

# **CHAPTER SEVEN: STRATEGIES FOR MANAGING ENVIRONMENTAL SCANNING**

## **INTRODUCTION**

This Chapter 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.

## **7.1. SCANNING FOCUS**

### **7.1.1. A note on the environmental sectors**

Aguillar (1967) was the first to identify areas of the business environment about which managers tried to obtain information. He called them "areas of external information": *market tidings, technical*

*tidings, broad issues, acquisition leads and other tidings.* 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, 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. 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. Yet another approach was developed by Maier (1992), the main difference consisting in the selectiveness of the focus, which targets the environmental scanning activities of a specific function within the organization, that of IT.

Table 7.1. provides an integrated picture of the evolution of the "factor classification" over time, and gives also an idea of the regular occurrence of studies focusing on these issues. As mentioned in the literature review, 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.

	Competitor	Market	Technical/ Technological	Resource	Regulatory	Acquisition leads	Ext. Growth	Broad	Others
Aguillar (1967)		*	*			*			*
Kefalas & Schoderbek (1973)	*		*		*		*		*
Hambrick (1979) a)					*				
Goshal (1985)	*	*	*	*	*			*	*
Maier (1992)			*		*			* b)	
Choo (1993)	*	*c)	*		*			* d)	

a) As explained before, the other three components of the classification refer to “problem areas” of the organization and do not fit into this perspective

b) The social, economic and political issues are grouped under “broad issues”

c) The customer sector was integrated under “market issues”

d) Economic and socio-cultural issues are grouped under “broad issues”

**Table 7.1. - Evolution of the “factor classification” over time**

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 one or more of them separately. As for the "resource" sector, it is not as unimportant as it may seem: it is sometimes integrated under "others", as in Aguillar's delimitation of external areas, and it is of major importance for some industries. The fact that some natural resources are threatened, that some raw materials become more and more difficult to obtain at world level, and that factors influencing the conditions of availability of financial and human resources have changed significantly within the European Union, were some of the reasons that made us believe that the "resource" sector may become increasingly important.

Having pondered these factors, we decided to use in our study the following segmentation of the external environment, largely based on that used by Ghoshal (1985): 1) **competition** (information concerning competitors, including their actions, decisions, strategies, plans, weak and strong points), 2) **market** (all the information concerning markets, except competitor issues; clients' needs and preferences, distribution channels, reaction to promotion, market potential, etc.), 3) **technology** (all the information concerning present and potential product and process technologies), 4) **resource** (information on financial, labour and raw material markets that affect goods, resources and services needed



by the firm in order to carry out its operations), 5) **regulatory** (all the information concerning regulations that can affect business operations, including information about regulatory agencies and personnel) and 6) **global issues** (all the information regarding social, cultural, demographic, economic and political trends). Having used the pilot study as an opportunity to check the overall quality of the interview guide - including the usefulness of the rubric "others" - we opted for not using it, since the respondents considered that the other six areas, sectors or factors, were comprehensive enough.

### **7.1.2. Information on environmental sectors**

#### **Relative importance of sectors**

Because of the relatively small number of cases, the cross-tabulations of data are not amenable to tests of statistical significance and comparisons are in terms of the proportions of managers providing different responses. This applies to all the statistical data in this chapter. The hierarchization of environmental sectors according to their perceived importance for managers resulted in the following ranking:

1-Competition

2-Market

3-Technology

4-Resources

## 5-Regulatory

## 6-Global issues

Perceiving competitor and market information as the most important is consistent with most of past research, which found that senior managers attribute more importance to market-related information. The fact that Portuguese managers show a little more concern with competition is explained by the specific situation lived in this country with the advent of the Single Market, bringing in new competitors and leading others to bankruptcy, as well as with the trend for concentration in the chemical industry at large and in some sub-sectors in particular. The ranking of the remaining sectors is generally consistent with past research too. It is very close to the ranking obtained by Ghoshal (1985) and by Choo (1993); the only significant difference, apart from the top place attributed to competition instead of market (or customer), concerns the higher place of technology in Choo's study, which was attributed to the particular characteristics of the industry under analysis, that of telecommunications. Ghoshal (1985) established an important relationship between perceived environment predictability and the focus of scanning. He found that, when the environment is perceived as predictable, scanning is relatively more concentrated on the output market, on market conditions and on monitoring customer and competitor behaviour. This would therefore be the "natural" behaviour under conditions of stability, when there may be change in the environment, caused mostly through competition, but no discontinuity. On the other hand, when the environment is perceived as unpredictable,

present experience is no longer useful for projecting the future because of the possible occurrence of discontinuities. These are often originated outside the task or industry environment, defined through the supplier-producer-customer axis. Discontinuities may be caused by technological breakthroughs, by regulatory actions and other unpredictable forces such as the outburst of war. Under these conditions, Ghoshal notes that:

"The principal concern for the firm then becomes its ability to respond flexibly to such changes, as and when they arise. The critical factor becomes the capability to respond which often depends on the availability of resources. This perhaps makes the resource sector more critical and its scanning more important in an unpredictable environment." (Ghoshal, 1985:177)

This finding enables us to detect an important mismatch between the environmental conditions identified in our study through managers' perceptions of environmental change, analyzed in Chapter five, and managers' perceived importance of environmental sectors, with the subsequent impact of these perceptions on their scanning focus and information acquisition and use.

### **Competitor information**

Competitor information (Tables 7.2., 7.3. and 7.4) was considered very important by 72.5% of the managers interviewed, was said to be very difficult to obtain by 64.1%, and was considered to be used very frequently by 64.9% of the respondents, as can be verified through the following tables:

Label	Frequency	Percent	Valid Percent
Not important	5	12,5	12,5
Relatively important	6	15,0	15,0
Very important	29	72,5	72,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 7.2.- COMPINF1: How important is competitor information?

Label	Frequency	Percent	Valid Percent
Easy	9	22,5	23,1
Relatively difficult	5	12,5	12,8
Very difficult	25	62,5	64,1
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases 39 Missing cases 1

Table 7.3.- COMPINF2: How difficult is it to obtain competitor information?

Label	Frequency	Percent	Valid Percent
Seldom	5	12,5	13,5
Relatively frequently	8	20,0	21,6
Very frequently	24	60,0	64,9
	3	7,5	Missing
Total	40	100,0	100,0

Valid cases 37 Missing cases 3

Table 7.4.- COMPINF3: How frequently is competitor information used?

The analysis by **age of the company** (Appendix 3: tables 31, 32 and 33) indicates that, the younger the companies, the more important their managers consider competitor information, and the more difficult to find it. But, when data are grouped into just two categories (important/not important, easy/difficult, seldom/frequently), it appears that managers from all companies, regardless of company age, consider competitor information to be important and difficult to find, but 26% of the managers from companies formed between 1945 and 1974 do not consider competitor information to be important and approximately 17% find it easy to find such information. The results concerning frequency of use indicate that managers from older companies (companies established before 1945) and managers from younger companies (companies established after 1975) use competitor information more often than the group of managers from companies established between 1945 and 1974, 25% of which declare to use this sort of information seldom. Because this period (1945-1974) corresponds to a great extent to the golden period of industrial licensing, we are tempted to relate the lack of interest for competitor information of the companies established in this period, with a tradition of highly regulated competition.

The analysis by **industrial sub-sector** concerning competitor information (Appendix 3: tables 34, 35 and 36) indicates that it is in the cosmetics sub-sector and in the group "others" that competitor information is most valued: 100% and 90% of the respondents,

respectively, considered this information very important, followed by 75% in the plastics sub-sector.

Similar results were obtained concerning the difficulty to obtain and frequency of use of competitor information: all the respondents in the group "others", 80% in the cosmetics sub-sector and 75% in the plastics sub-sector consider it very difficult to obtain competitor information, while 45.5% in the pharmaceutical sub-sector and 40% in the paints sub-sector consider it easy to obtain. All the managers in the cosmetics sub-sector, 80% in the group "others", 66.7% of the managers in the plastics sub-sector and 60% in the paints sub-sector use competitor information very frequently, while 36.4 % of the respondents from the pharmaceutical sub-sector use it relatively frequently and another group of 36.4% use it very frequently.

The reasons why many managers within the pharmaceutical industry find it easy to obtain information about their competitors may be attributed to the existence, in this sub-sector, of numerous and high-quality information sources. But other aspects were recalled and clarified through their comments concerning this issue, such as the difficulty to analyze the data available in order to draw conclusions:

*"There are aspects [about the competition] that are relatively easy to obtain, but for us it is one of the most complex areas, given the high number of companies that operate in the several segments. Sometimes the signs are not clear, several interpretations are possible... the analysis of the competition is very complex... not because it is difficult to obtain the information, but because it is difficult to interpret it correctly." (5,11,13,3-14,1)*

*"It is not difficult to obtain information on the results obtained by the competition, what is difficult is to obtain information about how they obtained those results. Generally speaking, the pharmaceutical industry in Portugal has given little importance to the analysis of the competition's performance.... There has to be a global state of mind... starting with the advertisers of medical information and going up the pyramid... mechanisms of analysis are needed, that allow to draw conclusions out of the data collected." (3,6,7,2-8,1)*

The comments quoted above refer us to the problem of the lack of analytical skills in some companies. On the other hand, some of the pharmaceutical companies do not have to worry about competition, since they control their environment. That is the case of one of the multi-national companies, which invests in products for which there are no competitors:

*"Everything is easy to obtain, except perhaps about the competition, but I'm not interested in the competition. I choose products to which there is no competition. I have my patents, I have the monopoly. Because they are difficult to produce and they are high quality products." (6,12,7,4-8,1)*

In the group "others" all managers agree that it is very difficult to obtain information on the competition. The commercial director of the small resin-derived products manufacturing company regrets that the increasing concentration that has been taking place in this segment makes things more and more difficult and the marketing director of the large fibre producer mentioned the need of practising a "sort of espionage" to find out what the competition is doing:

*"It is difficult to get information about competitors, even though we end up by obtaining it, and that is one of my tasks, and it is difficult because they are few: one in Spain, one in France, two or three in the Netherlands and two in Germany. They are multi-national companies, otherwise it would be*

*easier, as it used to be in the past, when competition was more fragmented..." (9,19,13,2)*

*"Everyone on the field must be prepared to make a sort of espionage about the competition: one has to listen and to read in between lines, and to observe the clients. No source can tell us exactly what the competition is doing. We've got to have the capacity to find out which is the policy of each of the competitors, and it's very difficult to estimate their response to our actions." (19,40,7,4)*

The chief executive of the large company of the paints sub-sector (company 14) admitted willingly to practising the same sort of espionage. In a company characterized by an oral culture, it sounds only natural to approach external sources and "squeeze" them in order to obtain the information needed. On the other hand, although 75% of the managers of the plastics sub-sector considered it to be very difficult to obtain competitor information, the manager of the fast-growing, larger company of this sub-sector (company 7), found it relatively easy to obtain; the real problem, in his opinion, was how reliable that information was, and how to organize it. These concerns are typical of a manager who has been responsible for the emergence of an information conscious culture in his company:

*"We use to squeeze the suppliers of raw materials, packages and so on, with whom we keep good relations, to get to know what the competition is doing. They [the competitors] do the same as well, it's a game that is played by everyone. We know exactly how many packages, and of what kind, our competitors buy, if they use one litre cans or twenty litre cans, if they buy many fungicides and of what type, which is the consumption of resins, and so on." (14,26,18,1)*

*"It's relatively easy to get information about the competition, the problem is how reliable it is, and how to organize it." (7,13,14,3)*



The analysis by **type of ownership** of the companies studied, as far as competitor information is concerned (Appendix 3: tables 37, 38 and 39), shows that managers from both groups - anonymous societies (SA) and limited liability companies (Lda) - consider competitor information to be very important: 70% and 80%, respectively. Similar percentages were obtained concerning the degree of difficulty in obtaining this type of information: 62% of the managers from anonymous societies and 70% of managers from the limited liability companies find it very difficult to obtain competitor information. This difference is most probably related to the smaller capacity of the limited liability companies, as far as financial and human resources are concerned. Those values are slightly inverted in what concerns frequency of use: 66.7% and 60% of the respondents from anonymous societies and limited liability companies, respectively, use this type of information very frequently.

### **Market information**

Market information (Tables 7.5., 7.6. and 7.7.) was considered very important by 70% of the managers interviewed, was considered to be relatively difficult to obtain by 48.7% and very difficult to obtain by 38.5%, and was said to be used very frequently by 81%:

Label	Frequency	Percent	Valid Percent
Not important	2	5,0	5,0
Relatively important	10	25,0	25,0
Very important	28	70,0	70,0
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 7.5.- MARKINF1: How important is market information?

Label	Frequency	Percent	Valid Percent
Easy	5	12,5	12,8
Relatively difficult	19	47,5	48,7
Very difficult	15	37,5	38,5
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases 39 Missing cases 1

Table 7.6.- MARKINF2: How difficult is it to obtain market information?

Label	Frequency	Percent	Valid Percent
Seldom	2	5,0	5,4
Relatively frequently	5	12,5	13,5
Very frequently	30,0	75,0	81,1
	3	7,5	Missing
Total	40	100,0	100,0

Valid cases 37 Missing cases 3

Table 7.7.- MARKINF3: How frequently is market information used?

The analysis by **age of the company** (Appendix 3: tables 40, 41 and 42), indicates that virtually all managers, regardless of age of company, consider market information to have some degree of importance, with only two claiming it to be of no importance. In respect of difficulty in obtaining market information, only five managers from companies established before 1975 claimed that it was easy to obtain, and only two managers, from companies found after 1975, claimed that they used such information seldom.

The analysis by **sub-sector** (Appendix 3: tables 43, 44 and 45), concerning market information shows that most of the managers in all the sub-sectors consider it to be very important: 100% in the paints sub-sector, 80% in the cosmetics sub-sector, 66.7% in the pharmaceutical sub-sector, 62.5% in the plastics sub-sector and 60% in the group "others". It is also considered to be very difficult to obtain by 80% of the managers in the paints sub-sector, but easy to obtain by 45.5% in the pharmaceutical sub-sector. Most of the remaining respondents in the other fields consider it relatively difficult to obtain: 80% in the cosmetics sub-sector, 62.5% in the plastics sub-sector and 60% in the group "others".

Frequency of use of this type of information is considered to be high (very frequent) by most of the managers in all the sub-sectors: 100% in the cosmetics sub-sector, 90% and 80% in the group "others" and in the

paints sub-sector, 72.8% and 66.7% in the pharmaceutical and in the plastics sub-sectors, respectively.

Again, it is in the pharmaceutical sub-sector that most managers find it easy to obtain market information. In the plastics sub-sector, where 62.5% of the managers consider it to be relatively difficult to obtain this type of information, a clarifying comment was produced by the manager of the larger of the companies of this sub-sector, concerning the reasons of the difficulties felt: once again, sharp comments were formulated, some of them with no precise targets, others addressed to the sectoral association, because of the unavailability of market data. As usual, his concern is to be able to have access to reliable and high-quality information:

*"It is difficult to obtain market information because this is a backward country, there is nothing about our market segment, because we produce intermediate products, not finished products.... There are no market studies available in Portugal about packages or other products of the same kind, no databases about these products or trends for this market segment.... We contract out market research. It is expensive, but it's the only way of having access to information that is reliable and high-quality. The great companies of this sector probably spend small fortunes in market studies every year. We cannot afford that for the time being. In what concerns the Portuguese market, the sectoral association itself does not know how much its associates produce. Can you imagine anything more stupid?" (7,13,14,3-15,1)*

This same sort of criticism is produced by the deputy director of the large company of the paints sub-sector, who regrets the delay of INE in the publication of data about the state of the market:

*"We need information about works to be launched, and this information is scraped together by the people of the commercial area, it cannot be found*

*elsewhere. Even the lists of works that we receive do not tell us what we need. They tell us that a hospital is going to be built somewhere. But anyone passing down the road can see that. What we need to know is which is the project office, who is the architect, who is in charge of the works. Other important information concerns the state of the market. We are in May now, and the last statistics available date from August of the past year. I don't care a damn how the market was by that time, that is past history!... [We solve the problem] by circulating among the five largest producers statistical information about the last trimester of each of us. These five represent from 50% to 60% of the market. As for the rest of the market, I only get to know how things were, when the official statistics from INE [The National Institute of Statistics] are distributed." (14,27,11,3-12,1)*

The approach to market information varies depending on the sub-sector. Where market information is collected and made readily available through publications containing market shares, growth rates, sales volumes and other data concerning a specific industry, as is the case of the pharmaceutical industry, managers make use of that information, even if it needs to be supplemented by market research made by company staff, including interviews with clients and suppliers, for example. In the sub-sectors or segments where no publications are available containing market information, companies have to make all the market research themselves, if they have specialized staff to do that, or contract out the research, if they have the money to do so, and/or to invest heavily in information gathering on the field, through their boundary spanning personnel, which includes all the sales force and commercial and marketing directors, in large companies; or the entrepreneur and the few sales people available in the small companies. The following comments elucidate this point:

"I need especially two types of information: the information that is published, such as market shares, growth, sales volumes, and the information that is not published, the information provided by market

research, interviews with clients and other actors of the commercial process." (3,6,8,2)

*"The information that I need most is about clients' needs. We try to detect clients' needs as soon as possible, to anticipate them even before the clients become aware of them, so that we can have the products available when they actually need them. That's what we did in relation to environment-friendly products." (13,25,12,3)*

*"I have to pay attention to the reactions to our products.... It's a daily activity and that is possible only through the sales force, which are in the position to transmit the reactions of our clients to our products, services, prices. We also need to know if they need something that we cannot provide yet, so that we can plan future action." (14,28,14,2)*

The analysis by **type of ownership** shows that market information (Appendix 3: tables, 46, 47 and 48) is considered to be very important by 73.3% and 60% of the respondents from the anonymous societies and the limited liability companies, respectively. Similar intervals are observed concerning frequency of use: 85% and 70% of the managers from the anonymous societies and from the limited liability companies, respectively, declare to use market information very frequently. The degree of difficulty in obtaining market information is rated by 48.3% and 50% of the respondents from the anonymous societies and limited liability companies, respectively, as moderate (relatively difficult).

### **Information on resources**

Information on resources (Tables 7.8., 7.9. and 7.10.) was considered to be relatively important by 52.5% of the managers, 46% found it relatively difficult to obtain, and 51.3% declared to use this kind of information relatively frequently:

Label	Frequency	Percent	Valid Percent
Not important	9	22,5	22,5
Relatively important	21	52,5	52,5
Very important	10	25,0	25,0
Total	40	100,0	100,0

Valid cases 40 Missing cases

Table 7.8.- RESINF1: How important is information on resources?

Label	Frequency	Percent	Valid Percent
Easy	17	42,5	43,6
Relatively difficult	18	45,0	46,1
Very difficult	4	10,0	10,3
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases 39 Missing cases 1

Table 7.9.- RESINF2: How difficult is it to obtain information on resources?

Label	Frequency	Percent	Valid Percent
Seldom	8	20,0	21,6
Relatively frequently	19	47,5	51,4
Very frequently	10	25,0	27,0
	3	7,5	Missing
Total	40	100,0	100,0

Valid cases 37 Missing cases 3

Table 7.10.- RESINF3: How frequently is information on resources used?

The analysis by **age of the company** concerning information on resources (Appendix 3: tables 49, 50 and 51), shows that most of the managers of groups two (companies established between 1945 and 1974) and three (companies established after 1975) consider that information on resources is relatively important: 63.2% and 62.5%, respectively, while 53.9% of the companies of group one (companies established before 1945) consider it not important. The results concerning the degree of difficulty in obtaining this kind of information differ little: 50% and 62.5% of the respondents from companies of groups two and three, respectively, find this type of information relatively difficult to obtain, while 53.9% of respondents from companies of group one find it easy to obtain. Frequency of use is rated as moderate (relatively frequent) by many of the managers in all groups: 62.6% in group two, 50% in group three, and 38.5% in group one.

The analysis by **industrial sub-sector** concerning information on resources (Appendix 3: tables 52, 53 and 54) shows that 66.7% of the respondents from the pharmaceutical sub-sector and 60% from the group "others" consider it to be relatively important, while 60% from the cosmetics sub-sector find it not important; but in the plastics and the paints sub-sectors the answers are rather scattered, with a tendency to concentrate on the medium (37.5%) and high (37.5%) levels of importance in the plastics sub-sector and in the low (40%) and medium (40%) levels in the paints sub-sector.



Sixty per cent (60%) of the respondents from the cosmetics sub-sector and 70% from the group "others" find it relatively difficult to obtain this type of information, while 80% from the paints sub-sector and 50% from the plastics sub-sector find it easy to obtain; in the pharmaceutical sub-sector, answers are scattered by the three degrees of difficulty, with a concentration on the low (45.5%) and medium (45.5%) levels of difficulty.

Frequency of use of this type of information is predominantly moderate (relatively frequent) for the respondents from the plastics (50%) and paints (80%) sub-sectors and (70%) from the group "others". In the cosmetics sub-sector 60% of the respondents use it seldom and in the pharmaceutical sub-sector the answers are scattered, with a concentration (45,5%) on the higher level of frequency of use. The marketing director of the large fibre producer, a company included in the group "others", explains why information on resources is so important for his company:

*"It's vital for us to know which is the evolution of the cost and of the production of raw materials, because our cost structure depends on a raw material. Fortunately, there are services provided at international level that are reliable and make that task easier. Besides, we have daily contacts with our suppliers." (19,40,8,1)*

The analysis by **type of ownership** of the companies studied, concerning information on resources (Appendix 3: tables 55, 56 and 57), shows that most of the managers from the two types of companies - anonymous societies (SA) and limited liability companies (Lda) - find this type of information relatively or more important: 73,4% and 90%

respectively. But 60% of the respondents from the limited liability companies find it easy to obtain this type of information, while 48.3% of the respondents from the anonymous societies find it relatively difficult.

Almost 80% (77.8%) of the respondents from the anonymous societies and 80% from the limited liability companies use this type of information relatively or more frequently.

### Information on technology

Information on technology (Tables 7.11., 7.12. and 7.13.) was considered relatively important by 51.3% of the managers, 36.9% found it very difficult to obtain, and 50% declared to use this kind of information relatively frequently:

Label	Frequency	Percent	Valid Percent
Not important	7	17,5	17,9
Relatively important	20	50,0	51,3
Very important	12	30,0	30,8
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases

39

Missing cases

1

Table 7.11.- TECINF1: How important is information on technology?

Label	Frequency	Percent	Valid Percent
Easy	11	27,5	28,9
Relatively difficult	13	32,5	34,2
Very difficult	14	35,0	36,9
	2	5,0	Missing
Total	40	100,0	100,0

Valid cases 38 Missing cases 2

Table 7.12.- TECINF2: How difficult is it to obtain information on technology?

Label	Frequency	Percent	Valid Percent
Seldom	10	25,0	27,8
Relatively frequently	18	45,0	50,0
Very frequently	8	20,0	22,2
	4	10,0	Missing
Total	40	100,0	100,0

Valid cases 36 Missing cases 4

Table 7.13.- TECINF3: How frequently is information on technology used?

The analysis by **age of the company** (Appendix 3: tables 58, 59 and 60) shows that the values concerning technological information - importance attributed and frequency of use - fall predominantly on an intermediate range: 46.2% of respondents from companies of group one, 50% from group two and 62.5% from group three find that type of information relatively important; and 77% of respondents from companies of group one and 50% from group three use that type of

information relatively frequently, but 40% from group two use it seldom.

Answers get more scattered concerning the degree of difficulty in obtaining technological information: 58.8% of respondents from companies of group two find it easy to obtain that type of information, but in groups one and three percentages are equally scattered by medium and high degrees of difficulty.

