SCANNING THE BUSINESS ENVIRONMENT FOR INFORMATION: A GROUNDED THEORY APPROACH

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ABSTRACT

This thesis examines the scanning of the business environment for information by a sample of Portuguese chemical companies. Nineteen companies were studied and forty senior managers were interviewed during 1992. The methodology used coupled the multiple case study approach with the grounded theory method of qualitative analysis.

The grounded theory proposed in this thesis comprises three main components: the categories, the principal relationships among them and the contextual factors that shape the categories and relationships. Variability among companies is explained by a few key relationships among these categories. Environmental scanning is the phenomenon under study and constitutes the core category, to which the other six categories that emerged out of the qualitative data analysis were related: perceived environmental change and strategic change, information consciousness and information climate, organizational outwardness and individual exposure to information. The relationships identified among these categories contribute to understanding how managerial perceptions of environmental change affect strategic change and also how internal factors of an organizational, as well as of an individual, nature influence the environmental scanning activity. From an internal perspective, the contextual factors include company history and culture; from an external perspective, those factors include the overall economic, social, cultural and political conditions that characterize modern Portugal and shape those organizations, to a certain extent.

This research unravelled three main issues concerning the problematic of environmental scanning in Portuguese chemical companies: 1) The scanning focus and scanning mode used by managers are inappropriate to deal with the important discontinuities they perceive in their business environment; 2) The integration of environmental information with internally-generated information is achieved only at top level, by means of senior managers' ability to relate and integrate disparate data provided by the functional areas; 3) Organizational culture emerged as an important factor in the analysis of information issues within organizations. However, the fact that the three "best" companies have developed different sorts of information cultures suggests that there is not a "best" culture: different cultures may be required for different contexts.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDA:	Industrial Association of the district of Aveiro
AIP:	Portuguese Industrial Association
APIFARMA:	Portuguese Association of Pharmaceutic Industrials
CEC:	Commission of the European Community
CEP:	European Confederation of Paints
CIP:	Confederation of the Portuguese Industry
DGI:	Government Board for Industry
EC:	European Community
ESPRIT:	European Strategic Programme for Research and Development in Information Technology
EU:	European Union
FEDER:	European Regional Development Fund
FSE:	European Social Fund
GDP:	Gross Domestic Product
GATT:	General Agreement on Tariffs and Trade
IAPMEI:	Institute for the Support of Small and Medium-size Enterprises and the Investment
ICEP:	Institute for the External Commerce of Portugal
INE:	National Institute of Statistics
INETI:	National Institute of Engineering and Industrial Technology (formerly National Laboratory of Engineering and Industrial Technology)
IPQ:	Portuguese Institute for Quality
LNEC:	National Laboratory of Civil Engineering
MIE:	Ministry of Industry and Energy
PEDIP I:	Specific Programme for the Development of the Portuguese Industry
PEDIP II:	Strategic Programme for the Dynamization and Modernization of the Portuguese Industry
PITIE:	Integrated Programme for Information Technologies and Electronics

SIBR:	System of Incentives of Regional Basis
SIPE:	System of Incentives to Endogenous Potential
SIURE:	System of Incentives to the Rational Utilization of Energy
SPRINT:	Strategic Programme for the Transnational Promotion of Innovation and Technology Transfer

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CHAPTER ONE: INTRODUCTION

1.1. THE RESEARCH PROBLEM

Information seeking is an activity undertaken with the purpose to identify and select information to satisfy a previously detected information need, the satisfaction of which would enable the individual to solve a problem or make a decision. Rouse and Rouse (1984) reviewed the contributions to the body of knowledge on human information seeking, of disciplines such as psychology, library science, management, computer science and systems engineering, described information seeking as "the process of identifying and choosing among alternative information sources" (1984:131) and concluded:

> "The overall perspective of human information seeking includes a recognition that information seeking is seldom an end in itself, but instead is part of the processes of decision making and problem solving. Further, information seeking is itself a process which usually is dynamic in the sense that information needs as well as information vary in time." (Rouse and Rouse, 1984:135)

Environmental scanning refers to the information seeking activity of managers in an organizational setting. Aguillar defined environmental scanning as

> "the activity of acquiring information... about events and relationships in a company's outside environment, the knowledge of which would assist top management in its task of charting the company's future course of action." (1967:1).

However, an examination of the scanning modes identified by Aguillar elucidates the real nature of scanning: it does not refer only to the *search* for information, but also to the *exposure* to information, without a specific purpose. Aguillar also noted that the importance of scanning derived from the importance of the decisions involved. Mintzberg (1989) remarked that the manager is in essence an information processing system.

Research on individual scanning has focused mainly on the individual scanning activities of managers: on the identification of the information sources used, on the environmental sectors scanned, on their scanning methods, on the influence of the role played and the tasks performed upon their scanning activity. Research directed at "organizational scanning" has attempted to identify varying degrees of formalization of scanning activities, and the implications of different possible solutions: a stand-alone scanning unit, a unit that is part of the planning department, different units located in different departments. But little attention has been paid to how the information that flows into the organization is internally organized, to whether there is any integration of that information with the internally generated information, and to the identification of internal conditions - of an organizational as well as of an individual nature - that may influence access to and use of information in business organizations. We opted, therefore, to focus on the organization as the unit of analysis.

The aim of this research is to provide a comprehensive understanding of the environmental scanning process, using a methodology that, to our knowledge, has not been applied to the study of environmental scanning so far. With this study, it is our purpose to investigate how managers in the Portuguese chemical industries perceive environmental change occurring in their business environments, and to establish a relationship between the environmental change perceived by managers and the strategic change operated by them; how these managers scan their environments i.e., how they acquire information about their environments, how they interact (or communicate) in order to make sense of (or interpret) the information that flows into the organization, and also how the information flowing into the organization is organized internally and made available. The present study addresses, therefore, the following questions:

1) which are the main characteristics of the business environment, as perceived by Portuguese managers operating in the chemical industries?
2) to what extent does perceived environmental change affect strategic change?
3) which are the conditions internal to the organization - organizational factors and individual factors - that influence access to and use of environmental information?
4) which environmental information is more important to managers?
5) how do managers acquire the environmental information needed?

1.2. RESEARCH FINDINGS

Perceived environmental change

External factors perceived as causing change in the environment were identified as pertaining to two main categories: the **regulatory framework** and the **business structure**. The changes of a regulatory nature were linked to joining the EC and to government intervention, while the changes of a business nature were linked to the trend for concentration in the chemical industry, entry of new competitors and products, and the crisis of client industries.

Changes in the regulatory framework include new rules and procedures to follow, such as regulations concerning the registration of drugs, the adoption of the patent regime in force in Europe and the demand for higher standards regarding product quality; the progressive elimination of customs tariffs and its consequences upon the fragile competitiveness of the national companies were identified as major concerns, and fear was manifested that technical barriers would replace customs barriers.

Government intervention in the regulation of the market was considered excessive, especially in the health sector, where the production of new medicines depends on government approval, as does the establishment of prices for medicines; the policy of high interest rates practised by the banking system was identified as another negative form of government

intervention, as most of the banks were nationalized when the field-work was carried out and high interest rates were in fact part of the government policy to keep inflation down.

Changes in the business structure included acquisitions and mergers and also the disappearance of smaller companies that sank under the pressure of competition, as a result of the trend for concentration that prevails in the chemical industries at large, with special incidence on the pharmaceutical and cosmetics sub-sectors, and also in the segments of resin derived products and synthetic fibre products. An important factor of instability was the crisis of some of the client industries, such as the shoe industry and the textile industry. Factors of a cultural nature were invoked to explain the reticence of the Portuguese entrepreneurs to engage in strategic alliances.

The assessment of the environmental attributes showed that the environment had become extremely hostile and rather complex, even though turbulence was thought to stay relatively low. The comparative analysis of results regarding environmental change, obtained through the assessment of the task environment attributes and through the analysis of perceptions of change occurring in the general and task environments evidenced compatible results.

On the other hand, the advent of the Single Market was seen as inevitable and was faced predominantly with a moderate optimism as it was widely believed that the worst had passed, meaning that the

adaptation process to the Common Market had been hard enough and that something positive could still be expected from the Single Market, like keeping market shares or conquering a niche market or realizing a successful alliance. Plans of internationalization did not go further than Spain in most of the cases. The peripheral condition of Portugal was seen as a hindrance for penetration in other regions as well as a protection against competitors from central Europe, especially for industries producing low-value-added products with high costs of transportation.

Strategic change

More than any other factor, the changeability of the environment proved to be determinant in the rejection of tight planning schemes, while the size of the company influences the adoption of planning - larger companies tend to engage in planning - but other factors interfere with that tendency, such as the form of the organization and the management style or the dominant culture. There emerged no evidence that industrial segments or sub-sectors might influence the adoption of planning as a management tool. On the other hand, planning offices are rare and their main role is to collect the hard data needed to support top managers' decision making.

Increasing product quality was a generalized target. However, some companies made clear that they had always pursued quality, while others admitted that they had to improve the quality of their products

and the conditions of production in order to satisfy EC regulations. This concern was particularly acute among the companies of the plastics sub-sector and the large manufacturers in declining industries, such as the chlorine producer and the synthetic fibre manufacturer. The companies that engaged in improving product quality as part of an adaptive process to cope with EC regulations denote, generally speaking, poor operating conditions to face the Single Market, and present a typical reactive behaviour.

The companies that opted to specialize operate in the paints and in the pharmaceutical sub-sectors, where multi-national companies have dominated for decades, hence the need to seek product and market niches not covered by the giant corporations; an option made in these conditions may be regarded as an adaptive behaviour, but is not necessarily a reactive behaviour. **Specialization** was adopted by companies with little scope for growth.

Internationalization and **diversification** were pursued by dynamic companies enjoying a steady growth trend. Growth through acquisitions was pursued by companies targeting internationalization, and strategic alliances were embraced mainly by companies oriented to the internal market, needing to secure a position threatened by strong competitors. Growth, diversification and internationalization involve complex, risky and slow processes and are, therefore, more clearly associated with proactive behaviours. Only three of the companies studied engaged in these actions.

Conditions affecting scanning

Internal factors influencing the scanning activity were identified as being of an individual nature - **information consciousness** and individual **exposure to information** - and of an organizational nature - **outwardness** and **information climate**.

Information consciousness was assessed through the attitude of top managers towards environmental scanning and through the communication pattern established among managers within each organization. Top managers of large and medium-size companies operating in different sub-sectors described their role, as far as environmental scanning is concerned, as a mix of personal monitoring and dissemination of information among direct collaborators. Managers of smaller companies assume environmental scanning as a personal responsibility and attribute great importance to that activity, while the dissemination factor is irrelevant, because in most of the cases there is nobody else to pass the information to.

Communication is generally intense between the top manager and the functional directors, and among functional directors. Communication among managers is made up of a mix of oral information and written information; the nature of this mix and the reasons that determine the choice of either of the forms of communication was not entirely clarified. However, some evidence associates the choice of oral

communication with the generic scope of the information or its potential for starting action. Chief executives tend to use oral communication more than functional directors, while these apparently use both forms, without favouring clearly one or the other *a priori*. Sometimes both forms are used to convey the same information, the oral form being used for the first approach, followed by a memo or a report.

The **information climate** was assessed through the information infrastructure implemented, i.e., the processes, technologies and people used in information acquisition and handling. While most of the pharmaceutical companies had rich centralized collections of scientific and technical information, managed by information professionals with different backgrounds, and offered access to international on-line systems and provided selective dissemination of information and loan services, the other companies provided a consistent picture, characterized by loose small collections made up mainly of specialized journals, market reports and product literature, lack of skilled staff to manage information, and the main service provided was the circulation of journals. This picture was shared by all the remaining companies, independently of sub-sector or size. The pervasiveness of information was pointed as one of the reasons why it is so difficult to account for the costs involved in environmental scanning, as it is always associated with the performance of specific roles.

The **outwardness** of the organizations was assessed through their links with R&D organizations, the collaboration provided to regulatory

agencies and the participation in development programmes. Apart two multinational pharmaceutical companies that developed fundamental research, the remaining companies either developed applied research, independently or in association with research organizations, or did not develop research at all. This was the case of large companies operating in declining industries and small companies in the plastics sub-sector, which used alien laboratories for quality control only.

Large and medium size companies enjoying relative economic health engage in collaborative actions with a view to influencing legislative and other regulatory initiatives, usually through their sectoral associations, sometimes regional or international bodies. This collaboration, however, is generally passive, i.e., companies tend to act only under request. Companies of the same size going through a crisis tend to turn inwards for reorganization. Smaller companies, on the other hand, usually lack the resources needed to be able to provide collaboration to external bodies. Most of the successful applications submitted to development programmes, with relevance for PEDIP, were directed to productive investments and training, this last item being funded either through PEDIP or through the European Social Fund.

Managers' **exposure to information** was assessed through the development of their information networks. Training opportunities provided by the organization to other ranks of staff was used as an additional way of assessing the exposure to information across the organization. Access to important sources of information is reached

through the appointment to key places within the sectoral and industrial associations and sometimes in international associations, where managers' exposure to information is taken to a full extent.

Exposure to information emerged in this study as the individual face of the broader phenomenon of organizational outwardness, and proved to be difficult to be detached and analyzed on its own. This was determined, to a great extent, by the decision to target the organization as the unit of analysis.

Organizational culture emerged as an important factor in the analysis of information issues within organizations. It was evidenced that the type of information culture that prevails in pharmaceutical companies is a formal information culture. Two other companies in two different sub-sectors were identified as having an oral culture and an information conscious culture respectively.

Strategies for managing scanning

Competitor and market information is by far considered the most important and the more frequently used information, but competitor information is considered more difficult to obtain. Information on technology and on resources is considered to be relatively important and is used relatively frequently, but information on technology is considered to be more difficult to obtain. Opinions regarding regulatory information are divided between not important and relatively important,

easy or relatively difficult to find, and between rarely used and used with relative frequency. Global information is considered unimportant, easy to find, and it is used seldom.

Factors that affect the choice of internal or external sources are the **size** of the company and the complexity of the **organizational structure**. Chief executives of larger companies tend to make use of the company's information infrastructure in order to obtain the external information that they do not obtain by themselves. In smaller companies, entrepreneurs often perform other roles, such as the role of marketing and commercial director, or financial and administrative director; managers themselves have to scan their environment and establish privileged contacts with their main external sources.

Another factor that influences the preference given by managers to internal or external sources is the predominance of certain types of **information culture**, or the inexistence of an information culture. The **lack of an information culture**, and the subsequent small investment in the information infrastructure, may lead to the establishment of direct contacts with external information sources; the existence of an oral culture may have similar results. But when a formal information culture dominates, managers - especially top managers - tend to use internal sources, and when an information conscious culture exists, there is a tendency to implement and use advanced information systems to handle information.

The **functional role played** also influences the choice of internal or external sources. Marketing or commercial directors, R&D directors and some managing directors (those directing small companies or those directing large companies where an oral culture dominates or where no information culture exists) give usually preference to external sources. Financial and administrative directors or other senior staff such as planning directors, whose roles are mostly inward oriented, or managers directing medium-size or large companies where a formal information culture exists, tend to give more importance to internal sources.

Internal sources are viewed either as filters or as contaminators of the information provided by external sources. The concept of **internal sources as filters** has a positive connotation, since internal sources are attributed an important role, that of selecting relevant information, thus saving the chief executive's time. The concept of **internal sources as contaminators** of the information provided by external sources has a negative connotation and was assumed, significantly, by managers from companies where no information culture exists, or where an oral culture dominates.

Impersonal and personal sources were found to complement each other, impersonal sources being looked at as conveyors of **generic information**, meaning information that is in the public domain, or about factors which, in principle, evolve gradually, and also as means to feed an attitude of general awareness. While personal sources would convey **specific information,** meaning more or less secret information that can

not be found on printed sources and is transmitted only by word-of-mouth, or specific and detailed information that can help in clarifying ideas or implementing specific strategies.

The generalized preference for personal sources was attributed to their greater **reliability**, to their role as the **shortest way** to the information needed or as the **last resource** to get information that managers could not find anywhere else. Relationships were established between the attitude of **looking deliberately for information** and the **use of formal sources;** and between the **unexpected acquisition of information** and the **use of informal sources.**

1.3. THESIS OUTLINE

As is clear by now, Chapter one defines the research problem and briefly presents the main results of the research carried out, as well as the thesis outline. Chapter two provides a selective review of the literature on organizational environment, environmental scanning and the information needs of managers. The integration of contributions from different areas - organizational theory and information science - was intended as a means to obtaining a richer view of managers as information users.

Chapter three describes how the methodology used (the combination of the case study approach and the grounded theory method of qualitative analysis) influenced the research design, by replacing statistical sampling by theoretical sampling. It also describes aspects of the data analysis process, such as the coding procedures and analysis techniques, and presents the emerging conceptual framework, including the main categories and the principal relationships among them, as well as the model of the environmental scanning process.

Chapter four looks at the framework that shaped the industrialization process under the regime of state corporatism in Portugal and at the main guide-lines pursued by industrial policy in recent years. It describes the main features of the chemical industries operating in this country and analyzes the dominant characteristics of the entrepreneurial and managerial class. It also looks at the roots of the dominant role of the state in the Portuguese society and invokes research evidence supporting the impact of national cultures upon organizational cultures.

Chapter five describes and analyzes two sets of data. One, of a qualitative nature, looks at the entrepreneurs' and managers' perceptions of change occurring in the general and task environments. The other set is of a quantitative nature and consists of the assessment made by the same entrepreneurs and managers, of attributes that characterize mainly the task environment.

Chapter six analyzes the intervening conditions, or the factors internal to the organization, which affect the activity of environmental scanning. These include organizational factors such as information climate and outwardness, and individual factors, such as information consciousness and exposure to information. The principal relationships among these factors are also analyzed.

Chapter seven analyzes the importance attributed by managers to different sorts of information: competitor and market information, information on resources and on technology, regulatory and global information; it also analyzes how difficult managers think it is to obtain each of these types of information, and how frequently they are used. The information sources used by managers - internal and external, personal and impersonal - are also subject to analysis, as is the scanning mode used by managers.

Chapter eight looks at how planning, namely strategic planning, and strategy making, including the decisional processes that are part of it, work in the companies analyzed, in a period characterized by great hostility and complexity, as seen in Chapter five, and also how these companies engaged in strategic change in order to cope with their environments. Finally, Chapter nine presents the conclusions drawn from the research findings and suggestions for further research.

CHAPTER TWO: LITERATURE REVIEW

2.1. ORGANIZATIONAL ENVIRONMENT

2.1.1. The open systems approach

The concept of environment gained relevance in organization theory only after it was articulated by modern systems theory after World War II. In his preface to Schoderbeck's book on Management Systems (1975), Ackoff points out World War II as the end of the Machine Age and the beginning of the Systems Age, and Narayanan and Nath (1993) regard the emergence of modern systems theory as the culmination of a long process tending towards a holistic and organic conception of the world, as opposed to the previously dominant atomistic and mechanistic view.

The classical perspective on organization theory, which emerged during the 19th and early 20th centuries, reflected the transition towards a new type of organization needed to cope with the new demands arising from large plants, large numbers of unskilled workers and complex manufacturing operations. The accumulation of resources was leading to the rise of big business, and to the growth of a managerial class apart

from ownership. There was a need to rationalize in order to achieve increased efficiency.

These theories were based on the assumption that human beings were rational, disregarding the psychological variables of human behaviour. They also assumed that environments were stable. Since they were stable, they did not affect the organization and could therefore be ignored. The organization was treated as an independent entity and the phenomena arousing the interest of the organization theorists were all internal to the organization.

The human resource perspective, which emerged in late 19th century, emphasized enlightened treatment of workers and regarded them as social actors. The theories adopting this perspective reflected a reaction to the mechanistic and impersonal view of the world underlying the scientific management and administrative theories and were in tune with the change from the individualistic ethic to a social ethic emerging in industrialized societies.

However, both perspectives sought universalistic principles and shared the same view about the organizational environment. Because it was stable, it was no matter for concern, and it was so unimportant that all the assumptions about it were actually more implicit than explicit.

The open system approach represents the adaptation of work carried out in biology and in the physical sciences and reflects the evolution from

an industrial society, based on the production and distribution of goods, to an information society based on the production and distribution of information. For many, system theory is more than just a theory. Katz and Kahn describe it as

> "... rather a framework, a meta-theory, a model in the broadest sense of that overused term. Open-system theory is an approach and a conceptual language for understanding and describing many kinds and level of phenomena. It is used to describe and explain the behavior of electronic equipment, living organisms and combinations of organisms. The open system approach and the major concepts of open-system theory are applicable to any dynamic recurring process, any cyclical pattern of events that occur in some larger context." (Katz & Kahn, 1978:752).

When applied to organization studies, system theory regards organizations as systems composed of entities (groups and individuals), and elements or variables (structures, processes, roles, needs or psychological states), which are in fact qualities, characteristics or states of entities in the system (Narayanan and Nath, 1993). Although they are a special class of social systems, with properties of their own, they share other properties in common with all open systems: the importation of energy from the environment, the transformation of that energy into some product characteristic of the system, and the exporting of that product into the environment, in a permanent cycle.

It was not before the 60s that an open systems model was suggested as a possible integrating framework for organization studies. First Nath in 1964 (Narayanan and Nath, 1993) then Katz and Kahn (1966; 1978) and others that followed embraced the potentialities of the open system approach as a unifying framework for a field that had borrowed from a

variety of disciplines such as psychology, sociology, anthropology, economics, mathematics and computer science.

2.1.2. The organization as an open system

Two major implications result from regarding organizations as open systems. First, organizations are complex systems made up of several parts or sub-systems which are interdependent. Second, the organization interacts with its environment.

A comparison of models resulting from the application of the open system approach to organizations, proposed by different authors with an interval of twenty years, provides an indication of the major developments that took place in systems thinking applied to organizations throughout that period.

Kast and Rosenzweig (1973) proposed a model of an integrated systems view of organizations which comprised five sub-systems: goals and values, technical, psychosocial, structural and managerial. Narayanan and Nath's (1993) model comprises also five sub-systems - functional, social, cultural, political and informational - but with substantial differences. The functional sub-system encompasses the traditional aspects of management and organization theory, which correspond roughly to Kast and Rosenzweig's technical, structural and managerial sub-systems. The social and cultural sub-systems correspond to Kast

and Rosenzweig's psychosocial and goals and values sub-systems respectively.

But Narayanan and Nath introduce two new sub-systems. The political sub-system, which can be regarded as an offspring from the social/psychosocial sub-system, which reflects the increasing importance attributed by organizational theorists to power relations developed in organizations. Political coalitions and alliances are built in order to satisfy individuals' power needs and end up by playing an important role in the evolution and formalization of organizational goals. The informational sub-system can also be regarded as an offspring from the functional/technical-structural-managerial sub-systems. Its main activity consists in the collection, processing and transmission of information and it serves primarily the needs of the functional sub-system, but also to some extent those of the social, cultural and political sub-systems. This choice reflects developments in information and computer technology as well as the acknowledgement of the key role of information in the paradigm of organizations as open systems interacting with increasingly turbulent environments.

Although the existence of boundaries is taken for granted, they may be stable at one point but may change over time and may differ according to the perspective adopted. Interactions between the organization and its environment emerge as the most significant aspect of organizational phenomena. To cope with this new area of organizational concern, a whole new range of concepts was created and developed. Katz and

Kahn (1966; 1978) proposed the concepts of system openness, system coding, system boundaries and boundary roles, which are central to the paradigm of organizations as open systems.

The concept of *system openness* refers to the degree to which the system is receptive to all types of inputs and *system coding* refers to the procedure used to insure specifications for the intake of information and energy, and it in fact describes the actual functioning of barriers separating the system from its environment:

> "One of the significant characteristics of any system is the selective intake of energy and information, and the transformation of that input according to the nature of the system... Though the coding concept can apply to the selective absorption and transformation of all types of input into a system, it is characteristically employed for the processing of information." (Katz & Kahn, 1978:65).

The concept of *system boundary is* understood as the demarcation lines or regions for the definition of appropriate system activity, for admission of members and for other imports into the system, and *boundary roles are* described as the boundary positions held by some members of the organization in order to help in the export of services, ideas and other products of the system and in the import of materials and people into the system.

These concepts and their further development by other organizational theorists originated a significant branch of research. Adams (1976) discussed the organizational boundary functions and boundary role behaviour and proposed a structural model of organizational boundary

systems. Tushman (1977) and Callahan and Salipante (1979) investigated the role played by boundary spanners and boundary spanning units in the innovation process. Aldrich and Herker examined the creation, elaboration and functions of boundary spanning roles, introducing the differentiation between information processing and external representation roles of boundary spanners and attributed a dual function to boundary spanning roles, that of filters and facilitators of information:

> "Boundary role personnel selectively act on relevant information, filtering information prior to communicating it." (Aldrich & Herker, 1977:219).

Dollinger (1984) explored the link between boundary spanning and organizational performance and Jemison (1984) concentrated on the relative influence of boundary spanning roles in strategic decisions in different sorts of organizations. More recently, Weedman (1992) focused on the use of formal and informal channels in boundary spanning communication.

2.1.3. The organization as an information processing system

Since the introduction of systems theory, different theoretical frameworks have been proposed to explain organizations as dynamic entities that interact with their environments. Two perspectives in particular have gained relevance: the resource dependence perspective and the information processing perspective.

The *resource dependence perspective* assumes that organizations depend on their environments for resources that are vital but scarce; organizations are seen as "coalitions" that alter structures and patterns of behaviour in order to obtain the resources needed; and managers are responsible for keeping the resource exchange favourable for their organizations. For this perspective, concepts such as organizational uncertainty and interdependence are important. Pfeffer and Salancik (1978) contend that organizations can manage their interdependence, either by absorbing other entities (through merger, vertical integration and diversification) or by negotiating with other entities to achieve mutual interdependence (through social agreements). The objective is to achieve predictability, since it is assumed that interaction among competing organizations generates information and understanding among them. Uncertainty can thus be reduced and predictable exchange patterns can evolve. Coordination strategies include joint ventures, normative control and the development of trade associations.

The *information processing perspective* assumes that organizations extract, process and act on information from their environments. Choo (1993) identified two main research themes within this perspective: organizational participants as information processors, and organizational systems and structures that contribute to information processing; he also identified two research orientations in the literature on organizational information processing, the first regarding organizations as rational,

decision making systems, and the second regarding organizations as social, loosely coupled systems.

In the first of these last two orientations, the individual while decision maker is bounded by cognitive limitations, organizational design is meant to control the decision premises that guide decision making behaviour, and information is processed to reduce or avoid uncertainty. The organization sets its goals first, then searches for alternatives, and selects courses of action which lead to goal attainment.

In the second of these orientations, individual actors enact the environment to which the organization then adapts; the task of organizing consists in developing a shared interpretation of the environment and then to act on the basis of this interpretation, and information is processed in order to reduce or resolve equivocality. The organization often acts first, and interprets retrospectively. The enactment process was first suggested by Weik (1969), who together with Daft, later proposed a model of organizations as interpretation systems (Weick and Daft, 1983; Daft and Weick, 1984). Interpretation is understood as the process of translating events and developing shared understanding and conceptual schemes among members of upper management, and the organization would experience interpretation when a new construct is introduced into the cognitive map of the organization (Daft and Weick, 1984). Choo concluded:

> "Both the decision making and interpretation perspectives are valuable frameworks within which to analyze the search for and use of information in organizations. Rational, systematic decision making is probably better

> suited to solving problems where issues may be clearly identified. On the other hand, collective interpretation may be needed where issues are unclear and information is ambiguous. Any attempt to study the use of information in organizations would benefit from applying the two points of view." (Choo, 1993:27-28)

2.1.4. External/enacted environment

Dill described the environment as the surroundings of an organization or the climate where it functions but added that the concept becomes challenging when we try to analyze its properties:

> "The complexity of what we find and the grossness of most of the data that we collect are not consistent with the standards of precision and parsimony that social scientists have become to respect. Good bases for general propositions about environmental influences or for systematic classifications and comparisons of different environments are hard to find." (Dill, 1962:96).

Starbuck (1976) emphasizes the arbitrary character of the construct, reminding that the organization subjectively defines its environment after having selected the environment it will inhabit and Katz and Kahn note that the environment is opportunistically taken as a homogeneous whole:

> "The concept of environment is itself a kind of arbitrary, organization-centered formulation, which involves a convenient and misleading implication. Everything in the Universe, except for the organization under study, is treated under the single category of environment. More specifications and better conceptualizations are badly needed." (Katz and Kahn, 1978:122)

The notion of an environment external to the organization, affecting its actions as well as its outcomes, raises the question as to how the organizations actually come to know their environments.

Dill (1962) notes that, to some extent, the observer obtains his knowledge of the environment from the people who make up the organization.

Weick proposed the concept of *enacted environment* as a substitute for *external environment*, since "The human actor does not react to an environment, he enacts it" (1969:64). The process of enactment itself is the result of attentional processes which are retrospective and selective and it is described as the "sequence whereby some portions of the elapsed experience are made meaningful" (1969:69).

The history of research on organizational environment revolves around two main lines: those who advocate objective measures of the environment and those who propose a subjective approach for describing or dimensionalizing organizational environments. The complexity of the relations between the organization and its environments and the ambiguity of organizational boundaries make up a fertile ground for disagreement about what constitutes dimensions of the organization or its entities and what constitutes dimensions of the environment.

Weick's concept of enacted environment is of great importance to understand the subjective approach to organizations' interactions with environments. According to Weick, since the enactment process relies upon specific individuals in focal organizations, objective measures of the environment become irrelevant. This means that different organizations and different individuals will react differently to the same context. Because individuals are submitted to innumerable constraints, their perceptions and understanding of reality are necessarily limited, and their representation of the world is shaped by their own experience.

Not only is it limited, Weick argues, it is also a representation of the past, because nothing that has not occurred is available for processing. Because all decisions and plans for future action are based on prior experience, this is, on an enacted environment of the past, any failure that might occur as a result of a given decision or plan means that the theory of the past that was built upon description of past events was wrong.

To avoid radical approaches to individual differences as the only determinants in the process, Pfeffer and Salancik (1978:74) note that the enactment process is to a large extent determined by the organizational and informational structure of the organization, and defined the information system as the reports, statistics, facts or information that are regularly collected and their pattern of transmission through the organization.

2.1.5. Descriptions and dimensions of the environment

Fuzzy as it is, the environment can not be apprehended unless it is described and measured. The most generally accepted description is that of general, task and internal environment. General or macroenvironment refers to the broadest level, which affects all industries, even if in different ways. It includes socio-cultural, economic, legal-political and technological issues. Task environment refers to the sub-set of customers, suppliers, competitors, trade associations and other agencies directly related to the company. Internal environment refers to the corporate culture, production technology, organization structure and physical facilities.

Pfeffer and Salancik (1978) adopted the description by levels with a different formulation. They distinguish between a first level corresponding to the entire system of individuals and organizations related to one another and to a focal organization, a second level corresponding to a sub-set of individuals and organizations keeping direct interactions with the focal organization and a third level corresponding to the enacted environment (the organization's perceptions and representation of the environment).

