AN INVESTIGATION INTO THE ISSUES INFLUENCING THE ADOPTION OF E-BUSINESS WITHIN THE PORTUGUESE SUBSIDIARIES OF THE PHARMACEUTICAL INDUSTRY

PhD Thesis

June 2008

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This thesis is submitted in partial fulfilment of the requirements
for the Degree of Doctor of Philosophy

<u>Abstract</u>

Electronic business (e-business) is rapidly spreading across many industry sectors. It is likely that business to business and business to consumer communication will be increasingly conducted via the Internet. However, while the potential of the Internet is recognized, the conditions for successful e-business using the Internet remain to be explored in many industry sectors and different parts of the world. Firms that adopt this innovative way of selling and delivering products and services as well as managing customer relationship must undertake technological and strategical changes. Issues such as organizational readiness, the suitability of the industry sector, the nature of the transactions in terms of security standardization, the effect of culture and the requirements for changed organizational infrastructure must be considered, addressed and locally adapted. Firms in the same industry adopt e-business at different rates. Why do some companies actively adopt e-business while others take a more cautious attitude?

The pharmaceutical industry provides a rich platform for the exploitation of e-business as a means of improving the reply and reducing the costs of the business process and communication among its stakeholders.

This research analysed issues that may influence and explain the varying attitudes and behaviours in the adoption of e-business within the Portuguese subsidiaries of the pharmaceutical industry. This study is set out to fill a gap in knowledge not covered by previous research in the area of e-business and the local subsidiaries of the pharmaceutical industry.

The conceptual lens proposed in this research introduces the cognitive mapping and the notion of institutional theory of organizational communication (ITOC) to the ICT field in order to understand the perspectives and social relationships amongst the key

actors involved in the process of e-business adoption. The adopted conceptual lens helps us to examine a longitudinal case study undertaken in four Portuguese subsidiaries of multinational pharmaceutical companies. A total of 24 interviews were conducted.

The findings of this research's analysis drawn upon the cognitive mapping were validated by comparison using existing theories and the institution theory of organizational communication (ITOC) was found to provide a coherent explanation of the results of the empirical work.

Acknowledgements

This journey has been long and hard and without the encouragement and support of so many people, I would have had difficulty in completing this research.

A large number of organizations, colleagues and friends have given their contribution to this study. I take this opportunity to acknowledge their collaboration.

I would like to thank my two supervisors, Dr. Neil McBride and Prof. Simon Rogerson, both for their availability whenever I needed them, and for their continuous encouragement and help, constructive criticism, patience and advice.

To my family, specially my mother, sister, niece Joana, Tito, friends Luisa and Gabriela, my deepest thanks to their constant encouragement and help in reviewing the work done.

I owe to my children, Marta and Filipe, much time. I will make it up. I am recognized for their patience, comprehension and love.

Last, to my aunt Paulina, brother-in-law Piorro and father-in-law Benito, who are no longer amongst us but are never forgotten. Their kindness and unwavering faith in my abilities made me feel that I should always go on.

Isabel Borges Alvarez
Leicester, 2008

GLOSSARY

B2B	Business to Business
CD	Compact Disk
EDI	Electronic Data Interchange
EB	Electronic business
E-business	Electronic business
ICT	Information and communications technology
E-commerce	Electronic Commerce
E-service	Electronic Service
EC	European Community
EDI	Electronic Data Interchange
FAQ	Frequently Asked Questions
FDA	Food and Drug Administration
HQ	Head-Quarters
IS	Information Systems
ITOC	Institutional Theory of Organizational Communication
MNC	Multinational Company
NCE	New Chemical Entity
OTC	Over the Counter
PhI	Pharmaceutical Industry
PPhI	Portuguese Pharmaceutical Industry
REP	Medical Information Representative
R&D	Research & Development
S&Mkg	Sales and Marketing
SMEs	Small and Medium Enterprises
UK	United Kingdom
USA	United States of America
VPNs	Virtual Private Networks

CONTENTS

BIBLIOGRAPHY

APPENDICES

LIST OF FIGURES

LIST OF TABLES

Page

CHAPTER 1: INTRODUCTION OF THE RESEARCH, AIMS AND OBJECTIVES

1.1 – Research context

The introduction of e-business impacts on all aspects of an organization, from the management to the operational systems. The situation is not only a question of technology and how e-business is implemented but a total reengineering of the processes of working, which can only be successful if a strong cooperation with everyone in the company towards the important decision on how to change the traditional processes to face the new challenge is created. The traditional ways of doing marketing and promotion will change.

For the purpose of this research, e-business is defined as the use of Internet technologies to manage business processes, such as sales and purchases, supply chains and customer relationships (Wang and Cheung, 2004).

While the general potential of e-business is already identified, research only now starts to give the first steps as to its suitability for the specific industry sectors and what adaptations are needed for its success. In this connection, despite the rapidly changing landscape of on-line competition, many fundamental issues regarding the adoption of e-business remain unclear (Wang and Cheung, 2004). For instance, what factors are critical to an organization's decision to adopt e-business? What types of industries are most likely to implement e-business? How do managers view the new business practices on the Internet?

However, although it is considered a great opportunity, and some industry sectors are well positioned to take full advantage of e-business, there is still a gap between

appreciation of its importance and the realization of commercial potential (Costello and Tuchen, 1998).

It appears that there are some important points that need to be considered.

If we start by looking at some of the lessons that EDI (Electronic Data Interchange) history tell us, we can see that it has been around for more than twenty years without much success due to other problems besides technology (Kalakota, 1996; Turban, 2000). It has been viewed as a technology without understanding and solving the important business implications. Some organizations tried to implement EDI without a proper plan and without determining whether it would fit into their overall processes. On the other hand, EDI is expensive and rather difficult or almost impossible to be adopted by smaller companies. The use of e-business will bring new issues that have to be faced. How will businesses be paid? Security and legal actions are being adopted so that financial transactions will become reliable and people can trust the new process.

The new applications must be extremely reliable, an updated and proper maintenance of all sites is strongly required or the new systems will not be trustworthy. The variety of security threats that can cause heavy losses, that the networks face, have to be solved.

An e-business situation will only be acceptable to organizations if their own threat environment is considered and investigated and a specific solution to their own problem is created.

The benefits of a successful innovative technology uptake effort include better operational efficiency, better customer relations, shorter process-cycle times and improved market competitiveness (Chong, 2007). Information and communication systems that do not reflect the human need and user's requirements are likely to

receive a negative reaction because of lack of participation and ineffective communication during planning and development between ICT and users (Liebowitz,1999). There is a widespread recognition by ICT professionals that social and behavioural factors are more important aspects of ICT failures than the technical (Sauer, 1993).

We come to the point that identities are different and different approaches must be made. Issues will certainly differ between different industry sectors and different cultures. There is a relative absence of a substantive research corpus relating to the investigation of these issues, although researchers have analysed the driving forces of organizational adoption of innovative technologies or strategies from different theoretical perspectives. For example, institutional theory suggests that a firm may imitate organizational structures and strategies adopted by other firms (Wang and Cheung, 2004). Therefore, innovation adoption can be thought of as a symbolic or institutional-pressure-driven action (Abrahamson, 1991, 1993). Another line of thinking (Child, 1972; Hambrick et al, 1984) suggests that the characteristics of an organization's top managers influence the approach to innovative technologies adoption. Some other researchers have also proposed that the different adoption behaviours of organizations can be analysed taking into consideration the influential factors at multiple levels - environmental, organizational, and managerial - (Rogers, 1995; Tornatzky et al, 1982) which provide a theoretical base for understanding organizational decisions about the adoption of innovative technology.

E-business is not just about e-business transactions or about buying and selling over the internet; it's the overall strategy of redefining old business models, with the aid of technology to maximize customer value and profits − is about P2P − path to profitability (Kalakota, 2001).

The conceptual lens proposed in this research builds on the emerging literature on e-business uptake. The adopted conceptual lens helps us to examine the longitudinal

case study of the use of e-business in sales and marketing within the Portuguese pharmaceutical industry, the majority of which being multinational subsidiaries and small to medium enterprises in size, with the following reasons:

- The richness of the pharmaceutical industry as a complex industry, range stakeholders with diverse cultures, resulting in a rich variety of internal culture.

- A variety of interactions – public sector, strict legislation, social and economical reasons (Mateus, 1993; Felicio, 1999) and strong recommendations from the European Community and local government (EC COM-1998-588), for the pharmaceutical industry to take full advantage of electronic business in order to solve the existent problems

- A complex customer trilogy - the medical doctor that prescribes, the patient that consumes and the government that pays the medicine

- It provides massive potential for the exploitation of e-business as a means for reducing the costs of the business process and communication among its stakeholders. The variety of stakeholders, transactions and communications, the good financial situation of the Portuguese pharmaceutical industry, as well as the strong recommendations from the European Community and local government for a better use of ICT as a means to solve some of the existing problems in this industry sector, suggest that this industry is a good test bed to examining electronic business take-up.

Although the research context is quite specific, we believe that the findings are of relevance to other industries and other countries.

1.2 – Research aims and objectives

The focus of this investigation is to provide a better understanding of the issues influencing the e-business adoption in the Portuguese subsidiaries of the pharmaceutical industry, by proposing a conceptual lens drawn on the emerging literature on e-business uptake that would help to identify, relate and explain the different factors that were identified in the longitudinal case study as enablers or constrainers of e-business adoption within the Portuguese subsidiaries of the pharmaceutical industry.

The context of the research (Figure 1.1) was used to select the literature to be reviewed, outlining graphically the focus of the research and related areas of knowledge.
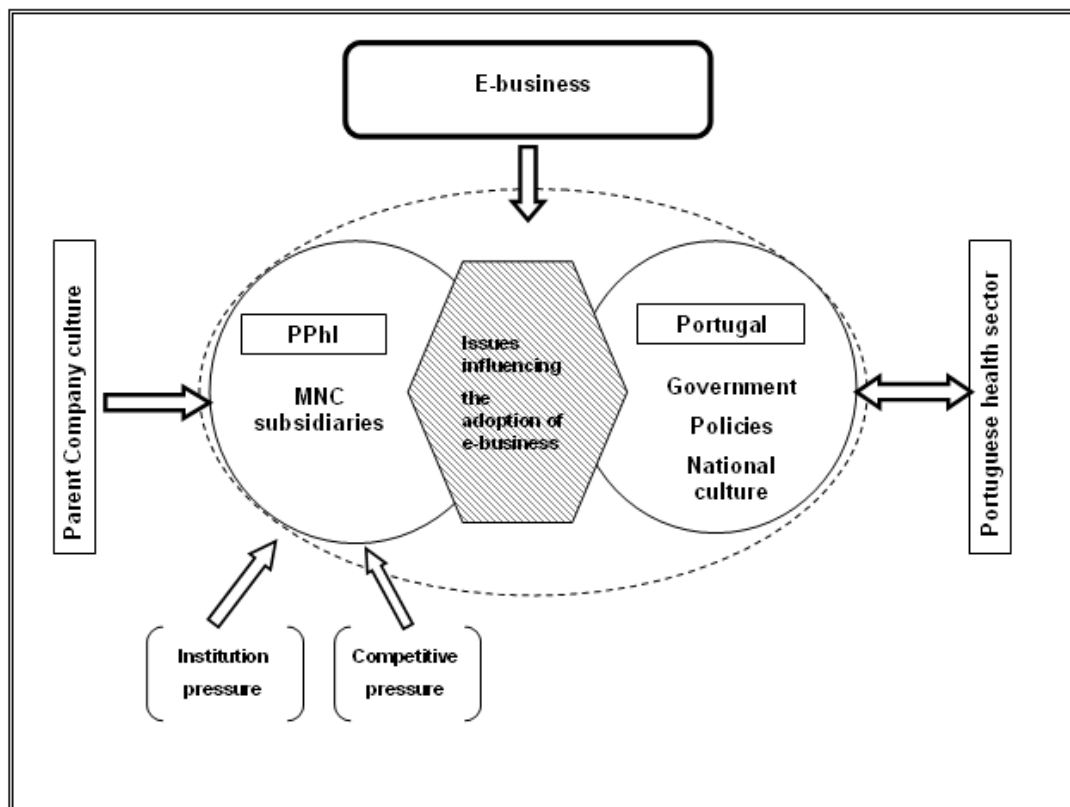
Figure 1.1 The context of the Research

The research is based on qualitative research methods, on the use of a case study approach and on an interpretative perspective of social enquiry, as discussed in the third chapter.