The analysis by **sub-sector** (Appendix 3: tables 61, 62 and 63), indicate that most of the respondents from all the sub-sectors but the pharmaceutical, consider this type of information relatively important; in this last sub-sector, 50% of the respondents consider this information to be very important, which is not surprising, since the pharmaceutical industry is a technology-based industry. The first two quotations that follow were produced by the marketing director of a multi-national company, and by the R&D director of a medium-size company, both from the pharmaceutical sub-sector. The third comment was produced by the entrepreneur of the medium-size company of the paints sub-sector, which develops its own technology:

*"Nobody gives technology over to anyone. Technology is a treasure for whoever holds it. We have to earn it, we have to research. If we do not dominate certain aspects of a certain technology, we call upon a department and we tell them: this is what is needed, do it. There is a contract between this company and a university, and both teams keep in permanent contact in order to bring information together and reach the target in the right timing."*  
(4,10,14,2)

"It is technology that determines the strategy of the company... 90% of our production is oriented to the national market, the launching of new products

[is very important], so the search for new technologies is the core aspect of our activity, the most relevant factor for the development of the company." (3,7,9,2)

"We would not worry if we bought the technology, it would suffice to rush to the suppliers of technology when necessary. But that is not the case, [we develop our own technology], so we have to work for the medium term and update our knowledge constantly." (13,25,12,3-13,1)

Some of the small companies, including one in the plastics sub-sector, and the small resin-derived products company, included in the group "others", constitute exceptions in their groups, because of their investment in technology, and face serious difficulties in obtaining information on technology. This was testified by the co-manager of the first company and the commercial director of the second company:

*"Information on technology - information about equipment and know-how to produce certain products - is not easy to obtain. Suppliers (especially multi-national) provide only general information... because, in most of the cases, the companies that sell the products are directly or indirectly connected to other companies and they are not interested in giving up know-how.... I deal with this lack of information by talking to a lot of people and comparing information. And by testing things with our own resources, and with our clients."* (12,24,8,1)

"It is difficult to obtain information on technology because secrecy is the core of this industry." (9,19,13,2)

But the large fibre producing company did not have this problem, since a contract with a Japanese company delegated research on this partner:

"Technology is not a real problem for us, because it is delegated on the Japanese, but conditions may change." (19,38,16,2)

Frequency of use is rated by most of the respondents from all but one of the sub-sectors as moderate (relatively frequent): 75% of the

respondents from the cosmetics sub-sector, 60% from the paints sub-sector, 50% from the plastics sub-sector and 45.5% from the pharmaceutical sub-sector. Only in the group "others" do 50% of the respondents use technological information seldom. A high degree of difficulty in obtaining technological information is felt by 75% of the respondents from the cosmetics sub-sector and by 50% from the group "others", while 80% from the paints sub-sector find it relatively difficult and 50% from the plastics sub-sector find it easy to obtain. In the pharmaceutical sub-sector the answers are scattered, with a relative concentration on the medium (36.4%) and high (36.4%) levels of difficulty.

The analysis by **type of ownership** (Appendix 3: tables 64, 65 and 66) shows that information on technology is considered to be relatively important by many of the managers from both types of companies: 55.2% from the anonymous societies and 40% from the limited liability companies. A similar pattern occurs as far as frequency of use is concerned: 53.9% of the respondents from the anonymous societies and 40% from the limited liability companies declare to use that type of information relatively frequently. But, if 50% of the respondents from the limited liability companies consider it relatively difficult to obtain this type of information, respondents from the anonymous societies provide a rather fuzzy pattern, with 35.7% considering it easy to obtain and another group of 35.7% considering it very difficult to obtain.

## Regulatory information

Regulatory information (Tables 7.14., 7.15. and 7.16.) was considered not important by 50% of the managers interviewed, 43.6% found it easy to obtain, and 51.4% declared to use this type of information seldom:

Label	Frequency	Percent	Valid Percent
Not important	20,0	50,0	50,0
Relatively important	16	40,0	40,0
Very important	4	10,0	10,0
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 7.14.- REGINF1: How important is regulatory information?

Label	Frequency	Percent	Valid Percent
Easy	17,0	42,5	43,6
Relatively difficult	15	37,5	38,5
Very difficult	7	17,5	17,9
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases 39 Missing cases 1

Table 7.15.- RESINF2: How difficult is it to obtain regulatory information?

Label	Frequency	Percent	Valid Percent
Seldom	19	47,5	51,4
Relatively frequently	15	37,5	40,5
Very frequently	3	7,5	8,1
	3	7,5	Missing
Total	40	100,0	100,0

Valid cases 37 Missing cases 3

Table 7.16.- REGINF3: How frequently is regulatory information used?

The analysis by **age of the company** concerning regulatory information (Appendix 3: tables 67, 68 and 69) shows that many of the managers from the three groups of companies do not give much importance to this type of information: 53.9%, 47.4% and 50% from, respectively, companies of groups one, two and three, consider it not important; and 38.5%, 36.9% and 50% from, respectively, companies of groups one, two and three, consider it relatively important.

Most of the managers from groups two (56.3%) and three (50%) use regulatory information seldom; but managers from companies of group one were split in two major groups of 46.2% each: those who declared to use this type of information seldom and those who declared to use it relatively frequently.

As for the degree of difficulty in obtaining this sort of information, 87.5% of the managers from younger companies (established after 1975) find it easy, 50% from the companies established between 1945



and 1974 find it relatively difficult and managers from the companies established before 1945 are scattered by the three levels of difficulty, with two groups of 38.5% each finding it easy and relatively difficult to obtain, and 23% finding it very difficult to obtain.

The analysis by industrial **sub-sector** concerning regulatory information (Appendix 3: tables 70, 71 and 72) shows that managers from the paints sub-sector consider this type of information not important (80%), find it easy to obtain (60%), and use it seldom (60%). Managers from the group "others" consider it not important (70%), find it easy to obtain (70%), and use it seldom (80%). Managers from the cosmetics sub-sector consider it relatively important (80%), find it easy to obtain (80%), and use it relatively frequently (60%). And managers from the plastics and the pharmaceutical sub-sectors consider that it is relatively important (50% and 41.7% respectively), that it is relatively difficult to obtain (50% and 54.6% respectively) and use it relatively frequently (50% and 54.6% respectively).

The relative greater importance attributed to regulatory information by managers from the cosmetics and the plastics sub-sectors, especially if contrasted to the attitude exhibited by the managers from the paints sub-sector, is based more on their perceptions of environmental threat posed to their firms than on real differences concerning the impact of government or EC regulations on their respective sub-sectors. In fact, while the paints companies enjoy comfortable positions on their own segments, the cosmetics company has repeatedly been threatened by

hostile competitors and the small plastics companies face great difficulties to survive. As for the pharmaceutical industry, it is the sector that is most affected by government and EC regulations but, on the other hand, EC regulations were expected, and the sectoral association plays a more effective informative role than the associations in the other sub-sectors, as seen in Chapter five. The following quotations are self-explanatory:

"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)

But the regulatory activity of the government is more unpredictable and causes serious problems. The situation was described by a chief executive and a financial director of two different medium-size pharmaceutical companies, who complain that the instability created by the regulatory activity of the government jeopardizes their planning efforts:

"It is impossible to make long range planning. It is impossible to draw any scenario a year ahead. We have problems even in the short term planning. ... [This is due to] the unpredictability of the decisions at government level, which limit our action and are one of the great obstructions to the implementation of a sophisticated planning system in the companies of this sector in Portugal... We are forced to make adjustments... we are confronted with situations that make us alter radically the work planned for the whole year." (5,11,6,2-3)

"Too much depends on the government, on legislation, and because the government does not provide timely information on the policies and strategies being adopted for the health sector, it's very difficult to forecast... We used to make a five year plan and we dropped it because it was not reliable." (3,8,8,2)

The analysis by **type of ownership** of the companies studied, concerning regulatory information (Appendix 3: tables 73, 74 and 75), shows that managers from the anonymous societies do not consider this type of information very important: 50% think that it is not important and 36.7 think it is relatively important. They also do not use it very frequently: 51.8% use it seldom and 40.7% use it relatively frequently. Opinions are a little more controversial concerning the degree of difficulty in obtaining regulatory information: two groups of about 38% each find it easy to obtain and relatively difficult to obtain, respectively, and there is still another group of 24% who find it very difficult to obtain. Most of the managers from the limited liability companies consider that it is easy to obtain regulatory information (60%). But opinions are evenly divided between the minimum and medium degrees of importance attributed to this type of information (50% each) and a similar situation occurs concerning frequency of use: 50% use it seldom and 40% use it relatively frequently.

### **Global information**

Global information (Tables 7.17., 7.18. and 7.19.) was considered not important 70% of the respondents, 53.8% considered it to be easy to obtain, and 81% declared to use global information seldom:

Label	Frequency	Percent	Valid Percent
Not important	28	70,0	70,0
Relatively important	10	25,0	25,0
Very important	2	5,0	5,0
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 7.17.- GLOBINF1: How important is global information?

Label	Frequency	Percent	Valid Percent
Easy	21	52,5	53,8
Relatively difficult	10	25,0	25,6
Very difficult	8	20,0	20,6
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases 39 Missing cases 1

Table 7.18.- GLOBINF2: How difficult is it to obtain global information?

Label	Frequency	Percent	Valid Percent
Seldom	30	75,0	81,1
Relatively frequently	7	17,5	18,9
Very frequently			
	3	7,5	Missing
Total	40	100,0	100,0

Valid cases 37 Missing cases 3

Table 7.19.- GLOBINF3: How frequently is global information used?

The analysis by **age of the company** (Appendix 3: tables 76, 77 and 78) indicates that global information is thought to be not important by a great majority of managers from all the groups of companies: 69.2% from group one, 63.1% from group two and 87.5% from group three.

Similar results were obtained concerning frequency of use of this type of information: 100% of the managers from group one, 75% from group two and 62.5% from group three declared to use it seldom. And not very different results were obtained concerning the degree of difficulty in obtaining global information: 61.1% of the managers from group two and 62.5% from group three find it easy to obtain this type of information, while managers' answers from group one are scattered: 38.5% find it easy, another group of 38.5% find it relatively difficult and 23.1% find it very difficult.

The analysis by **sub-sector** (Appendix 3: tables 79, 80 and 81) shows that global information is considered by the great majority of managers from all the sub-sectors as not important: 66.7% from the pharmaceutical sub-sector, 62.5% from the plastics sub-sector, 60% from the paints and the cosmetics sub-sectors and 90% from the group "others". Similar results were obtained concerning frequency of use: 90.9% of managers from the pharmaceutical sub-sector, 66.7% from the plastics sub-sector, 100% from the paints and the cosmetics sub-sectors, and 60% from the group "others" use global information seldom. But the results concerning the degree of difficulty in obtaining global

information are not as consistent, except for the cosmetics and the plastics sub-sectors and the group "others", where 60%, 50% and 80% of the managers, respectively, find this type of information easy to obtain. But in the paints sub-sector 40% of the managers find it relatively difficult to obtain and in the pharmaceutical sub-sector 36.4% find it very difficult to obtain.

The analysis by **type of ownership** (Appendix 3: tables 82, 83 and 84) show that global information is considered by most of the managers from the two groups of companies (66.7% from the anonymous societies and 80% from the limited liability companies) as not important. It is also used seldom by most of these managers (88.9% from the anonymous societies and 60% from the limited liability companies).

It is also thought to be easy to obtain by 58.6% of the managers from the anonymous societies, but opinions are divided among the managers from the limited liability companies: 40% find it easy to obtain, but the remaining is evenly divided in two groups of 30% each, who think, respectively, that it is relatively difficult to obtain and very difficult to obtain.

## **7.2. SCANNING BEHAVIOUR/SCANNING POLICY**

### **7.2.1. A note on individual behaviour and organizational policy**

*Information seeking* is the 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. Aguillar defined *environmental scanning* as "scanning for 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), and identified two basic modes of scanning, *viewing* and *searching*. Choo (1993) noted that environmental scanning may be seen as a special case of information seeking, but while information seeking refers to situations where an information need is detected, and information is then sought to address a specific question or need, environmental scanning includes not only searching for a particular information but also the simple exposure to information that could impact the firm.

Every form of information acquisition is in the first place an individual activity. Within an organizational setting, that individual activity is affected by organizational characteristics such as size and structure, by managerial style and organizational culture, information system factors and reward systems.

By scanning policy, therefore, we mean a set of guidelines or, more often, implicitly accepted behaviour - concerning ethics, procedures to follow, sources to use - with a view to acquiring information about the company's environment.

## **7.2.2. Use of information sources**

### **Internal and external sources**

Managers were asked to appraise two groups of information sources, internal and external, according to their value as conveyers of external information.

The list of the internal sources (Appendix 3: tables 85, 86, 87, 88 and 89) includes in-house meetings, internal reports, internal databases, company people and company libraries. In-house meetings were considered by 67.5% of the managers as very important, followed by company people, considered by 57.5% as very important. Internal reports come in the third place of the ranking, considered by 40% as very important, while databases are seen by 56.4% as not important, and 78.3% of the respondents think that company libraries are not important. The ranking obtained was the following:



- 1-In-house meetings
- 2-Company people
- 3-Internal reports
- 4-Internal databases
- 5-Company library

The lack of importance accorded to internal databases and company libraries finds an explanation in the following statements, produced by, respectively, the manager of a small company in the plastics sub-sector, the manager of a medium-size company in the paints sub-sector and the chief executive of a medium size company in the pharmaceutical sub-sector:

"We don't have databases, we don't produce reports and the library is made up only of the technical journals we subscribe to, some books and a lot of literature provided by suppliers: product specifications and applications."  
(12,24,9,3)

"The library of the company does not provide data about the business environment... our database provides information about our sales volume per client, per product, per month, with margins of commercialization. We are considering the possibility of getting access to external databases, with information on markets..." (13,25,14,3)

"I find the library useful, but it should accompany the developments of the market in order to become more useful for the company. I'm very critic towards this library because I come from a company where the library was excellent. Here it is just another internal source.... It should provide the profile of our clients, which would allow us to know that doctor A is interested in receiving regularly information on one or two topics; if we provide him that service, he will be more receptive to buy our products..."  
(3,6,9,2)

In the first case, it is obvious that the minimal structure of the company does without databases and without reports, and the library is made up

of a few technical journals and books, and product literature. In the second case, there is a database with internal information only, there are plans to get access to external databases with market information, and the recognition that the company library does not provide environment information. In the last case, there is an acknowledgement of the importance of libraries in general, followed by a negative appreciation of the company library, produced by the former marketing director, who had become the chief executive just one month ago, after having worked for a long time in a multi-national company in the same branch. His previous experience of an "excellent library" made him produce sharp comments about the library of the company where he was working at that time.

The results concerning the importance attributed to these internal sources as providers of external information, differ little from those obtained by previous research, including Aguillar's and Ghoshal's. Ghoshal found that colleagues (or company people) were considered the best sources of external information, followed by internal reports, in-house meetings and databases. In-house libraries were not part of the list in this study. But Kefalas and Schoderbek reported meetings as the most important internal source.

The list of the external sources (Appendix 3: tables 90, 91, 92, 93, 94, 95, 96, 97, 98 and 99) includes clients, external databases, suppliers, consultants, banks, government agencies, company associations, libraries, fairs and exhibitions, and congresses.

The ranking obtained was the following:

- 1-Clients
- 2- Suppliers
- 3-Congresses
- 4-Fairs and exhibitions
- 5-Consultants
- 6-Company associations
- 7-Banks
- 8-External databases
- 9-External libraries
- 10-Government agencies

It is not surprising that clients rank first in this list. The interviewees made clear that clients are not only privileged sources of competitive and market intelligence, but also a sort of "innovation agencies", by suggesting improvements for their suppliers' products. The following quotations of interviews elucidate the role played by clients:

*"Information on technology - information about equipment and know-how to produce certain products - is not easy to obtain. Suppliers (especially multi-national) provide only general information... because, in most of the cases, the companies that sell the products are directly or indirectly connected to other companies and they are not interested in giving up know-how.... I deal with this lack of information by talking to a lot of people and comparing information. And by testing things with our own resources, and with our clients." (12,24,8,1)*

*"It is that information [that my colleagues and I constantly try to obtain from our clients] that allow us to work out a strategy for the company. We*

*decide to drop some products and to concentrate on others based on information that we obtain during the visits to our clients" (9,18,7,1)*

**"Innovation is always determined by the utilization that our clients make of our products. By innovation, therefore, we understand the improvement of extant products." (9,17,2,2)**

Some comments were selected, in order to illustrate the reasons why some of the external sources are undervalued, such as company associations, banks and government agencies. The first two comments were produced by the manager of a medium-size company in the plastics sub-sector, undergoing a fast process of growth; the third was produced by the marketing director of a multi-national company in the pharmaceutical sub-sector, and the fourth by the entrepreneur of a small company producing resin-derived products, included in the group "others". Italics were introduced in order to highlight the core ideas:

*"Company associations come in the last place, and I mean that. They are organizations of the corporatist kind, they are an instrument in the hands of a few people, and they lack institutional perspective. Certain things did not change, not even after the revolution. Of course I belong to another generation, but my own father contributed in some way for this state of affairs. But after all this time he evolved, and others did not. Of course it is also our responsibility, in so far as we should play a more active role in those associations, but sometimes it is better to let things go until the conditions are propitious to change. And in the meanwhile it is better to join organizations that bring advantages, namely in the provision of information that is vital for the associates. The Spaniards, the French and the British do that." (7,13,18,2-19,1)*

*"In what concerns the Portuguese market, the sectoral association itself does not know how much its associates produce. Can you imagine anything more stupid?" (7,13,14,3-15,1)*

**"Company associations are more important as institutional power than as information sources." (4,10,17,1)**

*"We don't use consultants. Banks, only if we want to be cheated. And it's funny that you consider government agencies as possible information*

*sources. Have you ever tried to use them? They are terrible.... Of course we have to consult libraries. We are not much given to congresses..." (9,17,9,2)*

In the first case, there is a sharp comment directed at the sectoral association, which is accused of behaving as a corporatist body, and of not providing information of first necessity to its associates. In the second case, the sectoral association is judged as more of "an institutional power than an information source", which is an interesting observation, when applied to APIFARMA, the sectoral association of the pharmaceutical industry. As referred to in Chapter six (6.2.1.), APIFARMA is usually positively appreciated by its associates, even though some dissonant comments arise, such as that accusing APIFARMA of being dominated by multi-national companies (3,8,10,4). From this perspective, we may consider that the comment quoted above makes sense, and APIFARMA would have turned into a lobby, more than anything else.

Other studies, however, have revealed that sectoral and regional industrial associations can and do play an important role. Reis and Jacinto (1992) studied their function in the regulation of local productive systems and attributed them two main roles: intermediary and informational. Barrulas (1992) found that the sectoral association of the electric and electronic industry played an important informational role and was valued and praised by its associates. The fact that the chemical industry is made up of several diverse sub-sectors, each with its own association, does not allow generalizations.

The last quotation, withdrawn from the interview with the entrepreneur of a resin-derived products company, denotes the traditional distrust towards banks, especially from small companies, as referred to by Cardoso et al. (1990) and confirmed in Chapter five (5.1.1.) and the comment targeting government agencies is elucidative and explains the last place of the ranking attributed to these external sources. The final comments concerning congresses is explained by the secrecy that surrounds this industry:

"There are other fields where publications and congresses tell everything. But in this field, when there is something original, it is not published..."  
(9,17,10,2)

Ghoshal (1985) established a relationship between the sectors scanned and the sources used, and concluded that, for domain specific information, such as competitive and market information, the principal sources are the other members of the domain, i.e., information specific to a business is available from those who are involved in that business. More general information, such as information on regulatory developments or on social, economic and political issues, which are not specific to a particular business, is available from general sources such as publications and consultants.

Managers were asked to explain to which of the two categories of sources - internal and external - they attributed more importance as conveyers of external information. Although most of the respondents gave their preference to external sources, important nuances and

variations occurred; on the other hand, different explanations were provided to justify that preference.

One of the factors that affect the choice of internal or external sources is 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, since, in a complex organization structure, the division of tasks is clear and the chief executive's time is precious. The three comments that follow were produced by managing directors of one of the multi-national pharmaceutical companies and two medium-size pharmaceutical companies, where italics were introduced in order to highlight the points raised above:

*"Information comes through external as well as through internal sources. A company is a team. Without that team, none of the external information would reach me.... Statistical and commercial data are obtained outside. We pay for them and we get them. And all the literature."* (6,12,10,3)

*"The most important [information] is that coming from the outside, even if it comes through internal sources.... I personally prefer the internal sources, it's a matter of distribution of tasks inside.... I contact only few of those external sources, government agencies and company associations, this or that supplier or bank manager, but only exceptionally. It's the company staff who keep in contact with all those entities."* (2,3,13,3-14,1)

*"For some issues, I make direct use of external sources, but I usually use internal sources. Most of the information that I get, even if I get it somewhere else, it is analyzed by someone from within before coming back to me, so I can discuss it with someone else."* (5,11,15,2)

In smaller companies, entrepreneurs often perform other roles, such as the role of marketing and commercial director, or financial and

administrative director. If management is shared by two co-managers, each one assumes one of those two major areas, usually according to their personal tastes or previous experience, or university background. As a result, managers themselves have to scan their environment and establish privileged contacts with their main external sources. These statements are demonstrated to a certain extent through the comments produced by two managers of small companies from the plastics sub-sector, the manager of a small resin-derived products company, and the manager of a medium-sized company of the paints sub-sector. The italics introduced in the quotations that follow highlight the aspects raised above:

*"I attribute more importance to the external sources, because they provide information about competitors, clients, and the technical information concerning the products that we buy." (12,24,10,1)*

*"Information comes usually from an external source, but it may be deepened afterwards by an internal source. I think they complement each other. For instance, the technician picks up technological information from an external source, and then transmits his opinion to us." (8,15,12,3)*

*"External sources are more important, because our field of action is mostly external. It's difficult to generate internally information that may affect our sales strategy.... The importance that I attribute to external sources is perhaps due to the fact that the company is small. Maybe in a large company the internal sources have more impact in the outline of the company's strategy." (9,19,16,2)*

*"External sources are the most important, because we do not have anyone specialized in searching and selecting information, so it has to come from the outside." (13,25,15,1)*

But other factors, apart from size and organization structure, influence the preference given by managers to internal or external sources, and a determinant factor is the existence of certain types of **information**



**culture**, or the inexistence of an information culture. As referred to in Chapter six, all but one of the pharmaceutical companies had developed a **formal information culture**, which favours the establishment of formal information systems, as was confirmed by the quotations illustrating the influence of size and organization structure. It was also referred to in that Chapter that the larger company of the plastics sub-sector has been developing an **information-conscious culture** that values advanced information systems and the role of information professionals, as can be seen after the following quotation:

*"External sources are fundamental, because it's important that information be transmitted by people who are not involved with our compromises.... The ideal solution would be to obtain information through independent entities, independent from us and from our competitors. It is also important that it is treated by professionals, whose aim is to provide quality information."*  
(7,13,19,2)

Another company, the large company of the paints sub-sector, was identified as having a strong **oral culture**, which gives rise to the preference for establishing direct contacts with the external sources, and this is valid for the chief executive himself:

*"It's the external sources that provide information to the internal sources. If I need to get information from a client, I send a salesman there, or the sales chief. If I know the client, I go there myself."* (14,26,21,3)

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, even when the company is large and has established complex and formal internal procedures for communication and planning and decision

making, as is the case of the large chlorine producer. The quotations that follow were withdrawn from the interviews with the chief executive and the marketing director of this company:

"The information we need lies outside the company. Nothing is born inside, what is made inside is the treatment of the information, which may be better or worse." (18,36,14,2)

*"External sources are more important, because clients are included there, and they are the main source of information. Other important sources are events, such as congresses, which gather specialists from several branches of activity, and the fairs where we can get technological information about the competition, as well as some market information."* (18,37,9,2)