Pioneering conceptualizations of the environment were those of Emery and Trist (1965) and Terreberry (1968). Emery and Trist noted that system theory, as formulated by von Berthalanfy, provided the means to

deal with exchange processes between the organism (or organization) and elements of its environment but not to deal with the processes in the environment itself. Because Emery and Trist think that these are among the determining conditions of the exchanges, they stated the following proposition:

> "... a comprehensive understanding of organizational behaviour requires some knowledge of each member of the following set, where L indicates some potentially lawful connection, and the suffix 1 refers to the organization and the suffix 2 to the environment:
>
> L11, L12
> L21, L22
>
> L11 here refers to processes within the organization- the area of internal interdependencies; L12 and L21 to exchanges between the organization and its environment- the area of transactional interdependencies, from either direction; and L22 to processes through which parts of the environment become related to each other- i. e. its causal texture- the area of interdependencies that belong within the environment itself." (Emery & Trist, 1965:22)

They identified four types of "causal textures" or environments: *placid randomized* where resources needed by the organization were randomly distributed, *placid-clustered* where the pattern of resources was predictable, *disturbed-reactive* where the distribution and probabilities of resources were created by the organizations themselves, and *turbulent* where the environment itself is interconnected with other sets of interdependent actors causing greater uncertainty to affect organizations.

Terreberry extended Emery and Trist's propositions, arguing that the four types of environments were in fact stages in an evolutionary process, since environments were becoming increasingly turbulent.

One of the important concepts used in the description of organizational environments is that of *uncertainty*, which can be defined as the degree of difficulty in anticipating or predicting future developments in the organizational environment (Huber and Daft, 1987). Uncertainty is determined by the capability of the organization to forecast the coming events. Some have used the concept of uncertainty as if it were a characteristic of the environment itself (Lawrence and Lorsch, 1967), others have used it for the perceptions that individual members of organizations have about the environment (Duncan, 1972), under which circumstances it is called perceived environmental uncertainty (PEU).

Bourgeois (1980) argued that part of the contradiction present in empirical results was caused by an unresolved issue in the environmental literature, that of *objective versus perceived environment*. Bourgeois thus distinguished three categories of definitions currently used for describing the environment: *objects, attributes* and *perceptions*. The first category refers to entities or objects external to the organizations. The most influential contribution for this category was that of Dill (1958; 1962; 1971) who distinguished between *general and task environments*, the latter including customers, suppliers, competitors and regulatory groups. The category of attributes focuses on the *complexity* and *turbulence* of the task environment. The category of perceptions refers to managers' perceptions of environmental uncertainty. Sutcliffe (1991:139) found that a number of

mismatches can occur between managerial perceptions of environmental attributes and actual environmental attributes.

The conceptual confusion involving the use of the construct of environmental uncertainty aroused some polemic. Starbuck noted:

> "The usefulness of subjective perceptions, including environmental uncertainty, is not in question. What is in question is whether data about perceived environments should be treated as if they were data about real environments, and whether uncertainty should ever be considered an environmental characteristic." (Starbuck, 1976:1088).

Bourgeois (1980) adds that perceived environmental uncertainty is more relevant to the study of strategy making than to the study of an organization's external environment.

2.2. ENVIRONMENTAL SCANNING

2.2.1. Scanning focus

Aguillar (1967), who first approached environmental scanning as a matter of study *per se*, and gave it the definition that has remained practically unchanged, was also the first to identify areas of the business environment about which managers tried to obtain information. He called them "areas of external information", five on the whole, and named them and described them as follows: 1) *market tidings* (market

potential, structural change, competitors and industry, pricing, sales negotiations, customers), 2) *technical tidings* (new products, product problems, costs, licensing and patents), 3) *broad issues* (general conditions, government actions, etc.), 4) *acquisition leads* (leads for mergers, etc.), and 5) *other tidings* (suppliers, resources available, miscellaneous).

This classification was the basis for most of the studies undertaken thereafter, such as those developed by Kefalas and Schoderbek (1973), Ghoshal (1985), Choo (1993), to name just some of the most relevant studies, and oriented to different countries (USA, South Korea and Canada). Some refinement has been introduced in the redefinition of the areas and in making them mutually exclusive. However, something of the original classification, which described the areas identified as "areas of external information" was lost in the later versions of "environmental factors" or "environmental sectors", or simply "factor classification", which refer us to a business environment as such, thus blurring the significance of the original segmentation as a means of dealing with representations of the business environment, provided by the information about that environment. As referred to before, it is the fact that we can deal only with representations of the environment that makes interpretation an important task within organizations, as a means of developing a "shared understanding" of events among top-level executives.

Another branch of classification was developed by Miles and Snow (1974) and extended by Hambrick (1979), but has not been given sequence by recent studies of environmental scanning. The curious aspect of this classification is that, anchored in the firm belief that a "taxonomy of environmental sectors" should align with a framework of the "problem areas" of the organization, as defined by Miles and Snow, Hambrick ends up by dislocating the focus of environmental scanning from the environment to the interior of the organization. The result is a classification made up of the three original problem areas - entrepreneurial, engineering and administrative - and a fourth "sector" added by Hambrick, the regulatory sector. As Hambrick recognizes, "some information could affect more than one of the problems" (1979:34).

Yet another approach was developed by Maier (1992). In this case, the main difference does not reside in the perspective (external/internal), since it focuses on the external environment and uses a very similar classification to that developed by previous research using the same orientation. The difference consists in the selectiveness of the focusing, which targets the environmental scanning activities of a specific function within the organization, that of IT. The areas or sectors used were: technological, regulatory, social, economic, and political, based on previous research by Jain. A third sector was mentioned as important, that of competition, but was dropped probably to conform to Jain's framework.

The technological and regulatory sectors or areas of external information have proved to be nearly consensual. Competitor and market sectors are affected by the content definition made by each study: in some cases, "market" encompasses the competition component of the external environment. That is the case of Aguillar's definition, while Choo isolates the "customer" component of the market. The "broad issues" sector is commonly split into its several components: social, cultural, demographic, economic and political, but the results obtained concerning the relative importance of each of them are consistent enough across studies to justify grouping them under a single designation, unless there are particular reasons to address any of them isolately.

Aguillar's study (1967) revealed that the sector of "market tidings" was of great importance for his sample, made up of mainly chemical manufacturing companies. Hambrick's study (1979) revealed a strong connection between an organization's main industry and the focus of scanning. Ghoshal's study (1985) revealed that the market sector was the most important to his sample of Korean managers, followed by the competitive and the technology sectors. Lester and Waters (1989) found that corporate planners give priority to the information about the competitive sector, including competitive industries, companies, markets, and products and services.

Choo (1993) found that the highest perceived importance was attributed to the customer sector by his sample of Canadian managers, followed by

technological, regulatory and competition sectors. However, the highest perceived strategic uncertainty was attributed to the technological sector, followed by the customer and competition sectors. Although the "importance" factor was in accordance with past research, the "strategic uncertainty" factor associated with the technological sector was not, which was explained by the composition of the sample: while most of the past scanning studies had selected firms in the manufacturing or financial services sectors, Choo's sample focused on the telecommunications industry.

The main body of research regarding the acquisition of information on generally accepted environmental sectors agrees on which of those sectors have become the primary focus of environmental scanning: the market-related areas of the external environment, which provide information on customers, suppliers and competitors.

2.2.2. Use of information sources

Many of the studies on environmental scanning have attempted to identify the most frequently used information sources. They are commonly divided between internal or external, and personal or impersonal sources.

Aguillar (1967) studied a sample of managers from more than forty chemical manufacturing companies, and found that managers from large

companies tend to use internal sources more than do managers in smaller companies; he also found that managers give much more importance to personal sources than to impersonal sources (71% versus 29%). Subordinates and clients were the most valued personal sources, and publications were the most valued of the impersonal sources.

Keegan (1974) studied a sample of fifty executives located at the headquarters of thirteen US international corporations. He found that external sources were of great importance, and that executives did not rely on systematic scanning methods. This study underlined the importance of organizational boundaries on intracompany information flows: divisional boundaries, functional specialization and level, proved to be significant barriers to the flow of information.

Smeltzer, Fann and Nikolaisen (1988) studied managers of small companies in the USA and found that personal sources (especially family members and clients) were considered more important than impersonal sources (of which journals were considered the most important).

Some studies have examined factors that might influence the choice of certain types of information sources. Culnan (1983) studied the practice of 362 professionals employed in two large commercial organizations in the USA and found that the usage frequency of all the information sources was related to perceived source accessibility; but she also found that the information gathering requirements associated with an

individual's task environment, such as complexity, were related to the use of information sources that are less accessible.

Ghoshal's study of Korean managers (1985) revealed that internal sources contributed with about 43% of all external information acquired, and external sources 57%. More important was the finding that middle managers constituted the key organizational link with the external environment, as they used external sources much more than did either junior or top managers. Among the internal sources, in-house people, internal reports and in-house meetings were considered the most important; and clients, suppliers and publications were the relatively more important external sources. Ghoshal concluded that information specific to a business was available from those who were involved in that business (clients and suppliers), while more general information, such as information on regulatory developments or on broad social, economic and political issues, that are not specific to a particular business, were available from general sources such as publications and consultants who are not members of the domain.

Choo's study of Canadian managers (1993) revealed that several complementary sources were used, and that perceived source quality was a more important factor in explaining source use than was perceived source accessibility and perceived environmental uncertainty (PEU). Because the importance of perceived source quality contradicts past user studies, the author suggests that a set of different factors, such as environmental turbulence, the nature of the information use contexts

of managers (the pressure to make unstructured decisions in unpredictable situations) and the strategic role of scanning for information about environmental change, contribute to explain why source quality may become more important than source accessibility.

2.2.3. Scanning modes and methods

Some of the studies on environmental scanning have targeted the identification of scanning modes or methods used by organizations. Generally speaking, environmental scanning can range from occasional and informal activities to systematic and formal procedures, and it may be structured into an independent unit, be part of the planning unit or be distributed among several units.

Aguillar (1967) found that, in small companies, scanning was performed in large part by top managers themselves and information tended to be collected in the course of normal business operating activities; he also found that, the larger the company, the more top managers tended to rely on staff for scanning and to make greater use of internal communications. Although no systematic approach to environmental scanning was reported, Aguillar was able to identify four patterns used by managers to view or collect external information: 1) undirected viewing, or exposure to the external information without a specific purpose; 2) conditioned viewing, or directed exposure to external information, but without undertaking an active search; 3) informal

search, or the collection of information for a specific purpose in an informal manner; and 4) formal search, or the collection of specific information for a specific purpose using a structured search process.

Keegan (1974) found that executives did not rely on systematic scanning methods; computer-based information systems were not detected in the study and even organized and managed manual systems were hardly significant as factors in day-to-day information gathering. Fahey and King (1977) carried out a survey in twelve large business corporations, in order to identify environmental scanning processes and activities and assess the relationship of the activities to corporate planning. A framework of three scanning modes (irregular, regular and continuous) was used to evaluate the scanning practices of those companies. It was found that only two of the twelve companies showed a tendency to moving towards the most advanced of the scanning modes (continuous), while three others were changing from the irregular to the regular mode. Fahey and King concluded that there was not enough evidence that environmental scanning was to become a regular element of corporate planing.

A number of studies focusing on environmental scanning practices were carried out in the eighties. Thomas (1980) provided a picture of the state-of-the-art of scanning for planning in nine leading (some of the world's largest) organizations; he found that the process of scanning for planning in these corporations was marked by permanence, periodicity and pervasiveness, although in varying degrees, when compared to one

another. Fahey and King (1981) carried out another study, having concluded that, while there was a general recognition of the importance of environmental scanning or forecasting in government agencies, consulting firms and industrial corporations, these organizations had not yet widely developed sophisticated systems and integrated their outputs into the strategic planning process. Stubbart (1982) used the same sample studied by Fahey and King in order to extend that study, using a more structured approach to discover changes that might have taken place afterwards; he raised doubts about the viability of environmental scanning units, since effective environmental scanning depends on the judgements and interpretations of general managers familiar with those environments. The author concluded that such task should not be abdicated to technical specialists at corporate headquarters. Similarly, Ghoshal (1985) suggested that staff scanning specialists might not be very effective in acquiring domain-related business intelligence because they simply do not have the network required for such intelligence gathering.

Diffenbach (1983) made a survey of large US industrial companies to detect organized (as opposed to informal) environmental scanning activities in large corporations, and evaluate the use, usefulness, deterrents and payoffs of those activities. Sixty six per cent of the companies reported having organized environmental analysis activities. Organized activities were defined as activities

> "programmed to *scan* the external business environment for information of strategic significance, and to somehow facilitate the *use* of this information

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by those in the company who are involved in strategic decisions." (Diffenbach, 1983:108)

The deterrents identified were essentially problems of 1) inadequate "environmental" education, 2) lack of motivation (reward systems based on short-term results discourage environmental analysis for the long-term) and 3) information content (inaccurate, incomplete and irrelevant information generated by the environmental analysis). Some of the payoffs identified were 1) increased general awareness by management of environmental changes, 2) better strategic planning and decision making, 3) better industry and market analyses.

Jain (1984) studied the evolution and state of environmental scanning in large corporations (186 companies were surveyed, 37 executives and managers were interviewed). The study revealed the evolution of the scanning activity in a pattern marked by four phases - *primitive*, *ad hoc*, *reactive* and *proactive* - whereby improvements are noted, both in information gathering and in relating it to strategy formulation. Jain concluded that achievement of a structured and formal system of scanning takes time (70% of the companies with proactive scanning systems had implemented the scanning activity for over five years); he identified two basic difficulties that hindered the establishment of a scanning system: how to forecast the upcoming events and how to relate the implications of these trends to corporate strategy; he also concluded that developing a sensitivity toward the environment could even call for special training.

Engledow and Lenz (1986) developed a field study in ten "leading-edge" corporations with the intent of furthering understanding about the viability of specialized scanning units for introducing environmental information into strategic decision processes. They found that it was still a time of experimentation and that some of those units had failed. Preble, Rau and Reichel (1988) focused on the environmental assessment of activities of ninety five US headquartered multi-national companies. They found an ever increasing usage, sophistication and integration of international environmental scanning activities.

2.2.4. Managerial roles

The managerial work was conceptualized by Mintzberg (1980) as incorporating three sets of interrelated "roles", or "organized sets of behaviors identified with a position" (1989:15): interpersonal, informational and decisional. *Interpersonal roles* arise directly from formal authority, involve basic interpersonal relationships, and comprehend the *figurehead* role (performance of duties of a ceremonial nature), the *leader* role (responsibility for the work of subordinates) and the *liaison* role (devoted to building up the manager's own external information system). *Informational roles* arise as a consequence of managers being a sort of "nerve centres" of their organizational units, and comprehend the *monitor* role (scanning the environment for information and receiving information from liaison contacts and subordinates), the *disseminator* role (transmission of information into

the organization, to peers and subordinates), and the *spokesman* role (transmission of organization's information to the outside). *Decisional roles* arise from formal authority and from managers being the "nerve centres" of their units, and comprehend the *entrepreneur* role (improvement of their units), the *disturbance handler* role (dealing with unpredictable but important events), the *resource allocator* role (distribution of organizational resources), and the *negotiator* role (negotiating with other organizations and individuals). Mintzberg remarks that the ten roles form an integrated whole, that the manager is in essence an information processing system and that it is the informational roles that tie all managerial work together.

Part of the literature on environmental scanning is dedicated to the study of the influence of the role played by managers on their scanning activity. Managers' hierarchical level and functional specialization have been examined, but this topic is the least developed of the research topics on environmental scanning.

Aguillar's study (1967) revealed that functionally specialized managers tended to use particular external sources while top managers tended to rely more on internal sources. Kefalas and Schoderbek (1973) found no relationship between managers' hierarchical level and the content of scanning; they also found that practically all functional directors scanned the market sector. Keegan's study (1974) revealed that financial executives give greater importance to documentary sources, as they intensively scan prescriptive information that is of public domain, while

general managers are more concerned with strategic factors, so the information they need is more particularized and is, therefore, more likely to come from other people directly.

Hambrick (1979) found no significant differences in the scanning activities of managers which might be attributed to functional diversity or hierarchical level. Choo (1993) found that chief executives tend to use environmental information more often when they make decisions in the entrepreneur role.

2.3. MANAGERS AS INFORMATION USERS

Studies within the field of organizational research have looked at managers as decision makers who use information to make decisions. Little attention has been paid to the problematic of information acquisition. As noted by Roberts and Clarke (1989), it has been assumed that "the acquisition of information is a largely non-problematical procedure" and that "no special information skills are required to operate effectively in the external environment" (1989:33). Another aspect that has been overlooked by organizational researchers is the difficulty in integrating internally and externally generated information.

Stabell (1978) studied thirty portfolio managers, and the results suggested that the volume and breadth of information source use in the problem-finding phase of the decision making process were positively related to the integrative complexity of information environment perception. The integrative complexity of an individual's conceptual system is determined by the number of parts or dimensions of the system and by the nature and extent of rules for integrating these parts.

O'Reilly (1982) investigated the impact of source accessibility and quality on the use of information sources by decision makers. The results of the survey of 163 subjects revealed that the frequency of use of the four major information sources available to the respondents was explained in three of four instances by the accessibility of the source. O'Reilly noted, however, that accessibility predicts frequency of use independent of a set of other variables that could have affected information usage, such as uncertainty in the task, education, and tenure in the job. These factors were significant determinants of use in some instances, but it was accessibility that consistently determined usage.

Tiamiyu (1992) investigated the relationships between source use and work complexity, decision maker discretion and activity duration. Two hundred and seventy four senior civil servants of eleven different ministries in seven states of Nigeria were surveyed, and the results revealed that the average number of sources used in activities was directly related to work complexity and the level of decision maker discretion in the activities; although the use of consultancy reports,

conference papers and academic journals was directly related to work complexity and decision maker discretion, the use of internal files was inversely related to these factors. It was also found that having more time to spend on an activity does not seem to lead to the use of more sources, and that internal files tend to be used more often in short than long time duration activities.

Based on the results of previous research on selection of source and medium, Saunders and Jones (1990) make an attempt to integrate two distinct perspectives: 1) communication, or the acquisition and flow of information in organizations, and 2) decision making, or the use of information in organizations; and propose a model that ties information acquisition to the decision making process, bearing in mind dynamic, temporal aspects of information acquisition. The model focuses on variations in information acquisition over the life of a decision and suggests that medium selection should vary by the type of search behaviour employed.

Studies within the field of information needs research, have looked at managers as special information users who have specific information needs and operate in a specific information-use context. Important contributions have been made by this branch of research to the study of the information needs of managers and to understand the information-use context of managers. These studies usually focus on the information needed and the information sources used, within specific contexts. A recurrent preoccupation within this branch of literature is the definition

of concepts such as *need, demand* and *use*. Line (1974) defined "needs" as what an individual ought to have, "wants" as what an individual would like to have, "demands" as what an individual asks for and "use" as what an individual actually uses. Wilson (1981) advised to drop the term "information needs" and to speak instead of "information seeking towards the satisfaction of needs". After reviewing the literature on information user studies, Bouazza (1989) proposed the definition of "information use" as the "seeking behavior that leads to the use of information in order to meet an individual's needs".

In the UK, two entities performed an important role in needs research during the eighties, independently or in association: the British Library Research and Development Department, by funding and sub-contracting research, and the Consultancy and Research Unit (Department of Information Studies, University of Sheffield), by carrying out a number of studies. In 1982, a study was funded by the BLRDD (White, Bennett and Shipsey) with the purpose to determine the range of national and local sources of information available to small firms, to investigate the awareness to and use made of those sources, and to identify, where possible, factors leading to gaps and deficiencies in the provision of information. The sample was made up of two hundred independent manufacturing firms, employing between 1 and 100 people; only managers were interviewed, of which 92% were owners or founders and 8% were departmental managers. The study concluded that: 1) the information required relates to the day-to-day business needs of the firm; 2) conventional sources of information, such as public libraries,

chambers of commerce and research associations, play only a minor role; 3) most information in small firms passes verbally and usually involves trade contacts with suppliers and customers; 4) only as firms grow and establish separate departments, is there a tendency to become more involved with external organizations, such as chambers of commerce and research associations, and to use more formal sources of information, such as publications; and 5) the most meaningful contact with a small firm manager is personal, face to face, and probably on his or her own premises.

Another study focusing on small and medium manufacturing enterprises (Innovation Consultants, 1986) found that: 1) entrepreneurs and managers of small firms are the chief sources of information, and the main contacts with external information networks; 2) small firms behave more like persons than organizations in their information seeking behaviour but with a reinforcement of the propensity to use informal sources of information; 3) many of the needs of entrepreneurs and small firm managers are for a) contact names and addresses of suppliers of specific materials, components and equipment or sub-contracting and other services, and b) information on new ventures, new products, expanded markets, joint ventures or partnerships; and 4) information is more likely to be used the easier it is of access and the more it has been sorted and evaluated by others.

A study carried out in the Consultancy and Research Unit and funded by BLRDD (Roberts and Clifford, 1984), aimed at establishing the

nature and types of events giving rise to expressions of information demand within manufacturing firms, to identify external sources of information consulted by representatives of manufacturing firms and to obtain critical assessments of the utility of such sources, and to assess attitudes of managers towards information issues. Fifty nine firms were visited and, in addition to representatives of firms, various information suppliers were interviewed. Roberts and Clifford found that: 1) managers are eclectic in their methods of acquiring needed information and no single source of information appears to dominate managerial consciousness; 2) managers prefer to contact persons rather than browse documents; 3) information, when needed, is needed quickly and for short-term events; 4) the main sources of external information were trade associations, the sales force, customers, suppliers, chambers of commerce and public libraries; 5) information is rarely regarded as a resource to be cherished and organized, and the notion of information as a form of systematically acquired capital is alien to the majority of respondents; and 6) organizational contexts motivate and shape information practices.

Another study carried out in the Consultancy and Research Unit and funded by the BLRDD (White and Wilson, 1988) interviewed 82 individuals in ten manufacturing firms and aimed at exploring managers' needs for information within the context of organizational communication behaviour, to identify potential and actual relationships with external sources of information, to identify barriers to effective use of external information and to propose ways in which external

information services might serve business users more effectively. It was found that: 1) no clear correlation existed between individual managers' roles and particular types of information need; 2) the nature of the individual company and its product or market base affect the nature of the information required; 3) information is often gathered in a fragmented and informal way, in great haste and as a response to an immediate problem; 4) the nature of managerial work demands different kinds of information, in different forms, at different times according to the demands of the problem or situation; 5) the use of a particular information source depends on past experience and degree of confidence on that source; and 6) informal and personal contacts are the only real sources of intelligence on customers and competitors.

A study carried out in Portugal by a state R&D organization and a regional industrial association (Correia et al., 1991), with the aim of establishing the basis for the implementation of an information network linking the information services of several local industrial associations, examined 190 small and medium size companies of several industrial sectors. It was found that: 1) managers use external sources frequently, with relevance to banks, information providing companies, consultants, associations and government departments; 2) the information rated as more important ranges from information on incentives to legal issues, markets and products; 3) little use is made of information on trade marks, patents and standards; 4) the statistical information available was found to be incomplete and outdated; 5) few companies had an information centre of its own. Another study carried out as part of a

PhD programme (Barrulas, 1992), aimed at providing a basis for the design of an information infrastructure to support the development of the electric and electronic industry in Portugal, found that users in industry are not aware of most of the systems and services available. It also found that entrepreneurial associations were the most well known of the information structures to managers in the electronics industry, and also the most used, followed by government departments, research organizations, information brokers, consultants and banks.

2.4. SUMMARY

Organization theory conceptualizes organizations as open systems and the environment basically as a source of resources and a source of information. Organizations enact their environments and process information to interpret changes in the environment and to make decisions. The perspective of the organizational environment as a source of information has been widely recognized as the most appropriate for the study of environmental scanning.

The value of information and the need to scan the environment have been widely acknowledged. In order to operationalize the study of the environment, it has been artificially divided into "sectors" or "areas of external information"; among these, the market-related sectors containing information on clients, suppliers and competitors, emerge as

the most important for managers and are, therefore, the main targets of scanning activities. Managers use both internal and external sources to scan the environment, but prefer personal sources such as clients, suppliers and in-house people. Impersonal sources are not much used in scanning.

Scanning modes and methods in business organizations can range from irregular, informal, role-based efforts to highly systematic, formalized, system-based activities. Two diverging research trends developed within the field of environmental scanning research. One suggests that in most large companies, there may be both a formal system of scanning consisting of a special unit and personnel dedicated to the tasks of acquiring, interpreting, and internally communicating information on different aspects of the firm's environment, and an informal system built around the day-to-day scanning activities of individual managers. The other questions the viability of environmental scanning units, and advocates the impracticability of the abdication of managerial scanning to technical specialists at corporate headquarters, in the case of large corporations; those who have studied environmental scanning practices of managers in small companies, agree on the overwhelming importance of the entrepreneur or managing director, who acts as the chief source of information and the main contact with the external environment.

Studies on the scanning mode of business organizations found that it depends on firm size, experience with planning and analysis techniques and perception of the external environment. Hierarchical level and

functional specialization do not appear to influence scanning behaviour. On the other hand, information needs research suggests that managers' information needs are task-related and motivated by immediate problems.

While organization theory views managers as decision makers and interpreters of environmental change, information science views managers as special information users with distinctive needs, and operating in a specific information-use context. Some authors from both areas advocate the need of some sort of training to develop managers' information skills.

CHAPTER THREE: METHODOLOGY, RESEARCH DESIGN, AND CONCEPTUAL FRAMEWORK

INTRODUCTION

This Chapter describes how the methodology used (the combination of the case study approach and the grounded theory method of qualitative analysis) influenced the research design, by replacing statistical sampling by *theoretical sampling*; it also describes some aspects of the data analysis process, and presents the emerging conceptual framework, including the main categories and the principal relationships among them, as well as the model of the environmental scanning process.

3.1. METHODOLOGY AND RESEARCH DESIGN

3.1.1. The case study approach and the grounded theory method of qualitative analysis

The case study approach is usually associated with the in-depth study of a single organization, sometimes two or three, but usually not more than

five. Some exceptions have been identified, such as that of Yin, whose study of innovation was based on nineteen case studies. Bryman (1992) questions the legitimacy of this designation when applied to such a large number of cases:

> "When such larger numbers of cases provide the data for an investigation, the distinctiveness of the case study approach becomes questionable, especially since the emphasis on the unique context that is a feature of the case study is easily lost, though this is not to deny the importance of such studies." (Bryman, 1992:172)

Bryman identifies four types of qualitative organizational research, classified along a line of decreasing participation of the researcher: total participant, semi-participant, interview-based and multi-site, this last being described as having "chief emphasis on interviews with, or observation of, individuals in six or more different organizations, but usually more than ten, and there is usually some examination of documents." (Bryman, 1992:152). Bryman notes that, in multi-site studies, the reliance on interviews indicates that the degree of penetration of, and fidelity to, the perspectives and interpretations of those being studied, is less pronounced than on the other types of studies, that contextual emphasis tends also to be less pronounced in multi-site studies, and that they tend to be the most structured of the four types, because of the need to draw reasonably comparable data across different cases.

This perspective contends with Yin's perspective of multiple cases, which, in his opinion, should be regarded as multiple experiments, and follow a replication logic:

> "Each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or (b) produces contrary results but for predictable reasons (a theoretical replication)." (Yin, 1989:53)

This concept of *theoretical replication* is closer to the grounded theory concept of *theoretical sampling* and they both diverge from the statistical logic that seems to undermine Bryman's view of multi-site studies, since he considers that one of the advantages of these studies is the greater opportunity for studying a number of organizations and thus generate greater generalizability. Yin, on the contrary, argues that case studies are generalizable to theoretical propositions and not to populations or universes:

> "... the case study, like the experiment, does not represent a "sample", and the investigator's goal is to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization)." (Yin, 1989:21)

In the context of this research, the case study was considered appropriate for providing a holistic approach to the study of environmental scanning in industrial organizations operating in the chemical industry. In order to make up that picture, several types of data and information were collected, including general data about the industry and more specific data about the companies that accepted to participate in the study.

The data about the companies included formal data concerning the characterization of the company (official designation, address,

telephone and fax number, name of the managing director, SIC code of the main industry, sales volume, number of workers, social capital and distribution, type of ownership), obtained through the business databases consulted; publicly available data provided by the annual reports of the companies, promotional material and newsletters; historical and cultural information provided by the managers interviewed, either orally - as an introductory part of the interview - or in printed form, when available, as well as organizational charts. All these data were of great importance to contextualize and illuminate the core data regarding the environmental scanning phenomenon in the companies analyzed. Not all cases, however, provided equally rich frameworks. Strauss emphasizes the usefulness of the case study approach when articulated with grounded theory:

> "... a case history can be very useful if brought into very close conjunction with grounded theory. Through it, the researcher can depict a type, an average, an extreme, or an examplary case." (Strauss, 1987:221)

Grounded theory seeks to generate theoretical statements and, ultimately, complex theories based on empirical evidence. In fact, it can be used in different ways and reach various degrees of complexity. The question of whether it is a "style" or a "mode" or a "technique" or a "method" of analysis has, in our opinion, been surpassed with the publication of Strauss and Corbin's Basics of Qualitative Research: Grounded Theory Procedures and Techniques (1990). The authors refer to the book, saying that it

> "... does spell out the procedures and techniques... in greatest detail and in the step-by-step fashion that we now believe is most useful for learning qualitative analysis." (Strauss and Corbin, 1990:8)

As a novice researcher in the use of grounded theory, having read some of the previous books by Glaser and Strauss (1967), and by Glaser (1978) or by Strauss (1987), and having struggled with unanswered interrogations concerning steps and techniques of analysis, this book appeared as an indispensable guide in the intricacies of the analysis process. In our opinion, it provided grounded theory with the comprehensive and cohesive body of guidelines that was missing for guiding the systematic use of procedures and techniques of data analysis, as well as for providing the canons or evaluative criteria needed to assess research results, which ultimately characterize a method of analysis. If there were any doubts, a recent paper by Strauss and Corbin (1994) testifies to the authors' acknowledgement of the evolution of "grounded theory" into a methodology on its own right.

The decision to target the organization as our unit of analysis was determined by the definition of the research problem, as presented in Chapter one.

The research design framework adopted in this study can be described, therefore, as a multiple case study, composed according to the theory building structure, as described by Yin (1989), i.e., where the sequence of chapters follow a theory-building logic, and using the grounded theory method of qualitative data analysis. The detailed description of the research design process is presented in the section below.

3.1.2. Research design

The sources used to select the companies to be approached for the study were two business databases: Dun & Bradstreet and MOPE - Informação para Gestão de Empresas. The data provided by the two companies were compared for completeness and accuracy.