The choice of adopting a case study research strategy is based on the argument as stated by Benbasat et al (1987). They suggest that case studies are suitable only when:

- The research questions require to be analysed in a natural setting and the focus needs to be on contemporary events
- It is not necessary to control the subjects or events while conducting the argument
- Research argument will have a fairly strong theoretical basis, nevertheless the choice of the case is expected to advance the knowledge of the phenomenon and the theory

The research questions that have been identified for the study are:

1. Why is there not widespread adoption of e-business within the subsidiaries of the Portuguese pharmaceutical industry (PPhI)?
2. What is the thinking behind people in the subsidiaries of the PPhI which influences their view of e-business?
3. How does the institutional structure of the subsidiaries of the PPhI affect communication related to e-business adoption?

It is common for case studies to focus on two or more sites to enhance the generalization of the research and allow special features of cases to be identified and compared (Bryman, 1989). It was therefore decided that four contrasting pharmaceutical subsidiaries should be used to gather the data for our research. Case

study companies need to be chosen with some sort of rationale, and with access and entry being two of the most important considerations.

The four subsidiaries selected with Anglo/American, American/Dutch, Italian and Swiss cultures have been carefully chosen with Apifarma (The Portuguese Local Association of the Pharmaceutical Industry), the four of them representing 13% of the local market, covering different therapeutical classes and also providing a contrast of the data gathered. Six people from each company, from different functions and departments, making a total of twenty four, were interviewed.

As subsidiaries of multinationals, an interest in the different parent companies influence meant that the case study involved data collected from four different nationalities in order to provide an enhanced contrast of the organizations culture. This enabled considerable comparative analysis to be undertaken and further provided contextual information to indicate the organizational/individual influences on e-business adoption.

Hence by using a qualitative approach to interpret the Portuguese pharmaceutical industry concerning e-business adoption, it is hoped that this research will enhance the development of theory building by presenting a descriptive understanding of this culture. Further it has been argued that qualitative case studies allow researchers to understand the nature and the complexity of organizational processes and provide insight into nascent fields (Walsham and Han, 1991).

This research investigated the phenomena that influenced the attitude to e-business adoption that need to be satisfied in order to achieve alignment between the culture of the organizations studied and the culture accommodated by e-business adoption, specific to the pharmaceutical industry and sensitive to Portuguese issues.

1.3 - Thesis structure

This thesis is structured in seven chapters.

This **first** chapter justifies the choice of the subject of the research, the context and the question investigated, defines the areas lacking prior investigation by researchers and briefly presents the aims of this study. The chapter then provides a research model which stipulates the phases of the research process and how this enabled the collection and analysis of the rich data needed to provide answers to the research questions.

Chapter **two** explores the literature in ICT and e-business, subsidiaries of multinationals, small and medium enterprises as a reference for comparison, institutions and pharmaceutical industry, structured with the aim of proposing a research framework to collect the data in the case studies.

Chapter **three** discusses the philosophical perspective of the research strategy and the research design, considering the nature of the research topic and the research questions.

Chapter **four** introduces the case study organizations and discusses the major issues found in each one, setting the organizational scene and placing the research into context.

Chapter **five** provides a detailed description and analysis of the investigation within the organization. The determinant factors drawn from the cognitive maps are discussed.

Chapter **six** analyses the findings in the light of the Institutional Theory Of Organizational Communication (ITOC), presents the results of the analysis and highlights the key findings of this research.

Chapter **seven**, the last, presents the conclusions, the contribution to the existing body of knowledge and the limitations of this research, and also discusses the opportunities for future research.

CHAPTER 2 : A LITERATURE REVIEW

2.1 -   Introduction

The focus of this research is on e-business adoption by the Portuguese subsidiaries of the pharmaceutical industry. In this second chapter, the context of the research is discussed and the aspects that can provide a framework for the understanding of the subject are examined.

The concepts of e-business, subsidiaries of multinationals, small to medium enterprises as a reference for comparison, institutions and the Portuguese pharmaceutical industry, adopted in this research are reviewed from the literature, with the scope of selecting the appropriate measures to study the e-business adoption in the subsidiaries investigated.

2.2 - The concept of e-business

According to Turban (2000), e-business is an emerging concept that describes the process of buying and selling or exchange of products, services and information via computer networks including the Internet.

E-business is all about cycle time, speed, globalization, enhanced productivity, reaching new customers and sharing knowledge across institutions for competitive advantage (Lou Gerster, Chief Executive of IBM, in Turban, 2000).

Also Kalakota & Robinson(2001) define e-business as not just about e-commerce transactions or about buying and selling over the web; it's the overall strategy of redefining old business models, with the aid of technology to maximize customer value and profits – is about P2P – path to profitability. They argue that before a company can successfully embark on electronic business (e-business) applications, it

must have a clearly thought out e-business strategy. E-business is the incorporation of all the business structures into the new business model, not just the addition of an electronic commerce operation into the existing business model (Nunes & Patterson, 2001).

There is a rapidly growing literature on the adoption and use of e-business by organizations (Bickerton et al., 1998; Hartman and Sifonis, 2000; Hoffman and Novak, 2000; Porter, 2001; Kalakota, 2001; Daniel & Grimshaw, 2002; Ngai & Wat, 2002).

In this research we will be using the e-business terminology, as we will be focusing on the whole Portuguese pharmaceutical business process from the launch of a new molecule, its registration, local clinical trials, local medical congresses and seminars, training of the sales team, introduction of the pharmaceutical products to the medical doctors, which with the aid of electronic technology could be optimized.

The potential of the Internet as a channel for e-business has been recognized across many industry sectors. It is likely that business to business and business to consumer communication will be increasingly conducted via the Internet. Understanding the acceptance pattern and the role of Internet self-efficacy in electronic service adoption constitutes an important research issue (Hsu, 2004). Managers are told that the use of e-business is already leading to the reshaping of customer and supplier relationships, the streamlining of business processes and, in some cases, even the restructuring of whole industries (Daniel & Grimshaw, 2002).

Prior to the Internet, firms mostly operated proprietary ICT systems that provided data to a chosen few. Interaction with external stakeholders (business partners, suppliers and customers) was expensive and difficult (Brews, 2003) as technology electronic data interchange (EDI) exchanged structured data through closed systems.

With rapid advantages in technology, new ways of business process redesign, which include entering the e-business marketplace, have emerged. Organizations today frequently redesign their processes in ways that provide competitive advantage (Phan, 2003; Grover et al, 2004).

Although the potential of the Internet is recognized, the conditions for successful e-business using the Internet remain to be explored in many industry sectors where issues such as organizational readiness, suitability of the industry sector, nature of transactions, critical success factors and culture, must be addressed and identified (Hong, 2006; Horner-Long, 2002). It would seem that smaller businesses do indeed view e-business as an opportunity for improving their performance and, hence, levelling the playing field (Daniel *et al.*, 2002; Molla *et al.*, 2005). It would appear that to larger companies, e-business is viewed more defensively, in particular as an opportunity for simplifying complex internal processes and, hence, reducing costs (Gupta, 2004).

In many countries, the development of electronic business is seen as important to national interest, a development to be fostered by explicit e-business policies. Governments are progressively viewing adoption of e-business as an important determinant of future national economic growth (Debreceny, 2002). Electronic markets are expanding to almost every industry sector, including retail, manufacturing, aerospace and defence, healthcare and pharmaceuticals and chemicals (Hsiao, 2003).

Few corporate leaders now doubt that e-business is here to stay (Earl, 2000). The distasteful hype of the ICT industry and business writers and the cynicism generated by wake-up calls from governments can no longer mask this essential fact – nor even can the collapse of dot.com start-ups and the volatility of internet stocks. Incumbent companies as much as dot.com start-ups are having to learn fast about the challenges of doing business in the information age, whether they call it "e-commerce", "e-

business", "the new economy", or something quite different even if that means a difference in leadership (Earl, 2000). However cursory observation suggests that for business managers in particular, e-business related decisions are more challenging than earlier generations of ICT investments (Debreceny et al, 2002). E-business can be viewed as an innovation in business practice, with interest focused on the diffusion of practices within the community of firms linked electronically and its impact on business policy and practice (Graham, 1996; Chang, 2003; Motiwalla, 2005).

Cases like the airline industry where the Internet is being used to improve its distribution strategy and reduce costs, also uses Intranets and Internal systems to develop tactical and strategic management. In addition, extranets are being gradually used for communicating with partners and to support business to business (B2B) relationships (Buhalis, 2004). The changing patterns of Internet surfer access to e-business sites pose challenges for the Internet marketing teams of online companies. For e-business to grow, a system must be devised to provide customers' preferred transversal patterns from product awareness and exploration to purchase commitment (Kwan, 2005; Chang, 2003; Chun, 2005; Mottiwalla et al, 2005).

Improvement in productivity and competitiveness is expected with the use of e-business by opening the access to millions of on-line customers, products, services and information with new and more cost and time efficient means. However, although considered a great opportunity, and some industry sectors like the pharmaceutical industry are well positioned to take full advantage of e-business, there is still a gap between appreciation of its importance and the realization of its commercial potential (Costello and Tuchen, 1998). Many factors contribute to the lack of progress like lack of resources and skills, customer resistance, inability to develop standard processes for Internet enabling, and the scope and scale of the transformation (Brews et al, 2003; Zhu, 2003). Also the social interpretation given

to the Internet and the role of enthusiasts in persuading organizations to join are key in the expansion of e-business.

2.3 - The concept of a subsidiary of a multinational company

Multinational corporations (MNCs) gain market power from their ability to arrange intra-firm, cross-border transfers of knowledge-based advantages, such as technological know-how and marketing expertise (Antia *et al.*, 2007). Success of MNCs relies almost exclusively on their ability to be efficient vehicles for creating and transferring knowledge across borders.

Researchers have identified a variety of constraints to the management of multinational firms such as limited access to information, political and sovereign risk, host country regulations, taxes and legal system differences, cultural and language barriers, accounting and reporting differences, exchange rate risk and transaction costs (Claggett & Stutzman, 2002). According to Mockler (2002) addressing the challenges offered by the multinational market requires cognitive skills to understand what is happening in those markets, entrepreneurial skills to respond to and exploit rapid changes innovatively, and leadership and management skills to balance the many diverse elements. Makino *et al.* (2004) explain that each country in which a multinational firm operates has a distinct economic, political, legal, cultural, industrial and competitive market context. A difficult decision for multinational companies is to determine what needs to be centralized and what needs to be left at the local level (Lucas, 2005).

As Vachani (1999) refers, "subsidiaries in a multinational system may be faced with differing demands from host governments, especially when they operate in diverse environments. Given the complexities of multinational-host bargaining, different

subsidiaries may be drawn towards making different concessions in host governments, which could impact a variety of operating decisions".

Antia *et al.* (2007) believe that the main detriment to performance is the magnitude of differences between the cultures of foreign subsidiaries and the MNC's home country, since the headquarters, where most important decisions are made are located in the home country, the dominant culture of the headquarters is that of the home country, and the economic activity with the biggest value impact is between the headquarters and the subsidiaries.

As noted, two streams of literature provide particularly relevant insights, namely that linked to international entrepreneurship, and that associated with MNC and subsidiary management (Boojihawon *et al.,* 2007). The multinational's environmental and company characteristics are partly a function of the related and unrelated, product and international geographic diversification components of its geographic diversification (Vachani, 1999).

According to Mockler (2002), achieving integration in a multinational company involves maintaining a balance between capturing global efficiencies and responding to local differences. This requires both creative, innovative, entrepreneurial unstructured approaches as well as systematic structured ones and it makes the management of the foreign subsidiaries especially difficult. As Perkins and Markel (2004) point out in their work, concerning ICT in a subsidiary of a MNC, problems related to language, currency, culture, national infrastructure, availability of local ICT staff, data export control, and trade unions, also make the ICT management in a MNC challenging.

In the MNC field, it is recognized that subsidiaries may not merely subordinate elements of their parent MNCs. Instead they can be examined as networks of autonomous and differentiated units (O'Donnell, 2000). One can argue that

multinational subsidiaries, when managed by individual possessing a global vision and an ability to efficiently network with other MNC units, may achieve success through their entrepreneurial behaviour (Birkinshaw, 1997, 2000; Birkinshaw *et al.*, 2005).