Another factor that influences the choice of internal or external sources is the **functional role played** by the individual interviewed. 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. The quotations that follow were produced, respectively, by the marketing director of a cosmetics medium-size company, the marketing director of a medium-size pharmaceutical company, the R&D director of a medium-size pharmaceutical company, the marketing director and the chief executive of the large fibre producer:

*"I prefer the external sources, and the consumer in the first place. It's the consumer who transmits to me all the information I need. We do not invent products, it's the consumer who tells us what he or she wants, and I get the product that may satisfy him or her..."* (16,34,5,1)

*"External sources are the most important.... Talking to one of our clients, a doctor, I may get precious information about what our competitors are doing - laboratory so and so was here with a new product, invited me for a congress abroad..."* (1,2,8,3)

"Internal sources use external sources to obtain practically all the information.... I think that both kinds of sources are important, *although external sources are more relevant for my activity, and my job [as R&D director] facilitates access to external sources* that influence the strategy of the company... But of course I use daily information provided by internal sources." (3,7,10,1-2)

*"External sources are more important. We have direct access to clients, unlike what happens in other industries. We know who they are, where they are, we know them one by one. And it's them who provide us the most reliable information.... Our men in the field bring that information inwards... but I prefer to go directly to the source than receiving that information through someone else."* (19,40,9,2)

*"External sources are determinant, because our business is more influenced by external conditions than by internal conditions. We depend on exogenous factors such as the situation in the petrochemical sector and fashion trends. The economic policy of the government - interest rates and exchange policy - affects us immensely. The government policy of high interest rates and of rising the value of the Escudo penalizes exporting companies, such as ours."* (19,38,18,3)

On the other hand, 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. Comments produced by managers from companies where a formal information culture exists were already quoted previously. The comments that follow were produced, respectively, by a deputy director who works mainly as controller in a large fibre producer and by the financial director of a medium-size pharmaceutical company. The italics introduced in the quotations that follow highlight the point that has just been raised:

*"I prefer internal sources, because the information was already treated and assimilated by the chief executive and the commercial director. I'm interested first of all in picking up the feeling of the company. And it's the*

people that I mentioned who can transmit that feeling to me..." (19,39,9,5-10,1)

"As far as strategic information is concerned... I obtain that information via internal sources, by discussing with colleagues and with administrators.... I do not collect that information directly from the outside, because it is information about markets and products, and this is not my area." (3,8,15,5-16,1)

Internal sources are viewed by some managers as filters and by others 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 comments that follow were produced by the chief executives of two medium-size pharmaceutical companies, which sends us back to the notion that in these companies information infrastructures are put to use, and a lot is expected from them:

"Companies must collect information in their environments. A company must not turn inwards, *internal sources should be used only to filter the messages that come from the outside.*" (1,1,5,1)

"We cannot do without external sources, but the *internal sources must process the information and analyze it from the perspective of the company, the information must be filtered.*" (5,11,15,2)

On the other hand, the concept of **internal sources as contaminators** of the information provided by external sources has a negative connotation and was assumed, significantly, by the marketing director and the chief executive of the large company of the paints sub-sector, where an oral culture dominates, and the exports director of the medium-size cosmetics company, where no information culture exists:

"I give more importance to external sources, generally speaking, because the information provided by those sources is more accurate. In our department we are concerned mostly with market information, and *when market information is conveyed by internal sources, it may be contaminated by personal interpretations* of the internal sources." (14,28,16,2)

"External sources are more important because, ultimately, *internal sources either provide a personal version of the external information, or provide internal information only.*" (14,27,16,2)

"External sources are more relevant, because when I obtain information about the outside through someone of the company, *I usually get an opinion about that information, and there can be a distortion of the original information.* Of course that internal sources are important, but it depends on the source: some people are more opinionative than others, and can therefore distort the information that they provide. I know that, when I use an external source, I may as well receive an opinion, but the more the number of filters, the more the distortions." (16,32,3,3-4,1)

We are thus referred to the problem of message modification, which has been addressed by the literature on organizational communication. Stohl and Redding note that:

"Message transformations can be rooted in the cognitive limitations and motivations of senders and receivers, or in the structural constraints of serial transmission. Modifications may be purposeful or random, well intended or malicious. Message modification differs from message summarization in that it changes the meaning of the message whereas summarization does not. Most studies of message modification fall under the rubric of message distortion." (Stohl and Redding, 1987:478)

### **Personal and impersonal sources**

Some of the respondents stressed the **complementarity between impersonal and personal sources**, 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 quotations that follow illustrate this position, where italics were introduced to underline the core ideas:

*"If I need general information, fairs and workshop would be the right sources. If I need more specific information, I will probably get it from a client, a colleague or a friend who is more familiar with the matter at stake.... I end up by using personal sources more frequently, because general things do not change that fast. If one goes once a year to fairs in the USA or in France or in England, will be up-to-date."* (14,27,17,1)

*"Impersonal sources are more important for most of the information. But personal sources are more important for business subtleties, things that one cannot find written down anywhere... that sort of information that is transmitted only by word-of-mouth, sometimes of a confidential nature..."* (2,3,14,2)

*"This is a close world, so it's probably the personal sources that are more important. There are other fields where publications and congresses tell everything. But in this field, when there is something original, it is not published.... Large companies develop a product, they patent it, and they are sure that nobody is going to copy it."* (9,17,10,2-11,1)

*"Impersonal sources work as awareness devices - congresses and scientific meetings render us sensitive to certain issues.... Personal sources are good for comparing opinions, ideas, and to test my own conceptions about certain problems."* (4,10,17,4-18,1)

*"Impersonal sources give me a general idea of the industry, but I may need to contact this or that person in order to develop an idea and put it into practice. An impersonal source, such as a specialized journal, let me know that there is a certain trend concerning the therapeutics of a certain pathology. If I happen to know that sort of technology is being used by someone, I contact this person in order to acquire the technology for the company. I usually do not solve the problem with just one type of source. But occasionally the whole process of implementing a strategy may be reached through personal contacts only."* (3,7,10,4-11,1)

"I prefer personal sources. The information available in fairs and exhibitions is of public domain. The most important and updated information, especially in our field, is not conveyed through fairs and exhibitions. *It's through personal contacts that we can get useful and updated information.*" (1,1,5,3)

"Personal sources are more important.... *I would attend a congress on surgery if I were interested in knowing the last word as far as medicines for surgery are concerned. But If I were interested in knowing what surgeons think about this or that medicine, I would talk to a surgeon. Fairs and congresses provide a lot of information, but it is not necessarily the best or the more interesting information.*" (1,2,8,3-9,1)

"In a fair, for example, we are one among thousands of visitors, and *the information provided by the press centres is vague and general. It is never as detailed as we need.*" (19,40,10,2)

If the managers quoted above attribute a complementary role to impersonal and personal sources - even if some end up by admitting their preference for personal sources - most of the managers interviewed manifested clear preference for personal sources. The arguments provided to justify this preference range from the greater **reliability** of the personal sources, to their role as the **shortest way** to the information needed or the **last resource** to get information that they could not find anywhere else. The quotations that follow illustrate the position of those who prefer personal sources because they are thought to be more **reliable**:

*"I use personal sources because I believe that they are reliable. Sometimes there is a great personal attachment, even friendship."* (16,33,5,5)

*"I prefer the personal sources... which may provide more information than a journal article. Journals may provide information about competitors or clients, but it is very often a matter of public relations.... Some companies let the journals publish what they intend to do, as a mix of advertising and economic article. It may be true or just a campaign of public relations."* (16,32,4,3)

"Personal sources are more reliable. *We talk to people whom we know and who know us, so they would not provide us wrong information.*" (19,40,10,2)

"*Personal sources are more relevant, because I can weigh the reliability of the information, due to past experience and the competence that I recognize to each source.*" (19,38,19,2)

The position of the managers who consider that personal sources are the **shortest way** to the information they need, is illustrated by the following quotations:

"It is difficult to say, because it depends on the subjects involved. But I generally favour the personal sources, I think it is easier to reach the information we need through personal contacts. This does not mean that I do not use impersonal sources, but personal contacts are often extremely useful to direct the search.... *I guess I do favour personal contacts in order to take the shortest way, but I do not give up the information provided by impersonal sources.*" (5,11,16,1)

"I prefer the personal sources, because *I know whom I can ask to get the information I need*, while in a fair, for instance, I have to look around. I don't know where the information is." (12,24,10,2)

"Personal sources are more important to us. This [industry] is a small world, there are few suppliers and clients, they are not more than 150 all over Europe. So *direct contact is frequent, and we can figure out what is happening in this market without having to consult printed information that gets rapidly outdated*, since it takes so long to collect, organize and publish that information." (9,19,16,3)

Personal sources are regarded by some managers as a **last resource** to solve information problems, which is the case of the two first comments, produced by the chief executive of a medium-size pharmaceutical company and the chief executive of the large company of the paints sub-sector:



"It depends on the sort of information we are looking for. *I use personal sources to obtain information that is not available through other sources, and it has the additional advantage of being accompanied by personal, critical comments.*" (3,6,10,2)

"Both types of sources are important, and inseparable. ... When we need a certain information, *we try first the impersonal sources. Because when we try the personal sources we are burning cartridges and we avoid that whenever we can.* We cannot disturb our clients with unimportant things. If it is important and there is no other way round, we sit around a table and squeeze the client as much as needed." (14,26,22,3)

However, the comment of the co-manager of a small company of the plastics sub-sector suggests that, in small companies, managers tend to use personal sources in the first place:

"Both types of sources are important.... *Personal sources are always the first source, but the information they provide may need to be deepened or not.*" (8,15,13,1)

The data analyzed point to a non-negligible influence of the **functional role played** by each manager upon the preference given to impersonal or personal sources, independently of size and organizational structure. It is convenient to recall that chief executives or entrepreneurs and commercial or marketing directors, make up more than 80% of the interviewees (see Chapter three), and it is among these groups that we can find the majority of the managers who prefer personal sources. The choice of a few managers responsible for the financial or administrative area and for planning obeyed an imperative of the concept of theoretical sampling in grounded theory, according to which it is important to note variation occurring within the phenomena studied.

The first two comments that follow were produced by the co-manager of a small plastics company responsible for the financial and administrative area and the deputy director responsible for planning in the large fibre producer. They both play an inward-looking role in their respective companies and prefer impersonal sources. The third and fourth comments were produced by the marketing director and the chief executive of the large chlorine producer, who play an outward-looking role, and increase the number of those who give preference to personal sources:

*"I prefer impersonal sources, especially fairs. We use to go to the fair of Dusseldorf, which takes place every three years. Everything that is important for this business is displayed there, from machinery to raw materials and business opportunities." (12,23,9,1)*

*"Congresses are the best source. Fairs are good for having a look at machinery... There's a specific congress that I never miss, that of the controllers..." (19,39,10,3)*

*"Personal sources are more important, because clients are our best source of external information, and we contact them personally. Even in congresses and fairs, I always try to speak personally to specialists and other people." (18,37,10,1)*

*"The printed information that I collect from journals and other sources is important... but the information that I collect from personal sources, directly or through company staff [who cover the market] is extremely useful. It's impossible to work without that information." (18,36,12,3)*

Another manager manifested his preference for impersonal sources, but for different reasons: the managing director of the medium-sized, fast-growing company of the plastics sub-sector, where an information-conscious culture prevails, envisages impersonal sources as synonymous

to professional and high quality information, and personal sources as manipulative sources:

"Impersonal sources are more important. We have excellent personal relationships in Portugal, but the information provided by those sources is not enough. On the other hand, we do not have contacts at international level, who might provide us with global information about this business in Europe and in the rest of the world. Besides, *impersonal means professional and of good quality. Personal information is influenced by the capacity of manipulation of each one, and the advantages that may derive from that.*" (7,13,19,4-20,1)

Finally, some comments seem to point to the role of **impersonal sources as a route to personal sources**, which emerge as the desirable target. The following comments were produced by the chief executive of the large chlorine producer and the manager of a medium-size company of the paints sub-sector:

"Both types of sources are important. Personal contacts have to be kept constantly, one has to take advantage of every opportunity. Fairs and congresses may happen once or twice a year, and in those cases *the information that matters is not the information available in the programs or in the sessions or in the exhibitions, but the information provided by personal contacts, during the breaks or at lunch time.*" (18,36,14,4)

"Personal and impersonal sources are interrelated, but perhaps personal sources are more important, because the others, such as exhibitions and fairs, end up by working as privileged occasions for interpersonal communication. It's the contact with other people that brings information.... *The most important is this or that information that cannot be found in the film or in the poster and is exchanged during a conversation.... In a conversation we can participate, we can question what is said.*" (13,25,16,1)

**Criteria that influence the choice of information sources (regarding source accessibility)**

Based on previous research by O'Reilly (1982), Culnan (1983) and Choo (1993), a set of four dimensions was worked out in order to operationalize the concept of source accessibility: physical proximity, time and effort spent to extract information, cost of access and ease of use.

Tables 7.20. to 7.23. show that **ease of use** was considered by managers as the most relevant factor in the selection of information sources: 78.9% rated it as very important. **Time and effort** spent were rated as second, with 55.3% of managers considering it very important, and **cost of access** as third. **Proximity** was considered not important by 42%.

Label	Frequency	Percent	Valid Percent
Not important	16	40,0	42,1
Relatively important	8	20,0	21,1
Very important	14	35,0	36,8
	2	5,0	Missing
Total	40	100,0	100,0

Valid cases            38                            Missing cases    2

Table 7.20.- ACS01: How important is proximity of information sources?

Label	Frequency	Percent	Valid Percent
Not important	3	7,5	7,9
Relatively important	14	35,0	36,8
Very important	21	52,5	55,3
	2	5,0	Missing
Total	40	100,0	100,0

Valid cases 38 Missing cases 2

Table 7.21.- ACS02: How important are time and effort spent?

Label	Frequency	Percent	Valid Percent
Not important	11	27,5	29,0
Relatively important	7	17,5	18,4
Very important	20,0	50,0	52,6
	2	5,0	Missing
Total	40	100,0	100,0

Valid cases 38 Missing cases 2

Table 7.22.- ACS03: How important is cost of access to info sources?

Label	Frequency	Percent	Valid Percent
Not important	3	7,5	7,9
Relatively important	5	12,5	13,2
Very important	30,0	75,0	78,9
	2	5,0	Missing
Total	40	100,0	100,0

Valid cases 38 Missing cases 2

Table 7.23.- ACS04: How important is ease of use of info sources?

However, if a rearrangement of the data is made into just two groups - important/not important - we find out that the percentage of managers who attribute some degree of importance to time and effort spent and to ease of use of information sources is very high, and is exactly the same percentage: 92%. These emerge, therefore, as the really important factors in the selection of information sources; but they also seem to be closely associated in the respondents' minds, so as to make us think they are redundant: the time and effort spent seem to depend almost exclusively on the ease of use of sources. Using the same approach, cost of access is thought to be important to 71% of the respondents, and proximity is considered important to 58%.

### **7.2.3. Scanning mode and frequency**

#### **Scanning mode**

There was a consensus among managers about their attitude of deliberate effort to obtain information. The chief executive of the large fibre manufacturing company produced an elucidating comment:

"It's deliberate. An important part of my agenda has to do with initiatives to obtain information, even when that is not very obvious." (19,38,17,5)

Some managers established a relationship between the attitude of **looking deliberately for information with the use of formal sources** and the **unexpected acquisition of information with the use of**

**informal sources.** The quotations that follow were produced, respectively, by the financial director and the chief executive of two different medium-size pharmaceutical companies, and the exports director of the cosmetics medium-size company:

*"We keep looking for information, we do not just sit and wait.... Some of the information pops out by chance, in the course of a conversation with colleagues, and there is another sort of information that I have to look for... because I need it and I know that it exists. The truth is, that behind social relations there lie other objectives, and this is particularly true about professional relationships... but the value and the nature of the information may be identical, independently of how it was obtained." (3,8,14,1-2)*

*"Most of the information is searched, but sometimes the most useful information pops out unexpectedly. It often happens during a conversation with R&D or marketing staff, sometimes an idea comes out of a simple chat about this or that product..." (1,1,3,3)*

*"There is a deliberate effort when we buy information sources such as reports from intelligence companies, or specialized publications. Some of the information that I get is obtained in this way, because I have access to a number of documents. Another way of getting information, has more to do with chance, because it depends on one's attitude. We have to be prepared to listen to what the others have to say." (16,32,2,4-3,1)*

These declarations are in accordance with previous research. Collings (quoted by Ghoshal, 1985) suggested that scanning can be problem-triggered and information-triggered. In the first case, a specific problem may suggest the information needed for solving it and scanning can then be directed to searching for that information; in the second case, a particular piece of information obtained by chance may suggest a course of action, including searching for more information. The first process is called the *search* mode of scanning; the second is referred to as *surveillance*. This classification was in fact based on that developed by Aguillar (1967) - undirected viewing, conditioned viewing, informal

search and formal search - corresponding to an ascending order of specificity of information and an increasingly structured searching process. The two basic modes, however, correspond to the attitudes of *viewing* and *searching*, which were described by Choo (1993) as looking at and looking for. Viewing and searching, or surveillance and searching, or looking at and looking for, constitute, therefore, the two basic modes of scanning typified by previous research and clearly identified in this study.

Ghoshal, who tested that framework in his doctoral work, found that information obtained through surveillance was, to a certain extent, obtained by chance, since the recipient was not looking for it. Ghoshal found also evidence that search becomes more important when the manager lacks a personal network of contacts within the industry environment. A natural inference is that top managers, marketing and commercial directors and R&D directors, having large external networks, will use the viewing or surveillance mode more often than the search mode; planning directors and financial and administrative directors, on the contrary, will engage in the search mode more often than in the viewing or surveillance mode.

Returning to the analysis of our data, the co-manager of a small plastics company and the entrepreneur of a medium-size company of the paints sub-sector, do not mention formal sources at all. Their comments suggest - and confirm previous declarations concerning their preference for external sources and personal sources - that smaller companies or



companies where an entrepreneurial style of management prevails, give preference to informal sources:

"It's more of a deliberate effort. Sometimes things happen by chance, but we are always concerned with keeping open relationships with everyone, so that it is possible to exchange impressions frankly." (12,24,9,2)

"Chance never happens by chance. It comes always in the sequence of previous contacts... the sales people of our suppliers are a very important source of information, they arise our interest for doing things with their products..." (13,25,13,4-14,1)

Some managers referred to the **incompleteness** that characterizes the **information obtained occasionally** or unexpectedly. This position is illustrated by the comments made by the marketing director of the medium-size cosmetics company, the chief executive of a medium-size pharmaceutical company and by one of the administrators of a holding of companies operating mainly on the branch of fertilizers:

"It is never entirely by chance... there is always an effort.... I may get information occasionally, from a marketing colleague in a cocktail party or a dinner, but if I do not develop it and try to know what it means, it's useless." (16,34,4,2)

"Through regular effort. [Obtaining information] by chance does not happen frequently, and when it happens it is usually less structured. It may be important, but it has to be checked and deepened." (5,11,15,1)

"Occasional information is always more inconsistent and needs to be thought over and related to other information in order to complete the picture." (17,35,8,4)

Two managers established an important association between the **notion of need** - information need - and the **starting of deliberate action** to get the information needed. It should be noted that this association was

made by the chief executive of the larger plastics company of the sample and the chief executive of the large company of the paints sub-sector, two of the most dynamic and entrepreneur-led companies, even if they developed different sorts of cultures, the first one an information conscious culture and the second a culture of the oral type:

*"Things may happen by chance, but it is through deliberate efforts that we collect the information we need." (7,13,17,2)*

*"It happens more deliberately than by chance. Only unimportant things happen by chance. When we really need something, we go and get it." (14,26,19,3)*

Finally, other managers stressed the fortuitous character of the information gathering activity. While stressing that there is, in fact, an intentional or "deliberate attitude of looking for information" - although it would be better described as a general attitude of awareness - they admit that it happens often that "important clues" or "crucial information" turn up unexpectedly in the course of routine scanning:

*"I know it is a duty for a marketing professional, to pay attention to information... but sometimes there's no time for that. I buy a number of journals and newspapers and I read them, and that's how important clues pop out. That's why, as a matter of fact, it is intentional, because what I buy is the SCRIPT or the Financial Times..." (1,2,4,2)*

*"We look deliberately [for information], that's why we attend meetings and subscribe to journals and buy books. But events may be occasional. It happens often that crucial information pops out when we don't expect, not when we are looking for it purposefully. But there is a deliberate attitude of looking for information." (9,17,8,4)*

*"Some of the targets that I have reached were hit due to information collected by chance, but it was obtained only because we keep looking for information all the time." (18,36,12,3)*

## Scanning frequency

No attempt was made to quantify the time dedicated by managers to scanning. We tried instead to establish the regularity of the scanning activity. But the answer to the question "Generally speaking, how regularly do you scan your environment? Daily, weekly, occasionally?" was basically the same: "Permanently". Some of the top managers explicitly considered scanning as an **intrinsic component of management** and described it as a **state of mind**:

*"It's a permanent activity, that is part of the management activity... It's a matter of staying alert, be it during personal contacts or in face of all the documents that we handle: a permanent attention concerning everything that can contribute to innovate, everything that may generate a new idea to be exploited in the market. It's more of a state of mind than an obligation."* (1,1,3,2)

*"It's permanent. Managing a company means to know what happens around. And to make decisions accordingly. Every meeting with those in charge of the various companies [of the holding] are intended to update this knowledge."* (17,35,8,2)

"Everyday. I practically do not do anything else but that." (9,17,8,3)

The difference between large and small companies emerges again, and is manifested in the possibility that managers of larger companies have to rely on the organization's infrastructure for scanning, or at least for certain type of scanning, more focused on market and competitor information. The comments that follow were produced by the chief executive of a medium size pharmaceutical company, the marketing director of the large fibre producer and the managing director of a small plastics company:

"I do that regularly. The chief executive of a company like this has to be aware, but cannot be obsessed by that." (2,3,13,1)

"I personally don't do it daily. It depends on the circumstances. Information can be collected indirectly, through reading journals and other documents about the market, and that I can say I do daily. As for direct contacts with the market, talking to people, it's not that regular. Maybe monthly. And I receive weekly reports of the visits to clients by the sales people." (19,40,8,3)

"It's a permanent activity. I'm the managing partner, but I'm also responsible for the commercial part of the business. On Monday mornings I visit the clients. I'm in permanent contact with clients and suppliers, and I meet once a week the salesman who covers the North, even if I talk to him practically every day. We cannot stay away from the business, things evolve constantly." (12,24,9,1)

It also becomes clear that when managers claim to scan their environment "permanently", they refer to a **permanent state of awareness** that corresponds to the viewing or surveillance mode described above:

"It's permanent, considering that we pay attention to everything that might become useful." (14,27,14,1)

"It's permanent. I receive information daily, through the mail. Not to talk about periodic information, that arrives once or twice a month." (19,38,17,4)

"Everyday. It's a permanent attitude. This does not mean that I dedicate everyday a certain time [to scanning], but I'm permanently aware, ready to pick up every information. I'm not only the marketing director, I'm also responsible for the commercial area." (18,37,8,3)

Scanning the environment for information is, therefore, a permanent activity. More than that, it was also seen as a "global task" by the chief executive of the plastics company where an information conscious

culture has been developing; he thought that the whole company should be involved in that task of bringing information into the company:

"It's a permanent activity. For everyone in the company. I ranked technology last but one, but those responsible for that area within the company keep monitoring it all the time. In spite of the fact that the structure of technology does not change but every year or one year and a half, while in the market transformations happen all the time. We have to monitor that information everyday. It's a global task." (7,13,16,3-17,1)

### 7.3. SUMMARY

Competitor and market information is by far considered the most important and the more frequently used information, but competitor information is considered to be more difficult to obtain than market information. Information on technology and on resources is considered to be relatively important, but information on technology is considered to be more difficult to obtain than information on resources. 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.