As referred to above, the sample used in this study did not obey the principles of statistical sampling, but the principles of "maximum variation sampling", as defined by Patton (1990:172) and those of "theoretical sampling", as defined by Strauss and Corbin (1990:176), i.e., sampling on the basis of concepts that have proven theoretical relevance to the evolving theory. As a result, there were indeed several stages in the selection of the organizations.

First sampling

The first stage corresponded to the selection of five companies, which were used in a way similar to that of pilot studies. They had different characteristics of size (measured in terms of number of workers and sales volume), type of ownership (Portuguese-owned versus foreign-owned and limited liability versus anonymous societies) and sub-sector. Two multi-national, foreign-owned companies, one in the pharmaceutical sub-sector and another in the cosmetics sub-sector, and

three Portuguese-owned companies, one in the pharmaceutical sub-sector, another one in the cosmetics sub-sector and a third one in the plastics sub-sector made up this first sample.

The first sample was used to test the data collection tool and the sampling selection criteria as well. The data analysis carried out immediately afterwards was very enlightening and provided precious cues for the revision of the interview schedule and the sampling criteria. The interview guide was in fact revised: the structure was readjusted, and the experience gained led to the elimination of some of the questions and the rephrasing of others; interchange with these first interviewees proved also to be extremely useful for testing interview techniques and for gaining experience in the management of the interviewing process.

The selection criteria were also revised: a decision was made to exclude from the next sampling stage multi-national companies with a majority of foreign capital, as this fact determined that strategic decisions were made somewhere else, most of the data and information used was provided by the headquarters, and little scanning was made locally; companies with a mixed ownership (with part foreign capital, and part national capital) were considered to introduce the needed variation. Another decision was made concerning the opening up of the criteria regarding the number of workers, which had been fixed as a minimum of one hundred workers, as it had been assumed that only companies with a somewhat complex structure and the subsequent job

diversification, would engage in organized environmental scanning; variation should then be introduced in the sample in order to check for diversity in organizational procedures concerning environmental scanning, in organizations with simple structures and little staff. But it was also decided that the minimum sales volume established beforehand should be maintained, since relatively well-performing companies could provide a richer ground for research purposes.

Ten people were interviewed during this first stage: three managing directors, four functional managers, one information officer, one market researcher and one public relations officer.

The final sample

The subsequent sampling stages ended up by incorporating a total of nineteen companies, including three of the five companies sampled in the first stage: five small companies (with more than ten and fewer than 100 workers), ten medium-size companies (with more than 100 and fewer than 400 workers) and four large companies (with more than 400 workers). This classification was adapted from that used by IAPMEI and reflects the characteristics of the Portuguese industry, where very small (up to 10 workers), small and medium-size companies make up more than 90% of the total number of companies established in this country. Table 3.1. lists the companies by code number, which was adopted for reasons of confidentiality, with reference to the geographical location (district) of the company's headquarters, the SIC

code of the main industry, and the number of interviewees in each of the companies:

COMPANY	DISTRICT	SIC	N. INT.
1	Lisboa	2834	2
2	Porto	2834	2
3	Coimbra	2834	4
4	Lisboa	2834	2
5	Lisboa	2834	1
6	Lisboa	2833	1
7	Leiria	2821	2
8	Leiria	2821	2
9	Coimbra	2861	3
10	Leiria	2861	1
11	Lisboa	2821	2
12	Leiria	2821	2
13	Porto	2851	1
14	Porto	2851	4
15	Porto	2844	1
16	Lisboa	2844	4
17	Lisboa	2879	1
18	Porto	2812	2
19	Lisboa	2823	3
	Total		40

SIC : Standard Industrial Classification

Table 3.1. Companies listed by code number

Company six, with the SIC code 2833 (medicine and botanical chemicals), was grouped with the companies with the SIC code 2834 (pharmaceutical preparations) for purposes of statistical analysis. The same happened to companies nine and ten, with the SIC code 2861

(gum and wood chemicals), which were grouped with three other companies with different SIC codes - 2812 (alkalies and chlorine), 2823 (man-made fibres), and 2879 (farm chemicals) - in order to form the group "others". The explanation of the Standard Industrial Classification codes can be found in table 3.2.:

SIC	PRODUCTION	N. COMP	%	N. INT.	%
2812	Alkalies & Chlorine	1	5,3	2	5,0
2821	Plastics Materials	4	21,0	8	20,0
2823	Man-made Fibres	1	5,3	3	7,5
2833	Medicine/Botanical Chemicals	1	5,3	1	2,5
2834	Pharmaceutical Preparations	5	26,3	11	27,5
2844	Cosmetics/Toilet Preparations	2	10,5	5	12,5
2851	Paints & Allied Products	2	10,5	5	12,5
2861	Gum & Wood Chemicals	2	10,5	4	10,0
2879	Farm Chemicals	1	5, 3	1	2,5
	Total	19	100	40	100

Table 3.2. Distribution of companies by SIC code

Although this sample does not claim to be statistically representative of the universe of the chemical industries, the companies selected cover most of the districts where the chemical industries are concentrated - Lisbon, Oporto, Leiria and Coimbra, as can be verified in table 3.3.:

DISTRICT	N. COMP.	%	N. INT.	%
Lisboa	8	42,0	16	40,0
Porto	5	26,4	10	25,0
Leiria	4	21,0	7	17,5
Coimbra	2	10,6	7	17,5
Total	19	100	40	100

Table 3.3. Distribution of companies by geographical location

Forty seven interviews were carried out, although seven of them - the so-called complementary interviews - were not included in the statistical analysis. These interviewees were not questioned about the issues approached in the interview schedule, but about other related issues that needed to be clarified; table 3.4. elucidates the job titles of all the interviewees, as well as the number of interviewees by job title:

JOB TITLES	N. INT.	%
Managing Director *	19	47,5
Marketing & Commercial Director **	14	35,0
Deputy-Director ***	2	5,0
Financial Director	2	5,0
R & D Director	1	2,5
Technical Director	1	2,5
Planning Director	1	2,5
Planning Officer	(2)	
Information Officer	(4)	
Computer Officer	(1)	
Total	40+(7)	100

Table 3.4. Number of interviewees by job titles

* Refers to top managers performing the roles of chief executives, general directors or managing partners

** These jobs were grouped together because there was an overlapping of functions in many cases

*** These job titles correspond, in one of the cases, to the function of planning director and, in the other case, to a commercially-oriented responsibility

( ) Complementary interviews, which were not included in the statistical analysis

Access to the companies was gained through a letter explaining the purpose of the study and the conditions under which it would be undertaken (Appendix 1). Another letter, issued by the Head of the University Department where the research was being carried out, confirmed the affiliation of the researcher and asked for co-operation. Ten companies refused to participate. Several telephone contacts and faxes followed the letters, meetings were scheduled and, in some cases, cancelled and rescheduled. The forty interviews with managing directors and functional directors were all conducted between February and September 1992 and had an average duration of one and a half hours. They were all taped and fully transcribed (except four of them, which did not add anything relevant to the other thirty six), the number of printed pages amounting to more than 700 and approximately 200 hours of transcription.

The main tool used for collecting the core data for this research was the semi-structured interview (Appendix 2), a tool flexible enough to favouring adaptation to each context, organization and individual, and

also to pursuing unexpected paths and cues suggested by the *theoretical sensitivity* (Glaser and Strauss, 1967) developed by the researcher throughout the research process. Whenever a quotation of an interview is made in the body of this thesis, it is followed by a series of numbers in brackets, such as (4,10,12,2), which indicate (code number of company, interviewee, number of page, number of paragraph in the transcription).

Observation played a minor, but non-negligible role. Visits to the premises, including the factory plants in some cases, meals in the canteens of some of the organizations, attention paid to the way-of-doing-things in the several companies - how visitors were announced, how meetings were scheduled and cancelled, absence or frequency and type of interruptions in the course of the interviews, degree of formality or informality in interpersonal relations - contributed to consolidate impressions or confirm information based on documentary evidence or on the interviews.

Quantitative data

Statistical treatment was used exclusively to cope with conceptual frameworks borrowed from previous research in this field, regarding the assessment of environmental change and the appreciation of the relative importance of the information on the various environmental sectors or factors. The smallness of the sample, and the subsequent occurrence of low numbers and empty cells in the tables, do not guarantee the

reliability and comparativeness of the results obtained in this study with the results of previous studies. They were used, instead, for comparison with the results obtained by using the grounded theory method of analysis and, to a certain extent, to test the validity of the frameworks themselves.

3.2. THE DATA ANALYSIS PROCESS

3.2.1. The use of literature

In grounded theory studies, the literature is used in a rather different way from its use in research using quantitative methods. In this type of study, the literature is used to identify previous research in a certain area, to identify gaps in understanding, and conceptual frameworks that can help in structuring the research and interpreting the findings. Researchers are usually concerned with testing variables suggested by previous studies and in testing relationships among those variables. Grounded theory studies aim at discovering relevant categories and revealing relationships among them. Phenomena are explained by the theoretical framework that is unravelled in the course of the research. Too much concern with established conceptual frameworks and theoretical assumptions is thought to constrain discovery. Strauss and Corbin suggest that literature can be used to stimulate theoretical

sensitivity, to provide secondary sources of data, to stimulate questions, to direct theoretical sampling, and to provide supplementary validation. They refer to the role of literature in the following terms:

> "If, after completing your study, you find that your emergent theory has some relationship to already recognized and developed theory, then you may want to use yours to extend the other. However, it is important to understand... that as your theory evolves, you can incorporate seemingly relevant elements of previous theories, but only as they prove themselves to be pertinent to the data gathered in your study." (Strauss and Corbin, 1990:49-50)

This orientation influenced our approach to and use of the literature. A review of the literature was needed in order to develop the theoretical sensitivity of the researcher to the environment/organization problematic associated with "looking at and looking for" information, by managers, in an organizational setting. However, the type of "literature review" that was made was rather selective, since its objective is to highlight and bring together core research in areas that relate to the theory generated by our study.

Similarly, the relation that is established in the text between the evolving "grounded" theory and the literature, is far from the usual extensive chain of theoretical considerations, generation of propositions, testing variables and relationships among them, and comparison of results. In this research, literature is called upon only to introduce core concepts *a priori*, or, more commonly, to provide supplementary validation *a posteriori*.

3.2.2. The coding procedures and the analysis techniques

The data analysis process is characterized by the use of a set of coding procedures (open, axial and selective coding) and analysis techniques (generative questions and systematic comparisons).

Open coding refers to the "process of breaking down, examining, comparing, conceptualizing and categorizing data", as defined by Strauss and Corbin (1990:61), and it is used to question or explore assumptions (one's own and others') about the phenomenon being studied. This is achieved by labelling phenomena, discovering and naming categories, and identifying properties and dimensions of those categories. *Axial coding* refers to a "set of procedures whereby data are put back together in new ways after open coding, by making connections between categories", as defined by Strauss and Corbin (1990:96). This is achieved by using a "coding paradigm" contemplating the causal conditions, the context where the phenomenon evolves, the intervening conditions, the action and interactional strategies used to manage the phenomenon under study, and the resulting consequences. This linking of the sub-categories to a category, in a set of relationships, can be represented as a model, the paradigm model of the grounded theory method of analysis:

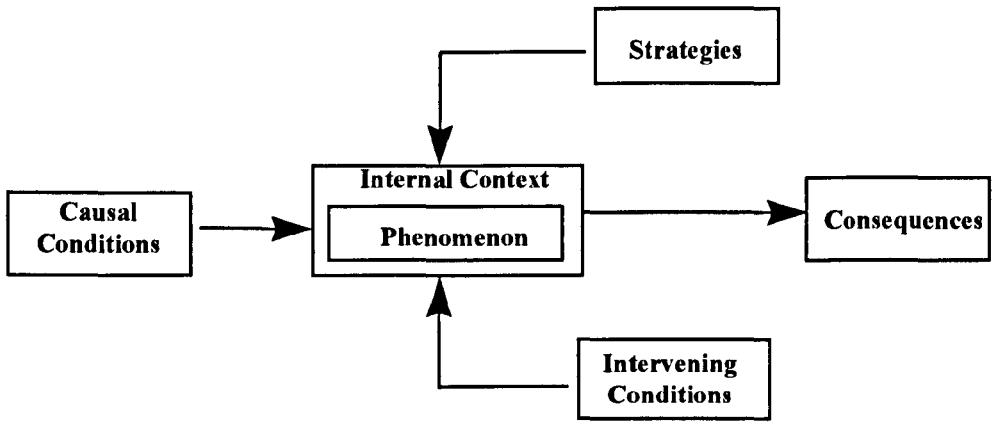

Figure 3.1. The paradigm model of the grounded theory

Selective coding refers to the "process of selecting the core category, systematically relating it to other categories, validating those relationships, and filling in categories that need further refinement and development", as defined by Strauss and Corbin (1990:116). The relating of categories to the core category is done by means of the paradigm. The systematic application of the coding procedures to our data, resulted in the following diagram:

CAUSAL CONDITIONS
changing environment /
perceived environ. change

→ **PHENOMENON**
environmental scanning

PROPERTIES
type
frequency
mode

DIMENSIONS
role-based, system-based
often, never
deliberate, accidental

INTERNAL CONTEXT
intervening conditions
information consciousness
information climate
outwardness
exposure to information

STRATEGIES FOR MANAGING ENV. SCAN.
scanning behaviour/scanning policy
scanning focus
use of information sources
scanning mode

CONSEQUENCES
perceived environ. change/
strategic change

The *making of comparisons* and the *asking of questions* are two analytic procedures that are inseparable from the coding process, in so far as they are of prime importance to developing precision and specificity of concepts throughout the analysis process. By constantly asking questions about data and making comparisons between incidents or events, similarities and differences are detected, so similar incidents are labelled and grouped to form categories. Glaser and Strauss (1967) refer to grounded theory as "the constant comparative method of analysis"; this process should "exhaust" the data, to a point that no more relevant codes can be assigned.

3.3. CONCEPTUAL FRAMEWORK

3.3.1. The components of the theory and the model

The information that emerged out of the data analyzed provides an empirical basis for the articulation of a grounded theory of environmental scanning. The articulation of the theory implies the

identification and description of a set of categories and relationships, which explain a significant part of the phenomenon under study. Those categories and relationships should be clearly defined and easily measurable, and the theory itself should be meaningful for both organizational theorists and information scientists.

The grounded theory proposed comprises three main components: the **categories** (the core category and the subsidiary categories), the **principal relationships** among them, and the **contextual factors** that shape the categories and relationships. From an internal perspective, these factors include corporate history and culture. From an external perspective, these contextual factors include the overall economic, social, cultural and political conditions that characterize modern Portugal and shape, at least to a certain extent, the organizations operating in that reality.

The model of organization implied by the theory is that of an open system. The components and elements that make up the grounded theory are pictured in Figure 3.2:

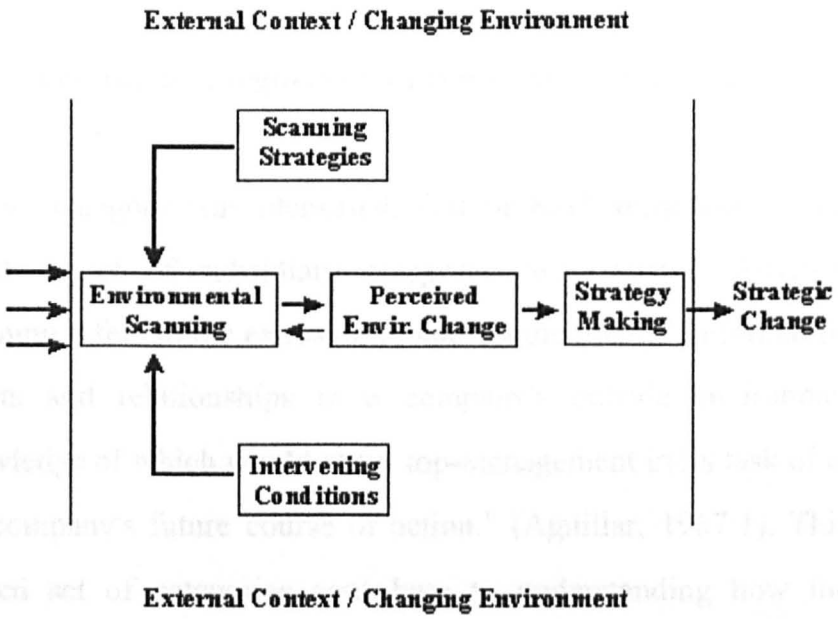

Figure 3.2. A model of the environmental scanning process

The articulation of these elements into a theory is made in Chapter nine. As referred to previously, two different approaches or research methods were used. We sought convergence between them, integrating contributions from both methods in order to refine concepts, categories and relationships. However, most of the evidence on the role of corporate history and culture was provided basically by the case studies.

3.3.2. The main categories and the relationships among them

A core category was identified, that of **environmental scanning**, to which a set of subsidiary categories was related. Environmental scanning refers to the exposure to and acquisition of "information about events and relationships in a company's outside environment, the knowledge of which would assist top-management in its task of charting the company's future course of action." (Aguillar, 1967:1). This inter-related set of categories contribute to understanding how industrial companies scan their business environments, how internal factors of an organizational, as well as of an individual, nature influence the environmental scanning activity, and also how managerial perceptions of environmental change affect strategic change. The task of explaining variability among companies resides with a few key relationships among those categories.

Perceived environmental change refers to the alteration in the pattern of events and relationships occurring in the company's outside environment, as perceived by managers, which may lead the company to adjust to the new conditions. **Strategic change** refers to the alteration of the company's course of action in order to create new conditions or adapt to new conditions. The **perceived environmental change-strategic change connection** translates the decisive role of top managers' perceptions of environmental change upon their decisions to change their companies' course of action.

Information consciousness means the value attributed to information, and it is a construct that emerged within the individual sphere but in the cross-section of the individual behaviour and the organizational way-of-doing things. **Information climate** emerged within the organizational sphere as a set of conditions that determine access to and use of information. The **information consciousness-information climate connection** translates the strong influence detected between the top manager's attitude towards information-related activities and the type of information climate established in each company.

Outwardness means the openness of a company to the outside and permeability to external influences and is rooted in the concept of organizations as open systems. **Exposure to information** refers to the frequency of opportunities of contact with well-informed people and information-rich contexts. It is rooted in the concept of boundary spanning personnel, as people establishing the connection between their organizations and the environment, as well as in the concept of gatekeeping and information stars, and emerged as the individual face of the organizational phenomenon of outwardness. The **outwardness-exposure to information connection** translates the determinant weight of the organizational capacity to relate to the environment, upon the degree of exposure to information of individuals.

3.4. SUMMARY

A brief account of the research methodology used - a multiple case study, composed according to the theory building structure, and using the grounded theory method of qualitative analysis - was provided, and the implications for the research design adopted were described, with special mention to theoretical sampling, understood as sampling on the basis of concepts that have proven theoretical relevance to the evolving theory. The sampling process was also described: nineteen companies (of which five small companies, ten medium-size, and four large companies) of different sub-sectors of the chemical industry were selected and analyzed, using three different types of data collection (semi-structured interviews with forty managing directors and functional directors, documentary evidence, and limited direct observation).

Some aspects of the data analysis process deserved special attention, namely the use of the literature, the use of the coding procedures and the analysis techniques, as well as the use of the paradigm model in order to articulate the subsidiary categories around the core category. Finally, the emerging conceptual framework was presented, with relevance to the main categories and the relationships among them, and the model of the environmental scanning process.

CHAPTER FOUR: THE EXTERNAL CONTEXT

INTRODUCTION

This Chapter looks at the framework that shaped the industrialization process under the regime of state corporatism and at the main guidelines pursued by industrial policy in recent years. It describes the main features of the chemical industries operating in Portugal and analyzes the dominant characteristics of the entrepreneurial and managerial class. It also looks at the roots of the dominant role of the state in the Portuguese society and invokes research evidence supporting the impact of the national culture upon organizational cultures.

4.1. THE GENERAL ENVIRONMENT

4.1.1. The background of the industrialization process

When Portugal joined the EC in 1986, all the economic and social indicators placed the country at the bottom of the other member countries. The GDP per capita was 58% of the Community average.

That state of (under)development was the result of a long and complex process deeply rooted in Portuguese history. Historians and economists have questioned the reasons for such a persistent gap between Portugal and most of the other European countries.

One of the theories held dates from the second half of the 19th century, that of the national "decadence" that started in the 17th and 18th centuries, after the golden age of the Discoveries. It was elaborated by Quental and first published in 1871. Its central idea was that the decadence of the productive structure was due to the excessive expansion of the colonial trade.

The concept of decadence would be better expressed in current terminology as "underdevelopment". It designates the gap between a large majority of countries that are part of the capitalist system, and a more advanced core. They are seen as deflections from a model of civilization, that of the industrialized countries (Pereira, 1978).

The problem of the underdevelopment of the non-European countries is rooted in its recent - from the 18th to the 19th centuries - integration in the capitalist system. But Portugal, as well as Spain, played a prominent role in the formation of the mercantile capitalism, by launching the transatlantic trade that would threaten and ultimately destroy the feudal mode of production, and both lost that leading role sometime during the transition process to industrial capitalism.

One of the explanations provided by recent research for that loss revolves around the idea of the external dependence that was developed towards England during the second half of the 19th century, which would have blocked the industrialization process in Portugal (Pereira, 1971; 1978). Research in comparative history, however, claims that the scarcity of natural resources, the geographical location and the configuration of the international market by the mid-19th century largely explain the failure of the industrialization process and the subsequent development gap (Reis, 1984; 1987).

4.1.2. Industry under the "Estado Novo"

State Corporatism

Salazar introduced Corporatism in 1933 as the ideology underlying the establishment of the "Estado Novo" (New State). It is associated with the promulgation of the Political Constitution and the National Labour Charter, the Portuguese version of the "Carta del Lavoro" issued in Italy in the early years of Fascism.

Makler extracted a composite definition of State Corporatism based on contributions by Philippe Schmitter and James Mallory, which describes corporatism as follows:

> "Essentially, corporatism is a state-organized and regulated system of interest representation in which various constituencies, primarily grouped on the basis of their occupations or vocations, are organized into a limited

> number of singular, compulsory, non-competitive, hierarchically ordered and functionally differentiated categories. These groupings are granted a representational monopoly and autonomy in exchange for observing certain controls on their selection of leaders, articulation of their claims and on their intercorporate relations." (Makler, 1975:497-498)

Schmitter himself evolves an important differentiation between state corporatism and societal corporatism:

> "State corporatism tends to be associated with political systems in which territorial subunits are tightly subordinated to central bureaucratic power; elections are non-existent or plebiscitary; party systems are dominated or monopolized by a weak single party; executive authorities are ideologically exclusive and more narrowly recruited and are such that political subcultures based on class, ethnicity, language or regionalism are repressed. Societal corporatism appears to be the concomitant, if not ineluctable, component of the post-liberal, advanced capitalist, organized democratic welfare state; state corporatism seems to be a defining element of, if not structural necessity for, the antiliberal, delayed capitalist, authoritarian, neomercantilist state." (Schmitter, 1976:105)

According to this definition, state corporatism was undoubtedly the regime that prevailed in Portugal for more than forty years.

As referred by Baklanoff (1978), under the authoritarian regime the private sector was dominated by approximately forty great families which were the result of the traditional alliance between industrialists and landowners thus forming real dynasties (or the "elite" in Makler's words) that ruled the Portuguese economy. The connection between the economically powerful and the political regime was ensured by the presence of members of these families in the Corporative Chamber, which acted as an advisory body to the Government. This perverse closed circuit was completed by the ownership, by the top ten families, of all the important commercial banks and, by 1970, these same families

controlled half of the national wealth (Hudson, 1989). The upper class constituted only 1.2% of the whole population (Sedas Nunes, 1971).

Corporatist legislation consecrated the state's right "to regulate and co-ordinate national social and economic activity by bringing labor and capital into harmony for the common good" (Makler, 1975:498).

The establishment of corporative institutions enabled the regime to intervene in economic and social activities as the regulator of production, wages and labour relations. The leadership of the corporatist system was held by several ranks, classified by Makler as formal leaders, corporative leaders, corporative and public leaders and non-position holders. Makler describes them as follows:

> "... the formal leaders among the Portuguese industrial elite were a mixed lot. The corporative leaders (grémio leaders) could be characterized as younger, propertied (founders, heirs, owner-managers) from upper socio-economic origins, divided between nonuniversity and university trained, geographically nonmobile and directors of technologically noncomplex enterprises mainly associated with traditional industrial sectors. Among public leaders two groups can be distinguished: municipal and national leaders. Those who occupied municipal positions shared the same characteristics as the corporative leaders, except that as a group they tended to be older, more middle class in origin, nonuniversity educated and more concentrated in technologically noncomplex northern enterprises. In contrast were the national leaders. They were older university trained engineers, non propertied executives of major, centrally located and technologically complex enterprises often connected with important Lisbon-headquartered consortia." (Makler, 1975:512-513)

The picture that emerges out of this brief incursion through the basic constructs of state corporatism is that of a rigid, stratified political and social structure, where the elite constitutes a group firmly united by

common interests that range from family alliances cemented by marriage to rotation in top government posts and top positions in industry and finance. On top of this structure, a central bureaucratic power regulates all aspects of economic and social life, banning political parties and unions, freedom of expression and association, thus ensuring the "social peace" needed to let the bureaucratic machine of state corporatism work.

Industrialization and industrial licensing

The first boost of industrialization occurred only after World War II, when a convergence of propitious factors took place. These factors were the economic reconstruction of the European countries, the expansion of internal and external demand, the accumulation of funds for investment and a relative strength of public finance at national level. The development of the financial system favoured the effort of industrial development.

Mónica describes this fast-growing process in the following terms:

> "During the war, with its competitors paralyzed, the Portuguese industry lived a period of euphoria in certain sectors.... Between 1953 and 1973 the annual growth rate of the manufacturing industry was about 9%. The average productivity more than doubled during those years. Peasants and rural workers were transformed into skilled workers in the shipbuilding sites of the other bank [of the Tagus], in the car assembling manufactures, in the ironworks. External demand had a decisive role in this process. However... agriculture was stagnant and the life quality of the population did not improve significantly. The small and poor internal market was still a problem. On the other hand, it was difficult to modernize manufactures that could use such cheap labour force. Portugal had not known the devastation

> of war, but had not benefited either from the expansion effects that were now visible in the devastated countries." (Mónica, 1990:23-24)

The axis of the present industrial structure was laid down at that time. From 1945 to 1965, roads, ports and airports were built, as well as large hydroelectric works. Metalworks, oil refineries and derived products, such as butane gas, were the first sectors to be developed, followed by metallurgy and some chemical industries, plastics, tyres, electric materials, shipbuilding and paper-pulp. The extant sectors of fertilizers, paints and cement were modernized, as well as the traditional sectors: cork, wine and food industries, textiles and footwear.

The industrial model adopted was based on a generous internal protection (industrial licensing, labour legislation, closed markets), and external (tariff and non-tariff) protection, that caused contradictory outcomes. In some cases, it eased the launching of new productive activities, in others it limited their natural expansion and allowed non-competitive companies to grow. The overall picture is that of a strong state intervention and a certain immobility of the entrepreneurial class (MIE, 1985).

The core instrument of state intervention was the industrial licensing (Dec. Lei 19354), in force since 1931. Anyone intending to set up, relocate or reopen an industrial plant closed for more than two years had to acquire authorization from the state. It applied to a vast number of activities, including crafts. The aim of the industrial licensing was to guide industrial growth via:

. the control of competition in order to reach a "natural" and stable partition of markets and thus ensure the viability of the industrial projects and minimize the risk of private investment;

. the avoidance of overflows in the internal market, when exports were difficult and not deemed to be important;

. the creation of an integrated economic area including the African markets of the territories under Portuguese administration.

While inhibiting regulation through competition, the industrial licensing became a privileged form of state intervention in the economy and the pillar of the "administrative regulation" in force for decades.

The long-lasting system of licensing and the distortions that it caused, due to excessive protection, developed low levels of competitiveness while the dynamism of international commerce was increasing. The administrative enforcement of the system became increasingly bureaucratic, limited the performance of the market and ultimately hampered industrial development itself.

The Law of Industrial Reorganization (Law 2005 from 1945) marks the start of the "industrialist phase" of development in Portugal. According to Sousa and Almeida (1991) this Law only indirectly questioned licensing; and Law 2052 from 1952 introduced an important principle,

by declaring that private initiative was a fundamental rule and licensing was the exception. However, the only relevant change consisted of an alternative way of licensing, technical licensing, which demanded from companies a minimum of technological, economic and financial conditions. Pinto de Almeida (1961) regards this Law as the confirmation of the power of the dominant social group, since it favours the concentration of industrial capital, which leads to the formation of monopolies and oligopolies.

This framework largely determined the pattern of the industrial structure and the logic of entrepreneurial organization that lasted until 1974, in spite of the increasing opening of the economy throughout the 60s as a consequence of joining EFTA (European Free Trade Association).

The New Industrial Policy

Portugal joined EFTA as a founding member country in 1960 as part of a strategy to face the new economic and political conditions and trends. The amount of foreign investment increased throughout this decade but remained small compared to the investment of national origin. The transfer of technology usually associated with foreign investment, and so much needed in order to contribute to the modernization of industry, was not properly assimilated (MIE, 1985).

Because industrialization developed late, industry only took the lead of the national economic evolution in the 50s. The above-mentioned

industrial licensing and several other measures such as tariff and non-tariff protection were important tools of the industrial policy during the dictatorial regime, even if some barriers to international competition had to be eliminated step by step after the creation of EFTA.

This opening generated a relative modernization embodied in the so called "New Industrial Policy", presented in 1970 and reflected in Law 3/72 which revoked the previous laws from 1945 and 1952. On the other hand, the large economic groups that had grown up supported by industrial licensing were facing now the urgent need to internationalize in the European arena: in 1972 a commercial agreement was celebrated with EEC. The "new policy", however, was basically a continuation of the previous *status quo* in so far as it ensured a certain degree of protection from international competition and gave priority to capital-intensive large projects.

4.1.3. The industrial policy after the Revolution of 1974 and the integration in the EC

The troubled years

It was only in 1979 that the above-mentioned industrial regime was completely eradicated. In fact, the post-revolutionary period was characterized by casuistic interventions of the state in order to improve the economic and financial condition of some companies, namely

through the negotiation of viability contracts. The major role of the state in this period had to do with the nationalization process, which gave way to the creation of a state entrepreneurial sector in industry.

Sousa and Almeida (1991) mention 1981 and the Minister of Industry and Energy of the time, Bayão Horta, as the turning point in the search for industrial policy priorities: exploitation of natural resources; qualitative development of the traditional manufacturing industries in order to preserve external competitiveness; qualitative and expansionist development of industries with technologies of their own; and creation of a core of advanced technologies.

The next Minister, Veiga Simão, followed the global orientations of his predecessor, but stressed the importance of innovation and technology. The Law of Industrial Development was approved and four priority areas were established: development of the natural resources; restructuring, modernization and specialization of the traditional industries; expansion of the industries with technologies of their own and good chances to develop; and creation of a core of new advanced technologies in accordance with the human and material resources of the country. Fiscal and financial incentives were created to foster industrial development, as well as technological infra-structures; a Fund for Industrial Development, intended as a financial mechanism to implement the industrial policy was created; and a Law of Innovation was issued as well as a Technological Plan, both pointing to the creation of technological infrastructures.