However, an idea that Birkinshaw in his 1997 work introduces is that of "entrepreneurial culture" in multinational subsidiaries. Although subsequent work in MNCs provides insights into multinational subsidiary entrepreneurial behaviour in general, the notion of multinational subsidiary entrepreneurial culture, its influences and manifestations is still essentially unexplored. This point has again been picked up by Birckinshaw *et al.* in their recent 2005 contribution, in which they argue that future research should investigate how multinational subsidiary entrepreneurship can be best captured. Boojihawon *et al.*(2007) find that subsidiary entrepreneurial culture is associated with key notions such as global vision, entrepreneurial orientation, initiatives, development processes, headquarters-subsidiary relations, MNC networks, autonomy, target market servicing and responsiveness to the local environment. They integrate concepts from the emerging international entrepreneurship literature into the MNC management literature in order to explore characteristics, influences and manifestations of subsidiary entrepreneurship. Entrepreneurship from a subsidiary perspective (Birkinshaw, 2000) can be viewed as a capability dispersed throughout the MNC organization and its subsidiaries. However, not much investigation exists as yet on the aspects of a multinational subsidiary entrepreneurial culture. Concerning headquarters-subsidiary links, Luo (2003) views that subsidiaries achieve enhanced performance levels when their headquarters give them an abundance of resources, support their host country operations, and less rigidly control them.

It is recognized that subsidiaries having specialized resources and the necessary autonomy may play creative roles within the MNC group (Gupta & Govindarajan, 1991). Also in this connection Harzing & Noorderhaven (2006) describe that

subsidiaries with a role as globe innovators and so with high levels of knowledge outflows within the MNC group have higher capabilities than subsidiaries playing a role uniquely as local innovators and with a low level of knowledge outflows. Birkinshaw *et al.* (2005) argue that the more focused a subsidiary is on its host competitive market rather than on its MNC internal arena, the higher is its level of entrepreneurship. A subsidiary initiative can mean a powerful role for the MNC on the whole in that it may enhance local responsiveness, worldwide learning and global integration (Birkinshaw, 1997). MNCs establish a local presence in foreign markets in order to get a better knowledge of the local consumer tastes, language, behaviour and culture and develop an understanding of the local media environment in order to execute an appropriate promotional strategy. The subsidiary managers' role in strategy implementation is affected by the level of autonomy granted to them by the headquarters, which may vary depending on the functional area of decision making, among other factors (Vachani, 1999).

Boojihawon *et al*. (2007) evidenced from their research that multinational subsidiary entrepreneurial culture is the overarching mechanism towards initiation and energization of entrepreneurial behaviours in the subsidiaries with three main characteristics: Global vision, entrepreneurial orientation and entrepreneurial MNC network management. Also their research suggests that there are three influences and manifestations which impact on and are affected by the multinational subsidiary entrepreneurial culture: subsidiary autonomy, target market servicing and responsiveness to local environmental conditions. In fact, subsidiary managers of multinational firms have expressed that autonomy from the parent company is necessary to build a successful operation (Hoffman, 1988). Following Mirchandani *et al*. (2008) work, the extent of autonomy provided to the subsidiary can contribute to the success of the multinational firm because it can motivate subsidiary managers to be more committed, perform more diligently, and thus produce greater subsidiary profits which in turn become the profits of the multinational. Concerning ICT, the decision on the extent of autonomy to delegate to subsidiaries for ICT planning is

critical as greater autonomy can provide them with more adequate and critical systems to their local needs and success (Hanke & Teo, 2003; Lai & Wong, 2003; Maritan *et al.*, 2004). In fact, decentralization has been shown to improve subsidiary effectiveness in general (Frost & Birkinshaw, 2002). As Mirchandani *et al.* (2008) point out , "the conventional wisdom may suggest that the parent should respect the subsidiary's uniqueness in terms of its culture, language, currency and legislation, but at the same time maintain tight control of all ICT planning to ensure that it is consistent with the parent's business and ICT strategies. However, the delegation of that control may benefit the subsidiary". Mohdzain & Ward (2007) refer that in attempting to examine ICT strategy in multinational subsidiaries, there is a need to understand the dimensions that influence the relationship between a subsidiary and other units in the multinational company. Apparently, the driving forces that motivate a multinational to carry out the ICT planning include (Bresman *et al.*, 1999) to enable the transfer of ICT knowledge within the multinational group, (Birkinshaw, 1999) "to encourage the subsidiaries' initiatives, to achieve economies of scale throughout the multinational corporation, and to increase the collaboration and synergy between the different subsidiaries and the headquarters ".

However, the conceptualization of ICT strategy (Mohdzain & Ward, 2007) is often defined more by the operational than the environmental factors. At the subsidiary level the emphasis on the need to be responsive and competitive within the local market is important to local management but is often of secondary importance to the multinational global business and ICT priorities as well as the corporate desire to minimise the costs associated with duplication and overlap. In their work from 2007, Mohdzain & Ward give some suggestions that appear relevant to many organizations: "increasing centralization of ICT should not result in subsidiaries becoming less competitive, when initiatives by local subsidiary managers to increase competitiveness are expected in other activities such as marketing or service development"

In 1999 the work of Vachani indicated that the decision areas in which subsidiary managers enjoyed the highest autonomy were marketing and personnel and the ones in which they had the least autonomy were research and development (R&D) and finance. Autonomy for manufacturing decisions varied a great deal. Personnel training decisions are decentralized probably because subsidiaries are in a better position than headquarters to judge local needs. Concerning the type of local decisions, "subsidiaries appeared to enjoy less autonomy for strategic decisions than for operational ones. For example, in the manufacturing area, subsidiary managers got less autonomy for the decision whether to manufacture locally or import products from foreign subsidiaries than for the operational one of setting inventory level". Vachani (1999) also refers that for finance decisions, subsidiary managers got less autonomy for capital budget decisions then for the operating budget. Among marketing decisions subsidiaries apparently enjoyed less autonomy for relatively operational decisions as advertising messages and product prices than for the more strategic product launch decisions.

2.4 - The concept of small and medium enterprises (SME's)

The literature here referred on small and medium enterprises (SME's) is only to be used as a reference for comparison whereas the companies studied are subsidiaries of multinationals.

Small and medium enterprises (SME's) are dominant in many industry sectors, representing an important role in the economy. Compared with the large enterprises, the SME's have fewer financial resources, lower technical expertise and poor management skills (Caldeira & Ward, 2002).

In Europe, at least 98% of the total number of companies in all the member countries have less than 200 employees (Felstead and Leighton, 1992). Furthermore, there has

been a considerable increase in the number and relevance of SME's in the western economies (Sengenberger et al., 1991).

In Portugal, the 2004 census from the Instituto Nacional de Estatística, identifies and officially classifies 99,6% of the enterprises as SME's. As per Caldeira & Ward (2002), traditionally, Portuguese SME's have succeeded because of a protected home market, relying on low labour and material costs. With the European Union membership, has rapidly eroded these sources of competitive advantage (Pereira & Seabra, 1993) and the Portuguese SME's have now been affected by the forces of globalization. The adoption and use of the new technologies, mainly ICT, is likely to be crucial for the survival and competitiveness of the SME's from southern Europe in the emerging global market (Öscan, 1995).

Companies worldwide of different sizes and sectors seek new ways of conducting their business through some kind of innovation to stay ahead of competition (Laforet, 2008). While large enterprises can face important investments in new technologies this is hardly the case for SME's. However, research shows that new small firms continually enter the market with new ideas, products and processes (De Jong & Marsili, 2006), increasing their chances of survival and growth. Research has also shown that although large companies have enough resources for investing in innovation (Laforet, 2008), they also tend to create a bureaucracy unfavourable to creativity and so, tend to be less flexible than smaller firms. While the larger firms have the benefit of more resources and systems, the smallest firms have individualism.

In a world of globalization however, the initiation of internationalization, for an SME may not simply be the result of the pursuit of opportunities in other new markets, but may also represent a response to the home market environment characterized by institutional pressures (Cheng et al., 2008) and a critical decision due to the costs and risks involved. Globalization is accentuating competitive pressure on SME's which

are increasingly finding themselves in competition with firms from other regions or countries and they also may have to explore other markets to sustain their own competition position (Caldeira & Dhillon, 1997).

In 1996, the European Union, proposed a general framework for all the issues involved in SME's definition. In order to be considered an SME, an enterprise cannot have more than 250 employees (it was 500 employees before), the enterprise should be independent, in the sense that a share of 25% or more cannot be owned by a large enterprise or by a group of large enterprises.

The European Union (EU) definition is to be used as a guideline for the EU members. The Portuguese official criteria of SME (determined by the Portuguese legislation – Despacho Normativo 52/87) defines an SME as an enterprise that:

a)   Has less than 500 employees;

b)   Has less than 12 m Euros of annual turnover (updated annually);

c)   Cannot be more than 50% owned by any enterprise (or set of enterprises) that does not fit in statements a) and b)

Although the definition provided by the European Union is likely to be later adopted in Portugal, this definition still does not fit the Portuguese reality. Very small Portuguese manufacturing firms (for example, with less than 50 employees), in traditional industries (like clothing and footwear) tend to use intensive labour and have basic computer systems because they do not have much data to process. Most of these firms are subcontracted by one or few larger manufacturers because they are able to provide lower labour costs (Caldeira & Ward, 2002). The development of networks of SME's is a predominant trend in many European manufacturing industries and constitutes a possible solution for many small firms to beat the

increased competition from large enterprises and low cost producers from less developed economies.

According to the 2004 census of Instituto Nacional de Estatística in Portugal, SME's represent 99,6% of the existing enterprises, generate 75,1% of the employment and 56,8% of the global national business volume. The average dimension is very reduced (9,4 workers). 97,3% of the SME's are micro and small enterprises. 2/3 of the SME's are located in the Lisbon area and in the north of the country. 61,4% of the SME's is in the services and retailing sectors,14,4% in the transforming industry, 14,1% in civil construction and 9,7% in tourism.

2.5 - ICT, e-business and MNC subsidiaries

Although there is a growing literature addressing e-business and small and medium enterprises (SME's) (Jacobs & Dowsland, 2000; Keeling *et al*., 2000; Poon, 2000; Doherty *et al*.,2001; Elsammani *et al*., 2001, Daniel & Grimshaw, 2002; Parker & Castleman, 2007), there is a gap concerning literature addressing e-business and MNC subsidiaries. Due to this fact, the literature on e-business and SME's will be used as a reference for comparison.

The adoption of a new system or technology by a company, greatly affects the way business is conducted (Kalakota & Robinson, 2001), the way resources are utilized and how efficiently they are used. Competitive advantage of firms, whether large or small, can increase with an adequate use of ICT but only if they possess the skills and experience to operate the systems (Ihlstrom & Nilsson, 2003).

The importance of the sector of small and medium enterprises is leading to a steady growth in studies of e-business adoption by these firms (Daniel & Grimshaw, 2002). SME´s unlike larger counterparts, have many limitations regarding time and resource allocation (Chong, 2007). As found by Ihlstrom & Nilsson (2003), the vision of

management in SME's, concerning the acquisition and implementation of new technology may not be hindered by the price tag of the investment. The time taken off by staff for training and learning may significantly affect an SME due to the loss of operation time from key employees of the business (Chong, 2007). E-business adoption by subsidiaries as also by SME's is similar to technology implementation, facing similar barriers, which may act as a deterring factor for managers to implement a value adding process.

The role of e-business in SME's is to improve customer services and gain greater business insights (Chong, 2007).

As found in previous research (Hossain *et al*., 2002; Daniel & Grimshaw, 2002; Spanos *et al*., 2001; Chong, 2007), the differences between SME's and larger organizations in deciding to introduce a change appear to be the following:

1)   SME's remain attached to functional methods of thinking and managing, while larger organizations adopt process-oriented-frameworks

2)   SME's are subject to greater pressure in terms of cash flow constraints, working capital, and more limited resource allocation potential, which would affect the uptake of e-business

3)   SME's have a smaller number of employees as resources are less likely to adopt e-business since they are less able to divert employees to e-business implementation.

However, despite having smaller resources, smaller firms can be as successful as their larger rivals if they adopt different strategies, where the use of new technologies would have an important part (Daniel & Grimshaw, 2002).