In what concerns the use of information sources, one of the factors that affect the choice of internal or external sources is 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, since, in a complex organization structure, the division of tasks is clear and the chief executive's time is precious. In smaller companies, entrepreneurs often perform other roles, such as the role of marketing and commercial director, or financial and administrative director, and there is little or no staff as sales agents. As a result, managers themselves have to scan their environment and establish privileged contacts with their main external sources.

But other factors, apart from size and organization structure, influence the preference given by managers to internal or external sources, and a determinant factor is the existence 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 information infrastructures, may lead to the establishment of direct contacts with external information sources, even when the company is large and has established complex and formal internal procedures for communication and planning and decision making.

Another factor that influences the choice of internal or external sources is the **functional role played** by the individual interviewed. 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. On the other hand, 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 by some managers as filters and by others 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. On the other hand, the concept of **internal sources as contaminators** of the information provided by external sources has a negative connotation and was invoked by managers of companies where an oral culture dominates, or where no information culture exists.

Some of the respondents stressed the **complementarity between impersonal and personal sources**, 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.

Most of the managers interviewed manifested clear preference for personal sources. The arguments provided to justify this preference

range from the greater **reliability** of the personal sources, to their role as the **shortest way** to the information needed or the **last resource** to get information that they could not find anywhere else. Finally, some comments seem to point to the role of **impersonal sources as a route to personal sources**, which emerge as the desirable target.

Some managers established a relationship between the attitude of **looking deliberately for information** with the **use of formal sources** and the **unexpected acquisition of information** with the **use of informal sources**. Two managers established an important association between the **notion of need** - information need - and the **starting of deliberate action** to get the information needed. Scanning is generally understood as a **permanent state of awareness**.



# CHAPTER EIGHT: EFFECT OF PERCEIVED ENVIRONMENTAL CHANGE ON STRATEGIC CHANGE

## INTRODUCTION

This Chapter 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 considerable change (see Chapter five), and also how these companies engaged in strategic change in order to cope with their environments.

### 8.1. A NOTE ON CORE CONCEPTS

#### **Planning, strategy, strategy making and strategic change**

Before World War II *planning* consisted in mere forecasts of costs and revenues for the annual budget. The changes that occurred thereafter, with special reference to technological developments, expanding markets and increasingly complex economic systems, led to the adoption of more sophisticated tools, capable of dealing with that unprecedented outburst of economic growth. *Long range planning* was

based on extrapolation of past trends and forecasting of future events of an economic, political and social nature, covering a longer time span than the annual budget.

Planning developed, therefore, in a period where environments were predictable and companies pursued growth and scale and regarded internationalization as a natural consequence of growth. Planning became especially cherished by large and mature organizations, multi-national companies included.

As the economic growth slowed down, competition intensified and business environments became more turbulent, hostile and complex. The pace and multiplexity of change rendered long range planning inadequate and called for a different approach, replacing detachment by greater involvement, periodic ritual by permanent monitoring and mere forecasting techniques by constant opportunity spotting. This new perspective of planning was called *strategic planning*.

The fact that planning had become a specialized task performed by specialized staff with little contact with the markets and lacking the privileged vision of the chief executive or the entrepreneur and sometimes paying little attention to those who were expected to implement the strategies formulated, contributed to the discredit of the planning activity as such.

In this context of rapid and discontinuous change, caused by saturation of traditional markets, technological discoveries affecting the firm and its environment, and the influx of new competitors, *strategy*, in Ansoff's words "... emerges as a tool for reorienting the organizational thrust." (1987:106) and is described as "decision rules and guidelines, which guide the process of development of an organization" (1987:100).

Mintzberg (1994:23-27) uncovers the multiple meanings attached to the term strategy, in the use that is made by planners and managers, as well as in the management literature: (a) strategy as plan - "direction or guide into the future", (b) strategy as pattern - "consistency in behavior over time", (c) strategy as position - "determination of particular products in particular markets", (d) strategy as perspective - "organization's way of doing things". Planners, Mintzberg argues, have favoured plan over pattern and position over perspective.

We are, therefore, in presence of two binomials: (a) strategy as past-emerging and future-oriented, or the temporal dimension of strategy, and (b) strategy as outward-looking and inward-looking, or the spatial dimension of strategy. Although they are equally important to the full understanding of the phenomenon, we shall focus on the first binomial, because the identification of the dual temporal orientation of strategy gave rise to an important clarification between the concepts of *strategy formulation* and *strategy formation*.

Strategy formulation is a concept inseparable from planning and constitutes the first of two stages of the planning process, the second being implementation. Ansoff (1987:235) describes strategy formulation as "the logic and techniques of strategy analysis" and warns that:

"... the flow of decisions leading to strategy formulation is complex, involves many contributing studies and can be very time consuming. One such study of a firm consumed between five and seven man-years and cost between \$100,000 and \$200,000." (Ansoff, 1987:131-132)

Such characteristics - the segmentation of the process in two stages and the assumption of stability in the firm's environment - were criticized by Mintzberg in the following terms:

"Part of the assumption of predetermination in strategic planning is the notion of holding still. While the planning is done, and historical data are analyzed, the world sits patiently by. After that, it remains stable, or at least unfolds as predicted, so that the plans can be conveniently implemented." (Mintzberg, 1994:239)

Mintzberg also reminds us that strategy itself is associated with conditions of stability:

"Intended strategy refers to the effort to impose a *stable* course of action on the organization, while realized strategy refers to the achievement of a *stable* pattern in the behavior of an organization. Thus, whether deliberate or emergent, strategy is always about stability in an organization's behavior." (Mintzberg, 1994:239)

In order to cover both possibilities - intended as well as emergent strategies, since "effective strategies mix these characteristics in ways that reflect the conditions at hand, notably the ability to predict as well as the need to react to unexpected events" (1994:25) - Mintzberg

proposes the expression strategy formation (or strategy making), to denote an eminently dynamic process of dealing with change:

"While strategy may be associated with conditions of stability, strategy making is generally associated with times of change, and often discontinuous change at that. Organizations do sometimes develop new strategies in times of stability, perhaps because their people have come up with new ideas or simply because they failed earlier to understand previous changes.... strategy typically gets changed because something fundamental has changed in the environment, on a one-time basis. And the very fact of changing the strategy creates its own discontinuity in both the organization and the environment on which it is imposed." (Mintzberg, 1994:240)

Following this reasoning, the nature of the process of strategic change is described as follows:

"Thus, serious change in strategy generally means shift in gestalt - the *conception* of a new world-view, generally based on a permanent change in conditions, or at least the *perception* of such a change." (Mintzberg, 1994:240)

## **8.2. PLANNING AND STRATEGY MAKING**

### **8.2.1. Planning**

#### **Planning and the dimension of firms**

The pattern that emerged out of the data analyzed reveals that the size of the company is an influential factor in the adoption of planning as a

management tool; all the more so if we refer to more sophisticated techniques, or more formalized procedures, or a longer time span than those required by the annual plan. Three different sets of situations are pictured: (a) the small to medium companies, with a clear entrepreneurial approach, (b) the medium to large companies where, even if they are family-owned, it is more common to find professional managers as chief executives, and (c) a sub-set of these larger companies managed by professionals with a more or less long experience of work in multi-nationals.

The **small companies** are characterized by a minimal structure and the **decisive role of the entrepreneur** - owner and chief executive in one - who, alone or in association with a partner, controls all the activities and makes all the decisions. The situation was clearly described by two of the entrepreneurs interviewed:

"This company has no middle management. We [my partner and I], perform the main jobs in the company. We make the annual plan and a budget based on the figures of the previous year, admitting a growth rate that has been reached so far." (12,23,5,1)

"We launched this company five years ago and we defined then the strategic goals for all the business areas. We decided that we would start with plasticized PVC, which we knew better and is closely connected with the shoe industry - by that time this industry still had a good position - and afterwards we would target the thermoplastic rubber, which is also oriented to the same industry. [And we did. Eight months] later we began with the packaging, and it was only a year ago that we penetrated the segment of hard plastic; this segment is more risky because it is connected with the building industry. We penetrated this segment in order to decrease the investment in the shoe industry, which has been declining year after year. This is strategic planning, but in a very informal way, there's nothing written, it's just a chat between my partner and I." (12,24,3,4-4,1)

The distinction made between the annual plan and budget, and the strategic thinking for shaping the future of the company is clearly made and is an important distinction. Managers in larger companies seemed, in some cases, to make no distinction between planning and strategic thinking. Mintzberg used an apparently paradoxical formulation to make things clear:

"An organization can plan (consider its future) without engaging in planning (formal procedure) even if it produces plans (explicit intentions); alternately, an organization can engage in planning (formalized procedure) yet not plan (consider its future); and planners may do all or some of these things, sometimes none of them, yet... still serve the organization." (Mintzberg, 1994:32)

Other entrepreneurs were ostensibly sarcastic about the effectiveness of strategic planning:

"Strategic planning became very fashionable some years ago. Some companies created departments of strategic planning, which was something very pretty but that always went wrong. We make an annual plan and budget with a forecast for three years and that's all. This is a small company, I'm the general director and I do the strategic planning." (9,17,4,2)

This attitude is typical of entrepreneurs and was described by Mintzberg in the following terms:

"... the leaders of most entrepreneurial organizations do not relish someone telling them how to make strategy; the process tends to be locked into their own (subconscious) minds in any event. And they have little need for anyone to help them find strategies, since these are unlikely to develop outside their own personal control. In any event, good intuitive leaders generally do this far better than staff people, particularly in these typically small, simple and flexible organizations." (Mintzberg, 1994:411)

The importance of **keeping flexible and adaptable** to market needs is stressed by the same manager:

"We try to keep an effective cycle of detection of needs... One of the advantages of being small is to be flexible. Even if we wanted to be rigid, it would suffice that an important client such as X [*the name of the client is omitted for reasons of confidentiality*] asked for something [different than we had planned to do] and we would rush to do it. A single client may have such a weight in terms of demand that we have to follow it." (9,17,4,3-5,1)

Most of the companies analyzed fell more or less clearly either under the category of small to medium and entrepreneurial or under the category of medium to large and, in many cases, "professionally managed".

An interesting exception was found in a company of the plastics sub-sector which was in a process of transition. The company, family-owned, had recently turned into a Sociedade Anónima (SA) - anonymous society - at about the same time that the management had been passed over from the founder to their sons. These, unlike their father, had university education and had different ideas about the way of doing business. Qualified staff had been contracted in order to improve the financial management of the company, which was considered the weakest aspect of the previous management.

A full reorganization of the company took place, including the acquisition of new skills - qualified staff were hired for all the key posts in all the functional areas - and equipment, with full automation and quality control as a priority. Market diversification and



internationalization were the next steps. The company eventually evolved into a holding, incorporating the main company, a recycling company, a financial company and a software house. The evolution of the company is well illustrated by some figures: in five or six years its productive capacity increased about four times, while the staff was reduced by one third and the sales volume tripled.

The pace of growth had left some aspects of internal organization unattended. A planning officer had just been appointed and the information system for controlling production and quality was already fully implemented. When the interviews took place, further developments of the information system were being studied for managing external information flowing into the company. The situation was described by the marketing manager as follows:

"We're just starting with strategic planning this year, as a consequence of the auditing carried out in the company by X [*a well known international consulting company*].... The strategy of the company used to be decided by the administration, which was a family. A gap of information between the market and the administration would be enough to incur in risks that can be avoided. This was detected by the auditing and by the group that manages the company [now], which is made up of the department directors and a member of the administration. The departments are being reorganized and so is the management of information and the computing system. The strategic planning will be adopted formally next year, after the marketing department becomes capable of transmitting the market needs to the management. We're settling down a system for information collection. We plan now for one year but we'll try to extend it to two or three years."  
(7,14,7,2-3)

The changes needed, namely concerning the involvement of the senior staff in the planning process were mentioned "en passant" by the managing director:

"So far, planning was the administration's concern alone. But now we're integrating the whole group in the philosophy of the strategic planning, which, we think, is needed in order to reach superior levels of quality, effectiveness and competitiveness." (7,13,6,3-4)

Managers in **larger companies** seem to regard **planning as an important tool**. Some of the companies had institutionalized the function, by creating **planning offices**. It was not clear, however, to what extent the managers that declared a belief in planning and a desire to practice planning were merely doing so as an act of faith or if it corresponded to a genuine practice and, in this case, to what extent the process was participated in and acknowledged down the line. These considerations are based on the difference detected among declarations coming from different managers of the same company regarding the practice of planning.

The chief executive of a large company in the synthetic fibre industry described the planning process as follows:

"Planning is mainly the deputy director's concern, who acts as controller. And also my concern. We use to update our strategic plan around May, in an informal way. By this time we've got some information about the performance of the current year and it's half way between the elaboration of the action plan and the annual budget... By May we make the forecasts for the following five years and by October/November we start [the action plan and] the budget for the next year... *The strategic plan contains the broad guidelines of the company for the medium-term, the objectives for the short-term and the budget*. We update the annual forecasts every three months." (19,38,7,2)

This same version is basically corroborated by the deputy director:

"I've prepared the strategic plan for the next five years some time ago... *There is in fact a strategic plan* that addresses investments, as well as certain policies that must be developed concerning raw materials, energy, staff." (19,39,3,2)

"Given my sensitiveness to the problems, *I prepare a draft project of the strategic plan for the chief executive*. He corrects this or that but gives me total freedom. Of course we [the chief executive and I] work closely together from the very beginning and I try to match his ideas when I prepare the plan." (19,39,3,4)

But the version provided by the marketing director differs significantly:

"There's a group of people who meet periodically in order to think about the medium and long-term strategy of the company. That responsibility is shared by the marketing director, the technical director, the deputy director and some members of the administration. *There are no formal plans*. We know that we have to reduce the vulnerability of the company and we're trying - and this is defined as an objective of the company - to diversify the business. That's where the real strategic dimension is. We're trying to find partners to develop other kind of products that might be sold in the European market." (19,40,3,5-4,1)

The italics in the last four quotations were introduced in order to emphasize the nuances of perception of the same process. The notion of a formal strategic plan, produced out of close collaboration between the two top managers of the company, that emerged of the declarations of the chief executive and the deputy director, was not corroborated by the marketing director, who stressed instead a process of wider collaboration of several directors and some members of the administration in order to sketch broad guidelines to shape the future of the company, without a formalized procedure.

The difference of perceptions can have different interpretations. But it is not likely that the marketing director would ignore an important

document such as the strategic plan of the company, a formal document containing the final outcome of joint thinking, including his own contributions, and those of his colleagues. It is more likely that the plan has not reached the level of formalization suggested by the chief executive and the deputy director. Maybe the habit of close collaboration between the two top managers of this company acquitted them of writing down the result of their combined reflection, since it is not reasonable to think that they would formalize the plan just for their own use instead of sharing it with the directors of the company.

The question that remains is why did they suggest that the plan was formalized, when it was not. Maybe in their minds "formalized" means a structured, common understanding, rather than a written document. Or the explanation may reside in their feeling that they *should* formalize it. And if that is the case, it may reflect the weight of the planning school upon a certain generation of managers; or else, the fact that the new environmental conditions forced these managers to change their usual patterns of behaviour and they were not willing to admit that.

The second largest company analyzed operated in the paints sub-sector and was a curious example of a large, successful company that had managed to keep an entrepreneurial approach to business despite its size, due to a strong and cohesive culture characterized by great flexibility and informality of procedures. The process of growth was somewhat similar to that of the plastics company referred to above. Only the proportions differed substantially, since this company was

three times larger than the previous example and had grown more gradually.

But the process of transmission of power from the founder to his university-educated son was very similar, as well as the transformation of the company into a *sociedade anónima*. While the plastics company had diversified into other businesses, the paints company had remained in the same business.

The dominant attitude in the company, as far as planning is concerned, differed radically from that of the other large companies, and was described by the marketing director as follows:

"[This company] does not have a formal strategic plan, in the same way that it does not formalize other matters that stand behind it. This results from the very culture of the company. Some of those responsible for the company have been here for many years and lived the "family period" of the company. It depended on one man, who is now-a-days the chairman of the board and was at that time the managing partner, or the boss if you want. In some way, he trained his collaborators, who now occupy key places in the company, according to his style and way of doing things. This has a positive side, that is bringing informally together all these people. And that familiarity comes downwards and makes it possible to overcome eventual organizational gaps." (14,28,8,1)

But the continued growth of the company, and especially the acquisition of two other companies which did not share the same culture, were threatening the balance that had worked so well:

"However, companies grow up and today there's X and Y [*two companies that had been acquired recently*] who do not have that kind of culture and this begins to pose problems. It's necessary to organize the companies and plan. I'm in favour of the establishment of some kind of rules and plans. Anyway, there is sectoral planning... Now-a-days the long-term has

diminished to three years. [But the guidelines for that period] exist only informally." (14,28,8,2)

Finally, another perspective about planning is provided by a third group of managers, made up of those who moved into national companies - in the sense that they operate with a majority of national capital - after having worked in **multi-national companies**. These managers were very much influenced by the work habits of the multi-national companies and, once back into national companies, they compare ways of doing things and draw their conclusions, which are not always coincident.

Because of their power, multi-national companies are among those companies which favour planning as a way of "creating" their own environment, unlike smaller companies, which, generally speaking, have to adapt to the environment. Galbraith (1967) referred to the large corporations that emerged and expanded throughout the twentieth century in an environment where they did not find serious competition, using plans to control markets, competitors, suppliers, customers and even governments, as the "new industrial states".

One of the interviewees that had left a multi-national had entered a national pharmaceutical company as marketing director and, when the interview took place, he had become the chief executive just one month before. He was obviously distressed with the "management by crisis" style that dominated the company; because he had become the chief executive so recently, he had not had enough time so far to change the

state of affairs in the company. His statements made his point quite clear:

"... I've worked in multi-nationals and I think that this company needs to have long-term planning... One plans for tomorrow or for the next year, not more than that. I think we have to move on to a five year strategic plan." (3,6,3,1)

"I think this [behaviour] has to do with inertia, because the company manages to muddle through with short-term planning... [In this company] the plan exists in an empirical form, not as something that can be consulted and used as a guide... The existence of a plan would make more clear the strategies for the long-term and would avoid occasional alterations. It would discipline the activities." (3,6,3,3-4,1)

"Planning is achieved through the direct contribution of each of the directors, the elaboration of the budget for the following year, or through the design of marketing plans for our products, but there is no such thing as a business plan, a five year strategic plan..." (3,6,3,2)

The chief executive's views seemed to be making their way down the line; the financial director of the company, even though acknowledging how difficult it was to forecast the future, seemed to regret the fact that planning was not implemented in the company as it is in multi-national companies:

"[The plan is designed] in the financial department and of course we keep in contact with the administration and the chief executive, since it's the long and medium-term strategies of the company that are at stake. Planning is not well developed in this company, as it is in multi-national companies. It is difficult to forecast the future." (3,8,8,1)

A different perspective was provided by another interviewee who had worked as product manager in a multi-national company operating in the pharmaceutical sub-sector and was now in a national pharmaceutical company as marketing director. He seemed to be happy with the change,

not just because it had brought a promotion, but because there was more room for creativity in the national company:

"X [*the name of the company is omitted in order to safeguard its anonymity*] was an extraordinary company but it didn't allow any creativity. The models for product promotion were imported and we couldn't alter anything. We could only copy strategies, and sometimes with nasty consequences, because the behaviour of the Portuguese market is different from the American or the English markets." (1,2,11,2)

"It's not the fact that in company X I was a product manager and here I am the marketing director that makes the difference... It's the very way of being of the company that forces us to improvise and be flexible.... But I haven't learned anything concerning the making of a marketing plan or the business plan [in this company]." (1,2,12,1)

This comment uncovers the **inhibiting effect of tight planning schemes** that has been mentioned by some authors. Mintzberg (1994:181) quotes an elucidative text by Newman, where it is argued that planning departments and plans

"tend to circumscribe the discretion of the man on the firing line. Thus, it usually is true that with more extensive planning a large group of employees have less freedom in the exercise of their own judgement. Conformity, rather than originality, is expected of them. This restriction on initiative tends to snuff out the creative spark that is so essential in successful enterprise, and it also has a bad effect on morale." (Newman, 1951:68)

To finalize this item, it should be recalled that the deputy director in charge of the planning function in the large synthetic fibre manufacture was significantly designated as "controller".



## **Planning and the form of the organization**

**Machine organizations**, understood as classic bureaucracies - formalized, specialized, centralized, based on standardized work processes - are to be found in stable and mature industries with mostly rationalized and repetitive operating work. Among the companies analyzed for this study, two of them - the large synthetic fibre manufacturing company and the chlorine producer mentioned above - grouped under "others", seemed to fall clearly under this category. They grew up protected by monopolistic by-laws and benefited from protection measures till the end of the last decade. The relationship between the machine organization and planning is described by Mintzberg:

"The machine form not only *requires* planning (as planning requires the machine form), but planning also *enhances* its very nature, by formalizing its decision processes, encouraging the decomposition of its activities, and reinforcing its centralization of power." (Mintzberg, 1994:401)

In opposition to the machine organization is the **entrepreneurial organization**, loosely structured, flexible and personally or closely supervised by the managing director, who often is the owner and sometimes the founder of the company. About the relationship of this kind of organization with planning, Mintzberg argues that

"... the absence of elaborated structure renders planning difficult, since it depends on an established system of decomposed tasks on which to overlay its outputs. And the absence of tightly coupled operations may likewise remove a prime reason to engage in formal planning." (Mintzberg, 1994:403)

The large company operating in the paints sub-sector just mentioned above is an example of the entrepreneurial organization which begins to resent its size and to feel the pressure to "formalize rules and plans". And the small companies of the plastics sub-sector and of the resin derived products are clear examples of small and entrepreneurial organizations.

### **Planning in hostile environments**

Chapter five provided a picture of the change occurring in the business environment of the chemical industries, as perceived by managers in this industry. It was described as extremely hostile, due to the acquisitions and mergers taking place, and also to the disappearance of small companies as a result of the intensification of competition. Changes in the regulatory framework of this industry, caused by government intervention, especially in the pharmaceutical sub-sector, and also as a result of the regulatory role of the EC, were equally pointed out as major causes of hostility.

The chief executive of a pharmaceutical company described the situation in the following terms:

"It is impossible to make long range planning. It is impossible to draw any scenario a year ahead. We have problems even in the short term planning. ... [This is due to] the unpredictability of the decisions at government level, which limit our action and are one of the great obstructions to the implementation of a sophisticated planning system in the companies of this sector in Portugal... We are forced to make adjustments... we are confronted

with situations that make us alter radically the work planned for the whole year." (5,11,6,2-3)

The financial director of another pharmaceutical company produced a similar judgement:

"Too much depends on the government, on legislation, and because the government does not provide timely information on the policies and strategies being adopted for the health sector, it's very difficult to forecast.... We used to make a five year plan and we dropped it because it was not reliable." (3,8,8,2)

"... This year the alterations in the health sector were so dramatic that the market is falling through. The sales are 15% below the forecasts. Five per cent would be bad enough. We had never had more than 2% or 2.5% deviation before. The market used to be predictable." (3,8,9,3)

And the R&D director of that same company corroborated entirely the views of his colleague:

"There are so many factors influencing a plan, even a medium term plan, that we never know to which extent it can be implemented... the authorities take so long to approve a new medicine that, when it finally happens, we sometimes realize that we're no longer interested, from the economic point of view, in producing that medicine. We're forced to plan to shorter periods." (3,7,6,2)

The near-unanimity found in the predominantly medium-sized companies of the pharmaceutical sub-sector concerning the **hostility of the environment**, was echoed by the small, entrepreneurial companies of the plastics sub-sector and of resin products; these last groups, however, considered that the main causes of instability lied with the supply and cost of raw materials:

"Our experience has demonstrated that the forecasts are useless. I must say I do not believe in strategic planning. I believe that we must think of what

our life will be like in the next three years but my experience tells me that so many things change so radically in the years that follow that sometimes plans are of no use, not even as a guide." (9,17,4,2)

"Some factors are completely unpredictable, such as those concerning raw materials.... The prices change from year to year and that difference is affected, among other things, by climatic conditions in such remote places as China or Indonesia." (9,19,7,2)

"We make a three year plan that is not accomplished, an annual plan that has to be readjusted, and daily adjustments to that plan." (8,15,8,2)

Finally, the chief executive of the large company in the paints sub-sector produced the following statement:

"We don't make long range planning... We have an idea of where we want to be in three years time, globally speaking, and that's all. We want to increase our product mix, we want to penetrate Spain, we want to obtain X in X time. Planning five years ahead is no good. We've tried to do it once. Even annual plans and annual budgets have large probabilities of error... Just to give you an idea, in this first trimester we failed in 24% [*the volume of production needed to satisfy demand was miscalculated and the company ran out of products*]. [Several explanations are possible to justify why the demand exceeded our expectations]: because the winter was so dry [and everyone decided to paint the walls], because last year was really bad, because people found out that our products are very good, because many export sales were pending and they all were suddenly given green light... What is important is to have a clear idea of where we want to go to and act accordingly." (14,26,11,4-12,1)

### **The role of the planning offices**

Among the nineteen companies analyzed for this study only four of them mentioned to have a planning office, even if under different designations: two pharmaceutical companies, one of them a multi-national, and two large companies grouped under the category "others", the synthetic fibre manufacturer and the chlorine manufacturer. Another company, the fast-growing company of the plastics sub-sector, had just

appointed a planning officer and there was yet no indication of the type of intervention that was expected from that officer.