Several co-operation protocols and development contracts were signed between the Ministry of Industry and Energy and laboratories, universities, industrial associations and companies, all concerned with investments in new technologies. The situation of the state entrepreneurial sector in industry and energy was analyzed and its reconversion was considered, within the principles of submission of the public sector to the economic strategy.

The next ministry (Santos Martins) was dominated by the elaboration of PEDIP (Specific Programme for the Development of the Portuguese Industry), to be negotiated in Brussels: it was intended as a tool to reconvert the Portuguese industry, involving a great amount of money and partly supported by the EC (70%). A new system to stimulate the investment was created, including regional stimuli, rational utilization of energy, development of new kinds of energy and a regime to support the restructuring of some industrial sectors.

The industrial policy developed under Mira Amaral since 1987 was introduced as "an industrial policy in a market economy", where the state acts as a regulatory agent rather than an entrepreneur, but where an industrial policy is still needed due to the occurrence of market failures, the possibility of perverse effects derived from the macro-economic policy and also the need to weigh the social impacts caused by the market's selection process. The main guidelines of the industrial policy at this stage were: to improve the functioning of the markets; to

stimulate innovation; to reduce the amount of energy per industrial product; and to adapt the industrial sector to the alterations of internal and external demand.

After joining the EC in 1986, the performance of the Portuguese economy was particularly good. From 1987 to 1990 the growth of the GDP reached from 4% to 5% a year, some points above the Community average of 3% a year. After 1991, the growth rate decreased largely as a consequence of the international crisis. Exports fell, while internal demand decreased due to the decline of private investment and to the fall of family consumption. The GDP suffered a slight drawback in 1993. The creation of employment slowed down after 1992 but although the unemployment rate reached 5.5% of the active population in 1993, it was still kept below the Community average. The inflation rate has decreased regularly, from 12.6% in 1990, to 6.7% in 1993.

PEDIP: Specific Programme for the Development of the Portuguese Industry

A survey carried out by Cardoso et al. (1990) caught the picture of the Portuguese industrial fabric. It is dominated by a large number of small (58%) and medium-sized companies (both categories total more than 90%); these companies have low organizational and technological levels. Cardoso et al. revealed how the staff structure of the companies surveyed confirmed this fact: the proportion of administrative and technical staff versus workmen is one to four; and only 10% of the

companies had computerized production processes, management and technical services.

In most of the industrial companies property and direction fall in the same hands: there is no sign yet of the separation between capital and the control of the companies by professionals trying to obtain benefits and prestige by managing someone else's capital. Cardoso et al. found also that managers without capital amount only to 15% of the cases surveyed. This may also explain why 33% of the managers did not perform that job exclusively. The low level of demand of non-complex structures allow managers to manage more than one company or perform a liberal profession altogether.

The Portuguese industrial structure is also very recent: 48.2% of the companies surveyed by Cardoso et al. were established after 1974. It was with this picture in mind that PEDIP was conceived.

PEDIP was no doubt the main driving force of an industrialization policy for Portugal. It was approved in 1988 and was oriented towards four priority areas: strengthening of technological and non-technological infrastructures to support industry; training; financing of productive investment (incentive systems, sectoral programmes and financial engineering); and productivity missions and industrial quality.

This Programme lasted for five years and its implementation was considered a success (MIE, 1993) by the Portuguese government and by

the European Commission. The success of the Programme was largely attributed to the information climate created around it, thus conducing to the emergence of projects to be used in connection with PEDIP and ensuring its effectiveness in the long run. Other important factors were the follow-ups and the overall assessment study, as well as additional studies carried out in order to identify actions to be developed in the future and to bring in adjustments to improve later stages of the Programme.

As a result of this success and of the approval by the European Commission of the Delors Package II in 1994, another Programme, PEDIP II (Strategic Programme for the Dynamization and Modernization of the Portuguese Industry), was launched for the period 1994-1998. The main goal of PEDIP II is:

> "... to foster the sustained growth of competitiveness of the Portuguese industrial companies, to strengthen the capacity to adapt to fast market and technological changes, to promote modernization and diversification and to make internationalization of the industrial structure easier." (Cadernos PEDIP, 1 1994:4)

In order to reach this goal, the Programme targets a) the entrepreneurial organization and structure, by supporting development projects in this area; b) the entrepreneurial environment, by consolidating the extant infrastructures oriented to the provision of technical and technological support and training, and by sharing risks through the promotion of new financial tools for projects supported by the programme; and c) the entrepreneurial attitudes, by adopting measures for improving or

reinforcing industrial competitiveness in what concerns design, quality, innovation, co-operation and training and also through publicizing successful cases.

This last set of measures aims at altering, among other things, the relations between universities and industry, the attitude of industrial associations' leaders towards their associates and the attitude of the Public Administration itself towards the economic agents.

For the first time in recent history, there is a consistent industrial policy prevailing for more than ten years and the means to implement it. The application of PEDIP funds, however, has raised controversy. Some industrialists have complained that investments have been directed mostly to extant manufacturing capacity instead of supporting new entrepreneurships. This fact, together with the rigidity of the labour market and all kinds of state intervention in economy, led some reputed economists to label the post-revolution economy as "politicized market economy".

4.2. THE CHEMICAL INDUSTRIES: main features

The Chemical sector embraces very heterogeneous sub-sectors, with different manufacturing processes and products, different technologies and diverse financial situations. It is commonly agreed to subdivide the

Chemical sector into Base Chemical Industries and Light Chemical Industries. The first group includes organic and inorganic chemicals, fertilizers, plastic materials and synthetic resins, and chemical fibres. The second group includes resin products, pesticides, paints and varnishes, pharmaceutical products, soaps and detergents, tyres and rubber articles, plastic articles and essential oils.

The plants are located mainly along the West Coast and concentrate in the "Distritos" of Lisbon, Oporto, Aveiro and Leiria. In 1989 (MIE, 1992), 76% of the companies were located in these areas and they were mainly small and medium-sized companies: 98% had less than 500 workers and 90% had annual sales volumes under 2.2 billion Escudos. In that same year, the Chemical sector represented 4% of the Portuguese manufacturing industries, 7% of the employment, 13% of the total sales volume and 14% of the GVA.

Compared with the whole of the manufacturing industry, the Chemical sector has high productivity and pay levels: in 1989, the net productivity and the annual pay per worker in the manufacturing industry, represented approximately 62% and 68% respectively of the values for the Chemical sector.

The Chemical sector is more open than the Portuguese economy in general but nonetheless it has been mostly oriented to the national market. This fact illustrates the weight of a recent past when the national market was closed to the outside world. Customs and

administrative protections did not stimulate the companies to penetrate the international market and allowed instead the proliferation of small manufacturing units.

The Chemical industries depend heavily on foreign raw materials, equipment and technologies. This is related to the absence of strong national entrepreneurial groups with financial and technological capacity to invest in R&D. The investment in R&D in the Chemical sector in Portugal is about 0.5% while the average value for the EC member states, in 1987, was about 4.5% in the several industries, and of 10% to 12% of the sales volume for the pharmaceutical products and the agrochemical sub-sectors in particular (MIE, 1992).

After Portugal joined the EC in 1986, there was an increase in the amount of foreign capital and in the number of multi-national companies entering the country, and in fact they now dominate the national market in this sector. The process of internationalization that is taking place is due, therefore, mainly to the acquisition of national companies and to the creation of new companies by foreign capital and not to the penetration of foreign markets by national companies or to joint ventures having national companies as partners. It has become apparent that some of the great European groups are following a strategy of rationalization and vertical integration, through the acquisition of companies in the several segments of the Portuguese Chemical industry.

At European level, diversification gave place to refocusing on the core activities, and heavy investments have been made for improving productivity, introducing new products and processes, automation, security and protection of the environment, and R&D. The trend towards mergers and the integration within each chemical line has become apparent at international level for years but was followed in Portugal only by a very limited number of companies in this sector. The intensification of strategic alliances between national and foreign companies oriented to the Single Market and the world market would have provided the dimension needed to foster R&D, innovation and the development of technologies of their own.

The trade balance of this sector is in deficit. Except for the resin products industry, the trade balance of all the Chemical sub-sectors was negative between 1987 and 1989 (MIE, 1992). The organic base chemistry sub-sector is the major exporter as well as the major importer, followed by the sub-sector of plastic materials and synthetic resins. The national exports of chemical products increased between 1987 and 1989, contributing with 8.1% and 7.5% of the total exports of the manufacturing industries. The most important increase in value occurred in the sub-sectors of organic and inorganic base chemicals and in the plastic articles and rubber segments. The exports from the sub-sectors of pesticides, soap and detergents and cosmetics and perfumes doubled during this same period.

The labour cost and the productivity of the sector in Portugal are well under the EU average: they are about 25% and 50% respectively.

Some competitive disadvantages of this sector in Portugal include: a) the high cost of energy, and the fact that this sector in Portugal spends almost twice the energy spent at European level; b) the cost of storage and transport: storage capacity is low and transport is burdened by the geographical location of Portugal as a peripheral country within the EU; c) the high financial charges, due to financing options where the presence of alien capital is high; and d) the high interest rates practised by the banking system.

4.3. THE ENTREPRENEURIAL AND MANAGERIAL CLASS

4.3.1. Entrepreneurs' social origin and social image

There are few studies available about the entrepreneurial and managerial class in Portugal, and apart from few exceptions (Cardoso et al. 1990, Mónica 1990, Coopers and Lybrand 1993) they are mostly historical. However, after the deep changes - political, socio-economic and cultural - that occurred during the last twenty years in Portugal, we would

expect a renewed interest in this influential social group. Cardoso et al. explain this omission as the result of:

> "... a bias dictated by theoretical-ideological prejudice from schools or streams of thought that have dominated sociological research, which are reticent to recognize the importance of the actions of industrial leaders." (Cardoso et al., 1990:16)

Given this constraint, we will analyze these studies in detail in order to draw the profile of the entrepreneurial and managerial class in Portugal.

The panorama pictured by Makler (1969) in his reputed empirical study about the Portuguese industrial elite under the Corporative Regime has no correspondence in the present socio-economic structure. But were the philosophical principles underlying Corporatism completely eradicated from the Portuguese society? To what extent are managers' attitudes and values still affected by a tradition of protectionism?

According to Makler (1969), those with secondary and university training in Portugal had forty-two and 263 times respectively more opportunities to become industrialists in giant corporations than those with primary schooling only. Because, he states, the lower the educational level of the general population of a country, the better the chance to get a position in the elite.

Social mobility increased dramatically throughout the last decades and this is reflected in the social origin of the present day entrepreneurial and managerial class.

During the revolutionary period (1974-76) many of the industrialists fled the country. About 200 great companies were nationalised and some are still held under state control. Out of the void generated by the exodus of the members of this elite, new entrepreneurs came out and prospered. Some of these owned small companies in non- strategic sectors. They decided to take their chances and invested all they had. As time passed by, social wounds healed and the economy slowly recovered. The rich emigrés of the Revolution returned from Brazil or Spain, where most of them had sought refuge, and claimed their rights, personally or through their heirs. Some of them adapted successfully to the new conditions.

The survey carried out by Cardoso et al. (1990) found that the educational level of the present generation of entrepreneurs and managers is above that of their parents in 75% of the cases. Nevertheless, the percentage of entrepreneurs and managers with university education only slightly exceeds the percentage of those with basic education (30.4% and 29.1% respectively). Another indication of ascendant social mobility is given by the percentage of entrepreneurs and managers who were previously employees in other companies (41.8%) or in their own companies (9%).

This is in some way corroborated by Mónica (1990) who interviewed sixteen industrialists responsible (in the sense that they were performing or had performed as top level directors) for some of the larger

companies with a majority of national capital in several industrial sectors. Although this study did not claim any statistical representativeness, about half of these industrialists were either newcomers to the industrial world, or had inherited small businesses which they had upgraded and brought to top places in the market.

Among the managers who owned, totally or in part, the capital of their companies (85%), only 14% inherited that position (Cardoso et al., 1990). The managerial job, therefore, is achieved in the course of a career, and the capital is acquired step by step. And only 16% of those who "acquired" the capital (independently of being the "founders"), used bank loans for this purpose; this peculiarity says a lot about the difficult relations between the Portuguese entrepreneurs and the banking system.

The social image of this group also changed accordingly. Mónica (1990) refers to the images she came across when browsing workers' newspapers from late 19th and early 20th centuries, where industrialists were described as "eager", "mean", "tyrannical", "fat", "lustful", "corrupt" and also "vampires", "tigers" or "vultures". According to the same author, the images prevailing in the late 19th century journalism did not differ substantially. Industrialists were described as greedy and backward people who were actually responsible for the underdevelopment of the country. On the other hand, in the historical literature of that period, the "industrial bourgeoisie" remained a vague concept.

During the authoritarian regime, the close alliance between political and economic power did not contribute to the improvement of the image of this social group. Makler concluded:

> "... there was some interlocking between the polity and the economy. At the very least there was an interchange between what C. Wright Mills labelled top command posts in government with those positions at the top of the industrial world" (Makler, 1975:513).

The entrepreneurs who "survived" the turmoil of the Revolution and those who were able to exploit the new opportunities and launch successful businesses conquered social prestige as essential agents in the new economy. The self appreciation of the entrepreneurs and managers surveyed by Cardoso et al. is rather assertive: faced with a list of functions or professions, only the university professor was considered by 52.8% of the entrepreneurs and managers as having more prestige than the entrepreneurs themselves.

At least in this respect, if not in others, the situation did not change over the last decades. Makler (1975) also noticed that university professors were attributed higher social prestige than deputy ministers, military officers and even prominent leaders in their own class (directors of enterprises employing more than 400 individuals).

4.3.2. Entrepreneurs' views about innovation and change

Cardoso et al. found that entrepreneurs and managers consider of major importance the improvement of production techniques and technological renewal. This reveals the low technological level of the industrial companies surveyed: 50% of those companies had no computer services and did not have contract services or specialized technical support. Another problematic area identified by Cardoso was the organizational structure: there were problems concerning the distribution of responsibilities, transmission and control of information among different hierarchical levels and concerning training in general.

The concept of innovation was understood basically as the adoption of new technologies (37%); the penetration in new markets and product diversification were referred to by 21% and 16% respectively. Research was identified with innovation by only 5% of the managers surveyed.

On the other hand, Coopers and Lybrand (1993) detected a low level of utilization of technological infrastructures by the companies surveyed in their study. They also concluded that the few companies that used those infrastructures seemed to have become more proactive in areas such as the development of new products.

4.3.3. Entrepreneurs' views about competition

Cardoso et al. (1990) found that 35% of the entrepreneurs and managers think that competition is an obstacle to the development of their companies, while 27% consider that competition is beneficial and 34% think it does not interfere with their businesses.

The weight of the negative opinions can be explained by the effects of the industrial licensing in force during the previous regime, but it is important to stress that competition is more negatively appreciated among the leaders of small and less developed companies, which produce mainly for the national market and are in bad economic and financial situation. It is also among the companies established between the end of World War II and 1974 - while Lei de Fomento e Reorganização Industrial (Law of Industrial Reorganization), from 1945, and the policy of industrial licensing, were more tightly applied - that industrial leaders tend to regard competition as a hindrance to development.

It is in the public companies and in the anonymous societies that competition is perceived as more positive, probably because, as Cardoso et al. remind us, these companies experience less insecurity, and also because it is in these types of companies that the separation between property and management occurs more often. A positive view of competition is also more common among educated and mature

managers, while younger (less than 30) and older (over 60) managers tend to evaluate competition negatively.

But even among the entrepreneurs potentially less critical towards competition - those directing large and technologically more developed companies - about 20% of those interviewed after the survey were in favour of the protection of the national industry from external competition; and 68% of these leaders consider that some kind of limitation should be imposed on the activities of multinationals in Portugal.

4.3.4. Entrepreneurs' views about external constraints

Among the external constraints to industrial performance, mentioned by the managers surveyed by Cardoso et al. (1990) the difficulties of obtaining bank loans, the lack of qualified work-force and the labour laws were referred to as the more important. Bank loans are not a usual source of capital for the foundation of new companies, as mentioned above. The present financial policy presents difficulties of access to credit and entrepreneurs and managers are not happy to restrict investment to self-financing.

The lack of qualified work-force was felt so badly that 40% of the entrepreneurs and managers took the initiative in organizing training

programmes in their companies, even if 65% of them thought that it should be the state's and the industrial associations' responsibility.

As for the labour laws, it was emphasized that the relevance attributed to this constraint may have stemmed from the circumstance that, when the survey was carried out, a new packet of labour legislation was being submitted for public discussion (in February 1989) and this may have influenced the relevance attributed to this topic. Cardoso et al. found that 78% of the industrial companies hired workers under temporary contracts as a way of dealing with a conjuncture dominated by instability.

The results obtained by Mónica confirm that, although labour laws are generally referred to as inflexible and inappropriate for the present economic conditions, they do not constitute a real problem:

> "... generally speaking, labour laws have not been a problem. I understand there are difficult situations that are not solved by the present labour legislation; but I also think that the most dynamic companies have managed to overcome the extant problems through negotiation." (Mónica, 1990;90, interview to António Queiroz e Mello)

4.3.5. Entrepreneurs' views about the situation of their companies

The study carried out by Cardoso et al. (1990) found a strong optimism among entrepreneurs and managers concerning the economic and financial situation of their companies. However, the high percentage of

answers that classify the situation as "reasonably good" suggests a likely imprecision of the diagnosis. It is among the large and technologically more developed companies that managers use more precision, avoiding the answer "reasonably good". These are also the companies whose economic and financial situation is definitely positive.

The generalized climate of optimism is confirmed by the fact that 82% of the entrepreneurs and managers think that their companies are likely to grow in the future or to recover from the present bad situation. Again, it is among the large and more developed companies that the prospects tend to be less optimistic.

This generalized optimism can be explained by the positive evolution of the Portuguese economy from 1986 to 1990 and the subsequent climate of euphoria in this country. Nevertheless, a genuine concern about the need to modernize and develop is shown by entrepreneurs and managers; when asked about the priorities in the application of returns, 70% indicate technical modernization and technological renewal. As for the priority areas for investment in the company, 74% rank first the modernization of the productive equipment.

Coopers and Lybrand (1993) also detected strong signs of optimism: the companies surveyed indicated twice as many advantages as disadvantages and about 90% of them estimated that the quality of their products would be one of their competitive advantages in the three years to come. Since only a very small number of companies had a formal

business plan, the authors concluded that it was not yet a common tool for these managers to analyze their strong and weak points in order to define their competitive position. As a consequence, they proposed that companies benefiting from support programmes in order to increase quality, should be required to provide evidence of other long-term competencies, such as planning.

4.3.6. Entrepreneurs' views about the state

Managers and entrepreneurs expect some support from the state; in particular, they expect the state to provide incentives to the private sector (41%). Only 6% think that the state should not interfere at all with industry. These aspects were further explored by Cardoso et al. (1990) during the interviews, where it was possible to investigate what sort of intervention they would like the state to carry out. These were: tax reduction (26%), investments in infrastructures (25%), and elimination of barriers of access to credit (19%).

Eighty five per cent of the interviewees considered that the public companies are bureaucratic and ill-managed and that the very existence of those companies in the Portuguese economy is negative for the entrepreneurial initiative. When asked, in abstract, to produce their opinion on the possibility of the existence of an entrepreneurial sector directly controlled by the state, more than 80% of the interviewees considered that it would be acceptable in the case of sectors producing

goods and services of public utility (56%) and strategic sectors of importance to guarantee the national independence (25%).

Among the managers surveyed, the opinions in favour of state intervention came mostly from small companies, in weak economic and financial situations, and less developed from the technological point of view. Again, the most educated managers tended to undervalue the intervention of the state; and those who owned all or part of the capital defended more clearly that the state should support companies in difficult situation.

This double-faced attitude towards the state is very well defined by Mónica:

> "All of them want to be helped by the state when things go wrong and to be left alone when things go right.... Even when they complain about the state's tutorship, these entrepreneurs do not want to see the Thatcher model to be applied in Portugal: liberalism, they seem to say, is for strong countries ... In Portugal many of the old features of paternalism are still alive." (Mónica, 1990:39)

4.3.7. Entrepreneurs' views about the European Community

Generally speaking, it is seen as a continuation of the integration of the Portuguese economy in Europe, a process that started with the founding of EFTA.

Cardoso et al. found a rather optimistic view concerning the present positive effects for industry in general, of joining EC (57%). This optimism is not so enthusiastic when each manager assesses the effect on his/her own company; the tendency then is to stick to a neutral position (neither positive, nor negative, 50%).

Similar results were obtained concerning the future effects of joining the EC, on industry in general and on each company: a moderate optimism. What changes is the number of entrepreneurs and managers who declare that they are not able to analyze the consequences, either at company level or at industry level, of the integration in the EC. Cardoso et al. also found that the level of capacity to analyze the impact of the integration in the EC is, not surprisingly, higher among more educated managers, be it a positive or a negative judgement. Those who do not own any of the company's capital tend to evaluate more positively the results of the integration in the EC, and they are also better informed. It is the managers of the older companies, which are better established in the market, who are less preoccupied with the opening of the economy.

This incapacity to make a sound judgement about the future of the companies or the future of the country is bitterly commented by Mónica:

> "Even among the industrial elite, the best that this class has to offer, there were serious difficulties to think beyond the walls of the company and the limits of the present time.... These entrepreneurs seem to believe that the national production will increase enough to keep full employment, together with the necessary modernization of the manufacturing equipment. For them, the introduction of new technologies will not cause any problems,

since they believe that jobs will be created in other sectors. Even the problem of underemployment was barely approached." (Mónica, 1990:29)

Cardoso et al. asked the interviewees to evaluate the consequences of joining the EC. Major relevance was given to economic and entrepreneurial aspects such as the improvement of product quality, the modernization of the equipment and the increase of foreign investment. In fact, 66% perceive the EC as an economically driven organization, whose target is the creation of a large market, while 34% perceive it as a politically driven organization, with a goal to create a United Europe.

An important aspect is that 58% of the interviewees declared that they had already submitted or were about to submit projects to benefit from European funds. It was mostly among managers of companies from less industrialized districts that more applications or intentions to apply to funding programmes were found. It was also among the less developed companies that more applications were submitted, which reveals how important Community funds are seen as a tool for industrial modernization. There was a similar attitude among the managers of the industries that are external market-oriented: chemical, textile and metal products industries.

The data collected by Cardoso et al. point to a generally positive evaluation of the role of the state in what concerns the defence of the Portuguese industry's interests in the EC. However, more specific aspects concerning state support to enable Portuguese companies to meet new market opportunities generated by the integration in the EC,

the creation of conditions to strengthen the competitiveness of the Portuguese industry and the promotion of awareness concerning the consequences of the integration in the EC were appreciated negatively.

4.4. NATIONAL CULTURE AND ORGANIZATIONAL CULTURE

4.4.1. The roots of the dominant role of the state in the Portuguese society

The concept of state and the correlated concept of civil society emerged under specific circumstances of time and space and in order to describe the structure of certain societies; the extension of that concept, informed as it was by that original framework, to other circumstances and societies, may be misleading. It is important to review the distinction between centre and periphery of the world system, understood as the division of the world into dominant, industrialized, capitalist countries and those with weak economies and powerless from the political point of view, commonly designated as third world countries. Wallerstein introduced the concept of semi-periphery to describe the countries which achieved some level of industrialization throughout the 20th century and are therefore less dominated by the

economies of the centre, and have also achieved a certain level of political centralization and civic political organization.

Portugal would fall under this latter category together with other Southern European Countries. The following interpretation of the theory of the state in semi-peripheral societies, developed by Santos (1992), is based on our personal contribution to a joint paper (Correia, Barrulas and Correia, 1995). The concept of semi-peripheral societies was further elaborated and described by Santos as:

> "intermediate societies, in the double sense that they present intermediate development stages and they perform functions of intermediation between central and peripheral societies, in the management of conflicts raised by the inequalities in the appropriation of the surplus generated at world level." (Santos, 1992:108)

Santos reminds that the distinction between state and civil society was elaborated in the context of political, social and economic conditions of the central countries in a given period of their history, and that it was based on two assumptions: 1) that it was easy to circumscribe the state, since it was an artificial construct and had a formal structure and 2) that the state had in fact been built by the civil society according to its needs and interests, and depending on it for its reproduction and consolidation. Both needs and interests were fundamentally economic and they realized the idea of a strong and autonomous civil society.

After becoming a dominant political theory and being exported to peripheral and semi-peripheral societies, that conceptualization could only define these societies as being weak and having little autonomy. To

avoid the inadequacy of this theoretical and political framework, as an analytical tool for the Portuguese society (Table 4.1.), Santos developed a conceptual framework where the starting point is the concept of *power*:

> "My assumption is that the capitalist societies are political configurations composed by four basic modes of production of power which are linked in specific ways. These modes of production generate four basic forms of power which are structurally autonomous, even though interrelated." (Santos, 1994:111)

Basic Components/ Structural spaces	Unity of Social Practice	Institutional Form	Power Mechanism	Type of Right	Mode of Rationality
Domestic space	Gender and Generations	Family Marriage and Kinship	Patriarchate	Domestic Right	Maximization of affection
Production space	Class	Company	Exploitation	Production Right	Maximization of profit
Citizenship space	Individual	State	Domination	Territorial Right	Maximization of loyalty
World space	Nation	Contracts Agreements and International Organizations	Unequal Interchange	Systemic Right	Maximization of effectiveness

Table 4.1. Structural map of the capitalist societies (from Santos, 1994)

Four *structural spaces* are identified: 1) the *domestic space*, composed by social relations among family members; 2) the *production space* composed by work relations, at company level, among workers and between workers and those who control the labour process; 3) the *citizenship space* composed by social relations at a public level,

between the citizens and the state, and 4) the *world space*, composed by international economic relations and relations between national states.

According to the model of the central societies, and having in mind the production space or the citizenship space, the Portuguese civil society would be characterized as being weak and having little autonomy. But in the light of the domestic space it is very strong, autonomous and self-regulated; in fact stronger, more autonomous and self-regulated than the central civil societies. Santos stresses that it is that autonomy and self-regulation that makes it possible for the domestic space to fulfil some of the insufficiencies of the Portuguese welfare state, thus constituting itself as a *welfare society*.

Another important aspect analyzed by Santos (1994) is that of the *centrality* (*centralidade*) of the state. Santos argues that the centrality of the state in central societies is different from the centrality of the state in peripheral societies:

1) In central societies, industrialization preceded parliamentarism as a dominant political regime, and for this reason parliamentarism served the general interests of the expansion of capitalism, while in the peripheral societies parliamentarism (even if restricted) preceded the outburst of industrialization and maintained a remarkable autonomy towards it;

2) In central societies, the power of the space of production influenced the domestic space, thus producing a certain isomorphism between the space of production, the space of citizenship and the domestic space while on the other hand for the first industrialized countries there was no international dominance to face. In semi-peripheral societies the space of production remained rather heterogeneous (and that is visible in the heterogeneity of the productive activities, in the disarticulation and weak complementarity between sectors and in the coexistence of the capitalist mode of production with other non-capitalist modes of production); the domestic space remained also heterogeneous, thus keeping an autonomous logic of reproduction in relation to the space of production and the space of citizenship, the autonomy being influenced by the dependence of the semi-peripheral society in the world space.

Santos states that in semi-peripheral societies the great internal heterogeneity of the several structural spaces produced a *deficit of hegemony* (a deficit of national objectives) which was compensated by the excessive "authoritarianism" of the state. Given the internal heterogeneity of the several structural spaces, each of them is functionally dependent from the others for reproduction; on the other hand, the relative autonomy from each other and the corresponding deficit of isomorphism cause instability in their relations and demand the presence of a structuring influence. Finally, Santos concludes that in the semi-periphery the centrality factors of the state are also its factors of ineffectiveness:

> "The internal heterogeneity of the domestic space and of the production space and the mismatch between the corresponding requirements of reproduction create relative autonomies in each of these structural cores of the Portuguese society, which effect is ... to block the performance of the state." (Santos,1994:116)

That is the reason why the primacy of the citizenship space (under the form of state) coexists with its dependence from the other spaces; and the domination (the form of power of the state) is carried out through complex combinations with the forms of power of other structural spaces. This situation leads to the well known phenomena of corruption and nepotism.

Santos (1992) developed also the concept of *parallel state* (*Estado paralelo*) to characterize a form of state domination, where a formal or official state coexists with an informal or underground state. This duality is achieved by: 1) allowing institutions, laws and regulations to serve different objectives from the ones they were created for; 2) the selective application of the legislation in force; 3) producing legislation to satisfy international commitments or specific clients without applying it; 4) allowing the government to adopt a public oratory contradictory to the objectives of the government bodies; 5) tolerating illegal economic practices that damage the public interest. The above mentioned coexistence

> "creates an effect of distancing from the established legal framework.... This effect makes possible that the break of the state's legality is not automatically followed by the break of the state's legitimacy." (Santos, 1992:136)

Santos adds that under this form of state domination the intervention of the state through omission is as important as its intervention through action.

4.4.2. Impact of national cultures upon organizations

The globalization of economy and the internationalization of business confronts organizations with cultural differences which deeply affect their relationship with the environment and, ultimately, their performance. A specific branch of research has developed, directed to comparing similarities and dissimilarities across cultures.

Adler (1989) developed a typology for studies involving culture, including six categories: 1) *parochial research,* or single culture studies; 2) *ethnocentric research,* or second culture replication studies; 3) *polycentric research,* or studies conducted in many cultures, or individual domestic studies conducted in various countries around the world; 4) *comparative research,* or studies contrasting organizations across cultures; 5) *geocentric research,* or international management studies, which investigate the managing of organizations operating in more than one nation; and 6) *synergistic research,* or cross-cultural management studies, which focus on the behaviour of people within multi-national and transnational organizations.

One of the most reputed studies involving culture is that carried out by Hofstede (1991), among IBM staff across fifty countries around the world. It falls, therefore, under the category of synergistic research, as defined by Adler. Another important study, targeting a specific aspect of the organizational activity across countries, is that carried out by Hoffman (1983) in ten European countries, with a view to relating environmental scanning activity to formal organizational procedures and bureaucratic politics as source of influence in strategic decisions. This study falls under the category of comparative research, as defined by Adler. On the other hand, the advent of the Single Market in Europe caused an outbreak of compilations of features that characterize the different business cultures within Europe, such as that by Brierly (1990) and that by Randlesome, (1990). And some authors have tryied to draw analytical tools for comparing studies involving culture (Adler, 1989; Schneider, 1989; Ronen, 1985).

Hofstede identified four basic dimensions for assessing national cultures: 1) power distance (from small to large); 2) individualism versus collectivism; 3) masculinity versus femininity; and 4) uncertainty avoidance (from weak to strong).