Most SME's remain attached to older functional ways of thinking and managing, much to the detriment of the long term survival of their respective industries (Smith & Fingar, 2003). However, due to the fact that the sector of SME's represents an important majority of the business activity or volume in most developed nations, this fact has brought in much concern with governments and policy makers (Fu *et al*., 2001; Riley & Brown, 2001; Chong, 2007).

Apparently, according to Nunes & Patterson (2001), there is no clear patterns to SME's usage of the Internet, e-business or e-commerce. Many SME's may use the Internet as a resource, but do not have a web site.

Interestingly Lynn *et al.* (1999) found in their study on the adoption and effectiveness of new media in SME's, that smaller companies were making more use of these technologies (such as the Internet, intranets and other communication devices) for contacting their customers than the larger enterprises, despite their limited resources.

There is an increasing need for individual SME's, irrespective of the industries in which they function, to keep pace with e-business in order to compete and survive in the increasingly globalized environment of modern business (Chong, 2007). This rapid change of pace in the business world is felt even more intensely by SME's as they know they do not always have the funds to compete on the same level as larger organizations in respect of knowledge management (Plessis, 2008). Most ICT or e-business research done on SME's has focused either on how technology impacts a specific or a few areas of business functions (marketing, sales, communication, data security, etc.) or how new technological innovations may be utilized in a business (Parker & Castleman, 2007). ICTs are a must for SMEs to innovate (Redoli *et al.*, 2008).

Summarizing on previous research (Hale & Cragg, 1996; Raymond *et* al., 1998;Fu *et al*., 2001;Riley & Brown, 2001; Grandon & Pearson, 2004; Chong, 2007; Ismail, 2007), the following five factors are those considered more influential to inhibit e-business adoption in the SME sector as a whole:

- Absence of cross-functional mindset amongst Senior Executives
- Lack of support from senior management
- Lack of clarity on a strategic level
- Lack of information technology expertise
- Poor knowledge of e-business

The most likely explanation for the prominence of lack of financial resources and lack of time as the most important factors inhibiting e-business adoption in SME's is the fact that most of the firms are small. Keeling *et al*. (2000) found that adoption was being driven by pressure from customers, a belief that e-business would generate revenue or reduce costs, access to new markets and competitor activity; the cost of e-business developments and concerns about security were also inhibiting factors.

The lack of support from senior managers, considered one of the factor inhibiting e-business adoption in the SME's sector in general, may stem from the fact that the majority of the businesses are still quite "traditional" in their mindsets and very family oriented in their ownership and governance structures. They have the mentality of "why change the way things are when they work?" (Chong, 2007).

In their study of e-mail adoption in the SME's, Sillience *et al.* (1998) found that the e-mail use resulted in efficiency gains and the ability to perform new tasks, improving the communication within the companies. Also the study done by Dutta and Evrard (1999) found that SME's were using the Internet for a number of distinct

activities such as improved communication, access to information, marketing and transactions with customers and suppliers.

Following Nunes & Patterson (2001), perhaps the best way to understand the dynamics and decision-making processes of SME's is to try to understand why they use the Internet, rather than focus on how many SME's use it. Also Plessis (2008) suggests that the use of communities of practice need to be seen as the starting or introductory vehicle for knowledge management in SME's globally, as this can be the future for these organizations taking knowledge management forward.

Parker & Castleman (2007) on the analysis they present of recent SME-e-business literature which addresses limitations of previous similar studies by analysing current journal articles from 2003 to 2006, argue that the SME-e-business research community has now reached a point where they can progress beyond the well-established factors and start to conduct research which help SME's to overcome the barriers and exploit the drivers. They suggest, based on the limitations of existing literature, that a future research direction should be to focus more critically on the supply-side of e-business, at the responsibility and ability of vendors, consultants, ISPs and other solution providers to provide each individual, unique SME with a compelling business case to adopt an e-business solution which matches their personal and business goals. Also they refer that unless senior managers (or employees in an SME) already have a positive attitude toward e-business and know-how, e-business solution providers and advocates need to convince SME senior managers (and promote positive attitudes) that the firm can obtain benefits with the adoption.

Following the report from OECD (2004) the issues for governments are to foster appropriate business environments for e-business and ICT uptake by small and medium enterprises (to diffuse broadband, enhance competition), and target programmes to overcome market failures to the extent that they are needed in

particular areas (skill formation, specialised information). Governments have a range of SME e-business and Internet use programmes. However, commercial considerations and potential returns are the principal drivers of small business adoption and profitable use.

2.6 - The concept of Institution

The institutional approach has its origin in sociology (Berger & Luckman, 1967; Strinchombe, 1968) and as referred by Silva & Figueroa (2002) has been expanded on by several researchers (DiMaggio & Powell, 1983; DiMaggio, 1988; Meyer & Rowan, 1977; Powell & DiMaggio, 1991; Scott, 2001).

Institution is a rule-like, social fact of an organized pattern of actions (Zucker, 1987). Institutional theorists hold that regulated organizational behaviours are products of the ideas, values and beliefs that originate in the context of institutional environments, and to which organizations conform (Cheng & Yu, 2008). The term 'institution' has multiple meanings in everyday language (Barbour & Lammers, 2007). According to Scott (2001), there is no single and universally agreed definition of an 'institution' in the institutional school of thought. It is frequently used synonymously with organization in reference to a specific church, school, college, hospital, mission or corporation, especially to confer prestige or status on a particular organization (Barbour & Lammers, 2006). Scott (2001) asserts that "institutions are social structures that have attained a high degree of resilience. They are composed of cultural-cognitive, normative, and regulative elements that, together with associated activities and resources, provide stability and meaning to social life. Institutions are transmitted by various types of carriers, including symbolic systems, relational systems, routines and artefacts".

A given level of aggregation has been said to be the institutional level. Powell & DiMaggio (1991) shed light on the meaning of 'institutions' by offering a definition of the (neo-)institutional field: "The new institutionalism in organization theory and sociology comprises a rejection of rational-actor models, an interest in institutions as independent variables, a turn towards cognitive and cultural explanations, and an interest in properties of supra-individual units of analysis that cannot be reduced to aggregations or direct consequences of individuals' attributes or motives". After some time, the institution (and the resulting pattern behaviour) becomes sedimented and taken for-granted. Then, it might be difficult for the actors even to realize that their behaviour is in fact partly controlled by an institution.

Following Barbour & Lammers (2007), the traditional professions, such as medicine, law and clergy, are sometimes referred to as institutions. The term 'institution' has also been used to describe specific customs and practices (e.g., the institution of marriage) as well as rules and laws (e.g., the institution of criminal justice).

When persons become institutionalized such as patients or soldiers, they are thought to be under some compulsory rule. It suggests that certain persons, organizations, beliefs, ways of thinking, behaviours, or rules have an enduring and fixed character (Barbour & Lammers, 2007). Weber (1968) defined an institution as "a compulsory organization or association", in contrast to the voluntary organization, which "one might join or leave at will", giving emphasis on membership. Other researchers have emphasized beliefs, norms, rules or behaviours as the basis of institutions. In 1950, Commons viewed institutions as "working rules" or "the duties imposed on individuals by the collective action of all together".

Giddens (1984) defined institutions as "those practices which have the greatest time-space extension"; he also referred to institutions as among "the more enduring features of social life". Barbour & Lammers (2007) referred that as W.R. Scott (2001) illustrates, normative and cognitive mechanisms are also at play. Hence, a

mixture of "coercive" (regulated), "mimetic" (cognitive) and "normative" influences act to socially construct an organization (Powell & DiMaggio, 1991). Kanter (1981) shows that institutional factors, be they formal rule-based organs of the institution or less normative and cognitive social mechanisms, operate through role-based activities to compel or bind actors to adopt particular behaviours, by operating on their intentional states or purposeful activities. Bruner (1990) argues that while beliefs guide social action, being compelled to act in a particular way can also help shape and influence belief; thus as with belief and action, the relationships between speech acts and the commitments of social actors are reciprocal (Winograd & Flores, 1986; Butler, 2003).

Abbott (1988) based a theory of professions on formalized knowledge and acknowledged that professionalism is "the main way that expertise has been institutionalized in industrial societies" (p.323). Meyer & Rowan (1977) described how established and enduring beliefs were associated with how ends should be reached and that these beliefs have consequences for how work was accomplished even if the beliefs could not be tested. DiMaggio & Powell (1983) argued that as organizational leaders, managers and employees adopt and follow institutional rules, their organizations become more similar to each other. For Offe (2008) institutions are seen as composed of rule-like beliefs, behaviours, or practices; they tend to be fixed, enduring, formal and independent of organizations, and they act as real but unseen constrains on organizing.

Garfinkel's (1967) concept of accounts refers to the narratives individuals create to explain and give meaning to their day-to-day behaviours and experiences. Lindlof & Taylor (2002), in their explanation of institutions, traced the influence of ethnomethodology in three traditions of communication research: conversation analysis – the order in which speaking can occur; rules theories – attempt to undercover the cognitive rules underlying every day interaction; and studies of talk at

work – demonstrate how talk serves as the principal means through which actors conduct goal-oriented activities.

Foucault (1972) adds an important element to our understanding of institutions. They function to control people. Through this concept, Foucault addresses the power that institutions have in the contemporary era. Lammers & Barbour (2006) refer that Eisenberg *et al*. (1985), differentiated an institutional network tie as one that proceeds "without the involvement of specific organizational roles or personalities" (p.237) as opposed to representative or personal links, which require the active participation of two organizational members. Finet (2001) identified institutional rhetoric as "externally directed corporate expression(s) of relatively formal collective entities. Her work recognizes a larger framework within which organizing occurs. Taylor (1995) highlighted the relationship between institutional and organizational structures and the independent influences of institutions on organizational communication. McPhee & Zaug (2000) describe institutional positioning as a type of communication flow that links an organization to its external environment. Deetz & Mumby (1990) recognize that organizations exist in the context of "values, laws, rules, ideology, and other institutions" defining organizations as "behaviours inside an institutionalized container, coordinated by prior plan or cognition".

Combining the insights of organizational sociology and the concerns of organizational communication researchers, Lammers & Barbour (2006) offer a definition of institutions that can integrate these elements. They suggest that institutions may be understood in terms of six interrelated aspects. First, they view institutions as consisting of observable routines or behaviours that are roughly consistent across a variety of social settings. Second, institutions are also manifested in beliefs, in that they can be described as cognitive and emotional elements in the decisions and choices that individuals make. Third, institutions involve individuals as actors and carriers of the aforementioned beliefs. Fourth, institutions are characterized by low rates of change – institutions endure. Fifth, institutions relevant

to organizational communication are often formalized, that is, written and archived. Sixth, institutions relevant to organizational communication reflect a rational purpose. Institutions are composed of rules for conduct. Lammers & Barbour (2006) argue that institutions guide individuals via knowledge stored and followed. In sum, for analytical purposes, they view institutions as constellations of established practices guided by formalized, rational beliefs that transcend particular organizations and situations.

2.7 - The Portuguese pharmaceutical industry

Overall view on the pharmaceutical business system

The value chain of the pharmaceutical industry is long and complex.

The objective of the pharmaceutical institution is to produce medicines. Its traditional sources are biology and inorganic chemistry. Biotechnology came out in the seventies as an alternative to those sources whose saturation was causing problems to the pharmaceutical innovation (Costa,1998). The pharmaceutical institution is one of the industries that have worldwide a greater investment in Research & Development (R&D) (Costa,1998; Jiang *et al.*, 2001). Pharmaceutical innovation is the typical example of a high-risk activity.

Also in terms of Europe, as Earl-Slater (1997) states, the pharmaceutical industry in the European Community (EC) is one of the most important industries. Not only do its products save lives but they also improve the quality of millions of people's lives daily. As a polar extreme, if the EC lost all its pharmaceutical industry, the millions of sick people in the EC would still need pharmaceuticals. Hence the need to consider the pharmaceutical industry as providing more than just pharmaceutical products to the well-being of the EC.

Research and Development (R&D) is the intellectual source of the industry and of new products. The traditional product development cycle begins with the search for, and discovery of, a new compound. This process typically takes one year to find one pharmacologically viable new chemical entity (NCE). A NCE then moves into pre-clinical testing for about 2 years and generally one in 20 NCEs survive this stage. Approval is then thought from the appropriate regulatory authority – for example, the Food and Drug Administration (FDA) in the United States – to proceed to clinical trials (Harvard Business School, 1995; Heracleous & Murray, 2001).