But the comments obtained from the managers of the other four companies made clear that the role performed by the planning offices is far from being the decisive role of engendering the strategic plans for the company, as is commonly suggested by the planning literature. The role of the planning offices turns out to be the **collection of the hard data** needed to assist top managers' decision making and to **produce the final document**, when a formal plan is issued. The core of the planning function seems, therefore, to remain with the chief executive.

The italics in the following quotations highlight this basic idea:

"I collect the information I need within the company, but, because I know the company so well, I hardly need to ask anyone's help.... *The Planning and Research Office (Gabinete de Estudos e Planeamento) intervenes exclusively in what concerns the [collection of] market [information]. I make the planning of the company.*" (19,39,4,4-5,1)

"*They [the staff of the Planning and Research Office] research more than they plan. They treat all the quantifiable information concerning the market. They treat the data provided by the panel, organize the file of clients, make the projections of fibre consumption for the next months.... They also work on the information about the Portuguese market that is provided to CIRFS [Comité International de Rayon et de Fibre Synthétique].*" (19,40,11,3)

"Our marketing departments - we have a department of national marketing and a department of international marketing - make the product planning and the annual planning is made at company level... and in the last years we've been working with a three-year plan. Before the elaboration of the annual plan, we make a projection of what we would like the company to be like, in three years; for this plan, *contributions are made by the departments and the final arrangement is made by the planning department, that submits it to the administration.*" (2,3,7,1)

*"There's someone [in the Office of Economic Studies] who centralizes the information [needed for planning] and provides the data needed for decision making in this area... The planning function, conceptually speaking, is rather centred in the chief executive, who is very familiar with this industry, inclusively from the technological point of view. Because after all, the strategic planning of the business has to do with the diversification of products... what we keep looking for, apart from defending ourselves from threats, is mainly developing activities based on advantage positions that we have already." (18,37,5,3)*

It is worth noticing that the situation pictured is not far from what Mintzberg believes to be the real vocation of the planning offices:

"Managers, many of whom are inclined to overlook the hard data, can be helped by analysts who have the time and the inclination to feed such analysis into decision making. What this amounts to is "soft analysis", in which teams of interdisciplinary analysts couple a certain amount of intuitive sense with their more systematic thinking". (Mintzberg, 1989:72)

## 8.2.2. Strategy making

### "Crafting strategy"

The picture that emerges of the data analyzed reveals the making of strategy as a rather **hectic process**, entirely dependent on environmental conditions in the first place: availability and cost of manpower and raw materials, technological developments, competitor strategies, clients' needs, government regulations, sometimes even on weather conditions. Companies have to scan the environment continuously in order to detect trends and spot opportunities and threats as early as possible so that they can influence the course of events or, more commonly, to adapt to the

new conditions. Once an opportunity is spotted, or a threatening circumstance is identified, the company engages in a "tour de force" in order to work out a strategy to deal with it.

For the small companies, the process of adaptation is a condition of survival and the sales force plays an important role in the early detection of emerging needs and alterations in the tastes of clients. The entrepreneur of a medium-size company in the paints sub-sector describes this process:

"This is a family business... Planning is made according to the trends detected in the market, based on the reports of our sales chief and in accordance with what we perceive through contacts, visits, and the reading of technical journals... *Among the feelings identified we select those which match our characteristics and we decide to make this or that product.* We also make customized products: for example, an important client is interested in a given product and we develop that product... *In the meanwhile we look for a group of clients with similar needs and we create a complete line for them.* Planning is more an adaptation to the market needs..." (13,25,7,2-8,1)

The italics introduced in the quotation above highlight (a) a process of feeding an emergent strategy, in the first case ("Among the feelings identified we select those which match our characteristics and we decide to make this or that product"), and (b) a process of making a novel strategy based on the immediate pressure for manufacturing a customized product for an important client ("In the meanwhile we look for a group of clients with similar needs and we create a complete line for them."). For it is clear that the above quoted manager is dealing with strategy making or strategy formation, even if he uses the term planning.

The same process is also described by the marketing director and the chief executive of a small company producing resin derived products:

*"It is that information [that my colleagues and I constantly try to obtain from our clients] that allow us to work out a strategy for the company. We decide to drop some products and to concentrate on others based on information that we obtain during the visits to our clients" (9,18,7,1)*

*"Innovation is always determined by the utilization that our clients make of our products. By innovation, therefore, we understand the improvement of extant products." (9,17,2,2)*

This labour-intensive genesis is thoroughly described by the chief executive of the large company operating in the paints sector:

*"Strategies take some time to ripen... urgent things are usually not important. Usually things happen like this: a problem is raised by one of the [functional] areas and we discuss and discuss; I mean leading problems, it's those that demand strategies. Since all the senior staff of the company travel a lot - we keep travelling abroad to talk to suppliers, visit fairs, contact the companies we work with, from Taiwan to the USA or every corner of Europe -, when we detect one of those problems, we use our travels to exchange views, enquire how they do this or that, what's going on in this or that field. We bring all that feed-back together with the reading of some journal articles, eventually with the opinion of a consultant... we keep on discussing and things eventually come out and stand on their own." (14,26,10,4)*

At this point it is impossible not to establish the parallel with the "crafting strategy" process described by Mintzberg:

*"Out in the field, a salesman visits a customer. The product isn't quite right, and together they work out some modifications. The salesman returns to his company and puts the changes through; after two or three more rounds, they finally get it right. A new product emerges, which eventually opens a new market. The company has changed strategic course." (Mintzberg, 1991:107)*



A great **flexibility** is demanded from companies in order to adapt to changes in the environment. The quotations below show similar attitudes from companies with a predominantly entrepreneurial approach to business, even if the sizes vary. The first quotation comes from the entrepreneur of a medium-size company in the paints sub-sector, the second from the chief executive of a large company in the same sub-sector, the third from one of the marketing directors of a medium size company in the cosmetics sub-sector and the fourth from a small company in the plastics sub-sector:

"In a small company like ours *strategic changes take place whenever it's necessary to adapt to market changes or to create new situations that might improve results, such as becoming an alternative to our competitors.*"  
(13,25,6,3)

"There's no way of avoiding risks in this business, we're never sure that the decision we are making is correct. When we think it's correct, we come forward. *We have to be flexible enough to retreat, if necessary.*"  
(14,26,11,2)

"We debate the general issues concerning the company and then the products themselves. Once the strategy is defined, things are passed on to the directors who are going to implement the decisions. *Sometimes a market opportunity pops out independently of any plan. If it's good, we grab it.*"  
(16,34,13,1)

"We began by producing for the shoe industry and now our concern is to reduce the weight of our production oriented to this industry. Because the situation is getting worse and we have to be alert. We cannot stagnate. *The company has to change course whenever necessary.*" (12,24,7,2)

A different position was transmitted by the chief executive of the large chlorine manufacturer. A more formal process seems to take place, and apparently there is less room for unexpected manoeuvres that might

change the company's course of action, even though some degree of flexibility is considered necessary:

"Strategic issues are discussed between the executive commission and the senior staff... Then there's the meetings with the administration board, the directors and the shareholders. We think over the proposals submitted and the strategy is defined. *We try to follow it, but introducing corrections according to the deflections that occur and the needs of the external environment.*" (18,36,7,3)

Flexibility is, therefore, considered an important weapon to deal with the instability of the environment. But Loasby (1991) reminds that "flexibility is not the result of good early warning, it is an alternative to it".

### **The decision making process**

Strategic decisions are understood here as those that "determine the overall direction of an enterprise" (Quinn, 1991). The decision making process concerning strategic aspects in the companies analyzed for this study, involves the administration board and the directors of the company, in the more sophisticated structures; and lies with the entrepreneur alone or the entrepreneur and his or her partner in the small, simple and loosely structured companies. If the actors are basically the same, the process may vary according to the **management style** adopted by the chief executive.

In a medium size pharmaceutical company the process was described by the chief executive and the marketing director as follows:

"An exhaustive discussion is made based on the information available *with those responsible for a given area...* [about] the markets' potential, our strong and weak points... There's always an economic study, choices are made and priorities defined concerning the adoption of strategies..." (1,1,11,2)

"The process sometimes takes place during a board meeting, *sometimes the chief executive likes to approach each of the directors, calls them one by one* and transmits the directives... Sometimes it happens that the production director is doing something and I'm doing something else and we don't match and there's a small shock... *I was used to another philosophy, all the directors would gather around a table with the chief executive, a work plan and a timetable would be settled down, each one would be assigned responsibilities and two weeks later we would talk again and see how things were.*" (1,2,16,1)

First we have the statement of the chief executive saying that the issue is discussed "with those responsible for a given area"; secondly, the comment of the marketing director "the chief executive likes to approach each of the directors, calls them one by one" which is in accordance with the previous statement, and then there is the description, made by a marketing director that "was used to another philosophy", of eventual mismatches between directors, attributed to the work habits of the chief executive.

The second example is picked up from the data of the large company of the paints sub-sector:

"In the decision making process participate three of the members of the administration board and six directors. Formally or informally, these people discuss day after day, around this table or in the corridors, at lunch or at dinner, *we struggle on and on till we reach a more or less consensual solution.* Then we come forward." (14,26,12,2)

"It depends on the sort of decision and the area concerned. Due to the company's history, the decisions used to depend on the final appreciation of

a single person, [the father of the present general director of the company]. Now it's the son who has the final word. None of them, however, is the sort of person to decide against the opinion of the director more directly concerned. But the great strategic decisions are made by them, no matter who had the initial idea. *It ends up by being the decision of a single person, [independently of being a participative process].*" (14,27,7,5-8,1)

The first quotation is from the chief executive, who pictures the process as a **lively, participative and informal process** until "a more or less consensus solution" is reached; the second quotation is produced by the assistant to the chief executive for the commercial area, who stresses that the decision is ultimately the chief executive's, even if the process is participative: "It ends up by being the decision of a single person".

The chief executives of two large companies, a multi-national of the pharmaceutical sub-sector and the synthetic fibre producer, described the process as a **formal and complex process**:

"When an idea is submitted for appreciation, it brings a market research attached... It is important to listen to our clients, since we don't sell final products, only raw material, and our clients are laboratories located in several countries... The financial grounds are appreciated, as well as the technical difficulties... It's a very complex process... It may take ten years to develop a new molecule." (6,12,4,2-5,1)

"We hold meetings that we call development meetings three times a year, but they could indeed be called strategy meetings. The state of the art is made for the ongoing processes and new ideas and suggestions are presented that might influence the future of the company in strategic terms... [All the directors and two of the administrators participate in these meetings]." (19,38,7,3)

The chief executive of a medium size pharmaceutical company brought in an important issue, that of the lack of capacity of some companies to tackle strategic issues:

"If the decision has to do with entering a certain market segment, it is mainly a decision of the administration. But the senior executives of the medical and marketing areas are involved in that decision, because the situation is analyzed in detail: if we have interest and capacity to enter that market, which are our competitive advantages. *This participation is insufficient. Those who have a deeper knowledge of a certain market area should be able to develop certain analyses* and to present a range of options that would help top managers to make soundly based decisions. *We have few executives, in key areas such as marketing, with a good perspective of strategic aspects*; their experience does not allow them to make strict analyses involving factors that can not be appreciated in the short term." (5,11,7,2-8,1)

This manager is in fact identifying the lack of two different sorts of skills in his company: (a) the **lack of analytical skills**, that would enable the chief executive to make "soundly based decisions" and (b) the **lack of capacity to synthesize**, i.e. to make strategies ("We have few executives... with a good perspective of strategic aspects"). Ansoff (1987:108) remarked that, not only do organizations generally lack information about themselves and their environment, they also lack "the managerial talents capable of formulating and implementing strategy".

### **8.3. STRATEGIC CHANGE**

#### **Increase in product quality**

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. In this last case, fear was expressed that technical barriers would replace customs barriers:

"The important factor [introduced by the Single Market] has to do with directives concerning the environment, social benefits for workers and quality certification. We've already entered the process of certification. If it's true that customs barriers are abolished, it's also true that technical barriers may be introduced. It may become difficult for us to sell fibre to an Italian or German spinner if the company is not certified." (19,38,4,4-5,1)

Quality certification was associated with **environment protection**, an increasingly important matter for these highly pollutant industries; the chlorine producer admitted that an important investment was the cosmetic operation on the company's image as a polluter:

"An important problem raised in the last years is the ecological offensive at world level and in this country as well, against chlorine and derived products. ... This has direct consequences for this company because of the paper-pulp industry [*one of the main client industries of this company*] and indirect consequences because of the market situation of chlorine derived products." (18,36,5,2)

"The environment aspect is important for us from the psychological point of view, for external and internal reasons... bad environmental conditions affect productivity. Because we manufacture environmentally aggressive products, we have to work on the image of whom we are, and what we do." (18,36,6,2)

In the paints sub-sector the two companies analyzed had engaged in the development of products that were environment-friendly and less toxic for people.

The means used to hit the target of increasing quality varied from the **acquisition of new equipment to the automation of production or the building of new plants**, using capital of their own or benefiting from development programmes.

The entrepreneur of a small company in the plastics sub-sector compared the situation of his company with that of some of his competitors who had opted for acquiring second hand machinery:

"In anticipation of what was going to happen, we equipped the factory and the laboratory with modern machinery. But this turned against us because some competitors acquired second hand machinery. For this reason, they were free from fixed costs and duties, which allowed them more flexibility in commercial terms. We're well equipped and we produce good quality, so we're not worried about competition [as far as quality is concerned], be it internal or external. But I'm concerned about costs." (8,15,4,5-6,1)

The marketing director of the fast-growing company in the plastics sub-sector described the process of automation carried out in his company:

"We tried to automate the whole company and the evolution was such that the computing department grew into a company which is quite well implanted now in the District of Leiria.... We are now reformulating the computing system in order to adapt it to our growth." (7,14,3,3)

Where the decision to invest in new plants and increased product quality was adopted, that additional production capacity was in some cases used **to produce for other companies**. That was the case of a pharmaceutical company:

"The strategy adopted consisted in adapting our production to the quality demanded by the EC and at the same time use that capacity to produce drugs for third parties, which improved considerably our ratio of costs."  
(3,7,4,3)

## **Diversification and internationalization**

**Internationalization** was pursued by dynamic companies enjoying a steady growth trend, independently of size or sub-sector. In the pharmaceutical sub-sector, apart from the two multi-national companies, only one of the remaining four companies had engaged in internationalization:

"In what concerns our own country we don't intend to alter anything because it [our strategy] has been a success.... The alterations that took place were the decision to internationalize and to increase the level of quality of our products." (2,3,5,3)

Internationalization was embraced by both companies of the paints sub-sector, in different ways. The larger company multiplied its presence in different geographic areas, and intensified it in the only European country where it is thought to be cost-effective, Spain:

"In addition to the springboard [that we already have] in Galicia, we're planning to make a joint-venture with a Spanish company in the area of Madrid or Barcelona." (14,27,7,2)

"We have factories in Angola and Mozambique which were already active before the 25th of April. And we've built a factory in Cabo Verde, and we're about to open another one in Guiné-Bissau." (14,28,6,3)

The smaller company moved **from exporting** through resellers to the **establishment *in loco***, but limited to the area geographically closer to



its premises in Oporto (Galicia, in the north of Spain) and following the principles that are dear to the organization, keeping a close relationship with its clients and providing a whole range of services together with the product:

"We've always tried to work in specialized fields, where the relationship with the client is closer and we're not dependent on heavy marketing campaigns, since we don't have good skills in this field. We prefer this close contact with the client so that we can provide the product and the service altogether." (13,25,5,3-6,1)

Internationalization had become a priority for one of the companies in the plastics sub-sector that had recently become a market leader in its own segment. None of the remaining three companies of this sub-sector had any aspiration to go beyond the national market, with or without frontiers, and they were all struggling for survival.

The leading company in the plastics sub-sector was fully committed to succeed in what was called the two axes of its strategy:

"In commercial terms, to cover the ground, i.e. to hold on the market that we have presently and develop the distribution network in Portugal, Spain and England, and in industrial terms to specialize, to increase the technological capacity and to improve the quality substantially." (7,13,5,1)

Because of the colonial past of Portugal, strong links, cultural, commercial and economic, persist with the African territories that were once under Portuguese administration. Some of the companies approached for this study had been established in those territories before independence or had done so afterwards, or were intending to do it as

soon as the political conditions allowed the necessary stability. One of the important **strategic reorientations** determined by the advent of the Single Market consisted, for the companies that intended to do that, in dropping those plans in favour of their **establishment in an EC member state**. In other cases, the strategy was revised in order to include the penetration in the European market together with the presence in Africa or in America.

"We had decided before to give priority to the African countries, especially the Portuguese speaking countries, where we have already a reasonable sales volume, and also to Central America. We are presently making market research to extend our presence to Latin America... We are trying to introduce some of our products into some European countries... and if things go right, we may very well change our priorities in favour of the European markets." (2,3,6,1-2)

The leading company in the resin segment was forced by the crisis caused by the emergence of substitute products - which had nothing to do with the Single Market - to give priority to the most promising of their market segments:

"The market of printing ink... is what interests us most now, because the products are more difficult to manufacture, more sophisticated and allow larger margins of commercialization." (9,18,4,1)

### **Growth versus specialization**

Three different strategies of growth were identified: growth through **acquisitions**, growth through internal development, and growth through the negotiation of **strategic alliances**. The first option was pursued by the large company in the paints sub-sector, while the medium-size

company in the plastics sub-sector, opted for internal development of new products and penetration of new markets.

Referring to the **acquisitions** that the company had carried out recently, the chief executive of the large company in the paints sub-sector commented:

"It had mainly to do with our search for a business volume that would allow us to become a company in European terms, in the range of eighty to one hundred million dollars. We reached that target, which brought benefits in terms of stock management: it's easier to buy and store great quantities than small quantities. ...With X and Y [*the two companies recently acquired*] we've got 60% more volume than we had before." (14,26,9,3)

One of the companies of the cosmetics sub-sector was trying to overcome the increasing difficulties that it was facing, by negotiating a **strategic alliance**. The process was still on, and the administration was open to any solution, from accepting new share-holders to embarking on a joint-venture or getting into a merger or an acquisition process. The chairman of the board described the process as follows:

"I looked for some Portuguese entrepreneurs who could develop some synergy with us. I realized that the Portuguese entrepreneurs are extremely selfish. The companies want the meat but not the bones. They would buy the marks, the representations, but give up the staff... It would be practically a liquidation." (16,31,13,3)

"The financial companies demonstrated more interest than the companies of the same branch. But we're more interested in a company whose products we could commercialize, because we have a great distribution capacity and we are established in practically all the sales points of cosmetics and perfumery." (16,31,14,1)

Another company, this one from the pharmaceutical sub-sector, had engaged in a strategic alliance with a multi-national company. The R&D director of the company presented the situation in the following terms:

"There are possibilities of survival through associations and joint ventures, but with limitations, because these multi-national companies accept joint ventures in a position of minority when they are not familiar with the market and they find it better to have a partner who knows the market, but their idea is to swallow the national partner sooner or later." (3,7,5,2)

Other companies opted to **specialize**. The smaller company in the paints sub-sector chose to preserve a product niche where it has a strong presence (powder paints) and a pharmaceutical company specialized in the production of small series of drugs:

"The Single Market was the main reason why we adopted a strategy of specialization in small and medium series. This was already one of our strengths because we were inserted in a small market and there was no point in trying to compete with the large single-product industrial units... It is in the small and medium series that we can compete, from the point of view of quality as well as cost." (1,1,12,1)

### **Other choices**

Some companies seemed to feel happy with their positions. That was the case of two companies of the pharmaceutical sub-sector:

"For us, joining the EC and the Single Market did not influence our policy, strategy or activity because we've become a multi-national company long ago. Our exports amount to 99% of our sales ever since." (6,12,3,3)

"We won't make drastic changes in the next years. In terms of external contacts and agreements we have a comfortable situation. But we might increase and diversify the collaboration with companies established in the

Portuguese market and extend that collaboration to foreign companies."  
(5,11,4,3)

## **8.4. ORGANIZATIONAL BEHAVIOUR AND STRATEGIC CHOICE**

Strategic choice is based on the assessment of environmental threats and opportunities. But the assessment, in turn, can be based on objective indicators (Porter, 1980) or on subjective interpretations (Duncan, 1972; Daft and Weick, 1984). The traditional opposition between concepts such as hard and soft data, objective and subjective measures, as well as the controversy about quantitative versus qualitative research, all stem from overlooking the fact that, ultimately, all types of data about reality are representations of reality and not reality itself, as suggested by Ratcliffe:

"Whenever word symbols (language) or number symbols (mathematics) are used to describe or re-present an event or experience, the process inevitably and always involves a translation or interpretation from one logic system (experience) to another (symbolic). A necessary component of this process is the translator or interpreter, and therefore the process is fundamentally qualitative or assumptive in nature." (Ratcliffe, 1983)

Having clarified this principle, it should be recalled, however, that it is important to make the distinction between the characteristics or psychological states of individuals (embodied in constructs such as "perceived environmental uncertainty" or PEU) and characteristics of the environment (such as turbulence, complexity or hostility), even if

the method used to collect information about the environment is based on the analysis of managers' perceptions of the environment. In fact, whenever the goal is the study of strategy making, this approach is considered not only correct but also as the most adequate, even by those who criticize the confusion undermining the concept of PEU (Starbuck, 1976; Bourgeois, 1980). As referred to in Chapter five, we are dealing with perceptions of environmental change, which have been identified as determinant for strategic choice.

Daft and Weick (1984) found that, at organizational level, activity/passivity influenced proactive/reactive behaviour in the interpretation of the environment. Behaviour is considered to be proactive when actions are considered to effect change, in the environment or in the organization, and reactive when simply responding to change. Miles and Snow (1978) used the categories of *prospectors*, *defenders* and *reactors*; the first two were considered proactive, the former by seeking new products and markets, and the second by seeking to protect core competencies. The third were considered reactive, by responding haphazardly to environmental changes.

Sutcliffe (1991) obtained empirical results which indicated a systematic link between managerial interpretations of environmental events and the initiation of organizational responses. She found that, the extent to which managers interpreted environmental conditions as opportunities (or as controllable), was associated negatively with the initiation of

internally directed responses. This means that, as the sense of control increased, managers had less of an inclination to make adaptive responses (i.e., internal changes) because they were confident of the organization's capability to respond to external situations. On the other hand, the findings suggested that, the extent to which managers interpreted environmental conditions as threats (i.e., uncontrollable) was associated positively with internal responses, a finding that is consistent with those who argue that the low control implied by the threat label leads decision makers to focus attention on changing internal organizational processes in order to adapt. Other important finding consisted in the positive association between the extent to which managers viewed environmental conditions as opportunities (i.e., positive) and the initiation of externally targeted responses. An implication of this finding is that managers who view environmental conditions as opportunities are likely to initiate organizational responses aimed at manipulating the organization's domain.