The power distance dimension measures the relationships of dependence in a country. In small power distance countries, there is limited dependence of subordinates on bosses, while in large power distance countries there is considerable dependence of subordinates on bosses. It is defined as "the extent to which the less powerful members

of institutions and organizations within a country expect and accept that power is distributed unequally." (Hofstede, 1991:28). Portugal, as well as the other Latin-European countries, ranked relatively high in the power distance index.

The dimension individualism-collectivism measures the degree of dependence of the individual on the collectivity - family, groups or institutions - across societies. Portugal ranked low in the individualism index, together with other poor countries. Hofstede found a strong relationship between a country's national wealth and the degree of individualism in its national culture. As seen above, the theory of the state in semi-peripheral societies, developed by Santos (1992), explains the constitution of what is called a "welfare society" as a means of overcoming the insufficiencies of the welfare state.

The dimension masculinity versus femininity measures the weight, across societies, of the values and roles attributed to male and female in those societies. According to Hofstede,

> "masculinity pertains to societies in which social gender roles are clearly distinct (i.e. men are supposed to be assertive, tough, and focused on material success whereas women are supposed to be more modest, tender, and concerned with quality of life); femininity pertains to societies in which social gender roles overlap, i.e., both men and women are supposed to be modest, tender, and concerned with the quality of life". (Hofstede, 1991:82-83)

Portugal ranked very low in the masculinity index, emerging as strongly feminine, together with the Scandinavian countries, some Latin-

American and some Eastern countries. Hofstede remarks that masculine culture countries strive for a performance society, while feminine countries strive for a welfare society.

Uncertainty avoidance is defined by Hofstede as "the extent to which the members of a culture feel threatened by uncertain or unknown situations". High uncertainty avoidance indicates a need for predictability, for written and unwritten rules. Portugal ranked very high in the uncertainty avoidance index, together with other Orthodox and Roman Catholic countries, and Latin countries.

Although organizational cultures have become a fashionable topic in the management literature only relatively recently - or since the early eighties - organizational sociologists have called attention to the "soft" aspects of organizational life for more than fifty years. But Hofstede stresses that organizational cultures are in many respects different from national cultures, and that "research results about national cultures and their dimensions proved to be only partly useful for the understanding of organizational cultures." (Hofstede, 1991:18). But the research carried out by Hofstede did provide evidence regarding the impact of national cultures upon organizations and leadership styles adopted by managers. As far as leadership is concerned, the most relevant dimensions are individualism and power distance, whereas in organizations the most relevant dimensions are power distance and uncertainty avoidance.

Large power distance and high uncertainty avoidance in Latin European countries result in more centralized and formalized organization structures, or more bureaucratic organizations. Latin European managers also prefer clear job descriptions, clear command lines and centralized decision making. These cultural factors contribute to the dominance of bureaucracy and to the dominant role of the state; governments tend to have strong regulatory powers and to inhibit entrepreneurial behaviour.

The concept of uncertainty is currently linked to the concept of environment (as seen in Chapter two), which is the main source of uncertainty to organizations. The expression "uncertainty avoidance" was consecrated by Cyert and March (1963) and the expression "perceived environmental uncertainty" was used by Duncan (1972) and others after him to denote managers' perceptions of uncertainty generated by the environment, and has been a key factor in the study of strategy making. On the other hand, strategic planning and strategic management were intended as tools to making the environment more manageable or to deal with environmental uncertainty, but proved to be inadequate to cope with very high levels of turbulence and discontinuity in the environment (Mintzberg, 1994). National culture can, in fact, play an important role in strategy formulation, as it derives from assumptions regarding relationships with the environment, as well as relationships among people. Schneider (1989) argues that those assumptions influence how people gather and interpret information within organizations. Schneider and Mayer (1991) demonstrated that national

culture influences interpretations and response to strategic issues. More specifically, national culture influences crises and threat interpretations and proactive responses, both internally and externally oriented.

4.5. SUMMARY

A brief overview of the historic conditions that more deeply affected the industrialization process in Portugal has been provided, and the main features of the Chemical industry in this country have been outlined. Special attention was given to the analysis of the entrepreneurial and managerial class, namely to their views about innovation and change, competition, external constraints that affect their activity, the economic and financial situation of their companies, and also about the state and the EC. This analysis was based on studies carried out between 1989 and 1992, a period considered as the "last chance" to prepare for the Single Market; because our own data collection took place in 1992, we believe that this framework is important to contextualize our data and to compare the results obtained, whenever feasible.

The combined results of the studies analyzed, regarding the present characteristics of the entrepreneurial and managerial class, record important changes, most of them derived from the dramatic increase of social mobility in the last decades: they range from the increase of the average educational level, to changes in the structure of company

ownership and in the access to managerial jobs, to the improvement of the social image of entrepreneurs and managers.

It was found that the average technological level of the industrial companies was low, and problems were detected concerning organizational structure: there were problems concerning the distribution of responsibilities, transmission and control of information among different hierarchical levels and concerning training in general. The concept of innovation was understood basically as the adoption of new technologies; research was identified with innovation only by a small minority of the managers surveyed. A low level of utilization of technological infrastructures was also detected. Among the external constraints to industrial performance, prominence was given to difficulties in obtaining bank loans, the lack of qualified work-force and the inflexibility of labour laws.

A generalized optimism was detected concerning managers' attitudes towards the economic and financial situation of their companies, which can be explained by the positive evolution of the Portuguese economy from 1986 to 1990. Nevertheless, a genuine concern about the need to modernize and develop was demonstrated. Optimism dominates also the views concerning present and future effects of joining the EC, upon industry in general and upon each company in particular. This optimism was partially attributed to the incapacity of many managers to make a sound judgement about the future of their companies and the future of the country. It was also found that managers and entrepreneurs expect

some support from the state, with relevance to the provision of incentives to the private sector, including tax reduction, investment in infrastructures and elimination of barriers of access to credit.

Finally, the impact of national cultures upon organizations' cultures is approached: first by explaining the roots of the dominant role of the state in the Portuguese society, based on a sociological theory of the role of the state in semi-peripheral societies, and finally by invoking research evidence supporting the impact of national cultures upon organizational behaviour.

CHAPTER FIVE: CAUSAL CONDITIONS OF ENVIRONMENTAL SCANNING

INTRODUCTION

This Chapter describes and analyzes two sets of data. One, of a qualitative nature, looks at the entrepreneurs' and managers' perceptions of change occurring in the environment. The other set is of a quantitative nature and consists of the assessment made by the same entrepreneurs and managers, of attributes that characterize the same environment.

5.1. PERCEPTION OF CHANGE OCCURRING IN THE ENVIRONMENT

5.1.1. Perceived environmental uncertainty and perceived environmental change

In what concerns the treatment of the environment in Organization Theory, *perceived environmental uncertainty* (PEU) falls under the category of perceptions, as opposed to that of objects and that of

attributes, according to Bourgeois' classification (1980). Miles, Snow and Pfeffer (1974) noted that some authors had, in fact, missed the distinction between the rate of environmental change and the degree of uncertainty due to unpredictability of change, and had implicitly equated the two, and Starbuck reminded that "measures based solely on subjective data provide information about the subject, not about his environment" (1976:1087). Similarly, Bourgeois alerted that "an exclusive reliance on perceived environment relegates the researcher to the study of the psychological state of uncertainty per se rather than extra-organizational phenomena, and thereby negates the very concept of external environment" (1980:34-35); he also remarked that perceived environmental uncertainty is more relevant to the study of strategy making than to the study of an organization's external environment. On the other hand, the concept of *enacted environment* (Weick, 1969) implies that organizational information systems are critical in determining how the organization adapts to its environment.

Since it is clear: a) that uncertainty is a dimension that pertains exclusively to the individual, not to the environment, b) that our unit of analysis is the organization, c) that one of the purposes of our research is to establish a relationship between the environmental change perceived by managers and the strategic change operated by them; we will focus, in this Chapter, on managers' **perceptions of change** occurring in their environment, and confront them with the assessment, by the same managers, of **attributes** of that environment, based on a framework used in previous research in this field.

5.1.2. Major changes in the years 1987 to 1992

Perception of global change

Events in Eastern Europe and the Gulf War were mentioned by the entrepreneurs and managers interviewed as the most relevant factors of global change, because in the first case those events caused the loss of important business fringes for some industries and in the second case the Gulf War introduced fluctuations in the price of oil, and consequently in the price of raw materials derived from it:

> "In our sector the main raw materials derive from petroleum and there was a great apprehension about petroleum prices." (12,23,10,4)

> "There were particular events, like the Gulf [war] and the [events in the] East which withdrew important business margins. This industry is presently fighting for survival." (9,17,1,3)

But the changes derived from joining the European Community in 1986 play a central part in the declarations of the managers and entrepreneurs interviewed in the course of this study. In fact, that event caused a great impact in the Portuguese economy. The fact that Portugal had been a founding member of EFTA and that some barriers to international competition had been eliminated as a direct consequence, was to a certain extent counter-balanced by the effects of the revolution, namely the nationalizations (even though they did not target any foreign or

multi-national company) and the relative international isolation that followed, as mentioned in Chapter four.

According to the entrepreneurs and managers interviewed, that shock had positive and negative effects, for the country as a whole and for the chemical industry in particular. Among the positive aspects for the country as a whole, relevance is given to the improvement of the living standards and of the public services, the re-opening of the Stock Exchange, the growth of the markets and the overall development of the economy, generously supported by structural funds from the EC and boosted by the investment of foreign companies.

As for the direct impact on the chemical industry, positive or negative, it is better assessed if we analyze each sub-sector separately, since they were affected differently.

Pharmaceutical industry

This is the most open sub-sector of the chemical industry, used to the competition of multi-nationals in the internal market and to international competition abroad, since the two largest companies with a majority of national capital are themselves multi-national companies:

> "Entry to the Common Market didn't affect us at all, because our activity is international [and] we export everywhere. It didn't influence our strategy. We would have to step back in time to analyze our adaptation to the market." (6,12,1,3)

Emphasis was given to the **growth of the market**, "c. 20% per year" (3,8,3,2), due to the general improvement of the living standards, the increasing number of medical posts spread throughout the country and the consequent change in health habits, including more frequent visits to the doctor and greater consumption of medicines.

For most of these companies, important **changes in the regulatory framework** were brought about by joining the EC, in so far as national legislation had to be adapted to EC regulations such as: a) the drug registration scheme, that changed from the obligation to register in one country to the obligation to register in three countries, after which the product in question is considered approved for the European area; b) the adherence to the European Patent, which admits new products but not new production processes.

> "The two problems that affected us more were the registration and the patents. The deadlines obtained [were not enough, probably] because there was no political weight or sensitiveness to fight for other ways out. Maybe the entrepreneurs themselves and their organizations were not as aware as they should be of the importance of the problems under discussion. Right now the new code of industrial property is being prepared... We caught it just on time to correct it, [the way it was, it meant a direct sale to the international companies]. An alternative document was handed to the Minister of Industry..." (4,10,3,4-4,1)

> "Portugal is in the meanwhile forced to adhere to the product patent, which confronts some companies with additional difficulties, since there is no Portuguese company with the necessary conditions to develop fundamental research. All they can do is applied research." (4,10,3,2)

There was also the perception that **changes in the business structure** were taking place, due to the acquisition of Portuguese companies by foreign companies, as well as multi-national companies closing down

their premises to move to other countries. A comment of the chief executive of one of the companies raised a possible justification of a **cultural nature** to the relative inertia of the Portuguese companies concerning the **realization of strategic alliances**:

> "The typical Portuguese entrepreneur is too individualistic to engage in strategic alliances... that could form a group large enough to compete at international level. There's a certain attitude towards business, which is family-based in most of the Portuguese companies; people prefer to own 100% of a company with a dimension 1 instead of owning 10% of a company with a dimension 100." (1,1,19,2)

Other relevant issues that characterized the same period, but not directly linked to EC were: a) the upsurge of **unethical marketing tactics** attributed to multi-nationals which submit doctors to unacceptable pressures; and b) **government interventionism,** taken to an extent as to jeopardize any company's strategy.

> "This is common with multi-national companies, which, because of their colossal weight, exert upon doctors irrefusable pressure. No matter how much the doctors try to keep clean from the ethical point of view, they end up by being involved in a complex web.... We've been very careful not to create such pressures... but of course this attitude has its costs." (4,10,7,1)

> "We've been confronted with an aggressiveness from some international companies that are offensive to ethical parameters, and this makes us rethink the promotion of our products; we're almost pushed to less ethical solutions as well." (2,3,4,1)

Some of the interviewees complained about the government's intervention, as government approval is needed for the commercialization of new products and their price is determined by the government, which is also responsible for high participations in the cost of medicines so that they can reach patients at an affordable price.

Medicines are therefore "political products". Because a new product is considered *a priori* as appealing to consumers, even when it does not correspond to the best therapeutical solution, the Ministry of Health would delay the emission of new authorizations in order to reduce avoidable costs.

> "The Portuguese government needs more and more to prevent prices [of the medicines] following the inflation trends and wishing less and less to subsidize those prices. Somehow, we're in the presence of a strong "economicist" health policy where no health policy exists." (2,3,3,4)

Another controversial issue raised by the interviewees was the attempt by the Portuguese government to introduce the **"otc's"** (over the counter) and the **"generics"**. The otc's are medicines that do not require medical prescription and therefore can be sold in drugstores or supermarkets, as it happens in some European countries but not in Portugal, where medicines can be sold only in pharmacies. The generics are products that are no longer protected by patent rights and therefore are much cheaper to produce and could in some cases replace the prescription of other medicines with the same principle. This would allow the Administration to save money, but raised strong opposition from pharmacists and, in the last case, from doctors also. A climate of great dissatisfaction and instability was established.

Additional complaints were made concerning the **government role within EC**. The government was accused of **lack of capacity to negotiate** with the EC - contrasting with the results obtained by

Cardoso et al. in the survey covering all the industrial branches, carried out three years before our own data collection - and also of lack of the required knowledge concerning matters of major importance to this industry; the government was accused of accepting detrimental conditions and of dismissing the possibility of using longer transitional periods that would allow the Portuguese pharmaceutical industry to make a smoother transition to the Single Market:

> "The modifications introduced [in the Code of Industrial Property are disastrous] in comparison with the Spanish code, which protects the Spanish industry without disrespecting the EC demands, while here [in Portugal] they go far beyond what was asked, causing damage to the national industry." (6,12,5,5-6,1)

Plastics industry

This sub-sector of the chemical industry was described by some of the entrepreneurs as being made up of small companies with poor financial and technological capacity, poor management and, consequently, lack of competitiveness. It is also mainly oriented to the national market and because it is becoming increasingly a capital-intensive industry, small companies cannot invest enough and grow so as to produce products of good quality at low cost. Most of these companies produce low-value-added products.

One of the interviewees was particularly critical of the **government role**, considering it partially responsible for the present situation which would have been aggravated by the **mismanagement of development programmes** such as PEDIP:

"... the situation was aggravated because financing was made essentially to satisfy the needs of the government - who had to present to the EC a number of projects in order to collect the funds - instead of altering the [market] structure, by strengthening the companies that had already some leading capacity. On the contrary, there were companies investing in products and segments that were already condemned in European terms, even if there was still some margin for growth in the national market." (7,13,2,1)

On the other hand, **high interest rates** were mentioned as a major impediment to the acquisition of modern equipment (8,15,4,1-2).

Difficulties were experienced particularly by the small companies established recently, usually by previous employees in larger companies operating in the same market segment; in some cases, they benefited from development programmes that helped in the acquisition of modern machinery that is essential to operate in this capital-intensive sector:

"There are more companies now, the market is shared, the margins of commercialization are smaller and it is more difficult to do business, but things have improved from the qualitative point of view." (12,24,1,1)

"Most of the companies in this sector have poor financial conditions, therefore many companies open and close." (7,14,1,2)

Entrepreneurs' **cultural handicaps** in this sector were referred to as being responsible for the present state of affairs and in particular for the **incapacity to think prospectively** and leap into **mergers or acquisitions** in order to adapt to the new conditions:

"There hasn't been a movement of mergings and acquisitions and this is the consequence of the culture of managers and entrepreneurs. There wasn't any alteration in their management philosophy, in their capacity to organize and intervene in a larger market... The companies are larger because the market

itself is larger... but the companies are the same, managed by the same people, and most of these managers are old..." (7,13,2,3)

The high **mobility of the labour force** in this sector was said to jeopardize the investments made in training.

Another drawback identified was the **crisis of the main client industry,** the shoe industry, which has been a major client of the small companies in this sector, but there were positive expectations concerning the establishment of large plants of the car industry, where plastic components are an important part of the business.

Paints industry

The overall development of the economy had a very positive impact in the **expansion of client industries**, including the building industry, which is the major client of the paints industry. On the other hand, by the time the fieldwork was carried out, negotiations were taking place between the Portuguese government and representatives of foreign car industries with a view to establishing large plants in Portugal. The situation then was good and expectations were high:

"There was a lot of investment in real estate and especially in the building industry... and now the car industry will have a boost, which is another source for future development." (14,26,7,5)

"After joining the EC, the structural funds indirectly fostered the economic activity... we do not sell directly for roads or bridges... but there are other related activities that need paints." (14,28,1,2)

Joining the EC had as a major consequence for this industry the **improvement of the technical standards** in order to meet those in force in other member states. The interviewees made clear that in this country and in this industry a group of very advanced companies, using the latest technology, producing high standard products and capable of competing with any advanced foreign company, coexist with a group of small companies using poor technology and producing low-level products at low cost for a certain market segment that is undemanding in what concerns environmentally harmful and health damaging products. But the predominant view was that the quality of the building in general had improved significantly:

> "Architects, engineers and other professionals got more involved in the building industry, [which raised the overall quality of the buildings] and led to the utilization of materials of higher quality, and that's where we benefit." (14,26,8,1)

The paints industry was described as becoming increasingly more of a service business than a product business, where fast delivery and post-sale support to clients are as important as the quality of the product itself:

> "What counts nowadays is the service to the client, the speed of the service, the quality of the product, the global service. This is possible only if one holds a local position..." (14,26,4,2-5,1)

The interviewees expressed the feeling that a lot was going on in the market, with foreign companies contacting local companies in order to examine possible **alliances**:

> "The German manufacturers that contacted us produce liquid paints and want to complete their offer with powder paints, so they are looking for suppliers in the external markets to avoid entering in direct competition with the local clients (sic)..." (13,25,4,2)

One of the interviewees dismissed the eventuality of the market getting submerged by imports:

> "...statistics may be misleading, because companies like our own and some of our competitors decided to drop the production of some special products and became the distributors for some European companies specialized in such fields as printing ink and car repaint. It is not competitive to produce these products in Portugal, so it's the companies already established in the market that import and distribute them." (14,26,5,3)

Cosmetics industry

When Portugal joined the EC, the relative value of the production of the Portuguese cosmetics sub-sector was less than 1% of the EC market and the consumption per capita was about one third of the European average. The number of companies was relatively higher than the number of companies in more developed countries, but similar to the average of Italy and Spain, and it was considered typical of economies where the living standards are relatively lower. The years that followed testified to the **growth of the market** (about 10% a year), as a result of the improvement in the living standards, while the **number of companies decreased**, due to the pressure of competition and reflecting the international trend for concentration.

The two companies approached were both market leaders in different segments: one in hair-dressing and the mass market and the other in

high-class perfumery. This last one had recently dropped its industrial activity in this sub-sector to become a distributor of great foreign trade marks of high-class perfumery. The first one was struggling for survival and had engaged in a process of looking for a **strategic alliance**.

One of the marketing directors of the industrial company, referred the dramatic **change in the distribution channels** as one of the most traumatic blows for her company. The opening, within a short period of time, of several "hyper-markets", or "large surfaces", in the Lisbon area, had revolutionized the traditional distribution channels and affected the distribution of the mass market products of this cosmetics manufacturing company.

The other marketing director interviewed considered that joining the EC had made it **easier to get access to credit** - which refer us back to the difficulties identified by the research carried out by Cardoso et al., regarding access to credit - and to better communication from the commercial and research points of view. He also acknowledged that the great companies and the great trade marks tended to establish themselves in the national market (16,33,13,1 and 3).

Others

The **emergence of substitute products** proved to be decisive to the segment of resins. The development of products derived from taloil and from hydrocarbonates challenged the competitiveness of the Portuguese

colophony, derived from pine resin; this means that this raw-material depends on unpredictable natural conditions such as climate and the crops are a labour-intensive activity, very much affected by the increase of wages. The importation of those substitute products from Asian and South-American countries without restrictions of quantity or tariffs allowed them to reach Europe cheaper than the Portuguese colophene.

The company producing synthetic fibres identified as major trends at international level the **fall of fibre consumption in Europe** and the **concentration** and **specialization** of the industry; at national level, the **abolition of tariff protections** deeply affected its performance and forced the company to look inwards for reducing costs and increasing production and ultimately looking for external markets where the company holds comparative advantages:

> "Since 1987 the consumption of acrylic fibre has decreased in the Portuguese market, and this has forced us to increase the exports... we export about 50% [of our production] presently." (19,40,2,3)

Another factor, the **crisis in a client industry,** the textile industry, is said to have contributed to the difficulties felt by this company:

> "On the other hand, the Portuguese textile industry began to be affected by international competition, mainly because it was oriented to the production of medium to low-quality products, which suffer from the direct competition of the third world countries. The EC has opened the doors to the importation of Asian products." (19,40,2,2)

The company producing chlorine and caustic soda is internal market-oriented and holds 50% of the market. These products have a low price

per unit, a high cost of transportation and are potentially dangerous. These general characteristics explain why there is no scope for geographical expansion and why **social pressures** concerning the protection of the environment and public health are so heavily exerted upon this company. It is also energy-consuming, to a point that electric energy represents 60 to 70% of their direct costs, in a country where the cost of electric energy is one of the highest in Europe. The paper pulp industry and the textile industry are their main clients.

The years that followed the integration in the EC were hard for this company. The abolition of tariff protections brought in the Spanish competitors and a great effort was made in order to **reduce the consumption of energy**, successfully enough to have been awarded a prize that had been established at national level to reward initiatives of this kind.

5.1.3. Expected impact of the Single Market: opportunities and threats

General expectations

Most of the entrepreneurs and managers interviewed considered the advent of the **Single Market as inevitable,** or as a natural consequence of the undergoing process towards a united Europe at least from the economic point of view, if not political. This notion of inevitability

probably influenced the moderate optimism expressed by managers and entrepreneurs, even if occasional dissonant declarations were produced; the optimism was more obviously manifested by those running companies highly dependent upon imported raw materials, who expected a **decrease of bureaucracy and importing costs** after the abolition of frontiers and tariffs.

This generalized optimism - which conforms to the results obtained by Cardoso et al. (1990) and Coopers and Lybrand (1993) - was grounded mainly on the belief that the most striking changes had been gradually taking place since 1986, when Portugal joined the then European Community.

There was also a notion that the world-wide movement towards concentration that had become apparent in the chemical industry for some time was already affecting Portugal, with the disappearance of average size companies and the **rise of opportunities** for companies with the appropriate dimension to negotiate **strategic alliances** with other national companies and with foreign or multi-national companies.

Pharmaceutical industry

As mentioned above, not all companies were affected in the same way by the new rules of the game to be played in the European area. When the field-work was carried out, all the companies approached in this sub-sector played an important role in the national market, even though

they had very different characteristics. The only common point was to have a majority of national capital.

That is the reason why one of the companies, a multi-national, declared that the Single Market would not alter anything and another company that is also a multi-national but acting mostly in the American Continent was caught by surprise by the **amount and diversity of EC regulations**:

> "The date per se does not alter anything, it was foreseeable that Portugal would sign the protocol [for the adoption of the European Patent], so it was part of our plans [to move from patenting] new processes to [patenting] new products or modified molecules." (6,12,3,2)

> "The only problem is of bureaucratic nature, we have to be aware of all the European legislation in order to prepare adequate solutions. Of course that, if we take BEECHAM as a comparison, it has an infrastructure to deal with legislation very different [for the better] than ours." (4,10,8,3)

The advent of the Single Market is also seen as a possible **shield** against the imports of raw materials coming from external markets under conditions of near dumping:

> "We are the only company in Europe that produces xxx [*the designation of the product is omitted in order to keep the anonymity of the company*]. The needs of Europe are covered by imports from the USA. We're preparing a file to prove to the EC that the quantity of xxx consumed in Europe does not need to be imported. Or if it is, it should pay the tariffs applied for similar cases, which withdraw competitiveness from imported raw material." (4,10,9,1)

The threats mentioned by some of the interviewees included the emergence of **new companies** and **new products**, as well as the **disappearance of some companies** and the possibility of **price wars.** Although the average attitude was of moderate optimism, some rather

bitter comments were expressed by the R&D director of one of the companies:

> "For the Portuguese pharmaceutical industry the Single Market means its disappearance or its loss of autonomy. The capital has been distributed by several origins or nationalities because the Portuguese industry was not prepared [for this event], and it is not easy to get prepared in half a dozen years; that's the time we are given to do what the others took decades to do... the Single Market means the disintegration [of the national pharmaceutical industry]." (3,7,4,3-5,1)

Another threat was mentioned, that is strictly related to a popular way of doing business in this industry, in a country where fundamental research developed by industry, no matter which is the sector, is a mirage. Licensing is used practically by every company, and it is vital for the less sophisticated companies. But now the rules of the game, as far as licensing is concerned, are changing; it is getting more and more **difficult to obtain licenses** because those licenses used to be paid in royalties. According to one of the interviewees, those companies are no longer interested in royalties but in new drugs or molecules, something that Portuguese companies are unable to provide.

Plastics industry

In the environment of this sub-sector, opportunities and threats are many. The fast-spreading consciousness of the importance of keeping the environment clean, by avoiding direct contamination through industrial waste and by producing recyclable products raises investment problems for pollutant industries but, on the other hand, generates what

was designated as the **"environment business"** by one of the entrepreneurs interviewed. The **automation** of production and the development of information systems is also regarded as a promising area where investment is rewarding:

> "We're developing with Portuguese technology more efficient production systems and automating sectors that were not automated yet, and thus we're improving quality." (7,13,11,3)

Being small and flexible may be an advantage, provided that there is financial and technological capacity to produce **quality:**

> "... it is easy for a company [like ours] to adapt to certain market niches, to certain types of clients and to rapidly penetrate and acquire a dominant position. That's what is happening [in the Spanish market]." (7,14,10,2)

A firm belief was expressed concerning the existence of **niche markets** where even small, artisan-like companies can survive for some time more, producing on a small scale while the cost of the work-force is still affordable.

But the attitude of the small companies was of great concern. One after the other, their investments in different market segments had to be revised and sometimes abandoned because of the **pressure of competition**. One of the entrepreneurs, who was also the technical and commercial director of a small company admitted the possibility of dropping the production of packaging, because in Europe this sector is highly integrated: the producers of PVC for packaging are also the resin suppliers and the manufacturers of the composite needed:

> "They [the competitors] will try to do here what they have already done in Spain, end up with the non-integrated companies. They will try to sell the composite here practically at the price of the resin... in order to finish off the companies and bring down the competition." (12,24,3,1)

Because ultimately **size is an important success factor,** threats are perceived mainly as coming from the size and power of foreign companies, as opposed to the small size and lack of financial capacity of national companies. The managing partner of a small company made quite clear what he thought about the future of small companies in this sub-sector:

> "Small companies have only the following ways out: 1) selling out to foreign companies, which has happened to most of them, 2) getting together - I'm thinking of the situation in this district where there are still three or four small companies - which is difficult because they have different philosophies, 3) being bought by a company powerful enough to give it another kind of structure and impose commercial conditions on the market, or 4) join three or four clients in a certain sector and work exclusively for them." (8,15,7,2)

Paints industry

Open **access to foreign markets** and to **foreign credit** are seen as important realizations of the Single Market; however, some characteristics specific to this industry are said to limit the extent of penetration into foreign markets. Among the characteristics pointed out are the **costs of transportation** which are always relevant for this industry but acquire special importance for a company located in a peripheral country like Portugal.

"From the geographical point of view, the opportunities are limited to Spain. The paints industry in Spain is very much centred in Barcelona, therefore we may have a word to say. We cannot go further because of barriers such as distance and the cost of transportation." (14,28,9,4)

But, because the reverse is also true, Spain is seen as the most likely competitor from the European area to step in:

"We'll feel the weight of the Spanish competitors sooner or later." (14,27,8,4)

"Threats are limited by the same principle, the barrier of distance. It's costly to send paints from Germany to Portugal." (14,28,10,2)

Because a number of multi-nationals have been established in this country and in this sector for a long time, there is a belief that the scenario will not change significantly. In addition to that, the **national market is small** and there is a consensus that it is **saturated**, therefore no one seems to find it very likely that an influx of foreign competitors might happen:

"I think that Portugal has more to win with the access to an immense market than the other countries will have, by gaining access to a market of 10 million individuals which in any way has been accessible all the time, because our situation was very different from that of Spain, whose market was extremely protected." (13,25,10,3)

On the other hand, all the main companies in the market have an **excellent distribution network**, which is considered vital in this industry, so entry into the market is considered to be rather difficult for newcomers:

"...entry will have to take place by taking a position in a local company.... That's what we did in Spain." (14,26,5,4)

A concern, however, was expressed relating to what seemed to be the only real problem for an industry that was doing well and for these two companies that were market leaders in different ways. It was the **work-force:**

> "The best Portuguese companies [in this sector] are committed to get up-to-date [with the most advanced technology] in European terms... From the technological point of view - and I've seen many factories - Portugal has no reason to be afraid of the competition as far as capacity and quality are concerned. The only problem may be an excessive number of workers... which affects the cost per unit." (14,28,2,2)

Cosmetics industry

The dominant climate in the industrial company of this sub-sector was of great concern for the future of the company and the future of the Portuguese cosmetics industry, even if the Single Market was considered important for the economic survival of Europe (16,31,19,1).

In fact few opportunities were mentioned, but threats were multifold, from the likelihood of an **"invasion" of professionals** from northern Europe to consecutive attempts of **"take over" by foreign companies** and the lack of competitiveness of the Portuguese companies in general:

> "We are being threatened all the time. We resisted recently to two important attacks coming from foreign companies: L'Oreal and Margaret Astor. We managed to hold on, but a stronger attack may defeat us." (16,32,17,2)

> "The Single Market is not the chicken of the golden eggs for a country like Portugal. We don't produce anything that might compete at price level, and the Single Market is a war of prices." (16,34,16,1)

Others

The synthetic fibre producer considered to have comparative advantages such as **modern premises**, a **flexible production system** and a relatively **low cost of manpower**. On the other hand, the **replacement of customs barriers by technical barriers** was seen as a real threat, since the new [European] markets were more demanding and more qualified staff and better information systems would be needed, in order to improve the quality of the final product.