Clinical testing involves three phases of testing on human subjects. Phase I takes one year for safety assessment. Phase II, two years on assessing effectiveness, dosage and side effects and finally, Phase III, 3 years to assess safety in long-term use in large samples of patients. For every five new drugs entering Phase I, 1.65 typically completed Phase III successfully. On successful completion of the clinical trials, a new drug application is filed. It is then reviewed by a regulatory authority, which may take a further year and a half to complete the review. One in every 5000 compounds at the discovery stage typically survive to become a new approved drug. Over two thirds of the total R&D cost of a successful new drug was spent on clinical trials (Harvard Business School, 1995).

The protection of Patents lasts 17-20 years from filing of a new chemical entity (NCE) and provides a monopoly on an approved drug for about 10 years. In 1994 an alteration was introduced to the legislation and new patents were extended to 20 years from the FDA application date. However, a new approach known as 'rational drug design' allowed that products called 'fast followers' that were therapeutically similar to a novel drug but different enough chemically not to infringe patents to be produced very quickly. As a result, new drugs often enjoyed no more than a year or less of market monopoly before being attacked by a competitive entry (Harvard Business School, 1998).

The main raw materials of the pharmaceutical industry are the so called 'active ingredients' for drugs and come from the fine chemicals industry. Marketing, sales and promotion are major expense items, accounting for as much as 30 percent of manufacturers' cost. Seventy five percent of this is attributable to the cost of sophisticated sales force calling on medical doctors (Costa, 1998; Heracleous & Murray, 2001).

The distribution of the products is done through several types of channels – retail pharmacies, hospital pharmacies, mail order, health management organizations / managed care organizations and new Internet pharmacies. The whole system is driven by the illness of individuals and the efforts of their physicians to treat or to prevent the occurrence of these illnesses by prescribing suitable drug treatment (Harvard Business School, 1998). In most countries, the economics of the traditional value chain are deeply influenced by the method of payment. Many patients do not pay directly, as the cost of the drugs they use is paid by a national public health system, by a health insurance scheme to which they subscribe or by a corporate health scheme (Costa, 1998; Heracleous & Murray, 2001). In such circumstances, the patient does not worry unduly about the cost of treatment and the physician is concerned with effectiveness. However, due to the steady rise of the drug treatment cost, there has been an increasing friction between the ultimate payers and the pharmaceutical industry. Governments and managed care organizations, made drug prices a focus of contentious negotiation and the exercise of accumulating buying power. This rising in the costs of the new drugs has been largely driven by the legal requirements for testing and approval which governments demand (Jones & Politt, 1999) and also by the existence of active and specific marketing and promotion techniques, addressed to doctors and not to the final consumer.

In 1980, changes were introduced to the US legislation to accelerate the approval process for generic drugs. Generic manufacturers had to prove that their products were chemically and biologically equivalent to the original patented drug but they

did not need to repeat the clinical trials. As a result, a generic alternative could be launched as soon as a patent expired. The European governments and regulators were attentive to the impact of all these changes in the USA. In Europe, governments traditionally carry much of a nation's health care cost through public health provision, funded through the tax system. As the nineties progressed they placed more pressure on prices, became more discriminating in relation to what could be reimbursed and encouraged generic substitution (Harvard Business School, 1998; Heracleous & Murray, 2001).

According to the Directive of the European Community (EC) (CES/96) on the Free Circulation of medicines in the European Community, the availability of innovating and efficient medicines is an important fact for the better quality of life and must justify a particular attention on behalf of the EC to consolidate a competitive and innovating European pharmaceutical industry. Also, appearing as a key aim of the EC's Enterprise Directorate General, and in the report of the meeting of the Interpharmaceutical Group of the European Parliament (1999), is the encouragement of the European pharmaceutical enterprises to fully use the opportunities created by globalization, and promoting their legitimate interests in the global market; databases and electronic communication facilities should be created as necessary to promote the rational use of medicines.

Starting in the nineties, in response to the changing pressure of the pharmaceutical industry, companies positioned and repositioned themselves in a variety of ways. Some bet on mergers and acquisitions (Aitken & Holt, 2000), some bet on new science emerging from genetics, molecular biology and biochemistry.

Following Heracleous & Murray (2001), companies began to outsource traditionally integrated activities including research, clinical trials and manufacturing and new specialist companies came in the market to provide these services. Reaching forward to the patient, companies began to advertise directly to the consumer to generate

primary demand and preferences. Traditional research based companies began to produce generics themselves rather than leave this sector of demand to the non-ethical pharmaceutical firms.

While substantial social value is often attributed to pharmaceutical innovation, there has been only a small number of actual evaluations of the welfare gains stemming from the introduction and diffusion of new drugs (Ellickson, Stern and Trajtenberg, 1999).

As Jones & Politt (1999) refer in their work, integrity in the pharmaceutical institution does not so much consist of the soft issues, more prevalent in less regulated industries, but of complex competition and government relations issues for which there is much scope to come up against US and other laws. The legal context, particularly in the US, is pervasive and companies seeking to act with integrity have to face questions of what constitutes legally acceptable behaviour in specific circumstances.

Characteristics of the Portuguese business environment

In the author's experience, as a Portuguese native, the Portuguese business environment is characterized mainly by the importance given to family ties (Saraiva, 1982; Carvalho, 1989). Managers and other employees develop their careers within the enterprises, where they develop new ties and cultivate old ones. These affiliations contribute largely to the success in their careers. Many business deals are made with the help of family connections, social affiliations or influential friends. Friendly relations start in school or universities and common friends are good links to establish business relationships. Those with graduate studies done abroad and many personal and family contacts, usually remain for many years in the local subsidiaries of foreign companies, and reach high positions within the organizations (Silva *et a*l,1993; Silva,1991).

Medical doctors are highly regarded by the population, being one of the most if not the most respected profession. They make a class apart, and are used to being treated with much respect by patients, pharmaceutical companies and also the government entities (Rodrigues,1998; Pereira & Seabra 1993). Portugal is a small country, people have a friendly and tolerant attitude, and tend to know one another (Rodrigues,1998; Saraiva, 1982;Carvalho,1989). Companies have to cultivate ties with influential people within the government and public departments who can inform them of future events and often it is only through personal ties that they are able to gain access to financial assistance in the form of large loans and information on competitors, frequent changes in public policies, etc. (Simões,1995).

Characteristics of the Portuguese pharmaceutical companies

The Pharmaceutical industry is in certain aspects considered in Portugal a very peculiar industry (Mateus, 1993; Costa, 1998). Medicines satisfy a fundamental need caused by economical, social and demographic conditions, which vary from place to place, and the way of treatment from patient to patient. The final consumer – the patient – is a limited consumer, both in the choice of the product (this is in fact prescribed by the doctor) and in the financing of the expense (one part of the medicines cost is paid by the Government, through the social services, insurance companies or others - the high priority given to health, as a basic need to be satisfied, whether individually or socially).

The pharmaceutical industry is based on a competitiveness supported essentially by the different products characteristics, and led by innovation and differentiation, what makes marketing costs very high. It is dominated by a small number of large multinationals that operate through the world in order to make the most of the investment with the products innovation. These companies co-exist with a few small Portuguese companies manufacturing products to be sold over-the-counter (OTC's)

as well as products with overdue patent or acting as a sub-contract producer of a multinational company (Mateus, 1993; Costa, 1998).

The stakeholders of this market are (Mateus, 1993; Felicio,1997; Costa,1998):

(1)The pharmaceutical companies being mostly subsidiaries of multinational groups. The culture of a local multinational pharmaceutical subsidiary is influenced by two main factors (Mateus, 1993):*Headquarters policies* interfering in all finance or production systems, and subject to regular audits by international auditors and *local decisions* taken at the discretion of the local managing team and relating to marketing, human resources, regulatory affairs, registration, selling, promotion, the way to deal with medical doctors, health system, government and legal affairs**.**

(2)The wholesalers that buy from the pharmaceutical companies and supply the pharmacies.

(3)The pharmacies that sell to the patients.

(4)The patients that are the final consumers of the pharmaceutical products. Always considered as a passive agent of the system, the final consumer or patient, is dependent of the medical doctor's prescription (ethical products – by ethical products it is meant the medicines that need a prescription from a medical doctor), (Costa, 1998).

(5)The doctors: prescribers of the ethical products. According to Stern and Trajtenberg (1997) a physician's prescribing expertise, and hence their discriminatory power in terms of which drugs to prescribe, rely upon two knowledge-related assets: diagnostic skills and information about drugs.

(6)The insurance companies and other private entities or cooperatives, participating in the cost of medicines.

(7)The Government whose importance is fundamental, considering that this sector is heavily ruled by politics and legislation.

The pharmaceutical industry is subject to a heavy global regulation, covering all the phases of its products life cycle. From innovation (patents legislation and early authorization to sell), production (licensing and regular auditing), marketing (dominant weight of the ethical and hospital products, restrictions to publicity, labelling and documentation), distribution (control of the wholesalers' and retailers´ margins), pricing (pricing control, comparticipation scheme), international commerce, all these life cycles of the pharmaceutical commerce are subject to complex rules with government intervention, facing a specific situation characterized by permanent negotiation with the official entities.

To face the new challenges of a global European market and to stay competitive in the future, the pharmaceutical industry in Portugal will need to be fully restructured adopting modern methods of management and using new processes of information technology. The EC (COM-1998-588), strongly recommends that the industry use technological facilities like electronic business as a means to save in the costs incurred with all the expenses related to medicines.

The Pharmaceutical industry comprises in Portugal around 385 registered companies, 75% of which have less then 100 workers.

According to A. Mateus (1993), Costa (1998) and Felicio et al. (1997), we are in fact dealing with an industry with good financial health, productivity and qualified human resources above the national average, with a high level of information technology and with an ethical and environmental attitude.

2.8 - A conceptual framework to study e-business adoption in the PPhI

The adoption of e-business is a complex issue for a company since it involves business process changes and significant financial investments in such areas as computing and networking infrastructure and human resources management (Wang & Cheung, 2004).

The framework presented in figure 2.1, is an adaptation of the framework proposed by Wang and Cheung (2004), developed with the aim of understanding the key factors that affect e-business adoption.
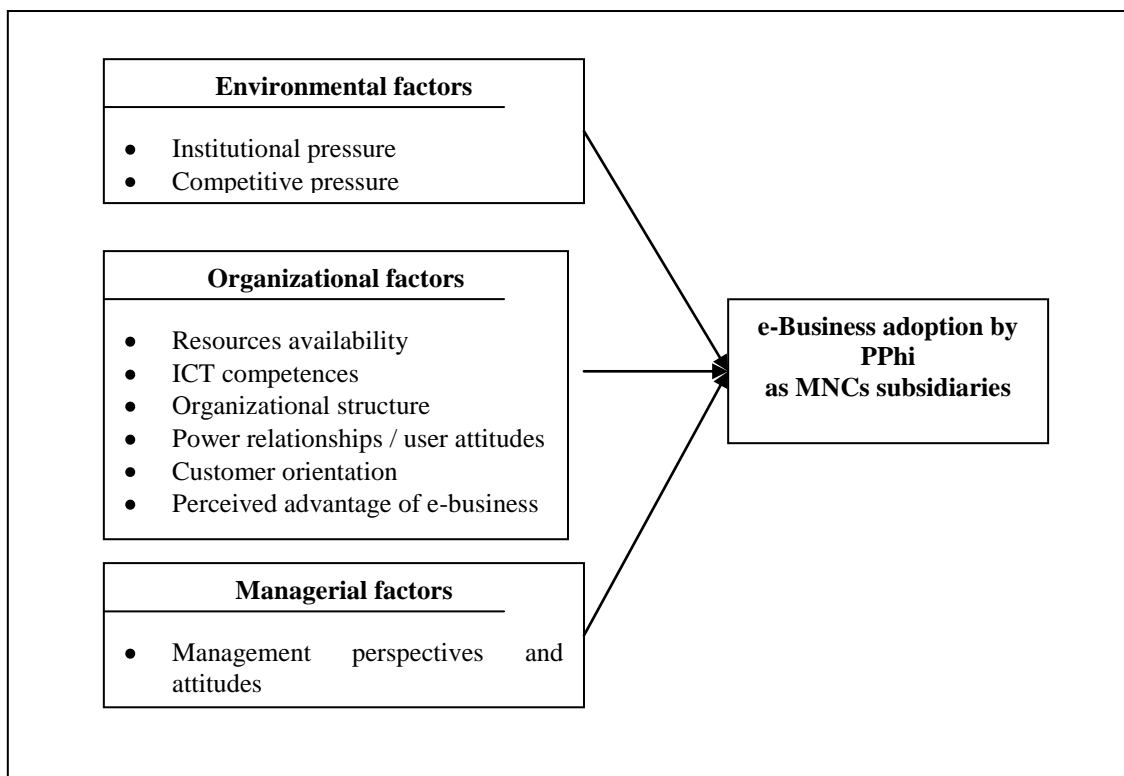
Fig. 2.1. Framework of e-business adoption by PPhI

This research analyses the issues influencing the adoption of e-business within the Portuguese subsidiaries of the pharmaceutical industry. In this chapter the initial framework for analysis was used to structure the following factors found in previous empirical research and in the review of relevant literature on pharmaceuticals, subsidiaries, small and medium enterprises, institutions and e-business, which will serve as a guide to the fieldwork:

Environmental Factors

Connected with the external environment of the companies, two type of environmental pressure can drive firms to adopt innovations: Institutional pressure and competitive pressure (Wang & Cheung, 2004):

Institutional pressure arising from the pursuit of "legitimacy" (DiMaggio et al, 1983). Institutional pressure can come from powerful outside entities such as governmental bodies, trade associations, consulting companies, business media and other stakeholder groups such as customers and supplier (Abrahamson, 1991).