Moreover, Schneider and Meyer (1991) found that national culture influences interpretations and response to strategic issues, namely interpretations of crisis and threat, as well as proactive responses, both internally and externally oriented.

Table 8.1. pictures the span of strategic choices made in the companies studied, ranging from increase of product quality to internationalization.

TYPE OF BEHAVIOUR	ACTION TAKEN	GOAL
Reactive	Increase of product quality (acquisition of new equipment, automation of production, building of new plants)	Quality certification
	Specialization (product or market differentiation)	Creation of a product or market niche
	Growth (acquisitions, mergers, strategic alliances, internal development)	Increase of business volume
	Diversification (new products and markets in the same geography)	Expansion
Proactive	Internationalization (new geography)	Expansion

**Table 8.1. Typification of organizational behaviour concerning strategic change**



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. Growth, diversification and internationalization involve complex, risky and slow processes and are, therefore, more clearly associated with proactive behaviours.

Ansoff (1987) remarks that acquisitions and mergers are major instruments of strategic change and that internationalization and domestic diversification are alternative routes for expanding a company's portfolio. Only three of the companies studied engaged in these actions: a pharmaceutical company, a paints company and a plastics company. The first two were among the 500 largest companies operating in Portugal in 1989; in 1996, they not only remain within that group, but have improved their relative positions. The medium size plastics company has continually improved its results.

## 8.5. SUMMARY

More than any other factor, the changeability of the environment proves 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.

Strategic change in the companies analyzed revolved mainly around increasing product quality, which involved in some cases the improvement of the conditions of production and was associated, in specific cases of highly pollutant industries, with measures of environment protection. Important changes of strategic nature were diversification and internationalization, pursued by dynamic companies enjoying a steady growth trend. Growth through acquisitions and internal development 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. Specialization was adopted by companies with little scope for growth.

## CHAPTER NINE: CONCLUSIONS

### TOWARD A GROUNDED THEORY OF ENVIRONMENTAL SCANNING

The evidence collected provides an empirical basis to establish 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. The grounded theory proposed in this thesis 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 assumed by the theory is that of an open system; the components and elements that make up the grounded theory have been illustrated in Figure 3.2. Two different approaches or research methods were used. Convergence was sought between them, and contributions from both methods were integrated in order to refine concepts, categories and relationships. However, most of the evidence

on the role of company history and culture was provided basically by the case studies.

## **THE CATEGORIES**

The grounded theory of environmental scanning that is being proposed consists of six categories: 1) perceived environmental change, 2) strategic change, 3) information consciousness, 4) information climate, 5) organizational outwardness and 6) individual exposure to information.

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). Environmental scanning is the phenomenon under study and is, therefore, considered the core category, to which the above mentioned set of subsidiary categories was related. This interrelated set of categories contributes 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. The task of explaining variability among companies resides with a few key relationships among those categories.

## **PRINCIPAL RELATIONSHIPS**

### **Perceived environmental change - strategic change connection**

Perceived environmental change refers to the alteration in the pattern of events and relationships occurring in the business environment, as perceived by managers, which leads firms to adjust to new conditions. Strategic change refers to the alteration of the company's course of action in order to create new conditions or to 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.

It was found that managers perceive their business environment as extremely hostile, very complex and relatively turbulent. Change in the task environment was believed to be relatively predictable; the discontinuities identified originated outside the task or industry environment, and were caused mainly by regulatory actions. Under these conditions, the principal concern for most of the companies became their ability to respond flexibly to such changes, as and when they arose. This was shown by managers' declarations concerning the inadequacy of tight planning schemes. The critical factor became the capability to respond, which often is dependent upon the availability of resources. Access to resources of critical importance, such as certain raw materials, credit, and qualified manpower, was often mentioned as problematic. The fact that, for many of the companies, an increase of product quality was their main and, in some cases, the only strategic

concern, denotes a behaviour of the reactive type. Few companies had a clearly proactive behaviour, by engaging in actions such as diversification and internationalization. Building on previous research on managerial interpretations of the environment and on the impact of national culture on the interpretation of and response to strategic issues, it is possible to suggest that the reactive behaviour is associated with perceptions of the environment as a source of threats and, therefore, as uncontrollable; while the proactive behaviour is associated with perceptions of the environment as a source of opportunities and, therefore, as controllable.

It was apparent that the regulatory activity of the government and of the European Union was at the centre of managers' preoccupations; as was the availability of certain resources. However, the information acquisition and use patterns were not in accordance with these preoccupations. Managers attribute much more importance to and use much more frequently market-related information. This means that managers continue to engage in scanning patterns that are appropriate to conditions of stability but are unsuitable to an environment where important discontinuities were identified. Similarly, the predominant use of the surveillance or viewing scanning mode is appropriate for scanning the task environment but is not appropriate for scanning the general environment, and line managers usually lack the skills needed to search for information on the general environment, which is available from public sources; interpretation of this type of information also requires analytical skills that most companies do not have. Specialized staff would be needed for this task. Further research of managerial

scanning focus and mode in other industries would provide a basis for comparison.

### **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. 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. 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.

The environmental scanning activity, or the information seeking behaviour of managers as far as environmental information is concerned, is affected by organizational culture, size and structure; the same applies to the communication pattern established among managers. Where a strong oral culture dominates, managers tend to conform to the established culture and use predominantly oral means to acquire and transmit information, while, where an information conscious culture exists, managers are encouraged to make use of information technologies. 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. Similarly, organizational size and structure influence managers' scanning and

communication behaviour. In large, complex organizations, senior managers' scanning consists of a mix of personal monitoring and dissemination of information among direct collaborators. Senior managers of larger organizations tend to minimize their role as monitors and emphasize their role as disseminators, while managers of smaller companies assume environmental scanning as a personal responsibility and attribute great importance to this activity. Communication among managers of larger companies is made up of a mix of oral and written information: 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*. However, where an oral culture dominates, written communication is reduced to a minimum. In smaller companies, the simple structure and the subsequent concentration of functions in the hands of the owner/entrepreneur does not pose communication problems.

Organizational culture influences not only the investments made in the infrastructure, but also the type of infrastructure implemented. 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 an information culture does not exist, little investment is made in establishing information infrastructures. But the role of the top manager proves to be significant, by supporting or neglecting information-related activities and in particular the establishment or improvement of existing information infrastructures. In extreme cases, the top manager may foster the development of an information culture, by favouring the



implementation of adequate infrastructures, encouraging the adoption of information technologies, rewarding the use of those facilities by the staff, and making heavy use of them himself or herself.

Evidence was gathered that demonstrates that the responsibility for the acquisition and handling of information was partitioned by the several functional areas, and little or no integration was made between environmental information and internally-generated information, except at top level. Integration is achieved only by means of top management ability to relate, co-ordinate and interpret disparate data provided by the various functional areas. Even in large companies, where planning offices exist, it was evident that their role is mainly to collect the hard data to support top managers decisions.

#### **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. 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.

Organizational outwardness 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 proved to be favoured by technology-based and research-oriented companies, independent 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 or regional industrial associations; this collaboration is generally passive, since companies tend to act only under request. Companies of the same size going through a crisis tend to turn inwards for reorganization and show little or no inclination for this type of collaboration. Smaller companies usually lack the resources needed to be able to provide collaboration to external bodies.

Managers' exposure to information was assessed through the development of their information networks. The analysis of the 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 unskilled workers tend to provide training on-the-job.

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.

## **CONTEXTUAL FACTORS**

### **Company history and culture**

The three "best" companies in this study started as family-owned, limited liability companies which, at a certain stage, evolved into anonymous societies. However, they all kept as top manager a member of the family, the owner's son. These companies, two of them in particular, went through a difficult period after the Revolution, but none of the owners left the country, unlike many others in similar circumstances. When political and economic conditions stabilized, these companies were prepared to take advantage of the new opportunities and to expand. The transfer of power from father to son happened gradually in two of the cases, and suddenly and dramatically in the third case. All the new top managers are university-educated and introduced radical organizational changes, while maintaining an entrepreneurial approach to business. When the field-work was carried out, two of these companies were already among the 500 largest companies operating in Portugal, and the other company had already started a remarkable development process. In 1996, the first two companies not only remain

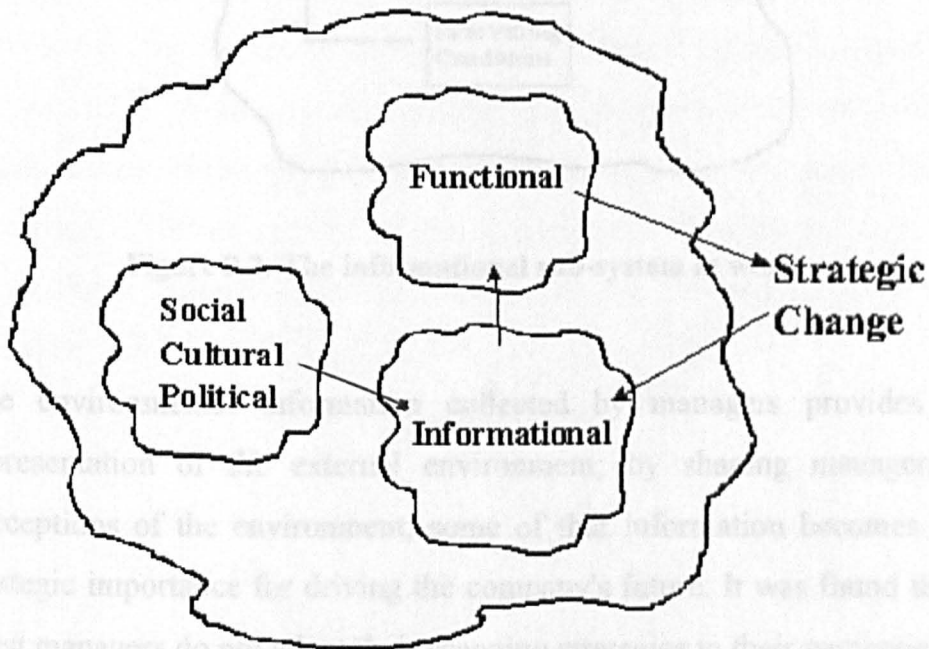
within that group, but have improved their relative positions. The other company continues to improve its results.

Organizational culture emerged as an important factor in the analysis of information issues within organizations. Formal information cultures dominate in medium to large pharmaceutical companies, including the pharmaceutical company that is part of this group of three "best" companies. Two other companies in two different sub-sectors (paints and plastics) were identified as having an oral culture and an information conscious culture respectively: these are the other two of the three "best" companies. In the paints company, the oral culture was inherited from the "family" phase of the company, and survived despite the continued growth of the company. In the plastics company, the information conscious culture was incipient and was fostered by the chief executive. An information culture had not developed in the remaining companies.

The fact that the three "best" companies have developed different sorts of cultures suggests that there is not a "best culture". Apparently, each of the companies has developed the information culture that works better within that organizational context. A follow-up study of these three companies could provide important insights into how their respective information cultures have contributed to their good performance.

## THE MODEL REVISED

The model of organization assumed by this theory is that of an open system which interacts with its environment and is made up of several interdependent sub-systems, as described in Chapter two (2.1.2.). This research focused mainly on the interaction of the informational and functional sub-systems, and in particular on the impact of managerial perceptions of environmental change (based on information that represents or recreates the external environment) on managerial strategy making that leads to strategic change. However, evidence emerged concerning the influence of the cultural sub-system on the informational sub-system. Figure 9.1. pictures the interaction of these sub-systems:



**Figure 9.1. Interaction of organizational sub-systems to effect strategic change**

On the other hand, the initial proposal (Chapter three, Figure 3.2.) was a model of the environmental scanning process according to the paradigm model of the grounded theory. Part of that model, corresponding to the informational sub-system, is now revised according to our research findings, and is illustrated in Figure 9.2.:

OVERALL CONCLUSIONS

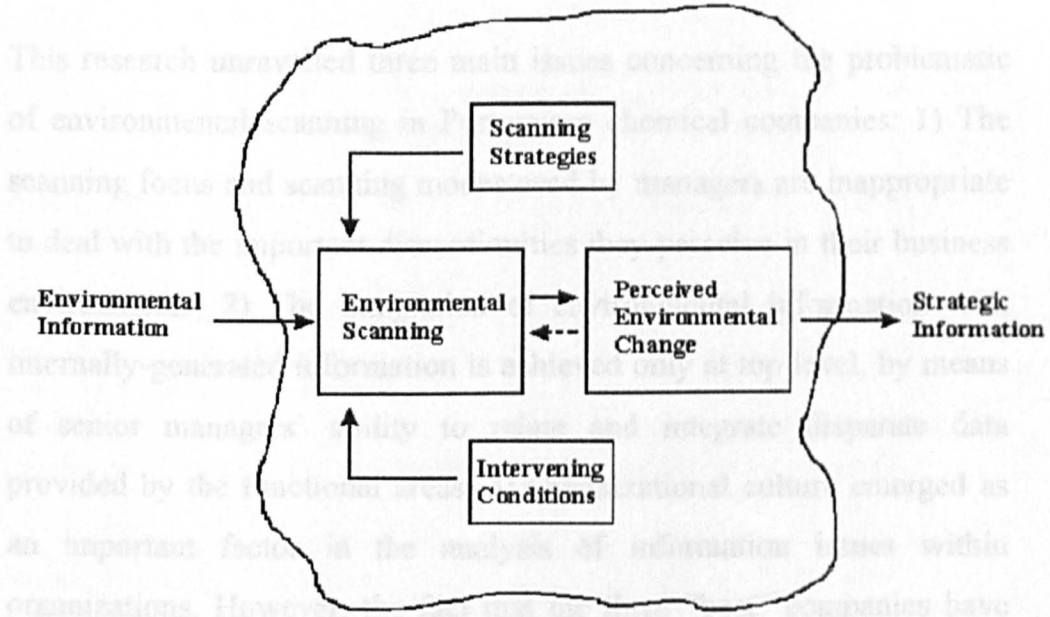


Figure 9.2. The informational sub-system at work

The environmental information collected by managers provides a representation of the external environment; by shaping managerial perceptions of the environment, some of that information becomes of strategic importance for driving the company's future. It was found that most managers do not adapt their scanning strategies to their perceptions of environmental change, either because they perceive their environments as uncontrollable or because they lack the information skills necessary to search for information and their companies lack the

analytical skills necessary to interpret certain types of information. The loop linking perceived environmental change to the environmental scanning activity is, at best, tenuous.

## **OVERALL CONCLUSIONS**

This research unravelled three main issues concerning the problematic of environmental scanning in Portuguese chemical companies: 1) The scanning focus and scanning modes used by managers are inappropriate to deal with the important discontinuities they perceive in their business environments; 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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**APPENDIX 1: CONTACT LETTER**  
**(sent to all the top managers of the firms studied)**

I am investigating how business organizations acquire and manage the information they need in order to cope with their environments. This research is part of a doctoral programme that is being carried out in the Department of Information Studies of Sheffield University, U.K., and is funded by INETI - National Institute of Engineering and Industrial Technology.

This study pays particular attention to organizational aspects concerning the acquisition, handling and dissemination of environmental information. The information needed to the investigation can be grouped into two categories:

- a) information regarding the characterization of the company (history and present position, structure, main markets, main products);
- b) information regarding the information infrastructure of the company (people involved, systems available, methods used to acquire and handle information).

This study will not be accomplished without the collaboration of firms like your own. I am writing, therefore, to invite you to participate in this project. The participation consists in an interview of about one hour, and anonymity will be guaranteed to firms willing to participate. Within a few days, I will telephone to further explain the study and to answer any questions you may have. I hope you will find the participation of your firm in this research project important enough to justify giving up some of your time.

Sincerely,

Zita C.P. Correia  
Researcher in INETI  
PhD candidate in the Dept. of Information Studies  
at Sheffield University

## **APPENDIX 2: INTERVIEW GUIDE**

**PRELIMINARY** (to be asked only from top managers)- Please tell me the story of your company: how it was born, main stages of development, critical situations it has survived, present position; everything else you find relevant to characterize the organization.

### **A- PERCEPTION OF CHANGE OCCURRING IN THE BUSINESS ENVIRONMENT**

A-1. How would you describe the evolution that took place in the business environment during the last five years?

A-2. This card contains some statements concerning features of the business environment. Please analyze these statements and select a degree for each feature, having in mind that you are reporting to the last five years:

A-2.1. The market activity of your key competitors has become:  
more predictable \_\_\_1\_\_\_2\_\_\_3 less predictable

A-2.2. The needs and preferences of your clients have become:  
more predictable \_\_\_1\_\_\_2\_\_\_3 less predictable

A-2.3. The innovation rate of operating processes, products and services has:  
decreased \_\_\_1\_\_\_2\_\_\_3 increased

A-2.4. Your industry's downswings and upswings have become:  
more predictable \_\_\_1\_\_\_2\_\_\_3 less predictable

A-2.5. The market activities of your key competitors have become:  
more hostile \_\_\_1\_\_\_2\_\_\_3 less hostile

A-2.6. Diversity in your company's production methods and marketing tactics has:

decreased \_\_\_1\_\_\_2\_\_\_3 increased

## **B- STRATEGY TOWARDS THE SINGLE MARKET**

B-1. To what extent has the advent of the Single Market influenced the definition of the main action lines for your company?

B-2. Is there in your company any group, committee or anyone in particular who answers for the issues raised by the Single Market?

B-3. How is the planning function organized in your company?

B-4. How are strategic decisions taken in your company? (How does the company decide which markets to cover or which new products to develop? Who is heard during the decision-making process? How does the process evolve?)

B-5. Please examine the following options and select with an X the one you find to be closer to the dominant strategic orientation of your company:

\_\_\_ to maintain and improve the present market shares

\_\_\_ to launch new products and penetrate new markets

B-6. Which are your views about the Single Market, in so far as opportunities and threats for your company are concerned?

## **C- RESPONSIBILITIES AND ATTITUDES CONCERNING THE ACQUISITION OF ENVIRONMENTAL INFORMATION**

(Environmental information means information about events, relationships and trends that occur in the business environment, including information about



markets, competitors and technology, which is used by managers in order to formulate strategies and establish plans).

C-1. Do you feel responsible for the regular acquisition of environmental information?

C-2. How do you face the task of acquiring information, in the larger context of your job? (Is it important or not so important, interesting or boring?)

## **D- COMMUNICATION**

D-1. Is there in this company someone or a certain group of people to whom you use to pass information regularly? Who? Why? How do you usually pass that information?

D-2. During the last twelve months did you detect a specific event or trend that has affected your company in a critical way?

D-2.1. Why do you consider that event or trend of critical importance?

D-2.2. Which sort of information did you need to face that situation?

D-2.3. How did you obtain that information?

D-2.4. Did you manage to obtain enough information to deal with that situation?

D-2.5. Did you pass this information to other people in the company? To whom?

D-2.6. How did you pass the information?

D-2.7. Was there any action or important decision taken as a result of having had access to that information?

## **E- INFORMATION INFRASTRUCTURE**

E-1. Please tell me how the information function is organized in your company.

(Is there an information unit? How many people are involved in information acquisition and handling in the whole company? Are specific procedures adopted in order to co-ordinate the information that flows into the organization? Which sort of information systems are available? How much do you think this company spends on information acquisition and handling?)

## **F- EXTERNAL LINKS**

F-1. Did your company get involved in R&D projects during the last five years? (What kind of projects? Stand-alone or joint-ventures, at national or at EC level?)

F-2. Did your company participate in any way during these last five years in the regulatory activity developed at national or at EC level?

F-3. Throughout these last five years, did your company get involved in any national or EC programme that has allowed it to benefit from measures such as relocation or the building of new plants?

F-4. Did your company promote during the last five years training and development programmes for the staff? (Which were the main target areas or functions of the training programmes? Was some of this training directed to developing information acquisition and processing skills?)

## **G- ENVIRONMENTAL INFORMATION**

G-1. Please indicate the relative importance that you attribute to the information on the following sectors (1=less important, 6=more important):

\_\_\_ competition (information concerning competitors, including their actions, decisions, strategies, plans, weak and strong points);

\_\_\_ market (information concerning markets, such as clients' preferences and distribution channels but excluding competition);

\_\_\_ technology (information about process and product technology, actual and potential);

\_\_\_ regulatory (information on the regulatory activity that may affect the company's operations, including information on staff and agencies involved in this activity);

\_\_\_ resources (information on financial, labour and raw materials markets that affect services, goods and resources needed by the company's operations);

\_\_\_ global aspects (information on demographic, social, economic and political trends).

G-2. How important do you find the information about each of these environmental sectors? (not important \_\_\_1\_\_\_2\_\_\_3very important)

G-3. How difficult is it to obtain information about each of these environmental sectors? (easy\_\_\_1\_\_\_2\_\_\_3very difficult)

(Why do you think it is so difficult to find information about this or that particular environmental sector?)

G-4. How frequently do you need information about each of these environmental sectors? (seldom\_\_\_1\_\_\_2\_\_\_3very frequently)

## **H- USE OF INFORMATION SOURCES**

H-1. This is a list of internal information sources. Please rank them according to the importance you attribute to each of them as providers of environmental information (1=less important, 5=more important):

\_\_\_ in-house meetings

\_\_\_ internal reports

\_\_\_ internal databases

\_\_\_ company people

\_\_\_ company library

H-2. Here is another list, this one with external information sources. Please rank them according to the importance you attribute to each of these sources

as providers of environmental information (1=less important, 10= more important):

\_\_\_ clients

\_\_\_ suppliers

\_\_\_ consultants

\_\_\_ banks

\_\_\_ government agencies

\_\_\_ company associations

\_\_\_ external libraries

\_\_\_ fairs and exhibitions

\_\_\_ congresses and other technical and scientific meetings

\_\_\_ external databases

H-3. Which of these two categories of information sources - internal and external - do you consider more important as providers of environmental information? Why?

H-4. You can use either personal sources (such as friends, colleagues or clients) or impersonal sources (such as fairs and publications) in order to obtain environmental information. Which of these two types of sources do you find more adequate to obtain environmental information? Why?

H-5. You can use either oral or written media in order to obtain environmental information. Which do you find more adequate for that purpose? Why?

H-6. There are certain characteristics regarding the accessibility of information sources that may influence the selection of a given information source. Please analyze the characteristics listed below and attribute to each of them a degree corresponding to the importance that you attribute to each of them whenever you have to choose an information source (1=not important, 3=very important).

H-6.1. Physical proximity of the information source:

not important \_\_\_ 1 \_\_\_ 2 \_\_\_ 3 very important

H-6.2. Time and effort needed to use the information source:

not important \_\_\_ 1 \_\_\_ 2 \_\_\_ 3 very important

H-6.3. Cost of access to the information source:

not important \_\_\_ 1 \_\_\_ 2 \_\_\_ 3 very important

H-6.4. Ease of use of the information source:

not important \_\_\_ 1 \_\_\_ 2 \_\_\_ 3 very important

## **I- SCANNING MODE**

I-1. Generally speaking, how regularly do you scan the environment? (Daily, weekly, occasionally?)

I-2. The acquisition of information about the business environment may happen as a result of deliberate efforts but it may also happen by chance. Which of these circumstances happens more often?

I-3. Can you establish a relationship between these circumstances - acquiring the information deliberately or by chance - and the nature of the information that you obtain?

### **APPENDIX 3: TABLES**

The statistical analysis of the data was made using SPSS. In some of the tables, messages are displayed to note irregularities:

**Missing:** occurrence of blank spaces where one or more respondents should have assigned a value to a variable or indicated a choice.