The geographical location was also mentioned as an advantage:

> "... the south of Europe will be the last redoubt of the textile industry in Europe... We're well placed to sell to the Magreb, which is a potential market if the fundamentalists don't blow it up..." (19,38,13,2)

The directors of the chlorine company seemed to be quite confident now, since, in their opinion, the worst had passed and the Single Market would not bring major changes. In fact, they hoped that the **cost factors might be levelled** afterwards, even if the general attitude was not exactly optimistic:

> "Generally speaking, all [the national companies] are small for the European scale. For that reason, they are not capable of grabbing the best opportunities. When we talk about opportunities, we talk about small things: to fill in a niche, or other eventualities." (18,37,6,2)

5.2. ASSESSMENT OF ENVIRONMENTAL ATTRIBUTES

5.2.1. Attributes and variables

As mentioned in 2.1., the category of attributes focuses basically on the *complexity (or heterogeneity)* of the task environment, referring to the number and diversity of external factors faced by the organization, and its *turbulence* (also designated as *volatility or dynamism)*, referring to the degree of change of those factors. The most detailed operationalization of these concepts was provided by Huber and Daft (1987), who indicated three components or dimensions for complexity: 1) numerosity (number of relevant actors or components in the environment), 2) diversity (differences among the markets served) and 3) interdependence (interrelationships of dependence among the organizations that make up the environment); and two dimensions for turbulence: 1) instability (frequency of change) and 2) randomness (unpredictability of both the frequency and direction of change).

These two attributes - turbulence and complexity - together with a third one, that of *hostility* - which was used by Miller and Friesen (1983) in an empirical study to determine links between strategy making and environment - were used as variables for the collection of data regarding the assessment of the environment by the entrepreneurs and managers

interviewed in our field-work. This third attribute was adopted for bringing an important contribution to the classic framework based on complexity and turbulence: the notion of threat caused by hostile competitor strategies, regulatory restrictions and shortage of resources. **Hostility** "represents the degree of threat to the firm posed by the multifacetedness, vigour and intensity of the competition and the downswings and upswings of the firm's principal industry", and it is evidenced in the environment by "price, product, technological and distribution competition, severe regulatory restrictions, shortages of labor or raw materials, and unfavourable demographic trends" (Miller and Friesen, 1983:222 and 233) that may lead to the drying up of markets.

In the context of this study, we used the content description proposed by Miller and Friesen for the environmental attributes. **Turbulence** is, therefore, characterized by the rate of change and the rate of innovation in industry as well as the unpredictability of the actions of competitors and customers; it is manifested in the environment by the degree of unpredictability of change in customer tastes and in competitor activity, and of production or service technologies. And **complexity** encompasses variations among the firm's markets that require diversity in production and marketing orientations. It is manifested in the environment by the differences in competitive tactics, customer tastes, product lines, channels of distribution, etc., across the firm's respective markets. These differences are only significant to the extent that they require very different marketing, production and administration practices.

5.2.2. Turbulence

Competitor activity

Twenty seven per cent (27.5%) of the respondents considered that the activity of their competitors was fairly predictable and 37.5% considered that it was predictable. This means that 65% of the respondents did not face major problems in predicting moves in their competitors' activity (Appendix 3: table 1).

Trying to establish a link between the **age of the company** and the ability of the respondents to predict their competitors' activity, we found that there was no association between the two variables (Appendix 3: table 2).

The analysis by **sub-sector** within the chemical industry (Appendix 3: table 3) showed that it was within the plastics sub-sector that it was more difficult to predict the behaviour of competitors: 50% of the respondents considered it to be unpredictable, while the cosmetics sub-sector showed the least difficulty. In the pharmaceutical sub-sector, 41.6% of the managers found their competitors' behaviour unpredictable. The small numbers in the cells of these tables prevent the use of the Chi-squared test, so we can have no measure of association.

The analysis of the **role** performed by the respondents (Appendix 3: table 4) indicated that board directors tend to find their competitors' activity more unpredictable than non-board directors: in the first group 44% considered that it was unpredictable, while only 13.3% in the second group had the same opinion. The chi-squared test produced a value of 0.000126, which suggests that the distribution between board and non-board directors is not random.

The analysis by **type of ownership** of the companies (Appendix 3: table 5) indicated that the entrepreneurs and managers from the limited liability companies (Lda) found more difficulty in predicting their competitors' activity than the managers from the anonymous societies (SA): in the first group, 50% of the respondents thought that it was unpredictable and in the second group only 26.7% shared the same opinion. The use of the chi-squared test produced a value of .002504, indicating that the distribution is non-random.

Clients' preferences

The pattern identified for this factor is very similar to the pattern of the factor analyzed above. A total of 67.5% of the respondents considered that their clients' tastes and preferences were not difficult to predict (predictable or fairly predictable) (Appendix 3: table 6).

The analysis by **age of the company** (Appendix 3: table 7), showed that it was in the oldest companies of group one (companies established

before 1945) that respondents seemed to be more familiar with their clients' tastes, with 61.5% of the respondents declaring them as predictable. In group two (companies established between 1945 and 1974), 36.8% of the respondents considered their clients' preferences as predictable and in group three (companies established after 1975) respondents were split into two groups of 50% each, one considering their clients' preferences and tastes predictable and the other 50% considering them unpredictable. The use of the chi-squared test produced a value of 0.13278, which indicates a 13% probability of a random distribution.

The analysis by **sub-sector** (Appendix 3: table 8) indicated that it was within the plastics sub-sector that it was more difficult to predict the tastes and preferences of clients: 75% found them unpredictable. It was within the sub-sectors of paints and cosmetics that it was easier to predict clients' tastes: 100% in the paints industry and 80% in the cosmetics found them predictable. The pharmaceutical sub-sector seemed to feel rather familiar with their clients' preferences too: more than 90% found them predictable or fairly predictable. The interviews made clear that the concept of client varies according to the type of company: the multi-nationals that produce raw materials for the pharmaceutical industry and the pharmaceutical companies that produce medicaments and advertise them directly to the doctors. In both cases, the "familiarity" with the clients was confirmed:

> "We've kept our clients for twenty or thirty years, we know them well." (6,12,3,1)

> "For us the clients are the doctors, not the final consumers. We create a need for a doctor when he is presented with a new therapeutical advantage in the utilization of a product... the predictability is not altered... it depends only on some technological innovation..." (3,8,6,2)

The group "others" displayed a bi-polar tendency, with 40% considering that their clients' tastes and preferences were predictable and another 40% considering them unpredictable. The distinctive features of the different companies grouped here (resin derived products manufacturers, synthetic fibre producers and chlorine producers), are the likely explanation for this result.

The analysis by **role** performed by the respondents (Appendix 3: table 9) showed that most of the non-board directors (66.7%) found their clients' tastes and preferences predictable, while board directors displayed a rather diversified spectrum of opinion. The use of the chi-squared test produced a value of 0.00008, so the probability of a random distribution is very low.

The analysis by **type of ownership** of the companies (Appendix 3: table 10) indicated that 50% of the managers from the anonymous societies (SA) found their clients' tastes and preferences predictable, while 50% of the entrepreneurs and managers of the limited liability companies (Lda) found them unpredictable. The use of the chi-squared test produced a value of 0.00147, confirming that managers from the limited liability companies find it harder to predict their clients' tastes and preferences.

Rate of innovation

Forty eight per cent (48.7%) of the respondents thought that the rate of innovation had increased, while 43.6% thought that it had stabilized (Appendix 3: table 11).

The analysis by **age of the company** (Appendix 3: table 12) where the respondents work suggested that, the younger the company, the more stable was considered the rate of innovation. But the use of the chi-squared test produced a value of 0.15477, proving that the probability of a random distribution is very high. The differences between those who think the situation is stable and those who think there has been an increase in innovation are not, therefore, big enough to be significant.

The analysis by **sub-sector** (Appendix 3: table 13) showed that the highest rate of innovation was perceived by the cosmetics industry, where all the respondents declared that it had increased, followed by the paints industry and the pharmaceutical industry, where 60% and 50%, respectively, thought it had increased. The situation in the pharmaceutical industry is illustrated by a comment made by one of the interviewees:

> "Presently some say that the capacity of innovation in this field is drained and that one has just been creating by-products from already existent

molecules. However, research has been developed in areas different from the traditional ones, especially around AIDS." (3,8,6,3)

The rate of innovation was thought to be more stable within the plastics industry and in the group "others", where 62.5% and 60%, respectively, thought it had stabilized. In the group "others", a dissonant note was introduced by the external market-oriented company in the segment of resins whose managing partner remarked that the innovation rate in this segment had increased so much that the average life cycle of a product was four years at the time he was interviewed (9,17,2,4). It was not possible to test these results because of too many empty cells and low numbers.

The analysis by **role** performed by the respondents (Appendix 3: table 14) indicated that non-board directors were less aware of the innovations occurring in their industries: 50% thought that the innovation rate had stabilized, and 42.9% thought it had increased, while 40% of the board directors thought that it had stabilized and 52% thought it had increased. However, as revealed by the chi-squared test (the statistic has a value of 0.77404), these results are not statistically significant.

The analysis by **type of ownership** of the companies (Appendix 3: table 15), showed that the managers of the limited liability companies (Lda) had a rather different view of the evolution of the rate of innovation than that of the managers from anonymous societies (SA): 80% of the first group considered that it had stabilized, while in the second group

58.6% considered that it had increased. The existence of an empty cell and of two others with values below five do not recommend the use of the chi-squared test, but, for what it is worth, it gave a value of 0.03128.

5.2.3. Hostility

Market activities of competitors

Ninety per cent (90%) of the respondents considered that their competitors' market activity had become more hostile (Appendix 3: table 16). This sharp contrast between the level of hostility and the level of turbulence generally speaking, is in some way explained by the comments made by one of the entrepreneurs interviewed:

> "In an environment of crisis - and that's what we are talking about - some things become more predictable. For example, I know that my competitors are going to face difficulties." (9,17,2,3)

> "My competitors have become terribly more hostile, but on the other hand, because some of them have disappeared... [it's easier to monitor their activity]." (9,17,3,2)

Not surprisingly, the analysis by **age of the company** (Appendix 3: table 17) where the respondents work, showed a near-unanimity in considering that hostility of competitors' market activity had increased. Only within group two (companies established between 1945 and 1974) did 10.5% of the respondents think that competitors had become less

hostile. The occurrence of too many empty cells and low numbers do not recommend the use of the chi-squared test.

The analysis by **sub-sector** (Appendix 3: table 18) revealed a similar result; only within the plastics industry and the group "others" did we find 12.5% and 10%, respectively, of respondents who thought that their competitors' market activity had become less hostile. Results could not be tested for the same reason mentioned above. But within the pharmaceutical industry the situation was described as follows:

> "... our main competitors are multi-nationals and they have better marketing skills. Besides the less ethical procedures used, they have good marketing professionals who are very well paid and when they penetrate a new market they become extremely hostile" (3,8,7,1)

The analysis by **role** performed by the respondents (Appendix 3: table 19) indicated that there is virtually no difference between board directors and non-board directors in the appreciation of the hostility of their competitors. And the analysis by **type of ownership** of the companies (Appendix 3: table 20) showed that the entrepreneurs and managers from the limited liability companies (Lda) were unanimous in considering that their competitors had become far more hostile, which demonstrates a more direct or even personal concern for the companies' affairs, while the managers from the anonymous societies (SA) made a slightly less dramatic assessment of the hostility of their competitors.

Industry upswings and downswings

Forty seven per cent (47.5%) of the respondents considered that the ups and downs of their industrial sector had become unpredictable, while 52.5% thought they were predictable or fairly predictable (Appendix 3: table 21).

The analysis by **age of company** (Appendix 3: table 22) revealed that respondents from older companies were more inclined to find their industry's ups and downs predictable. And the analysis by **sub-sector** (Appendix 3: table 23) revealed that in the group "others", 80% of the respondents considered that ups and downs were unpredictable. The commercial director of the company producing resin derived products considered that an important source of instability was the price of raw material:

> "Prices vary a lot from year to year and the factors that affect that difference include climatic conditions in such remote places as China or Indonesia." (9,19,7,2)

In the pharmaceutical and in the plastics industries, 41.7% and 50%, respectively, thought that the ups and downs were unpredictable. Within the pharmaceutical industry, the ups and downs were attributed to a great extent to government intervention:

> "Unfortunately ups and downs became less predictable because the governmental decisions that affect companies are made public in the last minute. Therefore the companies are on guard..." (3,8,6,4)

The results of the analysis by **role** performed by the respondents (Appendix 3: table 24) and by **type of ownership** of the companies (Appendix 3: table 25) proved to be non significant. In the first case, the probability of randomness is 0.30 and in the second case is 0.81.

Regulatory framework

The information collected during the interviews pointed to the existence of a **strongly regulated environment,** with new regulations and procedures being adopted as a consequence of joining the EC, and an interventionist government establishing interest rates, attributing subsidies and establishing prices in certain sectors. This state of affairs affected more directly the pharmaceutical industry, since medicines are "political products", but other sub-sectors complained about the high interest rates and about the mismanagement of development programmes.

5.2.4. Complexity

Diversity of production methods and marketing tactics

Seventy per cent (70%) of the respondents declared that the diversity of the production methods and the marketing tactics of their companies had

increased throughout the previous five years (1987-1992) (Appendix 3: table 26).

The analysis by **age of company** (Appendix 3: table 27) showed that, the older the company, the more emphasis was given to the diversification of production methods and marketing tactics. In group one all the respondents considered that the diversification had increased, while in group two 63.1% thought the same and in group three only 37.5% shared this opinion. Significance could not be measured due to the occurrence of too many empty cells.

The analysis by **sub-sector** (Appendix 3: table 28) revealed that all the industries except the group "others" considered that the diversity of their production methods and marketing tactics had increased (100% in the cosmetics and paints industries, 83.4% in the pharmaceutical industry and 75% in the plastics industry). The managing partner of the company in the segment of resins, which constitutes an exception in the group "others", illustrated the situation as follows:

> "... nowadays our product catalogue looks like a cosmetics catalogue. I worked in the cosmetics sector for years and after a long time I come to find the same type of approach [for a chemical product in this company]." (9,17,3,2)

The position of the remaining companies of the group "others" is explained by the features that they share: large companies in industrial segments whose survival in Europe is threatened and that have been

struggling with cost-reduction and restructuring programmes. Significance could not be tested for the same reason mentioned above.

The analysis by **role** performed by the respondents (Appendix 3: table 29) showed that board directors were slightly more aware of the diversification of production methods and marketing tactics adopted by the company in order to face the complexity of the environment: 76% considered that the diversity had increased, against 60% of the non-board directors.

The analysis by **type of ownership** of the company (Appendix 3: table 30) showed that 76.6% of the managers from anonymous societies (SA) considered that the diversification of production methods and marketing tactics had increased while only 50% of the managers from the limited liability companies (Lda) declared the same. These results, such as those regarding the type of role performed by managers, are not testable, but the value of the probability measures suggest that the differences are not significant.

5.3. ASSESSMENT VERSUS PERCEPTION OF CHANGE

The comparative analysis of the results obtained through these two approaches is presented in Table 5.1., and suggests some comments.

	TURBULENCE (low)	HOSTILITY (high)	COMPLEXITY (high)
Assessment of change in the task environment	. Competitor activity (65% find it predictable or fairly predictable) . Clients'prefs (67,5% find them predictable or fairly predictable . Rate of innovation (48,7% think it has stabilized or decreased)	. Market activity of competitors (90% think it has become more hostile) . Industry ups and downs (47% find them unpredictable)	.Diversity of production methods and marketing tactics in the companies studied (70% think they have increased)
Perception of change in the environment (task + general)	REGIONAL: EC and the SM . Trend for concentration (mergers, acquisitions, strategic alliances and disappearance of smaller companies)	GLOBAL: Gulf War (affected oil prices and availability and cost of oil-derived raw materials) REGIONAL: EC and the SM . Regulatory impact (abolition of tariff protections, replacement of customs barriers by technical barriers) LOCAL . Entry of new competitors and products . Crisis/expansion of client industries . Shortage of resources (difficulty of access to credit, shortage of qualified manpower, pressure to reduce energy consumption) . Government role (intervention in setting prices and high interest rates)	. Fall of fibre consumption . Unethical marketing tactics of multi-national competitors . Dramatic change in the distribution channels . Social pressure towards environment protection

Table 5.1. Assessment versus perception of change

The assessment of a relatively low degree of **turbulence** in the environment is confirmed by the absence of references to unpredictability of change - regarding competitor or client behaviour, or the rate of innovation - in managers' discourse, when asked to describe the evolution that had taken place in their organizations' environment during the previous five years. However, there was a clear perception of change attributed to the occurrence of mergers, acquisitions, strategic alliances and bankruptcies, leading to the modification of the business structure.

What we can question is, whether change was indeed so predictable, or whether managers were relatively unaware of change, and why. On the other hand, if these changes were predictable, then most companies should be expected to proact, or prepare in advance, or at least react in order to adapt as quickly as possible, to events of such importance as those detected as being taking place in the environment of the companies approached for this study. Failure to do so would then refer us, for example, to cultural handicaps as those mentioned by some of the managers interviewed ("individualism", "eagerness for full control", "incapacity to think prospectively"), or that mentioned by Mónica (1990), "difficulties to think beyond the walls of their companies and the limits of the present time".

The assessment of **hostility** was categorical, especially regarding the increase of hostility of competitors' behaviour. But the dimensions borrowed from Miller and Friesen for measuring the degree of hostility

seemed to be insufficient. Although the content description of this variable included a reference to regulatory aspects, the operationalization of the dimensions did not allow the full disclosure of the depth and extent of the impact of the regulatory activity in the environment. Similarly, the shortage of resources (raw materials, qualified manpower, and difficulty of access to credit) could hardly be assessed after "industry ups and downs" or "market activity of competitors".

These aspects were revealed by applying the grounded theory method of qualitative analysis to detecting perceptions of change, which confirmed some turbulence and an extreme hostility of competitor activity, and explained them in the light of the trend for concentration, which was closely associated to the advent of the Single Market, even though it was acknowledged that this trend had become visible at world level for some time. Industry ups and downs emerged as being associated with the shortage of resources and the crisis or expansion of client industries, but the ever present, major cause of hostility was identified as the regulatory activity of the government and the EC.

The assessment of **complexity** was made through the adoption, by the companies studied, of diverse production methods and marketing tactics, in response to differences, across the company's respective markets, of competitive tactics, product lines, distribution channels, or clients' tastes. The assessment of this environmental attribute evidenced a high level of complexity. The perceptions of change confirmed this

result, identifying some important sources of complexity, such as: the fall of fibre consumption, which affected mostly the synthetic fibre industry; the unethical marketing tactics of multi-national competitors, which affected mostly the pharmaceutical industry; the dramatic change in the distribution channels, which affected mostly the mass market products of the cosmetics industry. Other factors, such as the social pressure towards environment protection - which affected mainly the highly pollutant industries, such as that involved in the production of chlorine - fall out of the narrow limits of "the company's markets", but undoubtedly require diversity in the production methods and marketing tactics of the companies concerned.

Maybe the relative inadequacy of the operationalization of the dimensions of these attributes have to do with the fact that this framework was first used by Khandwalla (quoted by Miller and Friesen, 1983) in the early seventies, under conditions where task and general environments could easily be analyzed separately, unlike the present conditions, where the globalization of economy makes that practically impossible.

The comparative analysis of results regarding environmental change, obtained through the assessment of environmental attributes and through the analysis of perceptions of environmental change, evidenced compatible results. However, the use of the grounded theory method of data analysis, proved to secure that the data obtained are effectively *grounded.* In this case, this means that the data obtained correspond to

the respondents' direct experience and conceptualization of their organizations' environment. The use of a quantitative approach, based on the counting of responses to limited choices presented in the context of a framework based on previous research, developed in the light of the understanding of a precise context, which, by definition, changes at an increasingly fast rate, proved to be limitative.

5.4. SUMMARY

The analysis of the **perceptions of environmental change** showed that the impact of joining the EC was evaluated mainly in terms of **changes in the regulatory framework**, bringing in new rules and procedures to follow; it was also evaluated in terms of the progressive **elimination of customs tariffs** and its consequences upon the fragile competitiveness of the national companies, and the fear that customs barriers would be replaced by technical barriers. The **growth of the market** was a positive issue associated with the joining of the EC.

Changes in the business structure were described as multifold, due to the **acquisitions and mergers** taking place, and also to the **disappearance of smaller companies** that sank under the pressure of competition, as a result of the trend for concentration that prevails in the chemical industries at large, with special incidence on the pharmaceutical and cosmetics sub-sectors, and also in the segments of

resin derived products and synthetic fibre products. An important factor of instability was said to be the **crisis of some of the client industries,** such as the shoe industry and the textile industry.

The government was accused of **excessive intervention** in the regulation of the market, especially in the health sector, by setting the prices of medicines and issuing authorizations for the production of new drugs. The policy of **high interest rates** practised by the banking system was another negative issue whose responsibility was endorsed to the government, as most of the banks were nationalized when the field-work was carried out and high interest rates were in fact part of the government policy to keep inflation down. It was also accused of **lack of capacity** to defend the national interests within the EC and of the **mismanagement of development programmes** such as PEDIP. **Factors of a cultural nature** were invoked to explain the reticence of the Portuguese entrepreneurs to engage in strategic alliances.

The advent of the Single Market was seen as **inevitable** and was faced predominantly with a **moderate optimism** as it was widely believed that the worst had passed, meaning that the adaptation process to the Common Market had been hard enough and that something positive could still be expected from the Single Market, like keeping market shares or conquering a niche market or realizing a successful alliance. Plans of internationalization did not go further than Spain in most of the cases. The peripheral condition of Portugal was seen as a hindrance for penetration in other regions as well as a protection against competitors

from central Europe, especially for industries producing low-value-added products with high costs of transportation.

The **assessment of the environmental attributes** showed that the environment had become extremely hostile and rather complex, even though turbulence was thought to stay relatively low. The analysis by **age of company** showed a near-unanimity of the respondents from all groups (companies established before 1945, between 1945 and 1974, and after 1974) concerning the increase of hostility of their competitors' market activity.

The analysis by **sub-sector** revealed that two of the five groups of companies - the companies of the plastics sub-sector and those of the group "others" (composed by companies producing synthetic fibres, inorganic chemicals and resin derived products), faced more difficulties than the others to adapt to changes occurring in the environment.

The analysis by **type of ownership** of the companies showed that entrepreneurs and managers from limited liability companies found it more difficult to predict their competitors' activity and their clients' tastes and preferences than their colleagues from the anonymous societies; they also were unanimous in considering that their competitors had become far more hostile, while managers from the anonymous societies revealed a less dramatic perception. These tend also to be more confident about predicting ups and downs of their industries and there were more of them declaring that their companies

had diversified production methods and marketing tactics in the last years. The evolution of the rate of innovation was perceived differently by the two groups as well: it was perceived as predominantly stable by the entrepreneurs and managers from the limited liability companies and as increasing by managers from the anonymous societies. The difference of perceptions between managers from these two types of companies reflects the different features of companies, as limited liability companies are usually smaller companies, family-owned in most of the cases, and less capitalized.

The **comparative analysis of results** regarding environmental change, obtained both through the assessment of environmental attributes and through perceptions of environmental change, evidenced compatible results. However, the use of the grounded theory method of analysis, proved to secure that the data obtained are effectively *grounded,* meaning that the data obtained correspond to managers' direct experience and conceptualization of their organizations' environment. The use of a quantitative approach, based on the counting of responses to limited choices presented in the context of a framework based on previous research, in the light of the understanding of a precise context, which, by definition, changes at an increasingly fast rate, proved to be limitative.

CHAPTER SIX: THE INTERNAL CONTEXT: FACTORS AFFECTING ENVIRONMENTAL SCANNING

INTRODUCTION

This Chapter analyzes the intervening conditions, or the factors internal to the organization, which affect the activity of environmental scanning. These include organizational factors such as information climate and outwardness, and individual factors, such as information consciousness and exposure to information. The main relationships among these factors are also analyzed.

6.1. INFORMATION CONSCIOUSNESS AND INFORMATION CLIMATE

6.1.1. Information consciousness

By information consciousness we mean the value attributed to information. It was assessed through the attitude of managers towards environmental scanning and through the communication pattern established among managers within each organization, in order to

transmit to each other relevant information brought into the organization and to develop among them a shared understanding of the organization's environment.

Responsibility for environmental scanning

Because all the interviewees were either chief executives and entrepreneurs or directors of the different functional areas, their competencies were established in very broad terms, without any specific reference to the gathering, collection or acquisition of information. However, they all agreed about the **vital role of information** in business:

> "[Gathering information about the business environment on a regular basis] is of fundamental importance, so that we can figure out which market we are in, which are the trends, so that we can take the lead." (1,1,1,1)
>
> "It's very important, we need to know what's going on or we're done. The acquisition of information in the market is supplemented by other, more pirate-like situations..." (14,26,17,3)
>
> "It's extremely important. With the turbulence we live in these days, especially in what concerns this business, we're always eager for information." (19,38,14,3)

Marketing directors and R&D directors are pointed out by administrative and financial directors and by chief executives themselves as the main sources of information on the business environment of their companies; but the fact that most chief executives claimed to have only "indirect responsibility", or to give a "small contribution", or to have a mere "co-ordinating role" concerning the acquisition of information, should not be taken lightly.

If marketing directors and R&D directors bring in information on markets, competitors and technology, and the administrative and financial directors collect information mainly on resources, regulatory aspects and global aspects, chief executives are in the best position to anticipate political changes and influence government action in the regulatory field.

Chief executives from companies with different characteristics and operating in different sub-sectors described their role, as far as environmental scanning is concerned, as a mix of **personal monitoring** and **dissemination of information** among direct collaborators. Mintzberg identified these aspects of the managerial job as informational roles and described them as follows:

> "As *monitor*, the manager perpetually scans his or her environment, interrogates liaison contacts and subordinates, and receives unsolicited information, much of it as a result of the network of personal contacts he or she has developed.... Managers must share and distribute much of this information. Information they glean from outside personal contacts may be needed within their organizations. In their *disseminator* role, managers pass some of their privileged information directly to their subordinates, who would otherwise have no access to it. Moreover, when their subordinates lack easy contact with one another, managers will sometimes pass information from one another." (Mintzberg, 1989:18)

This activity is illustrated by the following quotations from the interviews carried out:

> "My contribution is small. The company has a given structure and several people collect information... In our marketing department, the sales people, the advertisers of medical information, the supervisors and the marketing director bring in a lot of information. Of course that, when I am at the

> industrial association or when I am received by a member of government I try to pick up as much information as I can, but my contribution is small." (2,3,11,2)
>
> "I'm responsible in so far as I co-ordinate all the information. I personally try to collect as much information as I can, but the information that is brought in by the marketing and the R&D directors is brought together by myself and it is used as the basis for decisions that have to be made." (1,1,2,2)
>
> "I consider to be responsible not only to keep myself informed but also to transmit that information to those who work with me." (19,38,13,4)

A significant difference was detected between chief executives of larger companies and managers of smaller companies. Chief executives of larger companies tend naturally to minimize their role as monitors and emphasize their role as disseminators, as demonstrated by most of the quotations above; dissemination of information becomes an important issue in larger organizations, where more complex structures and functional diversification are dominant features.

On the other hand, managers of smaller companies assume environmental scanning as a personal responsibility and attribute great importance to that activity. More than that, they seem to find it very gratifying. The dissemination factor, however, is irrelevant, simply because in most of the cases there is nobody else to pass the information to:

> "It's something I enjoy doing. I collect information mainly from clients, suppliers and fairs. I'm always alert. It's a very important function.... We cannot stagnate. The company has to change course whenever necessary." (12,24,6,4-7,1-2)

Two companies deserve a special mention because of their distinctive features. One of them is the second largest company of the sample analyzed and operates in the paints sub-sector and the other one is the largest of the plastics companies of the sample, even if it is much smaller than the paints company. They both have in common their fast growth and the predominantly entrepreneurial management style of their chief executives, who assume their personal involvement in environmental scanning and stress the importance of the activity:

> "Yes [I feel responsible for collecting information about the business environment regularly]. Our company is market-oriented. The collection [of information] is made mainly by the commercial staff. Because we are what we are, and because we grew up so fast, all this [collection] is made very informally.... We know relatively well what the competition is doing, from the sales people and the sales chief to the commercial director and the marketing director and the administration. We are all oriented to the commercial area... we believe that it's the market that feeds us, and that's what matters. Everything happens quickly, but there's no such thing as a structured collection of reports about what's going on in the market.... We've got the usual clipping services for selected issues [provided by specialized companies]. There are also clear instructions in order to provide the marketing department with every information on prices, new products, catalogues, leaflets..." (14,26,16,3-17,1)

> "I dedicate from 50% to 70% of my time to this [activity]. It's very important.... We are presently concerned with setting up a system to allow us to access information relevant for our activity: market information, technological information and trends; but also to treat that information within our premises... add value to it and then send it back to the market and to potential users." (7,13,12,2-13,1)

A difference emerges out of these declarations: while the chief executive of the paints company stressed the informality of procedures, the chief executive of the plastics company was very much committed to the installation of a system tailored to manage the influx of information. This was the first evidence of the possible influence of

organizational culture upon personal attitudes. Other possible influences, such as individual values and beliefs, were out of the scope of this research.

In the first of these companies - the large company in the paints sub-sector - **organizational culture** played an important role in the determination of people's attitudes concerning the collection and dissemination of information, and that was clearly acknowledged by the deputy director:

> "Nobody is formally responsible, but all of us, who work in a company that has to work better than the others in order to survive in the market, all of us have to search permanently for information that the others don't have, or use that information more correctly than the others.... And when one of us manages to obtain one of those bits of information that is not published and that you pick up here and there, immediately disseminates it to whom it may be important. It's not formalized but it's in people's brains, it's in the culture of the company." (14,27,9,3)

Among the other managers interviewed - functional directors such as marketing or commercial directors, financial or administrative directors and technical or R&D directors - attitudes coincide regarding the importance attributed to scanning and the notion that their personal investment is part of a common effort towards a common target. Marketing and commercial directors seemed to be particularly conscious of the decisive importance of their information gathering activity, for the survival and success of their companies, and that importance was acknowledged by managers from other areas:

"The marketing activity is mostly strategic and it has to do mainly with information. That's why I dedicate so much of my time and effort to collect information and to bring together all kinds of information..." (18,37,7,3)

"As financial director, the activity of information acquisition is not so important.... The environment information which affects the market is obtained mostly by the R&D and the marketing departments, and also by the administration in their international contacts. I also get information, but financial information, about funding sources and possible subsidies." (3,8,12,4)

A subjective note was introduced by one of the interviewees by stressing the personal satisfaction drawn from the possibility of access to scientific information that is not easily available:

"I'm a doctor but I chose to work in industry full-time. It's stimulating to keep abreast with therapeutics of pathologies which are the daily concern of doctors and, furthermore, to be aware of information that sometimes does not reach doctors." (4,10,12,3)

Communication pattern

Communication among upper managers - between chief executives and directors - of larger companies is frequent, scheduled or unscheduled, formal or informal, depending on the nature of the information, as perceived by each manager. Other possible influencing factors, such as individual tastes and preferences, were out of the scope of this research.