Competitive pressure, can be defined as the pressure that arises from the threat of losing competitive advantage (Abrahamson, 1991). Previous research shows that companies tend to adopt innovations under increasing competitive pressure in order to reduce the risk of falling behind market average performance (Wang & Cheung, 2004).

Organizational Factors

In relation to the internal environment of the companies, the factors proposed at the organizational level that will be studied are:

Resources availability - Small enterprises, compared with larger ones, tend to have a simpler organizational structure with less specialized tasks, and weaker human, financial and material resources (Caldeira & Ward, 2002), and so more limited

computer systems. However, subsidiaries of MNCs, although SMEs in size, apparently do not suffer the cash-flow problems, having a stronger financial position, due to their parent protection, but still they face the problems of the weakness of the other resources (Costa, 1998).

ICT competences

The literature refers that the concept of ICT competences is related to several factors associated with ICT success: top management computer knowledge, users computer knowledge, company's ICT internal expertise (Caldeira & Ward, 2002). In the context of e-business, it is important to examine the strength of the ICT resources of the company, including both technological (the ICT infrastructure existent in the company) and human components (ICT related knowledge and skills owned by the people working in the company (Wang & Cheung, 2004)). Stair *et al.* in 1989 noticed that the majority of US owners/managers of small businesses had no formal ICT education or training. The low managerial and technical expertise causes a low evaluation of the potential of ICT for the business (Raymond, 1989).

Organizational structure

A company's overall strategic orientation should be the first critical factor in explaining its e-business adoption behaviour (Wang & Cheung, 2004). Strategic orientation is related to the ways an organization maintains a business culture that effectively and efficiently creates superior customer value (Narver & Slater, 1990). The literature refers to some examples on the association between ICT success and organizational structure. Small, medium and large enterprises have different computer needs. Raymon (1989) mentions that in a small organization, the success of ICT is positively related to the hierarchical level of the ICT department. Following Caldeira & Ward (2002), the influence of the person responsible for ICT on the management team of the company appears also to be an important point for the ICT success.

Power relationships and user attitudes

The social sciences consider power as a capability for action that is behind social relations and, in this sense, power is not a property of a person but is inherent to a relationship between two social actors. It can be perceived as a repressive mechanism of control and influence over others' behaviour (Finkelstein, 1992). The general manager's power over other members of the company is usually attributed to their legitimate authority and knowledge of the organization (Daily & Johnson, 1997). Concerning the user resistance to use ICT.

Caldeira & Ward (2002) also suggest that it may result from an expected loss of power as a consequence of ICT adoption in the organization or due to lack of qualifications to use the computer system. Due to the fact that most small and medium enterprises have one or two ICT professionals, the development of ICT makes the company dependent on the ICT experts, which may have a high expert power due to their relatively high specialized knowledge upon which the company depends. This may not occur in larger organizations as they have larger ICT departments. According to Jones *et al*. (1995) the importance of the ICT manager in an organization is positively related to the influence that the ICT exerts on the top management of the company.

Customer orientation

Customer value is acknowledged as a critical success factor for pharmaceutical companies. The strategy adopted by the pharmaceutical companies as evidenced by the literature is customer-oriented "focusing on identifying the needs of the customers and delivering products and services that satisfy those needs" as Wang & Cheung (2004) referred.

Perceived advantage of e-business

This is an explanatory factor for e-business adoption. The major advantages of e-business include reduced operating costs, and more effective information processing,

communication, data management, and personnel management (Kalakota & Robinson, 2001).

Management factors

Management perspectives and attitudes

In the literature subsidiaries of MNCs or, as a reference for comparison, some SME's characteristics, are likely to explain top management perspectives and attitudes towards ICT uptake and use. When a company changes from a traditional mode of operations to e-business, it faces many uncertainties with respect to technologies, financing, supplier and customer relations. Early adopters of e-business are more likely to be headed by risk-taking top management. In subsidiaries as in small firms, the personal characteristics of the top manager is likely to be reflected in organizational strategies (Wang & Cheung, 2004). It is generally accepted by small business researchers that subsidiaries, as in small firms, are strongly characterized by the dominant role of the top manager and influenced by his/her personality and ambitions (Özcan, 1995; Caldeira & Ward, 2002). Values and attitudes of the senior management in subsidiaries, as small companies, may play a critical role in the adoption of e- business (Caldeira & Dhillon, 1997).

CHAPTER 3 – METHODOLOGY

3.1 - Introduction

This chapter presents a philosophical approach, the research strategy adopted, and the research design. In order to answer the research questions as defined in chapter 1, a decision on the approach to the whole research had to be made. An extensive consideration on fundamental and theoretical perspectives - both quantitative and qualitative - was undertaken, and only those aspects of direct relevance to this research were reported within this thesis. The identification of a philosophical perspective exposes the researcher's assumptions about the nature of the phenomena under investigation (ontology) and her point of view on the ways in which it is possible to acquire knowledge (epistemology). A direct relation between the chosen philosophical approach and the definition of the research strategy exists. As Guba & Lincoln (1994) say "the selection of a method is secondary to the adoption of a philosophical paradigm". The concept of paradigm is here identified as the researcher's view of the world that guides and defines her investigation.

There are two main schools of research: Quantitative and Qualitative. The main difference between both methodologies is that quantitative research works with few variables and many cases while qualitative research deals with few cases and many variables (Creswell, 1998).

A quantitative method is strongly associated with the so-called "positivist" perspective of the world. Quantity is the key concept in Quantitative data, and numbers are used to express quantity. Quantitative data is numerical; it gives information about the world in the form of numbers from either counting, scaling, or both. Measurement turns data into numbers, in order to make comparisons. Counting and scaling are part of measurement and are variables which are measured (Punch, 1998). Quantitative research is used extensively in the medical field, for example in

measuring the success rate of a new drug compared to its effectiveness or side effects. The use of large amounts of specific data allows the researcher to undertake a statistical approach which will enable the researcher to interpret the significance of the data. Quantitative methods focus on facts (hard data) rather than judgements (values).

Qualitative data is commonly associated with certain schools connected with what is known as the interpretivist sociological tradition, particularly phenomenology, ethnomethodology for organizing the world (Silverman, 1998) and symbolic interactionism. A working definition for qualitative research is "grounded in a philosophical position which is broadly 'interpretivist' in the sense that is concerned with how the social world is interpreted, understood, experienced or produced (Mason, 2002). Qualitative research enables the research to research people in their natural settings.

Each research strategy may have its own specific advantages and disadvantages, depending on the type of research question, the control that the researcher has over the research object, and the focus on contemporary or historical phenomena (Yin, 1994). This research uses an interpretive approach and the adopted research strategy is based on the use of case studies.

3.2 - Philosophical approaches

A basic overview of the main philosophical perspectives is important in order to understand the researcher's assumptions and justify the selected research strategy.

An extensive consideration on fundamental and theoretical perspectives on research, was made first; both qualitative and quantitative approaches were considered (Cresswell, 1998; Silverman, 1993). Positivism, interpretivism and critical realism are the dominant philosophical perspectives in the history of social sciences (Hughes,

1991). These perspectives are also frequently adopted in IS research (Walsham, 1993). Despite the proliferation of interrelated philosophies in social enquiry, it may be suggested that positivism and interpretivism are located in opposite corners and are essential to understand other ontological and epistemological claims (Caldeira & Ward, 2002).

3.2.1. - Positivism

The positivist perspective holds that the social world exists externally and that its properties should be measured through objective methods, rather than through sensation, reflection or intuition (Esterby-Smith et al., 2002). It is founded on the assumption that the facts and values are distinct, and that scientific knowledge consists only of facts in an objective and real world. The positivist approach is also hypothetico-deductive, which is a way of hypothesizing laws and deducting what observations will demonstrate truth or falsity. Furthermore, it uses operations such as creating statistical data, in order to enable facts to be measured quantitatively, and by reduction to the simplest elements for analysis. In order to enable generalization of the results, it is also seen as necessary to sample a sufficiently sized group and to undertake a cross sectional analysis to make comparisons of variations across the samples (Easterby-Smith, 2002).

Positivism has a long tradition in the history of natural sciences. According to logical positivism, systems of logic and mathematics are essentially true by virtue of their logical forms and can be derived from axioms, while any other claim to knowledge is seen as synthetic and can be counterfactually shown to be false (Giddens, 1976). Natural and social science research is strongly influenced by logical positivism. Logical positivism "is commonly considered to be the dominant epistemology of contemporary science. Although it has evolved over the past sixty years, it is still firmly rooted in the positivist camp" (Hirscheim, 1992).

According to Hirscheim (1992) positivism is based on five points:

- The unity of the scientific method – the accepted approach for knowledge acquisition is valid for any form of inquiry and any research domain;
- The aim to find regularities and causal relationships among the elements of the study;
- Only experience is assumed to provide valid data;
- Science and its processes are taken as value-free. Science transcends all cultural and social beliefs held by the scientist;
- Logic and more generally, mathematics provide the foundations of science - a universal language and a formal basis for quantitative analysis.

Synthetizing positivism, it assumes that the social world really exists and that it can be measured through objective methods; not like interpretivism where the social world would be subjectively appreciated through reflection and intuition. Positivism seeks to explain and predict what happens in the social world by looking for regularities and causal relationships between its elements (Burrel & Morgan, 1979).

Following Hirscheim's work (1992), it can be assumed that positivism or detached research is suited therefore for research where the variables are subject to reductionism and measurement, as follows:

- It claims to be always objective
- The observer is required to be detached from the observed
- The results are universally generalizable
- There is a distinct and observable cause and effect
- There are no values placed on the information beyond the observable results

If correctly applied, it is a common belief that experimentation and observation, can eradicate the influence of social and cultural values and so develop an image of

reality independent from the observer. The objective of social enquiry is the identification of causal explanations and fundamental laws that explain regularities in social behaviour. Within the positivist tradition, "science proceeds through a process of hypothesizing fundamental laws and then deducting what kind of observations will demonstrate the truth or falsity of these hypotheses" (Easterby-Smith et al., 2002).

Positivist social science research involves independence, enabling a choice of what to study based on objective criteria. Easterby-Smith et al (2002) however reject this and claim that " the task of the social scientist should not be to gather facts and measure how often certain patterns occur, but to appreciate the different constructions and meanings that people place upon their experience. One should therefore try to understand and explain why people have different experiences, rather than search for external causes and fundamental laws to explain their behaviour".

For the positivist, science embodies a set of universal statements, where truth or falsity can be analysed and evaluated by systematic observation and experience. Moreover, science is seen as an attempt to predict and explain the external world by identifying regularities through observation and rejecting any scientific concepts that go beyond the domain of the observable.

As the characteristics of quantitative work are numbers, statistics and the use of equations, a positivist approach is often taken during quantitative research. According to positivism, each piece of information must be reducible to a code number of the standardized text that can then be measured and categorized (Comte, 1957).