**Not applicable:** in some cases, one or more respondents unfolded the questions and provided two answers where only one was expected; although these cases could not be considered for statistical purposes, they were used for the qualitative analysis of the matters at stake.

Label	Frequency	Percent	Valid percent
Predictable	15	37,5	37,5
Fairly predictable	11	27,5	27,5
Unpredictable	13	32,5	32,5
Not applicable	1	2,5	2,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 1- COMPET1: predictability of competitor activity

AGECOMP	Count Row Pct	Predictable	Fairly predictable	Unpredictable	Row Total
Est. before 1945	5 38,5	5 38,5	4 30,8	4 30,8	13 32,5
Est. 1945-1974	7 36,8	7 36,8	5 26,3	6 31,6	19 47,5
Est. after 1975	3 37,5	3 37,5	2 25,0	3 37,5	8 20,0
Column Total	15 37,5	15 37,5	11 27,5	13 32,5	40 100,0

Number of Missing Observations: 0

Table 2- AGECOMP by COMPET1: predictability of competitor activity

SECTOR	Count Row Pct	Predictable	Fairly predictable	Unpredictable	Not applicable	Row Total
Pharmaceutical	5 41,7	5 41,7	2 16,7	5 41,6		12 30,0
Plastics			3 37,5	4 50,0	1 12,5	8 20,0
Paints	2 40,0	2 40,0	2 40,0	1 20,0		5 12,5
Cosmetics	3 60,0	3 60,0	2 40,0			5 12,5
Others	5 50,0	5 50,0	2 20,0	3 30,0		10 25,0
Column Total	15 37,5	15 37,5	11 27,5	13 32,5	1 2,5	40 100,0

Number of Missing Observations: 0

Table 3- SECTOR by COMPET1: predictability of competitor activity

ROLE	Count Row Pct	Predictable	Fairly predictable	Unpredictable	Not applicable	Row Total
Board directors	9 36,0	5 20,0	11 44,0			25 62,5
Non-board directors	6 40,0	6 40,0	2 13,3	1 6,7		15 37,5
Column Total	15 37,5	11 27,5	13 32,5	1 2,5		40 100,0

Number of Missing Observations: 0

Table 4- ROLE by COMPET1: predictability of competitor activity

OWN	Count Row Pct	Predictable	Fairly predictable	Unpredictable	Not applicable	Row Total
SA	12 40,0	9 30,0	8 26,7	1 3,3		30 75,0
Lda	3 30,0	2 20,0	5 50,0			10 25,0
Column Total	15 37,5	11 27,5	13 32,5	1 2,5		40 100,0

Number of Missing Observations: 0

Table 5- OWN by COMPET1: predictability of competitor activity

Label	Frequency	Percent	Valid percent
Predictable	19	47,5	47,5
Fairly predictable	8	20,0	20,0
Unpredictable	12	30,0	30,0
Not applicable	1	2,5	2,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 6- CLIENT: clients' preferences



Count AGECOMP Row Pct	Predictable	Fairly predictable	Unpredictable	Not applicable	Row Total
Est. before 1945	8 61,5	3 23,1	2 15,4		13 32,5
Est. 1945-1974	7 36,8	5 26,3	6 31,6	1 5,3	19 47,5
Est. after 1975	4 50,0		4 50,0		8 20,0
Column Total	19 47,5	8 20,0	12 30,0	1 2,5	40 100,0

Number of Missing Observations: 0

Table 7- AGECOMP by CLIENT: clients' preferences

Count SECTOR Row Pct	Predictable	Fairly predictable	Unpredictable	Not applicable	Row Total
Pharmaceutical	5 41,7	6 50,0	1 8,3		12 30,0
Plastics	1 12,5	1 12,5	6 75,0		8 20,0
Paints	5 100,0				5 12,5
Cosmetics	4 80,0		1 20,0		5 12,5
Others	4 40,0	1 10,0	4 40,0	1 10,0	10 25,0
Column Total	19 47,5	8 20,0	12 30,0	1 2,5	40 100,0

Number of Missing Observations: 0

Table 8- SECTOR by CLIENT: clients' preferences

Count ROLE Row Pct	Predictable	Fairly predictable	Unpredictable	Not applicable	Row Total
Board directors	9 36,0	7 28,5	9 36,0		25 62,5
Non-board directors	10 66,7	1 6,7	3 20,0	1 6,7	15 37,5
Column Total	19 47,5	8 20,0	12 30,0	1 2,5	40 100,0

Number of Missing Observations: 0

Table 9- ROLE by CLIENT: clients' preferences

OWN	Count Row Pct	Predictable	Fairly predictable	Unpredictable	Not applicable	Row Total
SA	15 50,0	7 23,3	7 23,3	1 3,3	30 75,0	
Lda	4 40,0	1 10,0	5 50,0		10 25,0	
Column Total	19 47,5	8 20,0	12 30,0	1 2,5	40 100,0	

Number of Missing Observations: 0

Table 10- OWN by CLIENT: clients' preferences

Label	Frequency	Percent	Valid percent
Decreased	2	5,0	5,1
Stabilized	17	42,5	43,6
Increased	19	47,5	48,7
Not applicable	1	2,5	2,6
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases 39 Missing cases 1

Table 11- INNOV: rate of innovation

AGECOMP	Count Row Pct	Decreased	Stabilized	Increased	Not applicable	Row Total
Est. before 1945	1 7,7	3 23,1	8 61,6	1 7,7	13 33,3	
Est. 1945-1974	1 5,6	9 50,0	8 44,4		18 46,2	
Est. after 1975		5 62,5	3 37,5		8 20,5	
Column Total	2 5,1	17 43,6	19 48,7	1 2,6	39 100,0	

Number of Missing Observations: 1

Table 12- AGECOMP by INNOV: rate of innovation

SECTOR	Count Row Pct	Decreased	Stabilized	Increased	Not applicable	Row Total
Pharmaceutical			5 41,7	6 50,0	1 8,3	12 30,8
Plastics			5 62,5	3 37,5		8 20,5
Paints	1 20,0	1 20,0	1 20,0	3 60,0		5 12,8
Cosmetics				4 100,0		4 10,3
Others	1 10,0		6 60,0	3 30,0		10 25,6
Column Total		2 5,1	16 43,6	19 48,7	1 2,6	39 100,0

Number of Missing Observations: 1

Table 13- SECTOR by INNOV: rate of innovation

ROLE	Count Row Pct	Decreased	Stabilized	Increased	Not applicable	Row Total
Board directors	1 4,0	10 40,0	13 52,0	1 4,0		25 64,1
Non-board directors	1 7,1	7 50,0	6 42,9			14 35,9
Column Total		2 5,1	17 43,6	19 40,7	1 2,6	39 100,0

Number of Missing Observations: 1

Table 14- ROLE by INNOV: rate of innovation

OWN	Count Row Pct	Decreased	Stabilized	Increased	Not applicable	Row Total
SA	2 6,9	9 31,0	17 58,6	1 3,4		29 74,4
Lda			8 80,0	2 20,0		10 25,6
Column Total		2 5,1	17 43,6	19 48,7	1 2,6	39 100,0

Number of Missing Observations: 1

Table 15- OWN by INNOV: rate of innovation

Label	Frequency	Percent	Valid percent
More hostile	36	90,0	90,0
Same hostility	1	2,5	2,5
Less hostile	2	5,0	5,0
Not applicable	1	2,5	2,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 16- COMPET2: hostility of competitors

AGECOMP	Count Row Pct	More hostile	Same hostility	Less hostile	Not applicable	Row Total
Est. before 1945	13 100,0					13 32,5
Est. 1945-1974	15 79,0		1 5,3	2 10,5	1 5,3	19 47,5
Est. after 1975	8 100,0					8 20,0
Column Total	36 90,0	1 2,5	2 5,0	1 2,5	40 100,0	

Number of Missing Observations: 0

Table 17- AGECOMP by COMPET2: hostility of competitors

SECTOR	Count Row Pct	More hostile	Same hostility	Less hostile	Not applicable	Row Total
Pharmaceutical	12 100,0					12 30,0
Plastics	6 75,0		1 12,5	1 12,5		8 20,0
Paints	5 100,0					5 12,5
Cosmetics	5 100,0					5 12,5
Others	8 80,0			1 10,0	1 10,0	10 25,0
Column Total	36 90,0	1 2,5	2 5,0	1 2,5	40 100,0	

Number of Missing Observations: 0

Table 18- SECTOR by COMPET2: hostility of competitors

ROLE	Count Row Pct	More hostile	Same hostility	Less hostile	Not applicable	Row Total
Board directors	22 88,0		1 4,0	2 8,0		25 62,5
Non-board directors	14 93,4				1 6,7	15 37,5
Column Total		36 90,0	1 2,5	2 5,0	1 2,5	40 100,0

Number of Missing Observations: 0

Table 19 - ROLE by COMPET2: hostility of competitors

OWN	Count Row Pct	More hostile	Same hostility	Less hostile	Not applicable	Row Total
SA	26 87,5		1 3,3	2 6,7	1 3,3	30 75,0
Lda	10 100,0					10 25,0
Column Total		36 90,0	1 2,5	2 5,0	1 2,5	40 100,0

Number of Missing Observations: 0

Table 20- OWN by COMPET2: hostility of competitors

Label	Frequency	Percent	Valid percent
Predictable	11	27,5	27,5
Fairly predictable	10	25,0	25,0
Unpredictable	19	47,5	47,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 21- UPDOWN: industry cycle

Number of Missing Observations: 0

Table 21 - ROLE by UPDOWN: industry cycle



Count AGECOMP Row Pct	Predictable	Fairly predictable	Unpredictable	Row Total
Est. before 1945	5 38,5	4 30,8	4 30,8	13 32,5
Est. 1945-1974	5 26,4	3 15,8	11 57,9	19 47,5
Est. after 1975	1 12,5	3 37,5	4 50,0	8 20,0
Column Total	11 27,5	10 25,0	19 47,5	40 100,0

Number of Missing Observations: 0

Table 22- AGECOMP by UPDOWN: industry cycle

Count SECTOR Row Pct	Predictable	Fairly predictable	Unpredictable	Row Total
Pharmaceutical	4 33,3	3 25,0	5 41,7	12 30,0
Plastics	3 37,5	1 12,5	4 50,0	8 20,0
Paints	2 40,0	1 20,0	2 40,0	5 12,5
Cosmetics	2 40,0	3 60,0		5 12,5
Others		2 20,0	8 80,0	10 25,0
Column Total	11 27,5	10 25,0	19 47,5	40 100,0

Number of Missing Observations: 0

Table 23- SECTOR by UPDOWN: industry cycle

Count ROLE Row Pct	Predictable	Fairly predictable	Unpredictable	Row Total
Board directors	5 20,0	6 24,0	14 56,0	25 62,5
Non-board directors	6 40,0	4 26,7	5 33,3	15 37,5
Column Total	11 27,5	10 25,0	19 47,5	40 100,0

Number of Missing Observations: 0

Table 24- ROLE by UPDOWN: industry cycle

OWN	Count Row Pct	Predictable	Fairly predictable	Unpredictable	Row Total
SA	9 30,0	7 23,0	14 46,6	30 75,0	
Lda	2 20,0	3 30,0	5 50,0	10 25,0	
Column Total	11 27,5	10 25,0	19 47,5	40 100,0	

Number of Missing Observations: 0

Table 25- OWN by UPDOWN: industry cycle

Label	Frequency	Percent	Valid percent
Decreased	1	2,5	2,5
Stabilized	10	25,0	25,0
Increased	28	70,0	70,0
Not applicable	1	2,5	2,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 26- DIVER: marketing tactics

AGECOMP	Count Row Pct	Decreased	Stabilized	Increased	Not applicable	Row Total
Est. before 1945				13 100,0		13 32,5
Est. 1945-1974	1 5,3	5 26,3	12 63,1	1 5,3	19 47,5	
Est. after 1975			5 62,5	3 37,5		8 20,0
Column Total	1 2,5	10 25,0	28 70,0	1 2,5	40 100,0	

Number of Missing Observations: 0

Table 27- AGECOMP by DIVER: marketing tactics

SECTOR	Count Row Pct	Decreased	Stabilized	Increased	Not applicable	Row Total
Pharmaceutical	1 8,3			10 83,4	1 8,3	12 30,0
Plastics			2 25,0	6 75,0		8 20,0
Paints				5 100,0		5 12,5
Cosmetics				5 100,0		5 12,5
Others			8 80,0	2 20,0		10 25,0
Column Total		1 2,5	10 25,0	28 70,0	1 2,5	40 100,0

Number of Missing Observations: 0

Table 28- SECTOR by DIVER: marketing tactics

ROLE	Count Row Pct	Decreased	Stabilized	Increased	Not applicable	Row Total
Board directors	1 4,0		4 16,0	19 76,0	1 4,0	25 62,5
Non-board directors			6 40,0	9 60,0		15 37,5
Column Total		1 2,5	10 25,0	28 70,0	1 2,5	40 100,0

Number of Missing Observations: 0

Table 29- ROLE by DIVER: marketing tactics

OWN	Count Row Pct	Decreased	Stabilized	Increased	Not applicable	Row Total
SA	1 3,3		5 16,7	23 76,6	1 3,3	30 75,0
Lda			5 50,0	5 50,0		10 25,0
Column Total		1 2,5	10 25,0	28 70,0	1 2,5	40 100,0

Number of Missing Observations: 0

Table 30- OWN by DIVER: marketing tactics



Count AGECOMP	Not Important	Relatively important	Very important	Row Total
Est. before 1945		5 38,5	8 61,6	13 32,5
Est. 1945-1974	5 26,3		14 73,7	19 47,5
Est. after 1975		1 12,5	7 87,5	8 20,0
Column Total	5 12,5	6 15,0	29 72,5	40 100,0

Number of Missing Observations: 0

Table 31- AGECOMP by COMPINF1: how important is competitor information?

Count AGECOMP	Easy	Relatively difficult	Very difficult	Row Total
Est. before 1945	5 38,5	1 7,7	7 53,9	13 33,3
Est. 1945-1974	3 16,7	3 16,7	12 66,7	18 46,2
Est. after 1975	1 12,5	1 12,5	6 75,0	8 20,5
Column Total	9 23,1	5 12,9	25 64,1	39 100,0

Number of Missing Observations: 1

Table 32- AGECOMP by COMPINF2: how difficult is it to obtain competitor information?

Count AGECOMP	Seldom	Relatively frequently	Very frequently	Row Total
Est. before 1945		3 23,1	10 76,9	13 35,1
Est. 1945-1974	4 25,1	3 18,8	9 56,3	16 43,2
Est. after 1975	1 12,5	2 25,0	5 62,5	8 21,6
Column Total	5 13,5	8 21,7	24 64,8	37 100,0

Number of Missing Observations: 3

Table 33- AGECOMP by COMPINF3: how frequently is competitor information used?

SECTOR	Count Row Pct	Not Important	Relatively important	Very important	Row Total
Pharmaceutical	3 25,0	2 16,7	7 58,3	12 30,0	
Plastics	2 25,0		6 75,0	8 20,0	
Paints		3 60,0	2 40,0	5 12,5	
Cosmetics			5 100,0	5 12,5	
Others		1 10,0	9 90,0	10 25,0	
Column Total	5 12,5	6 15,0	29 72,5	40 100,0	

Number of Missing Observations: 0

Table 34- SECTOR by COMPINF1: how important is competitor information?

SECTOR	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Pharmaceutical	5 45,5	2 18,2	4 36,3	11 28,2	
Plastics	1 12,5	1 12,5	6 75,0	8 20,5	
Paints	2 40,0	2 40,0	1 20,0	5 12,8	
Cosmetics	1 20,0		4 80,0	5 12,8	
Others			10 100,0	10 25,6	
Column Total	9 23,1	5 12,9	25 64,1	39 100,0	

Number of Missing Observations: 1

Table 35- SECTOR by COMPINF2: how difficult is it to obtain competitor information?

SECTOR	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Pharmaceutical	3 27,3	4 36,4	4 36,4	11 29,7	
Plastics	1 16,7	1 16,7	4 66,7	6 16,2	
Paints	1 20,0	1 20,0	3 60,0	5 13,5	
Cosmetics			5 100,0	5 13,5	
Others		2 20,0	8 80,0	10 27,0	
Column Total	5 13,5	8 21,6	24 64,9	37 100,0	

Number of Missing Observations: 3

Table 36- SECTOR by COMPINF3: how frequently is competitor information used?

OWN	Count Row Pct	Not Important	Relatively important	Very important	Row Total
SA	5 16,7	4 13,3	21 70,0	30 75,0	
Lda		2 20,0	8 80,0	10 25,0	
Column Total	5 12,5	6 15,0	29 72,5	40 100,0	

Number of Missing Observations: 0

Table 37- OWN by COMPINF1: how important is competitor information?

OWN	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
SA	7 24,1	4 13,8	18 62,1	29 74,4	
Lda	2 20,0	1 10,0	7 70,0	10 25,6	
Column Total	9 23,1	5 12,8	25 64,1	39 100,0	

Number of Missing Observations: 1

Table 38- OWN by COMPINF2: how difficult is it to obtain competitor information?

OWN	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
SA	4 14,8	5 18,5	18 66,7	27 73,0	
Lda	1 10,0	3 30,0	6 60,0	10 27,0	
Column Total	5 13,5	8 21,6	24 64,9	37 100,0	

Number of Missing Observations: 3

Table 39- OWN by COMPINF3: how frequently is competitor information used?

AGECOMP	Count Row Pct	Not Important	Relatively important	Very important	Row Total
Est. before 1945		2 15,4	11 84,6	13 32,5	
Est. 1945-1974	1 5,3	7 36,8	11 57,9	19 47,5	
Est. after 1975	1 12,5	1 12,5	6 75,0	8 20,0	
Column Total	2 5,0	10 25,0	28 70,0	40 100,0	

Number of Missing Observations: 0

Table 40- AGECOMP by MARKINF1: how important is market information?

AGECOMP	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Est. before 1945	3 23,1	5 38,5	5 38,5	13 33,3	
Est. 1945-1974	2 11,1	8 44,5	8 44,5	18 46,2	
Est. after 1975		6 75,0	2 25,0	8 20,5	
Column Total	5 12,8	19 48,7	15 38,5	39 100,0	

Number of Missing Observations: 1

Table 41- AGECOMP by MARKINF2: how difficult is it to obtain market information?

Count AGECOMP Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Est. before 1945		3 23,1	10 76,9	13 35,1
Est. 1945-1974		2 12,5	14 87,5	16 43,2
Est. after 1975	2 25,0		6 75,0	8 21,6
Column Total	2 5,5	5 13,5	30 81,0	37 100,0

Number of Missing Observations: 3

Table 42- AGECOMP by MARKINF3: how frequently is market information used?

Count SECTOR Row Pct	Not Important	Relatively important	Very important	Row Total
Pharmaceutical	1 8,3	3 25,0	8 66,7	12 30,0
Plastics	1 12,5	2 25,0	5 62,5	8 20,0
Paints			5 100,0	5 12,5
Cosmetics		1 20,0	4 80,0	5 12,5
Others		4 40,0	6 60,0	10 25,0
Column Total	2 5,0	10 25,0	28 70,0	40 100,0

Number of Missing Observations: 0

Table 43- SECTOR by MARKINF1: how important is market information?

Count OWN Row Pct	Not Important	Relatively important	Very important	Row Total
SA				
LA				
Column Total	2 5,0	10 25,0	28 70,0	40 100,0

Number of Missing Observations: 0

Table 44- OWN by MARKINF1: how important is market information?



SECTOR	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Pharmaceutical	5 45,5	3 27,3	3 27,3	11 28,2	
Plastics		5 62,5	3 37,5	8 20,5	
Paints		1 20,0	4 80,0	5 12,8	
Cosmetics		4 80,0	1 20,0	5 12,8	
Others		6 60,0	4 40,0	10 25,6	
Column Total	5 12,9	19 48,7	15 38,4	39 100,0	

Number of Missing Observations: 1

Table 44- SECTOR by MARKINF2: how difficult is it to obtain market information?

SECTOR	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Pharmaceutical			3 27,3	8 72,8	11 29,7
Plastics	2 33,3			4 66,7	6 16,2
Paints			1 20,0	4 80,0	5 13,5
Cosmetics				5 100,0	5 13,5
Others			1 10,0	9 90,0	10 27,0
Column Total	2 5,4	5 13,5	30 81,1	37 100,0	

Number of Missing Observations: 3

Table 45- SECTOR by MARKINF3: how frequently is market information used?

OWN	Count Row Pct	Not Important	Relatively important	Very important	Row Total
SA	1 3,3	7 23,3	22 73,3	30 75,0	
Lda	1 10,0	3 30,0	6 60,0	10 25,0	
Column Total	2 5,0	10 25,0	28 70,0	40 100,0	

Number of Missing Observations: 0

Table 46- OWN by MARKINF1: how important is market information?

OWN	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
SA	4 13,8	14 48,3	11 37,9	29 74,9	
Lda	1 10,0	5 50,0	4 40,0	10 25,6	
Column Total	5 12,8	19 48,7	15 38,5	39 100,0	

Number of Missing Observations: 1

Table 47- OWN by MARKINF2: how difficult is it to obtain market information?

OWN	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
SA	4 14,8	23 85,2	27 73,0		
Lda	2 20,0	1 10,0	7 70,0	10 27,0	
Column Total	2 5,4	5 13,5	30 81,1	37 100,0	

Number of Missing Observations: 3

Table 48- OWN by MARKINF3: how frequently is market information used?

AGECOMP	Count Row Pct	Not Important	Relatively important	Very important	Row Total
Est. before 1945	7 53,9	4 30,8	2 15,4	13 32,5	
Est. 1945-1974	1 5,3	12 63,2	6 31,6	19 47,5	
Est. after 1975	1 12,1	5 62,5	2 25,0	8 20,0	
Column Total	9 22,5	21 52,5	10 25,0	40 100,0	

Number of Missing Observations: 0

Table 49- AGECOMP by RESINF1: how important is information on resources?

Other	Count Row Pct	Not Important	Relatively important	Very important	Row Total
Other	9 36,0	21 84,0	10 40,0	40 100,0	
Column Total	9 22,5	21 52,5	10 25,0	40 100,0	

Number of Missing Observations: 0

Table 50- RESINF1 by RESINF2: how important is information on resources?

Count AGECOMP Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Est. before 1945	7 53,9	4 30,8	2 15,4	13 33,3
Est. 1945-1974	7 38,9	9 50,0	2 11,1	18 46,2
Est. after 1975	3 37,5	5 62,5		8 20,5
Column Total	17 43,6	18 46,1	4 10,3	39 100,0

Number of Missing Observations: 1

Table 50- AGECOMP by RESINF2: how difficult is it to obtain information on resources?

Count AGECOMP Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Est. before 1945	4 30,8	5 38,5	4 30,8	13 35,1
Est. 1945-1974	2 12,5	10 62,6	4 25,0	16 43,2
Est. after 1975	2 25,0	4 50,0	2 25,0	8 21,6
Column Total	8 21,6	19 51,3	10 27,0	37 100,0

Number of Missing Observations: 3

Table 51- AGECOMP by RESINF3: how frequently is information on resources used?

Count SECTOR Row Pct	Not Important	Relatively important	Very important	Row Total
Pharmaceutical	2 16,7	8 66,7	2 16,7	12 30,0
Plastics	2 25,0	3 37,5	3 37,5	8 20,0
Paints	2 40,0	2 40,0	1 20,0	5 12,5
Cosmetics	3 60,0	2 40,0		5 12,5
Others		6 60,0	4 40,0	10 25,0
Column Total	9 22,5	21 52,5	10 25,0	40 100,0

Number of Missing Observations: 0

Table 52- SECTOR by RESINF1: how important is information on resources?



