3.50	3.10	y		Case Study	3.60	4.20	y		Int's w/practitioners
2.10	3.60	y		Int's w/practitioners	4.20	3.50		n	
3.60	2.41	y		Int's w/practitioners	2.41	4.20	y		Int's w/ IM clients - case
2.14	3.60	y		Int's w/practitioners	3.50	4.20	y		Case Study
2.53	3.60		n		3.10	4.20		n	
3.60	2.51		n		4.20	3.10	y		Int's w/practitioners - case
3.60	3.20		n		1.60	4.20	y		Int's w/ IM clients

FACTORS		YES	NO	Field Research Support	FACTORS		YES	NO	Field Research Support
A	*B*				*A*	*B*			
3.40	4.20		n		2.53	4.50		n	
2.10	4.30	y		Int's w/practitioners - case	2.14	4.50		n	
3.60	4.30	y		Int's w/practitioners	4.50	4.30		n	
4.30	3.50		n		4.50	3.40		n	
2.41	4.30		n		4.40	4.50		n	
4.30	3.10	y		Case Study	1.60	4.50		n	
2.51	4.30		n		3.30	4.50		n	
3.30	4.30		n		2.13	4.50		n	
3.40	4.30		n		2.12	4.50		n	
4.30	3.40		n		4.50	4.20	y		Case Study
1.60	4.30		n		2.10	4.60	y		Int's w/ IM clients
2.13	4.30		n		4.60	3.50	y		Int's w/ IM clients - case
2.53	4.30		n		3.20	4.60	y		Case Study
4.30	4.20	y		Case Study	2.53	4.60		n	
2.10	4.40		n		4.60	2.41		n	
4.40	3.60		n		3.30	4.60		n	
4.40	3.50		n		2.13	4.60		n	
1.30	4.40	y		Case Study	3.60	4.60		n	
4.40	4.20	y		Case Study	4.60	3.40		n	
1.60	4.40		n		4.60	4.30	y		Int's w/ IM clients - case
2.13	4.40		n		4.60	2.52		n	
2.12	4.40	y		Int's w/practitioners - case	4.60	3.70	y		Case Study
4.40	3.40		n		2.10	5.10		n	
4.40	4.30		n		5.10	3.60	y		All: interviews and case
2.10	4.50	y		Int's w/practitioners - case	5.10	2.10	y		All: interviews and case
4.50	3.50		n		5.10	1.30	y		All: interviews and case
2.41	4.50		n		1.30	5.10		n	
3.60	4.50		n		1.20	5.10		n	
4.50	3.10	y		Case Study	1.70	5.10		n	

FACTORS		YES	NO	Field Research Support
A	*B*			
5.10	1.20	y		Int's w/ IM clients
5.10	1.70		n	
2.10	5.20		n	
5.20	3.60	y		Int's w/practitioners
5.20	2.10		n	
1.30	5.20		n	
5.20	2.14		n	
1.20	5.20	y		Int's w/practitioners
5.20	2.51		n	
5.20	3.20		n	
1.70	5.20		n	
5.20	1.60		n	
5.20	4.40	y		Case Study
5.20	3.30		n	
5.20	2.13		n	
5.20	4.50	y		Case Study
5.20	4.60		n	
2.10	5.30		n	
5.30	3.60		n	
5.30	3.50		n	
1.30	5.30	y		All: interviews and case
5.30	4.20		n	
5.30	3.10	y		Int's w/practitioners
2.12	5.30		n	
1.60	5.30		n	
2.13	5.30		n	
5.20	5.30	y		Int's w/practitioners - case
1.50	5.30	y		All: interviews and case
5.30	3.40		n	

FACTORS		YES	NO	Field Research Support
A	*B*			
2.10	5.40		n	
5.40	3.60	y		Int's w/ pract's and clients
5.40	2.10		n	
1.30	5.40		n	
5.40	3.20	y		Int's w/practitioners - case
5.40	2.14	y		Int's w/practitioners
5.40	5.20		n	
1.20	5.40		n	
5.40	4.40	y		Int's w/ IM clients
1.70	5.40		n	
5.10	5.40	y		Int's w/practitioners
5.40	5.30		n	
5.40	1.60		n	
5.40	4.50		n	
5.40	3.30		n	
5.40	2.13		n	
5.40	2.53		n	
5.40	2.12		n	
2.10	5.50		n	
5.50	3.60		n	
5.50	3.50	y		Int's w/practitioners - case
1.30	5.50	y		Int's w/practitioners
5.50	2.41	y		Int's w/ IM clients
5.50	2.51		n	
2.12	5.50		n	
5.40	5.50		n	
5.20	5.50		n	
5.50	3.70	y		Int's w/ pract's and clients
5.50	2.13		n	

FACTORS		YES	NO	Field Research Support	FACTORS		YES	NO	Field Research Support
A	*B*				*A*	*B*			
5.50	4.30	y		Int's w/practitioners	5.50	4.40	y		Int's w/ pract's and clients
1.50	5.50		n		5.50	4.50	y		Int's w/ pract's and clients
5.50	3.40	y		Int's w/ IM clients	5.50	2.52	y		Int's w/ pract's and clients
5.50	5.30	y		Int's w/practitioners	5.50	3.30		n	
5.50	1.60		n		5.50	4.60		n	