Positivism explains human behaviour in terms of cause and effect. The researcher must be independent from the research subject and the investigation is supposed to

produce a set of true and precise laws on human behaviour -   "the purpose of scientific inquiry is to rationalize reality" (Hirscheim ,1992).

In this study, in order to enable perceptions to be revealed without the constraints of structure, a level of trust and openness that enabled the participant to discuss the issues freely, had to be developed: trust and openness in the interviewer/interviewee relationship meant that the maintenance of neutrality and separation would be impossible.

A positivist approach is not appropriate for a study seeking individual perceptions and which intended to discover feelings and nuances regarding the issues requiring considerable flexibility in data collection and analysis.

Whilst positivist approaches are scientifically rigorous, there are concerns that human social behaviour may not be sufficiently regular and predictable to be amenable to positivist research. Similarly, 'the 'positivists' position failed to appreciate the fundamental experience of life in favour of physical and mental regularities' (Galliers, 1992). In this case, structured and rigid techniques that do not consider the richness of the context in which the research is placed may be unable to provide the flexibility of approach and practice required. This is particularly problematic where individuals are concerned and where conclusions may not be reducible to quantifiable data points. Failures of quantitative techniques and statistical analysis does however raise questions of interest to qualitative researchers who could further investigate the reasons for this result through in-depth study of individuals or cases.

It was clear that a positivist approach was unsuitable for the type of questions being asked. Consideration of qualitative tools was the next decision to be made, since quantitative enquiry had been rejected for this study.

The qualitative approach to research is concerned with an interpretation of meaning 'to determine what an experience means for the persons who have had the experience and are able to provide a comprehensive description of it' (Moostakis, 1998).

3.2.2. - <u>Interpretivism</u>

Interpretivism has its roots in hermeneutics and phenomenology. Hermeneutics is basically concerned with interpreting and giving meaning to texts. Boland (1985) argues that the use, design and study of Information Systems can be seen and understood as an hermeneutic process, since the output of an IS is a text that must be interpreted by people other than the author. Phenomenology focuses on the ways in which people think and interpret the world around them and views reality as relative and subjective. The world is socially constructed and the observer is part of what is observed.

Hermeneutics is the 'science of interpretation; the study of human beings in society (philos)' (Chambers Dictionary, 1999). Hermeneutics has been used as a philosophy of analytical interpretation since the 16th century. It was originally developed and validated by its use in the translation and interpretation of biblical texts. The idea was that the translator/interpreter would attempt to submerge himself into the psyche of the original authors. This approach enabled an interpretation to be made within the context of the author's experiences and intended meaning by 'entering the mind of the author of a text, to understand him better than he understood himself' (Musgrave, 2000).

This approach stresses the discovery of the objective meaning of what is being said, by interpretation and intuitive reflection on the whole, its context, dialogue, tones and inflections.

Interpretive methods of research assume that our knowledge of reality is a social construction by human actors and researchers, and thus subjective. Interpretive ontology, in contrast to the assumption of positivism, sustains that "there is no objective reality which can be discovered by researchers and replicated by others" (Walsham, 1995).

According to Van Maanen et al, (1982) "a qualitative method is an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning of what is observed, not the frequency of occurrences".

From an interpretivist point of view, there are significant differences between the research object of the natural and the social sciences. Investigating natural phenomena requires the researcher to invent concepts and theories in order to describe and explain nature. By using those theories, the researcher decides about what is appropriate to the problem under investigation. A number of researchers in the IS field have already demonstrated that interpretive case studies, if carried out and written up carefully, can make a valuable contribution to both IS theory and practice (Walsham, 1995). The study of social phenomena requires an understanding of the social world that people produce and reproduce through their continuing activities. As Blaikie points out in his work (1993), since people are constantly interpreting their world (social situations and behaviour), they develop meanings for their activities and ideas for making sense of those activities. Interpretive approaches adopt the philosophical position that knowledge is a social construction and that theories concerning reality provide ways of viewing and understanding the world rather than discoveries about the world representing absolute truth. From this viewpoint, there are no correct or incorrect theories but more and less interesting ways to see the world (Walsham, 1993). Blaikie (1993) synthesizes the underlying purpose of an interpretive approach to social enquiry as "the major task of interpretive social science is to discover why people do what they do by uncovering

the largely tacit, mutual knowledge, the symbolic meanings, intentions and rules, which provide the orientations for their actions".

3.2.3 - Critical realism

Realism is a relatively recent philosophical perspective that emerged with its own ontology and epistemology. A realistic approach to social enquiry is essentially described in the work of philosophers like Keat and Urry(1975), Harré(1986) and Bhaskar (1978, 1986, 1989a and 1989b). Bhaskar's (1989a) concept of 'critical realism' emerged by linking his general philosophy of science (transcendal realism) with his philosophy of the human sciences (critical naturalism). Bhaskar (1978) clarifies the ontology of realism by saying that "things exist and act independently of our descriptions, but we can only know them under particular descriptions". Science is seen as a systematic attempt to express in thought the structures and ways of acting of things that exist independently of thought (Bhaskar, 1978). According to realism, the ultimate objects of scientific inquiry exist and act independently of scientists and their activity and science is essentially concerned whether that kind of things exist and how they behave.

Bhaskar (1978) identifies three domains of reality to classify experiences, events and mechanisms: the empirical, the actual and the real. The empirical is made up of experience, of events that can be observed. The actual is composed of events, whether or not they are observed. The domain of the real consists of structures and mechanisms which produce these events. All these domains are interdependent. The empirical is a subset of the actual, which is itself a subset of the real. Consequently, realism is grounded in the assumption that the conceptual and the empirical do not exhaust the real. Bhaskar (1989a) carefully distinguishes between the human descriptions of reality and the reality that the researcher pretends to describe. Within this philosophical perspective, experiments can be seen as closed systems

constructed by humans to test their theories, while causes must be seen as tendencies that may, or may not, react with other tendencies to produce effects (Williams and May, 1996).

Critical realism, as described by Bhaskar (1989a), aspires to explain the relationship between human activity and social structures. Social phenomena are perceived as a result of a multiplicity of structures, which cannot be directly perceived, but may be inferred and identified through the examination of their effects.

Based on the work of Bhaskar, Outhwaite (1987) presents a summary of the ontological principles of realism:

- The distinction between transitive and intransitive objects of science: between concepts, models, etc. and the real entitites and relations which make up the natural and the social world.
- A stratification of reality into the domains of the real, the actual and the empirical.
- The conception of causal relations as tendencies, grounded in the interactions of generative mechanisms; these interactions may or may not produce events which in turn may or may not be observed.
- The rejection of both empiricism and conventionalism. The practical expression of this epistemological position is the concept of real definition. Real definitions are statements about the basic nature of some entitiy or structure.
- The concept of explanation involves the postulation of explanatory mechanisms and the attempt to demonstrate their existence.

Unlike positivism, a realist perspective of the social sciences does not assume that we can know the "world out there". This philosophical perspective is located between the positivist assumption that there is a "world out there" independent of our

interpretations and the interpretive view that reality is a mental construction. Realists defend that the "world out there" exists, but it may not be possible to perceive its essence, so the aim of realist research is a search for generative mechanism instead of predictive theories.

3.3 - Research Strategy

3.3.1 - Selecting a research strategy

A research strategy must be selected according to the object of study, research objectives and researcher's philosophical perspective. "The key to good research, though, is not just in choosing the right research strategy, but in asking the right questions and picking the most powerful method(s) for answering the questions given the objectives, research setting and other salient factors" (Hamilton & Ives, 1992).

The evolution of this relatively new area of knowledge (ICT), from an early focus on the technology to a stronger emphasis on social issues, led to the shift from a more positivist perspective of research to the use of interpretive approaches. "Information systems researchers are becoming aware of the limitations of the scientific approaches to their work, given the socio-technical nature of their chosen field of endeavour", says (Galliers ,1992).

Several different data collection tools were researched including ethnographic observation, action research, grounded theory and case study (Stake, 1994; Yin, 1994; Easterby-Smith et al, 2002; Denzin, 1989, 1984; Van Maanen, 1983).

According to Myers (1997) four qualitative research methods in the information systems field, are distinguished: action research, ethnography, grounded theory and case study.

Action research

Action research aims to solve current practical problems while expanding scientific knowledge. It is an interactive research process that capitalizes on learning both by researchers and subjects within the context of the subject's social system (Baskerville and Myers, 2004). This can be done by two main roles:' in-depth observer' (influencing, sharing concepts and interpretations) or participant observation (member of the field, involved in research or own practice).

Action research will seek an in-depth study of the experiences of a specific organization, to solve immediate practical problems while expanding social scientific knowledge (Baskerville, 2001). This goal extends into two important process characteristics: "first, there are highly interpretive assumptions being made about observation; second, the researcher intervenes in the problem setting" (Baskerville, 1999).

It is clear that "when the researcher intervenes, the researcher becomes part of the study" (Baskerville, 1999). Different action research approaches have been developed (Inversen et al, 2004), one of the best known being Susman and Evered's action research cycle consisting of diagnosing, action planning, action taking, evaluating, and specifying learning (Davison et al, 2004; Susman and Evered, 1978), emerging the problem solving cycle and a research cycle (McKay and Marshall, 2001). Regarding the above, we can conclude that action research and a participatory approach is not adequate to our study and for our choice of interviewing as we are interested in how people behave.

Ethnographic observation

Ethnography is a term used to cover a wide array of very different research adventures in the social world. As a method it envoles extensive fieldwork of various types including participant observation, formal and informal interviewing, document collecting, filming, recording, and so on. It is an approach used to study

relatively self-contained societies, as well as groups, organizations and institutions within a society (Van Maanen, 1982).

Ethnographic research comes from the discipline of social and cultural anthropology where an ethnographer is required to spend a significant amount of time in the field. Ethnographers immerse themselves in the lives of the people they study (Lewis, 1985) and seek to place the phenomena studied in their social and cultural context.

In ethnography the researcher's strategy of gaining insights through his/her personal interaction with the actors in a natural setting means that his or her personal role will be an integral part of the process of data collection itself (Hammersley & Atkinson. 1993; Smith, 1975). In ethnography the roles of interpreting and using data are merged as one during the progress of field work. Such an observer would gain access to natural settings but would act as though he were invisible to participants, engaging in little or no interaction with them, simply noting down events as they occurred.

The job of the in-depth interviewer is thus not only of data collection but ideas collection. His or her primary objective is to maintain spontaneity.

The ethnographic research assigns to a researcher the passive role of observing and recording changes, without the intention to intervene on the change process in social system (Trauth, 2001).

This method was also abandoned as it was not considered appropriate for this study.

Grounded theory
Significant consideration was given to grounded theory as a complete methodology for approach, data collection and analysis (McCarthy, 1999; Strauss and Corbin,

1997, 1990; Glaser, 1992, 1978; Glaser and Strauss, 1966). The researcher attempts to derive a theory by using multiple stages of data collection and the refinement and interrelationship of categories of information (Strauss and Corbin, 1997). Grounded theory attemps to generate a theory as the research progresses and as the data are analysed, resulting in the identification of a theory. Two primary characteristics of this design are the constant comparison of data with emerging categories, and theoretical sampling of different groups to maximize the similarities and the differences of information (Creswell, 1998). In this way, at the end of the study one 'should simply code and analyse categories and properties with theoretical codes which will emerge and generate their complex theory of a complex world' (Glaser, 1992). This is an attempt to discover how people act. Grounded theory is defined by 'its insistence, from the start, on generating abstract conceptual categories to account for the data being studied' (Punch, 1998).

Grounded theory is intuitive and close to the data, enabling themes to be tested as patterns emerge (Eastergy-Smith et al, 2002). In many respects this methodology would have been suitable for this research, however, the fundamental requirement that the researcher continually return to the source of data to collect further information in order to achieve saturation was not achievable for this work.

Case study

Case studies are an appropriate research method when we are trying to attribute causal relationships and not just wanting to explore or describe a situation.

The selected research strategy for this study is based on the use of multiple case studies.