SECTOR	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Pharmaceutical	5 45,5	5 45,5	1 9,1	11 28,2	
Plastics	4 50,0	3 37,5	1 12,5	8 20,5	
Paints	4 80,0		1 20,0	5 12,8	
Cosmetics	2 40,0	3 60,0		5 12,8	
Others	2 20,0	7 70,0	1 10,0	10 25,6	
Column Total	17 43,6	18 46,1	4 10,3	39 100,0	

Number of Missing Observations: 1

Table 53- SECTOR by RESINF2: how difficult is it to obtain information on resources?

SECTOR	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Pharmaceutical	3 27,3	3 27,3	5 45,5	11 29,7	
Plastics	1 16,7	3 50,0	2 33,3	6 16,2	
Paints		4 80,0	1 20,0	5 13,5	
Cosmetics	3 60,0	2 40,0		5 13,5	
Others	1 10,0	7 70,0	2 20,0	10 27,0	
Column Total	8 21,6	19 51,4	10 27,0	37 100,0	

Number of Missing Observations: 3

Table 54- SECTOR by RESINF3: how frequently is information on resources used?

OWN	Count Row Pct	Not Important	Relatively important	Very important	Row Total
SA	8 26,6	16 53,4	6 20,0	30 75,0	
Lda	1 10,0	5 50,0	4 40,0	10 25,0	
Column Total	9 22,5	21 52,5	10 25,0	40 100,0	

Number of Missing Observations: 0

Table 55- OWN by RESINF1: how important is information on resources?

OWN	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
SA	11 37,9	14 48,3	4 13,8	29 74,4	
Lda	6 60,0	4 40,0		10 25,6	
Column Total	17 43,6	18 46,1	4 10,3	39 100,0	

Number of Missing Observations: 1

Table 56- OWN by RESINF2: how difficult is it to obtain information on resources?

OWN	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
SA	6 22,2	15 55,6	6 22,2	27 73,0	
Lda	2 20,0	4 40,0	4 40,0	10 27,0	
Column Total	8 21,6	19 51,4	10 27,0	37 100,0	

Number of Missing Observations: 3

Table 57- OWN by RESINF3: how frequently is information on resources used?

AGECOMP	Count Row Pct	Not Important	Relatively important	Very important	Row Total
Est. before 1945	3 23,1	6 46,2	4 30,8	13 33,3	
Est. 1945-1974	3 16,7	9 50,0	6 33,3	18 46,2	
Est. after 1975	1 12,5	5 62,5	2 25,0	8 20,5	
Column Total	7 18,0	20 51,3	12 30,8	39 100,0	

Number of Missing Observations: 1

Table 58- AGECOMP by TECINF1: how important is information on technology?

Count AGECOMP Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Est. before 1945	1 7,7	6 46,2	6 46,2	13 34,2
Est. 1945-1974	10 58,8	3 17,6	4 23,6	17 44,7
Est. after 1975		4 50,0	4 50,0	8 21,1
Column Total	11 29,0	13 34,2	14 36,9	38 100,0

Number of Missing Observations: 2

Table 59- AGECOMP by TECINF2: how difficult is it to obtain information on technology?

Count AGECOMP Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Est. before 1945	3 23,0	10 77,0		13 36,1
Est. 1945-1974	6 40,0	4 26,6	5 33,3	15 41,7
Est. after 1975	1 12,5	4 50,0	3 37,5	8 22,2
Column Total	10 27,8	18 50,0	8 22,3	36 100,0

Number of Missing Observations: 4

Table 60- AGECOMP by TECINF3: how frequently is information on technology used?

Count SECTOR Row Pct	Not Important	Relatively important	Very important	Row Total
Pharmaceutical	1 8,3	5 41,7	6 50,0	12 30,8
Plastics		5 62,5	3 37,5	8 20,5
Paints	1 20,0	3 60,0	1 20,0	5 12,8
Cosmetics	1 25,0	2 50,0	1 25,0	4 10,3
Others	4 40,0	5 50,0	1 10,0	10 25,6
Column Total	7 18,0	20 51,3	12 30,7	39 100,0

Number of Missing Observations: 1

Table 61- SECTOR by TECINF1: how important is information on technology?

SECTOR	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Pharmaceutical	3 27,3	4 36,4	4 36,4	11 28,9	
Plastics	4 50,0	3 37,5	1 12,5	8 21,1	
Paints	1 25,0	4 80,0	1 20,0	5 13,2	
Cosmetics	1 25,0		3 75,0	4 10,5	
Others	3 30,0	2 20,0	5 50,0	10 26,3	
Column Total	11 29,0	13 34,2	14 36,8	38 100,0	

Number of Missing Observations: 2

Table 62- SECTOR by TECINF2: how difficult is it to obtain information on technology?

SECTOR	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Pharmaceutical	2 18,2	4 45,5	4 36,4	11 30,6	
Plastics	1 16,7	3 50,0	2 33,3	6 16,7	
Paints	1 20,0	3 60,0	1 20,0	5 13,9	
Cosmetics	1 25,0	3 75,0		4 11,1	
Others	5 50,0	4 40,0	1 10,0	10 27,8	
Column Total	10 27,8	18 50,0	8 22,2	36 100,0	

Number of Missing Observations: 4

Table 63- SECTOR by TECINF3: how frequently is information on technology used?

OWN	Count Row Pct	Not Important	Relatively important	Very important	Row Total
SA	4 13,8	16 55,2	9 31,0	29 74,4	
Lda	3 30,0	4 40,0	3 30,0	10 25,6	
Column Total	7 17,9	20 51,3	12 30,8	39 100,0	

Number of Missing Observations: 1

Table 64- OWN by TECINF1: how important is information on technology?

OWN	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
SA	10 35,7	8 28,6	10 35,7	28 73,7	
Lda	1 10,0	5 50,0	4 40,0	10 26,3	
Column Total	11 28,9	13 34,2	14 36,9	38 100,0	

Number of Missing Observations: 2

Table 65- OWN by TECINF2: how difficult is it to obtain information on technology?

OWN	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
SA	7 26,9	14 53,9	5 19,2	26 72,2	
Lda	3 30,0	4 40,0	3 30,0	10 27,8	
Column Total	10 27,8	18 50,0	8 22,2	36 100,0	

Number of Missing Observations: 4

Table 66- OWN by TECINF3: how frequently is information on technology used?

AGECOMP	Count Row Pct	Not Important	Relatively important	Very important	Row Total
Est. before 1945	7 53,9	5 38,5	1 7,7	13 32,5	
Est. 1945-1974	9 47,4	7 36,9	3 15,8	19 47,5	
Est. after 1975	4 50,0	4 50,0	0	8 10,0	
Column Total	20 50,0	16 40,0	4 10,0	40 100,0	

Number of Missing Observations: 0

Table 67- AGECOMP by REGINF1: how important is regulatory information?

REGINF1	Count Row Pct	Not Important	Relatively important	Very important	Row Total
Office	1 20,0	0	0	1 20,0	
Column Total	5 100,0	5 100,0	0	5 100,0	

Number of Missing Observations: 0

Table 68- REGINF1 by REGINF2: how important is regulatory information?



Count AGECOMP Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Est. before 1945	5 38,5	5 38,5	3 23,0	13 33,3
Est. 1945-1974	5 27,8	9 50,0	4 22,2	18 46,2
Est. after 1975	7 87,5	1 12,5		8 20,5
Column Total	17 43,6	15 38,4	7 18,0	39 100,0

Number of Missing Observations: 1

Table 68- AGECOMP by REGINF2: how difficult is it to obtain regulatory information?

Count AGECOMP Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Est. before 1945	6 46,2	6 46,2	1 7,7	13 35,1
Est. 1945-1974	9 56,3	6 37,6	1 6,2	16 43,2
Est. after 1975	4 50,0	3 37,5	1 12,5	8 21,6
Column Total	19 51,3	15 40,5	3 8,1	37 100,0

Number of Missing Observations: 3

Table 69- AGECOMP by REGINF3: how frequently is regulatory information used?

Count SECTOR Row Pct	Not Important	Relatively important	Very important	Row Total
Pharmaceutical	4 33,3	5 41,7	3 25,0	12 30,0
Plastics	4 50,0	4 50,0		8 20,0
Paints	4 80,0		1 20,0	5 12,5
Cosmetics	1 20,0	4 80,0		5 12,5
Others	7 70,0	3 30,0		10 25,0
Column Total	20 50,0	16 40,0	4 10,0	40 100,0

Number of Missing Observations: 0

Table 70- SECTOR by REGINF1: how important is regulatory information?

SECTOR	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Pharmaceutical			6 54,5	5 45,5	11 28,2
Plastics	3 37,5		4 50,0	1 12,5	8 20,5
Paints	3 60,0		1 20,0	1 20,0	5 12,8
Cosmetics	4 80,0		1 20,0		5 12,8
Others	7 70,0		3 30,0		10 25,6
Column Total		17 43,6	15 38,5	7 17,9	39 100,0

Number of Missing Observations: 1

Table 71- SECTOR by REGINF2: how difficult is it to obtain regulatory information?

SECTOR	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Pharmaceutical	4 36,4		6 54,5	1 9,1	11 29,7
Plastics	2 33,3		3 50,0	1 16,7	6 16,2
Paints	3 60,0		1 20,0	1 20,0	5 13,5
Cosmetics	2 40,0		3 60,0		5 13,5
Others	8 80,0		2 20,0		10 27,0
Column Total		19 51,4	15 40,5	3 8,1	37 100,0

Number of Missing Observations: 3

Table 72- SECTOR by REGINF3: how frequently is regulatory information used?

OWN	Count Row Pct	Not Important	Relatively important	Very important	Row Total
SA	15 50,0	11 36,7	4 13,3	30 75,0	
Lda	5 50,0	5 50,0		10 25,0	
Column Total	20 50,0	16 40,0	4 10,0	40 100,0	

Number of Missing Observations: 0

Table 73- OWN by REGINF1: how important is regulatory information?

OWN	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
SA	11 37,9	11 37,9	7 24,1	29 74,4	
Lda	6 60,0	4 40,0		10 25,6	
Column Total	17 43,5	15 38,5	7 17,9	39 100,0	

Number of Missing Observations: 1

Table 74- OWN by REGINF2: how difficult is it to obtain regulatory information?

OWN	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
SA	14 51,9	11 40,7	2 7,4	27 73,0	
Lda	5 50,0	4 40,0	1 10,0	10 27,0	
Column Total	19 51,4	15 40,5	3 8,1	37 100,0	

Number of Missing Observations: 3

Table 75- OWN by REGINF3: how frequently is regulatory information used



Count AGECOMP	Not Important	Relatively important	Very important	Row Total
Est. before 1945	9 69,2	4 30,8		13 32,5
Est. 1945-1974	12 63,1	6 31,6	1 5,3	19 47,5
Est. after 1975	7 87,5		1 12,5	8 20,0
Column Total	28 60,0	10 35,0	2 5,0	40 100,0

Number of Missing Observations: 0

Table 76- AGECOMP by GLOBINF1: how important is global information?

Count AGECOMP	Easy	Relatively difficult	Very difficult	Row Total
Est. before 1945	5 38,5	5 38,5	3 23,1	13 33,3
Est. 1945-1974	11 61,1	4 22,2	3 16,7	18 46,2
Est. after 1975	5 62,5	1 12,5	2 25,0	8 20,5
Column Total	21 53,8	10 25,6	8 20,6	39 100,0

Number of Missing Observations: 1

Table 77- AGECOMP by GLOBINF2: how difficult is it to obtain global information?

Count AGECOMP	Seldom	Relatively frequently	Very frequently	Row Total
Est. before 1945	13 100,0			13 35,1
Est. 1945-1974	12 75,0	4 25,0		16 43,2
Est. after 1975	5 62,5	3 37,5		8 21,6
Column Total	30 81,1	7 18,9		37 100,0

Number of Missing Observations: 3

Table 78- AGECOMP by GLOBINF3: how frequently is global information used?

SECTOR	Count Row Pct	Not Important	Relatively important	Very important	Row Total
Pharmaceutical	8 66,7	4 33,3			12 30,0
Plastics	5 62,5	2 25,0	1 12,5		8 20,0
Paints	3 60,0	2 40,0			5 12,5
Cosmetics	3 60,0	1 20,0	1 20,0		5 12,5
Others	9 90,0	1 10,0			10 25,0
Column Total	28 70,0	10 25,0	2 5,0		40 100,0

Number of Missing Observations: 0

Table 79- SECTOR by GLOBINF1: how important is global information?

SECTOR	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
Pharmaceutical	4 36,4	3 27,3	4 36,4		11 28,2
Plastics	4 50,0	2 25,0	2 25,0		8 20,5
Paints	2 40,0	2 40,0	1 20,0		5 12,8
Cosmetics	3 60,0	1 20,0	1 20,0		5 12,8
Others	8 80,0	2 20,0			10 25,6
Column Total	21 53,8	10 25,6	8 20,6		39 100,0

Number of Missing Observations: 1

Table 80- SECTOR by GLOBINF2: how difficult is it to obtain global information?

SECTOR	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
Pharmaceutical	10 90,9		1 9,1		11 29,7
Plastics	4 66,7		2 33,3		6 16,2
Paints	5 100,0				5 13,5
Cosmetics	5 100,0				5 13,5
Others	6 60,0		4 40,0		10 27,0
Column Total	30 81,1		7 18,9		37 100,0

Number of Missing Observations: 3

Table 81- SECTOR by GLOBINF3: how frequently is global information used?

OWN	Count Row Pct	Not Important	Relatively important	Very important	Row Total
SA	20 66,7		9 30,0	1 3,3	30 75,0
Lda	8 80,0		1 10,0	1 10,0	10 25,0
Column Total	28 70,0		10 25,0	2 5,0	40 100,0

Number of Missing Observations: 0

Table 82- OWN by GLOBINF1: how important is global information?

OWN	Count Row Pct	Easy	Relatively difficult	Very difficult	Row Total
SA	17 58,6		7 24,1	5 17,3	29 74,4
Lda	4 40,0		3 30,0	3 30,0	10 25,6
Column Total	21 53,8		10 25,6	8 20,6	39 100,0

Number of Missing Observations: 1

Table 83- OWN by GLOBINF2: how difficult is it to obtain global information?

OWN	Count Row Pct	Seldom	Relatively frequently	Very frequently	Row Total
SA	24 88,9	3 11,1			27 73,0
Lda	6 60,0	4 40,0			10 27,0
Column Total	30 81,1	7 18,9			37 100,0

Number of Missing Observations: 3

Table 84- OWN by GLOBINF3: how frequently is global information used?

Label	Frequency	Percent	Valid Percent
Not important	6	15,0	15,0
Relatively important	7	17,5	17,5
Very important	27	67,5	67,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 85- INTS01: Meetings

Label	Frequency	Percent	Valid Percent
Not important	8	20,0	20,0
Relatively important	16	40,0	40,0
Very important	16	40,0	40,0
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 86- INTS02: Reports

Label	Frequency	Percent	Valid Percent
Not important	22	55,0	56,4
Relatively important	7	17,5	17,9
Very important	10	20,0	17,9
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases 39 Missing cases 1

Table 87- INTS03: Internal databases

Label	Frequency	Percent	Valid Percent
Not important	10	25,0	25,0
Relatively important	7	17,5	17,5
Very important	23	57,5	57,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 88- INTS04: Company people

Label	Frequency	Percent	Valid Percent
Not important	29	72,5	78,3
Relatively important	3	7,5	8,1
Very important	5	22,5	13,5
	3	7,5	Missing
Total	40	100,0	100,0

Valid cases 37 Missing cases 3

Table 89- INTS05: Company library

Label	Frequency	Percent	Valid Percent
Not important	5	12,5	12,5
Relatively important	3	7,5	7,5
Very important	32	80,0	80,0
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 90- EXTSO1: How import is information provided by clients?

Label	Frequency	Percent	Valid Percent
Not important	7	17,5	17,9
Relatively important	10	25,0	25,6
Very important	22	45,0	43,6
	1	2,5	Missing
Total	40	100,0	100,0

Valid cases 39 Missing cases 1

Table 91- EXTSO2: How important is information provided by suppliers?

Label	Frequency	Percent	Valid Percent
Not important	14	35,0	38,9
Relatively important	8	20,0	22,2
Very important	14	35,0	38,9
	4	10,0	Missing
Total	40	100,0	100,0

Valid cases 36 Missing cases 4

Table 92- EXTSO3: How important is information provided by consultants?

Label	Frequency	Percent	Valid Percent
Not important	18	45,0	48,6
Relatively important	9	22,5	24,3
Very important	10	25,0	27,0
	3	7,5	Missing
Total	40	100,0	100,0

Valid cases 37 Missing cases 3

Table 93- EXTSO4: How important is information provided by banks?

Label	Frequency	Percent	Valid Percent
Not important	26	65,0	68,4
Relatively important	7	17,5	18,4
Very important	5	12,5	13,1
	2	5,0	Missing
Total	40	100,0	100,0

Valid cases 38 Missing cases 2

Table 94- EXTSO5: How important is information provided by government agencies?

Label	Frequency	Percent	Valid Percent
Not important	13	32,5	32,5
Relatively important	14	35,0	35,0
Very important	13	32,5	32,5
Total	40	100,0	100,0

Valid cases 40 Missing cases 0

Table 95- EXTSO6: How important is information provided by company associations?



Label	Frequency	Percent	Valid Percent
Not important	22	55,0	64,7
Relatively important	4	10,0	11,8
Very important	8	20,0	23,5
	6	15,0	Missing
Total	40	100,0	100,0

Valid cases 34 Missing cases 6

Table 96- EXTSO7: How important is information provided by libraries?

Label	Frequency	Percent	Valid Percent
Not important	13	22,5	34,3
Relatively important	6	15,0	15,8
Very important	19	47,5	50,0
	2	5,0	Missing
Total	40	100,0	100,0

Valid cases 38 Missing cases 2

Table 97- EXTSO8: How important is information provided by fairs and exhibitions?

Label	Frequency	Percent	Valid Percent
Not important	7	17,5	18,9
Relatively important	9	22,5	24,3
Very important	21	52,5	56,7
	3	7,5	Missing
Total	40	100,0	100,0

Valid cases 37 Missing cases 3

Table 98- EXTSO9: How important is information provided by congresses?

Label	Frequency	Percent	Valid Percent
Not important	17	42,5	51,6
Relatively important	8	20,0	24,3
Very important	8	20,0	24,2
	7	17,5	Missing
Total	40	100,0	100,0

Valid cases 33 Missing cases 7

Table 99- EXTSO10: How important is information provided by external databases?

## APPENDIX 4: CRITICAL INCIDENTS

### **Incident 1: Dealing with a dramatic change in the distribution channels in the cosmetics industry**

Q: During the last twelve months did you detect any specific event or trend that might have affected your company in a critical way?

A: The great surprise was the change concerning the distribution channels. We heard that a hyper market was going to open and all of a sudden there appeared several, in a short period of time and - surprise, surprise - all side by side. The companies did not have the time to prepare to a completely different distribution channel.... It was terribly difficult to find information about consumers' views, how the small retailer was going to do to deal with that, and possible future developments.

Q: Where and how did you get the information you needed?

A: I tried my colleagues who were facing the same problem, [I tried to know] what the multi-nationals were doing. My personal sources were of great importance to help find a solution. All in a rush, because the state abandoned us [the Portuguese companies].... The newspapers hardly mentioned the subject and we knew nothing about the consumers' reactions.... We did not even know which would be the prices before the first shop opened there still is not a price policy. It was a real revolution in terms of distribution. My colleagues [from the multi-nationals] had information from abroad, how things had happened in other countries, and passed that information to me. In the meanwhile, I travelled abroad to check how things were.



Q: To whom did you pass that information?

A: I passed it to the administration immediately. And to the sales chief, to the sales people, and other staff. The impact on the budget was immense. Those shops are supported by the money of the suppliers. We spent months without sleeping... we had to make emergency plans to deal with the situation.

Q: Which means did you use to transmit that information?

A: I used several means: I prepared reports to the administration, explaining what was going on, what was demanded from us, and how the other companies were dealing with the problem. [The reports were followed by meetings where the problem was debated]. There were meetings with the staff and workshops were organized about large distribution chains, so that the staff could prepare themselves and bring in more information. Everything on a very personal basis.

Q: Was there any important decision taken as a result of all the information gathered?

A: There was a change of attitude concerning the market. We had to reorganize the clients: clients that had been important lost their importance. And we had to collect information about the new clients [the hyper markets]. Then we had to review and redistribute the investments. We had to ask ourselves: do we abandon the small points of sale and invest only in the large clients where we make most of our sales or shall we keep both? We displaced investments from some clients to others, but we did not drop the small client.... After the reorganization of the clients file, we reorganized the investments and finally approached the consumer, in order to realize what we should do to keep them with us. (16,34,10-12)

## **Incident 2: Spotting of a market opportunity in the pharmaceutical industry**

**Q: During the last twelve months did you detect any specific event or trend that might have affected your company in a critical way?**

**A: We found out that a laboratory was to give up the sale of a product through the pharmacies, and sell to hospitals instead. I contacted that lab immediately in order to try to get the concession of that medicine for the company.**

**Q: How did you obtain that information?**

**A: Through a friend.**

**Q: Did you pass that information to someone else?**

**A: Yes, in a situation like this there are two or three areas that have to be contacted: first, the administration, in order to evaluate the interest of the information, then the commercial and marketing departments, in order to assess the commercial impact for the firm, and also other people, even before having any decision...**

**Q: In this particular case, was there any decision resulting from that information?**

**A: Yes, we managed to get the product for the company.**

**Q: So you contacted the administration and the marketing...**

**A: Yes, and the financial department, to carry out an economic study for the product.**

**Q: How did you pass the information to each of them?**

**A: I prepared a written document for the marketing department, with a brief note about the case, they ask us to do that always. With the administration**

there was a direct contact, I am part of the board anyway, it's easier. We're always in contact with each other, the problems are analyzed and in some cases decisions are taken without any further information. As for the financial department, I usually make a phone call to explain what's going on, and then send all the information I got. (3,7,14-15)

### **Incident 3: Halting of a government regulatory initiative perceived as damaging for the pharmaceutical industry**

Q: During the last twelve months did you detect any specific event or trend that might have affected your company in a critical way?

A: The problem of the patents... It was considered a priority by this company and we have just presented a counter-proposal to a document that was being prepared [by the Ministry of Health].

Q: Stepping back a little, how did you get to know the contents of the document under preparation?

A: There is a group of half a dozen companies, including our own, that meets periodically in the Portuguese Industrial Association in order to discuss market issues.... During one of those meetings, the euro-office of the association informed that the problem of the patents was being discussed. Two or three phone calls confirmed that, and we had access to the document through the association. The process was started with the request of an audience addressed to the ministers of health, commerce and industry. We argued that the interests of industry in general and of the pharmaceutical industry in particular were not safeguarded, that the process should be interrupted and we would take the responsibility for the preparation of a document that would serve the interests of the country and of the pharmaceutical industry. We invited three or four university professors specialized in this field, who prepared the document in three months, which was handed on to the government two weeks ago.

Q: Was that an official collaboration with the universities?

A: No, we hired specialists in International Law, in the field of patents; throughout successive meetings with us, and after getting all the Community information on that topic, they found ways of protecting the position of our country... We know that the Portuguese Institute of Industrial Property is studying the subject now. (4,10,23-24)

## **APPENDIX 5: CASE NARRATIVE OUTLINE**

**COMPANY NAME AND ADDRESS**

**SIC**

**TYPE OF OWNERSHIP**

**SALES VOLUME**

**N. OF EMPLOYEES**

**NAME OF TOP MANAGER**

**SUMMARY OF COMPANY HISTORY**

**COMMUNICATION PATTERN**

**INFORMATION INFRASTRUCTURE**

**EXTERNAL LINKS**

R&D organizations

Regulatory agencies

Development programmes

**R&D ACTIVITIES**

**INTERVIEWEES**

Job title

Function

Tenure in the job

Experience in the company