The following quotations - where italics highlight the core aspects - illustrate the perspective of chief executives from large and medium-size companies in different sub-sectors:

"I decide who shall receive the information... [and I may use] a telephone call, a meeting, a memo or a distribution list... it's a *personal judgement*, there's no rule." (6,12,14,3-5)

"I make a memo and distribute it by the members of the board and afterwards by other people to whom it may interest. *For more specific matters, I send it only to the sector concerned.*" (14,26,26,4)

"I pass on information to the directors practically every day. *I leave to their judgement whether that information must be passed on to someone else. I do that informally.*" (19,38,21,3)

"There are regular meetings with the members of the administration board, with the senior staff and among the staff. *Reports are made for certain types of information and sometimes the information is passed orally.*" (18,36,17,2)

"[I pass the information] to the executive commission in the first place. Afterwards, I pass it to the production director, if it has to do with problems of the technological kind, technological alterations and projects.... Or to the commercial director, if they imply commercial action. *Always informally.*" (18,36,18,1)

"[I pass the information] to the other members of the administration, during the meetings. Further contacts, with other people, depend on the kind of information. Most of the information regards market issues. *It's passed informally when it's generic and formally, through reports, when it concerns specific cases.*" (13,25,18,5)

Functional directors communicate with the chief executive in the first place whenever information of strategic importance is at stake. But communication among directors of the several functional areas is intense, particularly between the marketing/commercial area and the R&D/technical/production area; the financial/administrative area also provides a lot of information to those two areas, but there is no similar influx in the opposite direction. The quotations that follow, from marketing/commercial directors and R&D directors from large and medium-size companies of different sub-sectors illustrate this assertion:

"Marketing is one of the areas to which we pass more information, because they depend on that information to adopt a marketing strategy. The product information that we provide may modify drastically the ongoing strategy. We pass that information in every possible way. *It depends on the urgency or on the importance*. Some things have to be written down and others can be transmitted orally. This may be done directly, or over the telephone, or during a meeting." (3,7,13,3)

"I pass it to the sales department of the North, the research, the production, and always to the chief executive. *I pass it immediately and orally. Sometimes I make a report, depending on the nature of the information.*" (14,28,19,3)

"When I obtain important information, *I make a report* addressed to the administration and to the colleagues to whom that information may interest.... I prefer written information to oral information.... I interact more with the commercial director and with the technical director. I pass information to those colleagues using written notes, or we meet and discuss and record what is said." (19,40,13,2-3)

"... If [the information] demands immediate action, I act accordingly. If it's someone else's field of action, I pass it on immediately. If it's a trend, I transmit the information to those who can work on it.... [I pass it first] to the administration... *Formally or informally, depending on the urgency and the kind of information.*" (18,37,12,4-13,1)

The perspective of the financial/administrative area is provided by the financial director of a medium-size company in the pharmaceutical sub-sector:

"The information is collected by the several functional areas and is conveyed to the board directors during the meetings; afterwards it circulates, or not, by the hierarchy below if it is thought to be adequate. Some information is not due to circulate, if it is of strategic importance for the company." (3,8,17,2-3)

"It is usually [transmitted] formally, even if there is informal communication with my colleagues. This department disseminates a lot of information to the other departments: it's written information, maps containing large volumes of information, and it varies from department to department." (3,8,19,1)

Communication among managers is, therefore, made up of a mix of oral and written information; the nature of this mix and the reasons that determine the choice of either of the forms of communication was not entirely clarified. Some refer the difference between **generic and specific** information; generic information would be transferred orally - sometimes in the course of meetings, when all the managers are available - and specific information would be recorded and forwarded to specific targets. Others refer the fact that information is **urgent or important** as determinant factors in the choice of oral communication. The factors that determine the choice of oral communication would, therefore, be the **generic scope** of the information and its **potential for starting action**.

But what emerges as really determinant is the **personal judgement** that is made, case by case, where "no rule", as mentioned by one of the chief executives, is eligible. On the other hand, chief executives tend to use oral communication more than functional directors, while these apparently use both forms, without favouring clearly one or the other *a priori*. Sometimes both forms are used to convey the same information, the oral form being used for the first approach, followed by a memo or a report. The communication pattern between upper managers could therefore be roughly represented by the following picture:

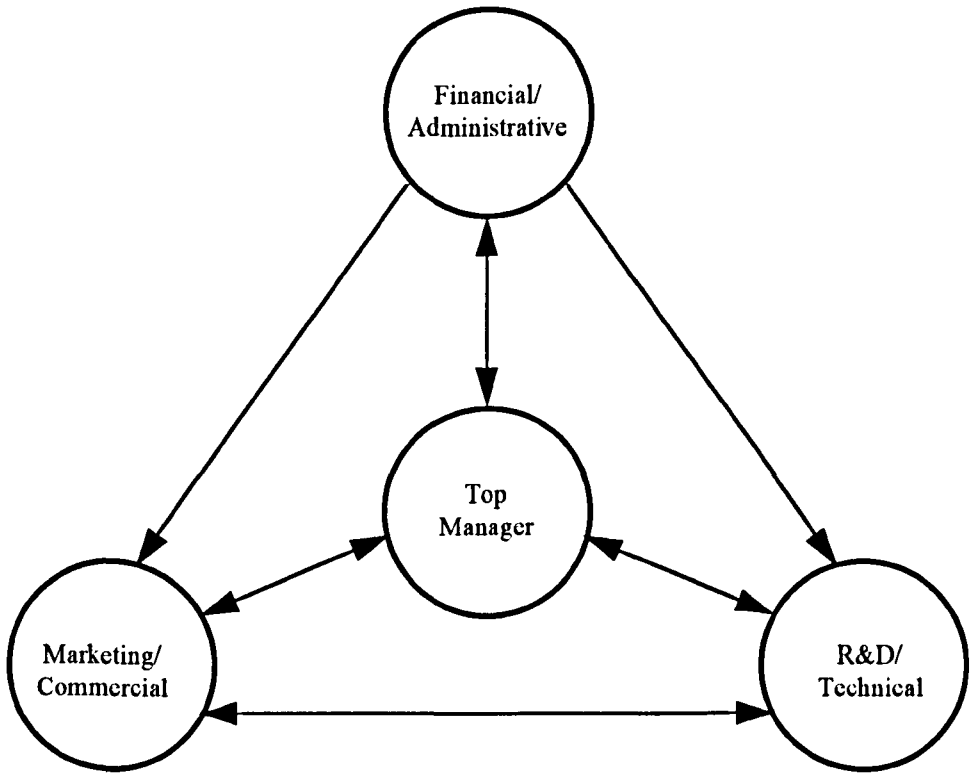

Fig. 6.1. Communication pattern between top manager and functional directors

An exception emerges out of the pattern described above, in so far as informal communication is used by all in practically every circumstance. It is even more interesting if we have in mind that it is the second largest company of the sample, a company that has recorded a sustained growth over the last decades and is a market leader in some products, in a sub-sector (paints and varnishes) dominated by large multi-nationals. As noted previously, a strong **organizational culture** prevails in this company; the data available indicate that this culture is of the **oral type** - cultures "which support a high degree of word-of-

mouth communication", as defined by Brown (1990). The situation in this company was described in the following terms:

> "The person who obtains the information transmits it to someone above in the hierarchy but there are no fixed rules, the salesman may transmit that information to the chairman of the board, if he happens to meet him in the hall. The information gets through till someone [the sales chief or one of the directors] decides that it is important enough to be disseminated and to whom, and in that case a more formal way is used, such as a memo." (14,27,18,4-19,1)

> "After being analyzed, the information is sent to the other departments - to the directors and eventually someone else to whom it may interest - and to the administration.... These matters end up by being discussed in the monthly meetings." (14,28,18,3)

> "I always try to use the fastest means to obtain the information - a phone call or a fax. The destination of the information depends on its content. But I usually transmit it immediately and ask other people in the company to confirm that information through other sources. It's important to make sure that the information is reliable.... I pass it on immediately and launch the discussion about the subject. It's important to measure how important the information is for the company." (14,28,19,2)

Another exception is that of a medium-size, fast growing company in the plastics sub-sector. The personal interest that the chief executive of this company had developed for information technologies had led not only to the full automation of production and commercialization functions, but also to the implementation of an information system to manage the influx of external information, which included E-mail facilities. And the expertise developed in-house was the starting point to the formation of a computing company that is now part of the group.

Evidence emerged that an incipient form of **information conscious culture** - cultures "which demonstrate considerable awareness of the value of information and sophistication in their information behaviour

and systems", as defined by Brown (1990) - was developing in this company. The chief executive encouraged the use of the E-mail for most of the communication in the company. Because oral communication was understood as nearly synonymous to informal communication, he considered that, by fostering the use of the E-mail, he was encouraging increased use of formal communication in his company:

> "I pass on the information to my subordinates in an increasingly formal way [using the electronic mail]. The trend with the new technologies is to write down everything." (7,13,25,2)

But the marketing director, whose headquarters were located in another district, where electronic facilities were not fully implemented yet, used procedures similar to those dominant in most of the large and medium-size companies of the sample, independently of sub-sector:

> "I tend to pass on written information [short reports] to the administration and to the technical department, following informal chats or meetings." (7,14,18,4-5)

A very different scenario prevails in small companies, where a simple structure and the subsequent concentration of functions in the hands of the entrepreneur or of the co-managers does not pose problems of communication:

> "If it's technical information, I talk to myself. There's nobody else. In the other two areas, we talk to each other." (12,24,12,3)

> "There is always an exchange of views between the co-managers. Everything is communicated orally." (12,23,10,3)

The quotations above were drawn from the interviews with the co-managers of a small company in the plastics sub-sector and reflect the situation of the other small companies of the sample, with an exception, that of the producer of resin-derived products which, being an exporting company, sells 99% of its production abroad; the managing partner, who was also responsible for the R&D, the commercial director and the product manager spent each two weeks per month abroad, contacting clients and suppliers. As a result, they had established a strict scheme of reports in order to keep each other informed of everything that was done or found out by the others. The reports were always issued, even if previous conversations took place about the most important aspects. The procedure was described by the product manager and the commercial director as follows (italics highlight the core aspects):

> "This is a very simple structure, we are few. *For each contact with a competitor or a client, a report is issued* about the conversation or the visit and is distributed to the other two. It's always formalized, even if it's a phone call from a client saying that the last lot of resin produced a weird colour on such and such glue, I make a report and pass it to the others, even if the action to be taken is just up to me." (9,18,17,4)

> "Generally speaking, *the information that is reported under written form is the same that was passed orally on the heat of the moment*, only by the time it is written down it was already mentally processed and there are conclusions and suggestions." (9,19,20,5)

However, there are situations where communication is discouraged. Strategic information, either regarding certain market aspects or technological developments, shall be kept secret to all but those who have to work on it. The chief executive of a multi-national pharmaceutical company was quite clear:

"The information is organized in compartments within this company, precisely because there are areas, like research, that are very sensitive.... Some of the information generated here is not known to the administration itself. The administrators know that there is a project with the code name X or Y, but don't have information on its development. The information that is of common interest to several departments circulates among them..." (6,12,13,3)

"There is no such thing as sharing information, the information on research is kept secret and the commercial information is the administration's concern; they are separate areas, there's too much at stake, and confidentiality is to be respected.... Each one has a level of access to the computer and that's all." (6,12,13,4)

The chief executive of the pharmaceutical company whose information infrastructure was poorer, stressed the importance of an adequate physical setting in the establishment of a good communication climate, and suggested that his company was suffering from severe insufficiencies derived from inadequate accommodation:

"There are some difficulties as far as communication is concerned. The physical setting is of great importance to generate good communication. And a lot depends on each one's attitude, whether one is active or passive [trying to obtain the information needed]. I find important to facilitate access to information through good logistics. We are scattered by several floors in this building and another building in Lisbon and there's the factory near Sintra." (5,11,18,2)

Interpretation mechanisms

Daft and Weick defined interpretation as

"...the process of translating events and developing shared understanding and conceptual schemes among members of upper management. Interpretation gives meaning to data..." (Daft and Weick, 1984:286)

If a large number of people are involved in environmental scanning, only a small number of key managers is involved in interpreting the information brought into the organization. Some interviews provided evidence of this process of "bringing meaning" out of events and trends detected by managers directly or through their subordinates. **Regular meetings** with top managers are used to bring together the information believed to be of major importance. These meetings may be bi-lateral (between the chief executive or top manager and each of the directors) or multi-lateral (with the top manager and all the directors). The configuration of the meetings depends mainly but not only on the scope of the matters being dealt with. It may also depend on the personal style of the top manager. In one of the cases, a marketing director commented that he would like to confront his ideas with his colleagues more often, but the chief executive preferred to hear them one by one.

These meetings tend to occur monthly, unless something unexpected demands immediate action or a serious crisis emerges. However, one of the multi-national pharmaceutical companies had developed a daily routine, grouping all the directors for breakfast and using this occasion for opening the mail, discussing what to do about each particular problem and distributing action. The following comments, produced by a financial director and a marketing director of two different pharmaceutical companies, point to these meetings as discussion *fora* where key managers may reach a shared vision of their environment:

> "This company is managed by objectives, therefore we hold monthly meetings with the administration, which last one or two days... where information is brought in by the directors of the several functional areas.

> This information is discussed and analyzed, and strategic decisions are made based on this information..." (3,8,12,3)
>
> "We meet in order to analyze the most important issues, what might hit us or favour us. I collect information but, in this sort of company, so does the chief executive and the exports director: they also pay a lot of attention to what's going on in this country and abroad." (1,2,3,2)

The danger of misinterpretation was stressed by the marketing director of a large fibre manufacturing company:

> "Sometimes people in the field don't have the sensibility and the capacity to seize the really important information. And even when they have... it's difficult to interpret correctly what the source tells us... We've been holding a panel of [twenty six] industrialists since the beginning of the year so that we can understand what's going on in the knitted goods sector... After the first round we realized that a single industrialist represented 50% of the market. If we misinterpret something he says all the conclusions will go wrong." (19,40,6,4-7,1)

6.1.2. Information climate

By information climate we mean the setting of conditions that determine access to and use of information in an organization. It was assessed through the information infrastructure implemented, i.e., the processes and technologies used for collecting, organizing and making information available, and also the human resources assigned for this purpose. The emergence of evidence relating to the role of organizational culture in shaping the information infrastructure led to the creation of the construct "information climate".

The expression "information infrastructure" has been used in the information management literature at macro level - national or global information infrastructures - and at micro or organizational level. We adopted the construct developed by Levitan (1987) because its operationalization is suitable for use at organizational level. The components of this construct are: people, documents, information processes and information technologies.

Information infrastructure: processes and technologies

All but one of the pharmaceutical companies declared to have good information infrastructures: specialized libraries, contracts with international on-line database distributors or CD-ROMs with the most heavily used databases, internal computerized systems for managing commercial information and skilled staff to deal with information. The type and level of training of this staff varies from the training provided by the database distributors to professional training provided by library associations or other training agencies and university post-graduate courses in Library Science.

The quality and dimension of the libraries varies too, with two of the companies, both multi-nationals, claiming that their libraries were among the best medical and pharmaceutical collections of the country. One of these two companies produced a database containing information on medical research (clinical tests, new drugs and pathologies) carried out in Portuguese hospitals; the company had

offered 115 terminals to universities, hospitals and doctors so that they could use the database.

Some of the services commonly available in the pharmaceutical companies were SDI (selective dissemination of information) and loans, benefiting from the interchange among some of the libraries of the pharmaceutical companies and other specialized libraries.

The responsibility for the acquisition and handling of information is partitioned by each of the main functional areas: R&D, marketing and commercial, and administrative and financial. Each director, or someone designated by him or her, decides which information is to be made available to other departments and which is not. The quotations that follow were extracted from the interviews with chief executives of pharmaceutical companies; the first one leading a national company (company 2) that ranked among the top ten pharmaceutical companies operating in this country and the second one leading a multi-national company (company 6):

> "Each department is responsible for the information that it collects and disseminates. There is a market research unit within the marketing department which collects all the market information that is brought in by the sales force, the product managers and other staff and is processed by the marketing department. The scientific and technical information is processed in the medical department where the library is located; the library serves the whole company but its main purpose is to treat the scientific and technical information about our products and to disseminate it throughout the company. The information about the financial situation of the company, and our sources of capital is processed by the administrative and financial department and disseminated to certain entities in the company." (2,3,15,1-2)

"All the scientific and technical information is centralized in the library. The access to databases is also made in the library... and it's usually the librarian who makes it. Whenever a contract is celebrated with another distributor, they [the library staff] are trained.... The information that is strictly commercial is not in the library but in the marketing department; here is kept all the information that is collected and reported by our agents abroad. Much of that information is transmitted by telephone. It constitutes probably the main flow of information..." (6,12,12,1-2)

"The research department has a system of its own, with limited access, containing information about molecules, records of the projects being developed and of the results obtained, in order to facilitate the later analysis of that data..." (6,12,13,2)

The financial director of a pharmaceutical company that had just embarked on a strategic alliance with a foreign company presented the information infrastructure of the company in very similar terms:

"The information is scattered by several departments. It is collected by the several functional areas and is channelled to the directors who screen it for the administration, during the regular meetings. After that it is passed on to the lower hierarchical levels, or not. Some of the information must not circulate, when it is considered of strategic importance to the company. If a product was obtained by anticipation towards another company, and that other company is working on a similar product but gave, in the meanwhile, priority to yet another product, it will rush off to patent the first product if it realizes our intentions..." (3,8,17,2-3)

"External information is collected mainly at a high hierarchical level, even if there is another kind of information that is collected at a lower level, by the sales force, who collect information about the market and channel it to their directors, who then pass it on to the administration." (3,8,17,4)

The marketing director of another multi-national company provided a similar description of the information infrastructure, but stressed the marketing and commercial aspects, namely those concerning performance monitoring of the commercial departments, the training of the sales force and aspects of management of client information:

"We have a library department... [where] all the [scientific] information of the company is available... We can also access information made available by other library services through national or international databases." (4,10,19,1)

"We buy market studies about the national market, which tell us the general characteristics of the market and of each therapeutic group, product by product. We know that salesman X covers a certain area and what is the commercial potential of that area. This information is centralized by the commercial departments and the marketing directors. This information provides a basis for *monitoring the performance of the commercial departments*." (4,10,20,1)

"The scientific information about each product... is elaborated by the commercial departments and is used, together with the market information, to *prepare files that are used to "sell" ideas to the sales force* during meetings organized for that purpose. If the salesman is not convinced, he will not sell the idea to the doctor... The scientific information is "adapted" or transformed into "visiting literature"... that enhances the innovative aspects of the product. We can't ask the salesman to sell science, or everything will go wrong." (4,10,21,3-22,1)

"All the clients, be it the pharmacy, the storehouse or the hospital, are "computerized". *The commercial relationship is recorded.* We know who buys, who decides, who makes the appointments... the company has to find out the right channels." (4,10,21,2)

"There's the library, the sector of the "visiting literature", and the commercial area that *treats each client as a cost centre*... this area has to do with the accounting. Other aspects of the commercial area have to do with client control... When the commercial area detects a problem with a client, it warns the marketing director immediately, who takes action, because we think that the personal contact is important. The commercial area of internal control falls out of the area of the marketing director, who is in contact with the outside." (4,10,21,4-22,1)

Only two of the pharmaceutical companies approached for the study had not automated their libraries so far, but even these had access to international on-line distributors. All the other companies had more or less sophisticated, more or less integrated information systems available. The following quotations, from the chief executive and the

financial director of two different pharmaceutical companies illustrate the situation in this sub-sector:

> "We have an integrated information system with about forty terminals spread throughout the company and on the desk of each person responsible for information in every area." (2,3,7,3)
>
> "A new system was implemented two years ago. Everybody has one of these toys [*computers*] and has access to the information appropriate to his or her job... In the meanwhile new needs have developed, namely in what concerns the computerization of production: the present hardware and software are outdated. We're about to make an important investment..." (3,8,11,3)

The data available indicate that, with few exceptions, the type of culture that prevails in the pharmaceutical companies is a **formal information culture** - cultures "which exhibit extensive formalization and systematisation of information channels", as defined by Brown (1990).

The situation in all the other companies differed substantially from that of the pharmaceutical companies. The very concept of library had very little in common. While most of the **pharmaceutical companies** had **rich centralized collections** of scientific and technical information, managed by **information professionals** with different backgrounds and offered **access to international on-line systems** and provided **selective dissemination of information** and **loan services**, the **other companies** provided a consistent picture, characterized by **loose, small collections** made up mainly of specialized journals, market reports and product literature, **lack of skilled staff** to manage information, and the main service provided was the **circulation of journals**. This picture was shared by all the remaining companies, independently of sub-sector or

size. The following quotation illustrates this statement and is representative of a number of similar statements:

> "The financial information is provided by the journals we subscribe to and the newspapers. As for the technical information, there are journals that circulate by everyone.... there's someone in the laboratory that reads them and signals what's relevant and disseminates it by those who may have an interest on those specific issues.... We also pay for a service that provides us with an indication of everything that is published in the paints field, together with an abstract. There are also the fairs and the congresses. Whoever attends these events, has to report.... With the market information it's worse: the information is scattered and varied, it pops out of everywhere and it's difficult to analyze. Files are organized by competitor, and are checked in order to detect if a pattern emerges over time." (14,26,23,2-24,1)

The description above, was produced by the chief executive of a large company of the paints sub-sector (company 14) and is similar to those produced by the managers of medium-size companies, one in the plastics sub-sector undergoing a process of fast growth (company 7) and another in the paints sub-sector (company 13):

> "The market information is collected by the sales area, which must report all the relevant information to the marketing director, who should in turn analyze it, treat it and forward it to whom it may interest.... It's difficult to treat and file that information. That's where we fail, due to lack of time and lack of capacity to organize. Much of this information is lost. We've been working from the computing point of view in order to treat all this information. The market information is kept by the marketing department, the financial information is kept by the financial department, the information about suppliers is kept by the acquisitions department, and the technical information is kept by the technical department: information about new materials, new technologies." (7,14,17,1-2)

> "The Official Journal, the information provided by the industrial association and the sectoral association, and the newspapers are scanned by a clerk and then filed in the library. The technical journals are circulated by one of the secretaries, according to a circulation map. The [commercial] information is channelled to the sales chief who analyzes it, talks to the sales people, contacts the technical or the administrative departments to check if there's something else to add, and then files it by client." (13,25,17,1 and 3,4)

Apart from the fact that fewer people are involved in information acquisition and handling, the situation in the small companies is rather similar to that of the large and medium-size companies, as can be realized after the comments of the entrepreneurs of a small company of resin-derived products (company 9) and a small plastics company (company 12):

> "There is not an independent information unit. There is information in the marketing department, financial and other, namely ecological information or environmental information, that is of growing importance. And there is legal information and labour information centralized in the administrative department.... The markets are the commercial director's concern, but there are no tight frontiers, we keep reporting to each other. I'm responsible for the R&D department, where the scientific and technical information is located." (9,17,12,1)

> "The technical information is rather organized. All the publications, product literature, the systematic analyses carried out in the laboratory, everything is filed. The financial information is my partner's responsibility.... [The technical information] has everything to do with me. I organize this information. We can say that I collect it, organize it and use it. The market information is brought in by the salesman and by myself and it is analyzed in the light of our knowledge of the market. But there is no file for this information, everything is exchanged orally. Because the contact is close and frequent, no reports are elaborated." (12,24,11,1 and 3)

All these companies had computerized to some degree their in-house information. But all agreed that external information was very difficult to handle. Only one of these companies (company 7) had invested heavily in automation, creating information systems capable of coping with every aspect of the company's activity, from production to quality control and commercialization. The chief executive of this medium-size company of the plastics sub-sector described the situation in the following terms:

"There's a central database where everyone debits and credits.... By the end of the year there will be ninety seven employees in this company, and eighty of them will have access to the system. It contains external data about competitors: who they are, where they are, which prices they make; and market information.... We intend to increase substantially the volume of external information in the database. We're beginning with the marketing and commercial area." (7,13,21,1 and 3)

"Every salesman records daily the orders received.... Some years ago, the average time between the reception of the order and the availability of the product was up to two weeks. Now-a-days it's just some minutes." (7,13,22,1)

"The electronic mail is available since March and it's used by the senior staff of the company; but it's going to be extended to other levels of staff in all the departments.... It'll be available soon in the delegation of Lisbon and in England and in all the companies of the group." (7,13,23,2-24,2)

One of the important aspects of the reorganization taking place in the large fibre producer (company 19) had to do with information. The auditing that had just been carried out by a major international consulting agency had led to the elaboration of an extensive plan that was being implemented, involving the establishment of an information system integrating and rationalizing all the bits and pieces or mini-information systems that had developed in the several functional areas in order to fulfil the needs of the different departments. A large amount of money had been spent for that purpose. The situation was described by the chief executive in the following terms:

"We're implementing the new computing plan. the architecture of our information system is being modified, among other reasons because we now export 50% of our production, and we need another type of information. Our information system grew up disorderly, there are a number of routines in PC's, each one of us tried to muddle through. Now we need an integrated approach to information." (19,38,11,4)

"There are certain circuits that are formalized. Each producer of information is responsible for its dissemination. For example, the marketing director holds the information about fibre transfer - amount of fibre entering the country, amount of fibre that we export - and he disseminates that information to the entities whom we think must receive that information. Storing the information is a different problem. Each [departmental] direction selects its core information and files it. As for the administration, the secretariat keeps an archive..." (19,38,20,1-3)

The same picture was provided by the deputy director, who played an important role in the ongoing reorganizing process:

"One of the things that changed more radically was the computing system, which was confined to the computerization of administrative routines.... It could be changed only if I could render the chief executive sensitive to the problem. And I did that. The auditing was carried out by X [*the name of the company is omitted for confidentiality reasons*]. I became responsible for the computing service, instead of the financial director." (19,39,10,5-11,1)

"The information [structure] grew up according to sectoral needs and it looked like a patchwork. I could come across three or four different values for the sales of a given year, according to different [internal] sources." (19,39,12,3)

The deputy director also mentioned his wish to have an Executive Information System implemented:

"The directors receive the information that the staff want to give them. I would like to design a system capable of satisfying the information needs of the chief executive... It would be the culmination of the [reorganization] process." (19,39,12,2-13,3)

Although both companies shared the handicap of operating in declining industries, the situation in the large chlorine producer (company 18), as far as information management was concerned, was more primitive:

"The information about clients is recorded on cards. It is still a manual system, but it will be computerized in one or two months. That information is available to 90% of the staff. All that information is transmitted to me.

> And, depending on the sort of information and the possible consequences that it may bring to the company, I transmit it to the chairman of the board, or the senior staff, or other people." (18,36,16,4-17,1)

Information infrastructure: people involved in information acquisition and handling

The acquisition, collection or gathering of information was understood in a very broad way, encompassing every situation where information was collected, regardless of the precise sort of information, the media used for that purpose and the degree of intentionality. And information handling comprises the notions of storage, processing and dissemination of information.

The **pervasiveness of information** was pointed out as one of the reasons why it is so difficult to account for the costs involved in environmental scanning, as it is always associated with the performance of specific roles which are described, labelled and acknowledged as product manager, sales agent, marketing director, R&D director, market researcher or planning officer. The italics in the text of the quotations below illustrate this assertion:

> "*There's no one exclusively responsible for collecting information. Some people are exposed to information in the course of their duties and they collect it....* It's difficult to separate things, because when they go to the field, fortunately for the company, their purpose is not exclusively to collect information, that would be too expensive. Their activity consists in developing the market. Let's admit that 30% of their time is used for collecting information." (19,40,12,3-4)

> "In this company we consider that the acquisition of information is an obligation to all.... but *there is not a formal structure to do that. It's part of their duties."* (14,26,25,4)

"In principle, all the staff are involved in collecting information. Everyone must transmit information to the hierarchy. It's the staff of the commercial and marketing areas who have the mission of collecting information. That information is treated by the marketing department and, when an economic analysis is needed, that is done by the office of economic studies. There are about ten people in the commercial area who have the obligation to collect information about the business. *We can't say how much it costs. It's an important function, but it's a secondary function."* (18,36,17,3-4)

The costs that can easily be identified are those concerning consulting services, market studies and acquisition of publications. But these costs, managers say explicitly or suggest, are not relevant:

"We account it as a commercial cost. It's difficult to isolate these operational costs.... The only thing that we isolate is the market research, market reports and clippings, and this is a small amount." (14,26,26,3)

"Including the consultancy services that we buy, and the subscription of journals, it may amount to nine, ten thousand million ESC. per year." (3,6,12,1)

A considerable difference was found between the pharmaceutical companies - which included from medium to large, multi-national companies - and the remaining companies, even if large companies as well. The pharmaceutical companies clearly invested more resources in information acquisition and handling and were more conscious of the investment made; however, costs were never mentioned as such, but only the percentage of staff involved in information acquisition and handling:

"We have presently about 250 employees. Eighty of them execute mechanic, repetitive tasks, and don't have external contacts. There are also some clerks. There's a significant number of sales people: the marketing department has about 100 people. So *at least 50% of the staff* [is involved

in the acquisition, processing and dissemination of information]." (5,11,19,1)

"*At least 60% of the staff* is involved in the collection, processing and dissemination of information in this company". (2,3,16,4-17,1)

"*About 25% of the staff* [is engaged in the acquisition of information]... [The cost of this activity] is not significant compared to the amount of our sales." (6,12,14,1-2)

"If we take into consideration the advertisers of medical information, it's about 100 people [*or 40% of the staff*] who collect information, either deliberately or by accident. The product leaders and the heads of each unit encourage them to collect information from colleagues [of other companies]. The information is also collected by other professionals, directors and heads of department." (3,8,18,2)

"Generally speaking, everyone in the company [*or 100% of the staff*] is involved in the acquisition of information." (1,1,6,2)

These values, which are merely indicative, point to an average percentage of **50% of staff** involved in information acquisition and handling in these **medium to large pharmaceutical companies**. Smaller companies have few resources to invest and different needs as well. The counting of the people involved was significantly made, by all the entrepreneurs, in units instead of percentage. These values, which, again, are merely indicative, point to an average percentage of **9% of staff** involved in information acquisition and handling in the **small companies**. The exception, as company 9 may be considered, may be explained by the fact that this company is an exporting company that sells 99% of its production abroad.

"About eight people [*or 6% of the staff*], but not full time.... I have no idea of how much it costs, it's difficult to evaluate." (13,25,18,2-3)

"We are three [*9% of the staff*].... I have no idea [of the costs involved]." (12,24,12,2-3)

"We work in a family-like way. All those with a responsibility - the managers, the secretariat and even the accounting service - are involved. We are seven [*12% of the staff*]." (8,15,14,2)

"We are fifty on the whole, of which fifteen - including managers and middle managers - are in some way involved in that. From those fifteen [*30% of the staff*], six [*12%*] are more actively involved [in information acquisition and handling]." (9,17,12,3)

Two companies emerge again as exceptions: the large company in the paints sub-sector and the fast growing medium-size company in the plastics sub-sector. The first one, very much market-oriented, pointed out to an average of 30%:

"I would say that 150 people [*or about 30% of the staff*] including sales people, sales chiefs, shop managers and regional managers are responsible for keeping aware of what's going on and to transmit it." (14,26,25,4)

"A salesman that visits a client has the obligation to report all important information he might come across. This activity may well represent about 5% to 10% of their time." (14,26,26,1)

In the second company, the chief executive was very conscious of the value of information and of the importance of information technology; he was very much committed to the installation of information systems capable of coping with every aspect of the company's activity. He suggested a likely percentage of 85% of the staff - obviously a very broad notion - as being involved in information acquisition and handling:

"Eighty five per cent of the staff is involved [in information acquisition and handling]." (7,13,24,4)

"Maybe 50% of our expenses have to do with the collection, treatment and dissemination of information. We did not analyze that, but it should be analyzed.... Because, at the end of the day, what we keep doing all the time is transmitting information to one another." (7,13,24,5)

6.2. OUTWARDNESS AND EXPOSURE TO INFORMATION

6.2.1. Outwardness

By outwardness we mean openness of a company to the outside and permeability to external influences. It was assessed through the links established by the organization with R&D organizations, the collaboration developed with regulatory agencies, and the participation in development programmes.

Links with R&D organizations

Only two multi-national pharmaceutical companies developed fundamental research with their own resources or in association with other research entities, but these connections were kept secret. Among the remaining four pharmaceutical companies, one had limited its activity to licensing, another one produced galenicals (a standard medicinal preparation containing usually one or more active constituents of a plant and made by a process that leaves the inert and other undesirable constituents of the plant undissolved) and had developed research in association with the Faculty of Pharmacy; a third one had research developed under contract by national universities and

two foreign non-university research organizations, and the last one was investing in clinical research and in the development of hospital equipment, in association with hospitals. The situation in two of these four companies is illustrated by the following quotations:

> "So far, we've handed on to other organizations the research that we need to develop, but we're creating a research department in order to change the situation." (2,3,8,4-5)

> "In our sector, there are no conditions to carry out fundamental research.... Clinical research is what interests us and the companies that license products to us. [By clinical research] I mean tests of products that have evolved from animal testing to human testing." (5,11,8,3-9,1)

Hospital structures were said to be inadequate to carry out studies in good conditions, due to the instability derived from changes in structure and staff:

> "We have skilled people but few centres that can offer a guarantee that the studies will be carried out in good terms. It implies a lot of investment, and companies need to be sure that things are made properly.... Our company has developed some studies [in association with] hospitals, but with modest results." (5,11,9,2)

Another promising area of research, in a country where "the development of products is practically impossible" (5,11,10,2) was said to be that of hospital equipment, where there is a traditional dependence upon imported material:

> "We work essentially with imported equipment, but we're acquiring know-how in specific areas; we're interested in developing some things locally and invert the situation, starting to export equipment. These are initiatives that demand co-operation between people with knowledge at development level - and in the universities there are good capacities - and people with experience from the commercial point of view." (5,11,10,1)

The companies operating in the paints sub-sector developed research, but the large company did it in association with foreign partners, while the smaller company, which had been a pioneer in introducing powder paints in the national market, did it on its own or in association with suppliers:

> "We have our laboratory and we make research.... More than 10% of our staff is involved in R&D." (14,26,13,3)

> "We are members of an international organization called Nova-Paint Club which brings together manufacturers of eight countries who meet twice a year. We exchange everything that can be exchanged. When technology is important it is sold or licensed.... For example, we bought from the Israelis the entire technology of resin manufacturing. One of our professionals is being trained there and we are planning... to establish a pilot unit by the end of the year. That's what's going on in the area of industrial products." (14,26,13,4-14,1)

> "We have a joint venture with the Israelis and the Swiss in order to develop... a base-technology after which a number of things can be developed." (14,26,14,3)

> "We have a laboratory where product research is made. We make independent research only, but sometimes together with suppliers who provide alternative raw materials." (13,25,8,4)

In the plastics sub-sector, none of the companies developed research in association with R&D organizations. The medium-size company said that it carried out independent research and had developed successful new products; one of the small companies also claimed to make research on its own premises, but the other companies used outside laboratories for quality testing only:

> "We make research on our own. This whole process of developing the composite for water bottles was started three years ago. We acquired the equipment for that purpose and we've been developing it in our laboratory. The production did not start until last year. The suggestions of the suppliers

> are developed by the laboratory. The starting point is always commercial.... In this case, there was only one producer of water bottles in Portugal and the market was growing, therefore we decided to develop the composite needed. We travelled abroad, visited the laboratories of some suppliers and decided to start." (8,15,8,4)
>
> "We keep contacts with universities, namely with the University of Coimbra, but there are no projects. We also keep close contact with some of our suppliers, [we use their equipment] to improve our quality control. But it's occasional contacts, to develop know-how and to use their laboratory equipment." (12,24,4,4)

But the small, external market-oriented producer of resin-derived products had developed strong links with national R&D organizations:

> "We have regular contacts with LNETI [National Laboratory of Engineering and Industrial Technology] and with the Faculty of Engineering of the University of Coimbra. In fact, one of the R&D units of that Faculty was funded by ourselves and by the Portuguese-American Foundation." (9,17,5,3)

The large companies operating in declining industries did not carry out research and their contacts with R&D partners were for purposes of technical assistance and quality control. The situation is illustrated by the quotations that follow:

> "We've got a contract of technical assistance [with a Japanese company] and all the investment in R&D is made by our associates in Japan. Our dimension doesn't allow us to do research, not even applied research. All we can do is to adapt what is developed in Japan to the characteristics of our market." (19,38,9,2)
>
> "Our R&D unit makes only small alterations of the chemical process and improves safety as far as environmental issues are concerned. As for the final quality of our products, the research is carried out... in laboratories provided by other companies." (18,36,8,2)

Not surprisingly, links with R&D organizations proved to be favoured by technology-based and research-oriented companies, independently of sub-sector or size.

Collaboration with regulatory bodies

With few exceptions, the collaboration with regulatory bodies is restricted to a rather **passive participation** in initiatives promoted by the sectoral associations, such as **answering questionnaires** issued by the associations in order to collect opinions and suggestions regarding specific issues: the preparation of draft legal texts to regulate industrial activity in this or that sector, revision of the Code of Industrial Property, preparation of manufacturing standards, and so on. Only one of the multi-national companies referred to having regular collaboration with the British and American Pharmacopoeias.

Within the pharmaceutical sub-sector, APIFARMA - the Portuguese Association of Pharmaceutical Industrials - is known as a powerful lobby, although it is not the only one in this field; when the field-work was carried out, this association was in open conflict with the government due to several government initiatives. The participation of the pharmaceutical companies in the regulatory process is illustrated by the following quotations (italics emphasize the core aspects):

> "I was the president of the sectoral association for some time and in that sense I influenced the legislation. We participated in the standardization of the manufacturing procedures, too, because there were no official standards in Portugal, and we participated in the *adaptation of manufacturing standards for Portugal*." (5,11,10,2)

"Yes, [we have participated] at national level, but only when we're asked to collaborate in the *preparation of draft legal texts...*" (2,3,9,1)

"Only indirectly, through APIFARMA, which interacts with the government; we *answer questionnaires* and give our advice when we are asked to." (3,7,7,1)

"It is APIFARMA which participates [in the preparation of EC directives for the sector] through the international association. We collaborate with APIFARMA by *answering questionnaires* that are sent to us. But we don't intervene in the national legislation. This company, together with other national companies... make up a group, CODIBIOS,... intended to act as a lobby near the government." (3,8,10,3)

"We participated with IPQ [*Portuguese Institute of Quality*] in the *standardization of measurement systems.*" (1,1,13,2)

Within the paints sub-sector, the difference between the large and the medium-size company concerning the capacity to provide collaboration with the association and to lobby through this or other entities was made very clear through the declarations provided by both managers (italics emphasize this aspect):

"Yes, [we've participated] through the sectoral association, we have a representative there and *we participate in all the technical committees*: environment, labelling, transportation, regulations. The association is represented in Brussels through the CEP [*European Confederation of Paints*]. (14,26,15,2)

"We've answered several questionnaires [of industrial associations and other organizations such as LNEC [*National Laboratory Of Civil Engineering*] who seek our opinion. But we are not available for direct participation [in committees or work groups], because *we cannot afford to excuse someone for that purpose.*" (13,25,8,5-9,1)

The same handicap was mentioned by a small company in the plastics sub-sector, whose manager regretted not to be able to participate in the association's initiatives; the chief executive of the larger company in this

same sub-sector did not participate either, but for different reasons: he did not acknowledge the lobbying capacity of the association:

> "We haven't got the time, not even to participate in the meetings of IPQ [*Portuguese Institute of Quality*]. This company is short of people, and we have to solve this problem soon, because we drop things just because we don't have the time for them. We're aware of everything, because we have good contacts everywhere, but we do not participate.... We have to recruit a middle manager to whom we may endorse some tasks and thus get some more free time for other tasks." (12,24,4,5-5,1)

> "No. Our [sectoral] association is very weak, we are still a conservative country, the entrepreneurs are very conservative and so is the association: it doesn't have any capacity for lobbying." (7,13,9,1)

The consistent exception among the small companies was that of the resin-derived products manufacturing company, which was represented in national and international standardization committees:

> "Yes, [we are represented] at national and at EC level. The product manager is a member of the Standardization Committee in Portugal and of two international committees, one for adhesives and another for road-marking ink." (9,17,5,4)

As for the large fibre manufacturer and the large chlorine producer, the first seemed to be entirely absorbed by the task of internal reorganization, while the second was rather outward-looking:

> "We've done very little, and always through the [sectoral] association. We've provided some technical advice... " (19,38,10,2)

> "This company is a member of the sectoral association and of AIP [*Portuguese Industrial Association*] and also of the association that deals with technological problems, CAIPA. It is also a member of AIDA [*Industrial Association of the District of Aveiro*] and takes part in a lobby for the tariffs of electric energy, within AIP. We're occasionally heard by DGI about regulatory aspects concerning our activity." (18,36,8,4-9,1)

The cosmetics manufacturing company, trying to survive to a severe crisis - showed an inward-looking attitude:

> "We don't play an active role.... We don't participate much in the activity of the [sectoral] association or of the AIP, we don't have the time or enough qualified staff for that."(16,31,18,2)

Two factors seem to influence heavily the collaboration with regulatory bodies: the **size** of the company and its economic **health.** Large and medium size companies enjoying relative economic health engage in collaborative actions with a view to influencing legislative and other regulatory initiatives, usually through their sectoral associations, sometimes regional or international bodies. Companies of the same size going through a crisis tend to turn inward for reorganization. Smaller companies, on the other hand, usually lack the resources needed to be able to provide collaboration to external bodies.

Participation in Development Programmes

All the nineteen companies approached for the study were aware of the existence of the most important programme launched in order to support the development of the Portuguese industry (PEDIP). And very few had not, for different reasons, - either because they were not eligible *a priori* or because the company did not provide the required conditions - benefited from the funds available for that purpose. Three of the four cases are illustrated by the following quotations:

> "The synthetic fibre industry did not benefit from any national or Community programme, given the situation of over- capacity which brought about an agreement between the Commission of the EC and the

governments of the member-countries, according to which no support should be given to this industry whenever that support could increase the production capacity. (19,38,9,1)

"I tried to obtain the support of PEDIP through IAPMEI... but cosmetics are not of fundamental importance. On the other hand, our factory is located in the urban area of Lisbon, it does not contribute to regional development. We were not lucky, PEDIP programmes don't apply to us." (16,31,17,2)

"We submitted a project to PEDIP but we didn't get the money because our [organizational] structure did not fit the standards established for that purpose." (9,17,5,2)

Most of the successful applications were directed to **productive investments** and **training**, this last item being funded either through PEDIP or through the European Social Fund. This is illustrated by the following quotations:

"We've been involved in PEDIP programmes. We've made significant investments in the factory, from investments in quality and production, to a new unit of injection involving a demonstration process in the control area... including data collection... and central monitoring." (5,11,8,2)

"We benefited from PEDIP, programmes two and three, and FEDER [*European Fund for Regional Development*]... participation was provided for the treatment of effluents, the incineration of solvents, the installation of a pilot unit of fermentation, the hydrogenation unit, the nuclear magnetic resonance unit, the safety instalment of raw materials." (6,12,5,2)

"PEDIP, FSE and COMETT. But when we conceive a project we don't have PEDIP in mind. We do what we need to do and if it's covered by PEDIP, the better, because it can speed up the process; since we don't have to pay for the whole thing... we can do it immediately instead of postponing it for next year.... We renewed everything, from new equipment to the automation of [several aspects of production, including] the filling lines." (14,26,12,3-13,1)

"We received some support from PEDIP for the installation of production and research facilities and developed training programmes and we're engaged in the certification of the company, also with the support of PEDIP." (13,25,8,3)

"We received some support from FSE to carry out in-house training courses. And a participation from PEDIP for productive investments in environmental protection and laboratory equipment." (18,36,7,4-8,1)

The characteristics of PEDIP, with special reference to the basic requirements demanded from companies as *sine qua non* conditions for acceptance of applications, did not tailor it for smaller companies. This was officially recognized in the Execution Report for the period 1988-1992 (Gabinete do Gestor do PEDIP, 1993). Other support systems were made available, directed to smaller companies (PPI) and to projects with a regional scope (SIBR). Some of the companies benefited from these other programmes:

"We benefited from the programme SIBR, but it took some time to get the money. The amount received was used for machinery and staff, since we created jobs with that machinery." (12,24,4,3)

"We built the new factory... with important support from SIBR and PEDIP." (3,8,10,2)

PEDIP also provided support to specific sectors, such as electronics and information technologies, through the creation of a specific tool, PITIE (Integrated Programme for Information Technologies and Electronics). Only one of the companies of the sample - the fast-growing medium-size company in the plastics sub-sector - had benefited from that programme, for re-configuring their information system.

6.2.2. Exposure to information

By exposure to information we mean the frequency of opportunities of contact with well informed people and information-rich contexts. It was assessed through the information networks established by managers and the training opportunities offered by the organization to other ranks of staff.

Information networks

In this particular study all the interviewees played a very similar role, since they were all managers, either chief executives or entrepreneurs, or functional directors, mainly marketing and commercial directors. They were therefore in a privileged position concerning the degree of exposure to information.

The performance of the liaison role by chief executives and other managers consists largely in the setting up of their **external information system**, as described by Mintzberg (1989), who refers that the contacts cultivated by managers provide them with precious information, even if it is mostly "informal, private and oral". Access to other important sources of information, more formal in nature, is reached through the **appointment to key places** within the sectoral and industrial associations and sometimes to international associations as well, where

managers' exposure to information is taken to a full extent. Evidence of this fact is found in the following quotation:

> "...I have other sources of information which are a consequence of my activity in the entrepreneurial world. I was the president of the sectoral association for some years and now I'm the president of the general assembly [in the same association]. I'm also the director of CIP (Confederation of the Portuguese Industry) where I meet monthly representatives of all sectors of the national industry..." (19,38,13,5-14,1)

The formal networks built as a natural consequence of performing this role also pave the way, in turn, to the development of informal networks which are more difficult to detect. Managers tend to be very discreet about these networks. Exposure to information emerged in this study as the individual face of the broader phenomenon of organizational outwardness, difficult to be detached and analyzed on its own. This was determined, to a great extent, by the decision to target the organization as the unit of analysis. For this reason, it was considered that the analysis of the training opportunities provided by the organization would elucidate the level of exposure to information of individuals in other ranks within each organization, thus providing us with a broader picture.

Training opportunities

It was common practice within two of the pharmaceutical companies to recruit promising recent graduates and send them abroad for specialization in areas of interest for the company. The following quotation illustrates this fact:

"We have presently four people doing their PhDs abroad, in specific areas of interest to the company: two in England, one in France and one in Spain. And this is not a new situation, our main researchers went through this same procedure." (4,10,12,2)

The target groups of the training programmes provided by these organizations were mainly **middle managers, administrative staff** and **sales people**, as illustrated by the quotations below, drawn from the interviews of managers from large and medium-size companies:

"We have insisted on the training for *middle managers*, from the technical as well as from the managerial point of view, in order to make them feel responsible for their subordinates and put the structure to work. There was a gap between the top and the bottom, a certain dis-empowering of the middle managers." (1,1,14,1)

"We have used EC funds for training *upper and middle managers*. Upper managers have taken part in courses in Portugal and abroad... in order to exchange management experiences in different countries and different industries. Middle managers attended local programmes. There was less training for the other staff, but there was some..." (5,11,8,3)

"The training programmes were mainly oriented to the *administrative staff* and to *middle managers*. We'll target other groups by the end of this year. We provided also specific training internally, to other jobs, namely in the factory and the storehouse." (14,26,15,3)

"We have trained *administrative staff* and *sales people*. Using our own people or external monitors. And also clients." (14,28,9,3)

"We used consultants in order to change people. We introduced prizes for suggestions to improve quality and we managed remarkable improvements since 1991.... The training was essentially directed to the *production staff* and the *administrative staff*... who have been trained during eight months, not only to develop specific skills, but to get prepared to deal with new situations and difficulties. This was in fact a global plan, and that's why we were supported by the European Social Fund. As for the senior staff, there was not a plan. We've spent a lot of money in training, but they choose what they're interested in." (19,38,11,2-12,1)

Most of the training programmes were oriented to developing or improving **computing skills, marketing skills** and **selling techniques,** as illustrated by the quotations below:

> "We think that training is terribly important to improve the quality of the services provided by the company... important sums are allocated to training in areas such as *marketing, computing* and *administrative services.*" (3,7,7,2)

> "We have invested permanently in training programmes: general training aiming at increasing the average level of our employees, mainly in the industrial area, and specific training for each area. For example, everyone in the commercial areas has been involved in training actions, be it *selling techniques* or *market studies.*" (1,1,13,4-14,1)

> "From seventy to eighty people have been trained in *information processing*" (14,26,15,4)

> "Some of my staff are being trained in *information processing*.... The problem is that the company is scattered all over the country and training is very much centralized in Porto. We are trying to spot training opportunities here in Lisbon." (14,28,9,4)

> "There was that global programme partially funded by the European Social Fund for tens of people. We have also developed occasional training sessions in the areas of *marketing, sales, project management* and maintenance. Whenever someone proposes to attend a course it is approved, in principle. It's usually a few days, but some were longer, for laboratory and quality control staff." (18,36,9,2)

The investment in these areas reflect the shortage of skills in these fields and the consciousness of how important they are to improve organizational effectiveness. Companies confronted with **unskilled work-force** tend to provide **training on-the-job**. Managers from two small companies in the plastics sub-sector described their experience:

> "We don't have the time to organize training programmes.... Only four of us have experience in this type of business. The others received training on-the-job. And this is not too bad. It's difficult for us, because it demands a lot more tolerance, we cannot demand high performance from inexperienced

> people, but this situation has advantages: these people are free from bad habits. This is a peculiar company, we need to have flexible people. Functions are well defined, but quite broad. An employee coming from another company of the same sector would be accustomed to strict functions and would find it difficult to adapt." (12,24,5,2-3)

> "I provided training [to ten people], on an experimental basis, just once, and I don't intend to do that again, because six months later all of them had left the company. Anyway, that sort of training was more theoretical than practical and I think it should be the other way round. The level of qualification of our staff is low. The training that we use to provide to our workers consists in letting them work side by side with an experienced worker." (8,15,9,2)

While the first manager seemed happy to shape his inexperienced workers according to the needs of the company, the second manager complained that the mobility of the work-force in this sub-sector had rendered his training efforts useless. But the lack of skills also affects professionals of an upper level. The entrepreneur of the medium-size company in the paints sub-sector remarked that universities did not provide graduates with any knowledge in this field:

> "In Portugal there is no training in this field: people leave universities and institutes without having heard about paints and whenever we recruit technical staff we need to give them an adaptation period.... The tutors are employees of this company." (13,25,9,2)

The medium-size company in the plastics sub-sector had invested strongly in staff and equipment and had been rewarded by a rapid growth. The situation concerning recruitment and training was described as follows:

> "We've invested in people who are key to a process of change, either by recruiting new staff up to thirty years old and with a university degree... or by providing professional training." (7,13,9,2)

> "There were training sessions for the sales people to prepare them for collecting market information but this initiative was not supplemented with the internal treatment of information, so it was lost. That's why we felt that we needed to improve the information system." (7,14,9,4)

Exposure to information is clearly influenced both by the role played by the individual within the organization and by the outwardness of the organization, which may or may not favour the contact with well informed people or information-rich contexts; it is also influenced by the information climate of the organization, which may differ in the degree of encouragement given to information-related activities.

6.3. RELATIONSHIPS AMONG FACTORS

The two principal relationships identified are rooted in two different academic perspectives, Organization Theory and Information Science, as represented in table 6.1. This table was inspired by one developed by Miles (1987) with a view to disclose the explanatory powers of Business Policy and Organization Theory.

Academic Perspectives	Established Concepts	Core concepts in Ground. Th.	Principal Relationships
Org. Theory Info. Science	Env. Scanning Info. Seeking	Information Consciousness	Information Consciousness - Information Climate connection
Org. Theory	Org. Culture		
Info. Science	Info. Infrastr.		
Org. Theory	Org. Culture		
Org. Theory	Org. as Open Systems	Organizational Outwardness	Outwardness - Exposure to Information connection
Org. Theory Info. Science	Boundary spann. Personnel Gatekeeping	Individual Exposure to Information	

Table 6.1. Rooting grounded theory concepts in established academic perspectives

Information consciousness-information climate connection

Information consciousness means the value attributed to information. It is a construct that emerges within the individual sphere but in the cross-section of the individual behaviour and the organizational way-of-doing-things. Environmental scanning activity, or the information seeking behaviour of managers as far as environmental information is

concerned, is affected by organizational culture; the same applies to the communication pattern established among managers. Where a strong oral culture dominates, managers, even those who have joined the organization recently, tend to conform to the established culture and use predominantly oral media to acquire and transmit information, while, where an information conscious culture exists, managers are encouraged to make use of information technologies, including using Email for exchanging current messages. On the other hand, where a formal information culture dominates, managers tend to conform to the established formal procedures of acquisition and transmission of information.

Information climate emerged within the organizational sphere as a set of conditions that determine access to and use of information, including the establishment of an information infrastructure. Again, organizational culture influences not only the investments made in the infrastructure, but also the type of infrastructure implemented (more or less formalized procedures, type of utilization made of information technologies, number of people involved in information acquisition and handling). The oral type of culture may underestimate the establishment of a formal information infrastructure, while an information conscious culture will tend to set up advanced information systems and formal information cultures tend to stick to traditional information infrastructures. Where no information culture exists, little investment is made in information infrastructures.

The **information consciousness-information climate** connection translates the strong influence detected between the top managers' attitude towards information-related activities and the type of information climate established in each company.

Outwardness-exposure to information connection

Outwardness means the openness of an organization to the outside and permeability to external influences and is rooted in the concept of organizations as open systems.

Exposure to information is rooted in the concept of boundary spanning personnel, as people establishing the connection between their organizations and the environment: competitors, clients, suppliers, government agencies and sectoral lobbies. It is also based in what is known about the establishment of external networks of contacts by managers. The concept of gatekeeping or information stars, as developed within the Information Science perspective, also provided ground for the formation of the construct of exposure to information, as the individual face of the organizational phenomenon of outwardness.

The **outwardness-exposure to information** connection reflects the determinant weight of the organizational capacity to relate to its environment upon the degree of exposure to information of organizational staff. The relationships described above are represented by the following picture:

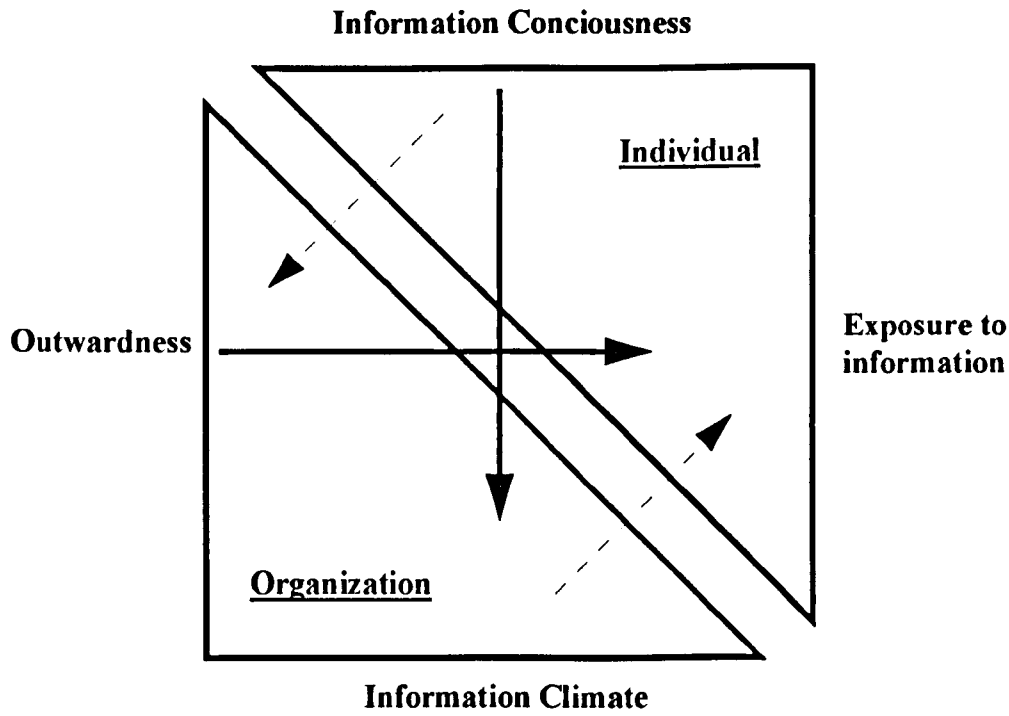

Fig. 6.2. Relationships among factors affecting environmental scanning

6.4. SUMMARY

Information consciousness was assessed through the attitude of managers towards environmental scanning and through the communication pattern established among them.

There was a consensus about the vital role of information in business. Managers of large and medium-size companies operating in different

sub-sectors described their role, as far as environmental scanning is concerned, as a mix of **personal monitoring** and **dissemination of information** among direct collaborators. Managers of larger companies tend to minimize their role as monitors and emphasize their role as disseminators; dissemination of information becomes an important issue in larger organizations, where more complex structures and functional diversification are dominant features. On the other hand, managers of smaller companies assume environmental scanning as a personal responsibility and attribute great importance to that activity, while the dissemination factor is irrelevant, because in most of the cases there is nobody else to pass the information to.

Communication is generally intense between the top manager and the functional directors, and among functional directors. Communication among managers is made up of a mix of **oral information** and **written information.** The choice of oral communication seems to be determined by the **generic scope** of the information or its **potential for starting action**. Top managers tend to use oral communication more than functional directors, while these apparently use both forms, without favouring clearly one or the other *a priori.* Sometimes both forms are used to convey the same information, the oral form being used for the first approach, followed by a memo or a report.

The **information climate** was assessed through the information infrastructure implemented. The situation in all the other companies, as far as scientific and technical information is concerned, differed

substantially from that of the pharmaceutical companies. The very concept of library had very little in common. Most of the **pharmaceutical companies** had **rich centralized collections** of scientific and technical information, managed by information professionals with different backgrounds and offered access to international on-line systems and provided selective dissemination of information and loan services. But the responsibility for the acquisition and handling of information was partitioned by each of the main functional areas: R&D, marketing and commercial, and administrative and financial. The **other companies** provided a consistent picture, characterized by **loose, small collections** made up mainly of specialized journals, market reports and product literature, lack of skilled staff to manage information, and the main service provided was the circulation of journals. This picture was shared by all the remaining companies, independently of sub-sector or size.

The pervasiveness of information was pointed out as one of the reasons why it is so difficult to account for the costs involved in environmental scanning, as it is always associated with the performance of specific roles. The data collected point out to an average percentage of **50% of staff** involved in information acquisition and handling in the **medium to large pharmaceutical companies**. Smaller companies have few resources to invest and different needs as well; an average percentage of **9% of staff** was found to be involved in information handling in **smaller companies**.

The **outwardness** of the organizations was assessed through their links with R&D organizations, the collaboration provided to regulatory agencies and the participation in development programmes.

Except for two multi-national pharmaceutical companies that developed fundamental research, all the remaining companies either developed applied research, independently or in association with research organizations, or did not develop research at all. Not surprisingly, links with R&D organizations proved to be favoured by technology-based and research-oriented companies, independently of sub-sector or size.

Large and medium-size companies enjoying relative economic health engage in collaborative actions with a view to influencing legislative and other regulatory initiatives, usually through their sectoral associations, sometimes regional or international bodies. This collaboration, however, is generally passive, i.e., companies tend to act only under request. Companies of the same size going through a crisis tend to turn inwards for reorganization. Smaller companies, on the other hand, usually lack the resources needed to be able to provide collaboration to external bodies.

Most of the successful applications submitted to development programmes, with relevance for PEDIP, were directed to productive investments and training, this last item being funded either through PEDIP or through the European Social Fund. The characteristics of PEDIP, with special reference to the basic requirements demanded from

companies as *sine qua non* conditions for acceptance of applications, did not tailor it for small companies, which had to apply to other support systems.

Managers' **exposure to information** was assessed through the development of their information networks. Training opportunities provided by the organization to other ranks of staff was used as an additional way of assessing the exposure to information across the organization. The target groups of the training programmes provided by these organizations were mainly **middle managers, administrative staff** and **sales people**. Most of the training programmes were oriented to developing or improving **computing skills, marketing skills** and **selling techniques.** The investment in these areas reflect the shortage of skills in these fields and the consciousness of how important they are in improving organizational effectiveness. Companies confronted with an **unskilled work-force** tend to provide **training on-the-job**.

The performance of the liaison role by chief executives and other managers consists largely in setting up their external information system. Access to important sources of information is reached through the **appointment to key places** within the sectoral and industrial associations and sometimes to international associations, where managers' exposure to information is taken to a full extent. Exposure to information emerged in this study as the individual face of the broader phenomenon of organizational outwardness, and proved to be difficult

to be detached and analyzed on its own. This was determined, to a great extent, by the decision to target the organization as the unit of analysis.

Organizational culture emerged as an important factor in the analysis of information issues within organizations. The data available indicate that formal information cultures prevail in medium to large pharmaceutical companies. Two other companies in two different sub-sectors were identified as having an oral culture and an information conscious culture respectively. In the first case, the oral culture had been inherited from the "family" phase of the company, and had survived throughout decades despite the continued growth of the company. In the second case, the information conscious culture was incipient and was fostered and encouraged by the chief executive. No sort of information culture had developed in the remaining companies.

The two principal relationships identified are rooted in two different academic perspectives, Organization Theory and Information Science. The **information consciousness-information climate** connection translates the strong influence detected between the top manager's attitude towards information-related activities and the type of information climate established in each company. The **outwardness-exposure to information** connection reflects the determinant weight of the organizational capacity to relate to its environment upon the degree of exposure to information of organizational staff.