A case study is a method of research that focuses on a group, an individual or a phenomena, in order to identify trends and issues or to answer specific research questions. Feagin et al. (1991) refer that there are several factors, which defend the use of case study:

- It allows the grounding of observations and concepts about social action and social structures studies in natural settings

- Information is collected from a number of sources and over a period of time, allowing a more holistic study of complex social networks and of the complexities of social action and social meanings

Case studies have increasingly been used in the field of Information Systems. Hamilton & Ives (1992), analysing information systems research published in fifteen academic journals, found that "case studies are the most commonly employed empirical strategy". Compared with surveys, case studies provide a deeper understanding of the research subject. Yin (1994) argues that a case study is an "empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomena on the context are not clearly evident". Case studies are used 'to explain the causal links in real-life interventions that are too complex for the survey or experimental strategies' (Yin, 1994). The main purpose of a case study is to explain, describe, illustrate, explore and evaluate phenomena. According to Myers (1997), traditional positivist research, based on surveys, tends to look at context either "as a set of interfering variables that need controlling, known as noise in the data, or other controlled variables which are experimentally set up in order to seek for cause and effect relationships".

The validity of case study research is not affected by the argument, raised by Pratten (1991), that managers of organizations with problems tend not to participate in survey research. Case studies are not supposed to be a statistically valid sample of the population being investigated; a valid conclusion can be attained with only one or two cases. However, probably it is easier to get access to organizations that can be considered a "successful case" than to the organizations considered "unsuccessful". This may be due to the fact that in the "unsuccessful" organizations, managers may not want to transmit a negative image of the organizations.

Case studies have also been related to an interpretive approach of social research. In the field of information systems, research previously done was based on the interpretive approach of the social sciences (Dhillon, 1995; Walsham, 1993).

Although traditionally, case studies have not always been accepted as a research method in the logical positivist tradition, Yin's (1993, 1994) approach to case study research is a positivist approach. As this researcher states : "the approach here has been to base case study research within the framework of the scientific method – to develop hypotheses, collect empirical data, and develop conclusions based on the analysis of such data". Case study research may be used to "emulate" positivism, although it does not provide the traditional statistical generalization that positivists usually look for. Instead, case studies, within the positivist school of thought, provide analytical generalizations. Refering Yin (1994) again "case studies, like experiments, are generalisable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment does not represent a "sample", and the investigator's goal is to expand and generalise theories (analytical generalization) and not to enumerate frequencies (statistical generalization)"

Criticisms of the case study approach consider it to be lacking in academic rigor, or that it gives little basis for scientific generalization. The reason for this has been largely due to its interpretive nature. Criticisms include that 'its dependence on a single case renders it incapable of providing a generalising conclusion' (Tellis, 1997: p.3). This can however be overcome in part. Yin (1994) suggests that using four tests to establish the quality of the empirical research can overcome these criticisms:

1. Construct validity – which identifies multiple sources of evidence, selects changes and demonstrates the measurements to be used. It also involves a review of the pilot study and previous reports. This will enable the researcher to ensure that they are asking the right questions.

2. Internal validity – ensures that the methods are addressing the question

3. External validity – establishes the domain in which the results can be generalized to a theory and asks if the case study is representative

4. Reliability – establishes whether the case can be repeated using the method and ensures that records are reliable and comprehensive

Since interpretive research methods start from the philosophical position that our knowledge is a social construction, case studies are designed to understand or explain a specific subject, by capturing the different perspectives and views of the actors involved in the process or context being analysed. Validating techniques like triangulation must be used in a way different from a positivist approach, because interpretive researchers defend the view that multiple perspectives of the same facts and events may coexist. Data triangulation is done by analysing the data obtained from different sources of evidence (interviews, documents or observations) and validating if it is consistent in pointing in the same direction (Stake, 1994)

The quality of interpretive research, Walsham (1993) explains, is evaluated by the criterion of intersubjectivity: "the use by an individual author of a particular theoretical approach derives no doubt from his or her personal experience and insight, the testing of the value of these insights to others can be carried out by exposing the approach through verbal and written discourse to enable broader judgements to be made. Theory can be compared, evaluated and improved by this form of public testing; the result is not the generation of 'best' theory, but the creation of intersubjectively tested theoretical approaches, considered of value to a broader group than a single individual".

According to Yin (1994), how and why questions are more appropriate to the use of case studies. How questions are usually associated with describing relationships (previously identified by answering what questions), while the so-called why questions tend to explain the reasons why those relationships exist. As Yin stresses, case studies are appropriate when the nature of the study is to understand a previously unresearched subject.

Unlike the experimenter who deals with variables to determine their significance or the survey researcher who asks standardized questions of large samples of individuals, the case study researcher observes the characteristics of an individual unit. Such observation is to probe deeply and to analyze intensively the phenomena that constitute the life cycle of the unit with a view to establishing generalization about the wider population to which that unit belongs. As a result, the first criterion of case study was to maximize what one can learn from the case (Stake, 1994), in such a way, that the cases studied were likely to lead us to better understandings, to clarified assertions, and modified generalization, in terms of the issues influencing the adoption of e-business within the Portuguese subsidiaries of the pharmaceutical industry. The researcher made efforts to interpret those employees' attitudes and behaviours towards technology, therefore to speculate out a possible way that led to a list of principles to be followed as an outcome.

The following reasons made us decide that case studies would be an appropriate method for this third and final phase of the research:

a) According to Yin (2002, 2003):
  o Case studies use a number of data collection techniques during investigation (Bryman, 1989; Gable, 1994). This research intended to use a number of data collection techniques for cross validation of data.
  o A case study method is appropriate where the objective is to study contemporary events, and it is not necessary to control behavioural events

(Yin, 1994). The aim of this research was to ascertain the behaviour, attitudes and beliefs of the employees that contribute to organizational culture without any controlling or influencing role.

o There is a strong emphasis on the context in case study research. This form of research allows the researcher to find out about an organization in detail (Bryman, 1989) which is essential in this research.

o A case study method is appropriate if the objective of the research is to investigate a previously unresearched subject (Yin, 1994). The objective of this research was to ascertain the organizational culture of a Portuguese subsidiary of the pharmaceutical industry which has not been previously investigated

The strategy of this research will be based on an in-depth case study approach. The research questions are explanatory by nature and the use of in-depth case studies, based on semi-structured interviews, seems to be the most appropriate research method.

Through the use of case studies it is possible "to ask penetrating questions and to capture the richness of organizational behaviour" (Gable, 1994)and provide more complete explanations about the researched phenomena.

3.4 - Research design

3.4.1 - Overall strategy

The research project is structured into several phases. Figure 4.1 presents the major phases and their logical sequence, which will be explained in the following paragraphs.

The literature review had revealed a gap in explaining e-business adoption and use in subsidiaries of pharmaceutical companies. There is very little research in the area, some is likely to be out-of-date and it does not include Portugal. The lack of research on Portuguese subsidiaries of the pharmaceutical companies and the non-existence of up-to-date secondary sources of data on e-business adoption and use in Portuguese subsidiaries of MNCs and SMEs supported the importance of the preliminary fieldwork: First, an early functional case study in a multinational pharmaceutical company to establish the nature of the business process and operation which could be used to identify the potential of e-business usage, second, a study using a frame to qualitatively examine what the PPhI was actually using the Internet for. This preliminary fieldwork contributed to identifying the potential issues that fitted the purpose of the research and to develop a framework for data analysis.

A framework, based on the work of Wang & Cheung (2004) was used to classify and criticize previous literature and analyse the data from the initial fieldwork. The analysis of the data leads to the argument that, in order to understand the successful adoption and use of e-business in Portuguese pharmaceutical companies, it is necessary to understand relationships between factors across the internal and external contexts, of the institution under study.

E-business adoption and use is viewed as a complex process inseparable from its organizational and external context.

The main fieldwork was based on multiple case studies using several sources of data collection. In order to have a more diversified picture of the situation, the pharmaceutical companies participating in the fieldwork were sought to cover distinct parent cultures.
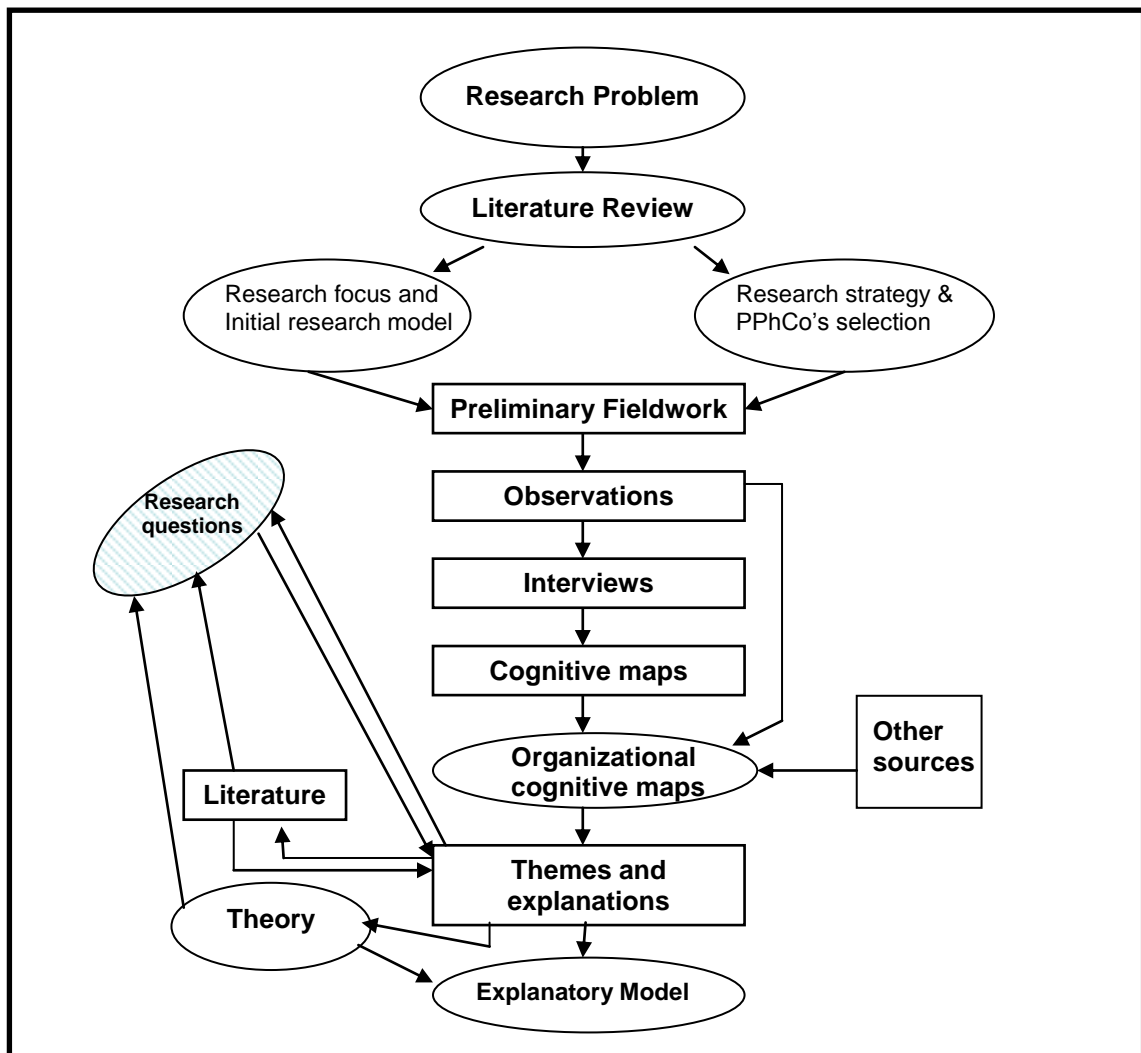
Fig. 3.1 – The Research Model showing the several stages of the research

Source: Compiled by the author

3.4.2 - Case study selection criteria

The way it was intended to analyze the four cases was through describing the process of overcoming constraints – cultural, technical and political in nature – (Walsham, 2001), addressing a deeper local institution understanding and a process-oriented view as to what issues are implicated in e-business adoption.

Qualitative research enables researching people in their natural settings. Four organizations in this research appeared to be suitable as they provided such an opportunity to enable us to achieve a deeper understanding of the nature of these organizations and the issues influencing the adoption of e-business.

The choice of the companies to be investigated was done with four contrasting organizations of the available group: one company with Anglo/American culture, also used for the pilot interviews, and three others with different parent culture: one Italian, one Swiss and one Dutch/American, for the in-depth cases. The use of a totally national company was discarded for economic reasons, as once the main premises are in the north of Portugal, 400 km away from where the researcher lives, it would mean a stay of around two weeks involving an extra cost for the researcher which has been doing all this investigation at her own costs without any funding.

Other pharmaceutical companies showed interest in collaborating with this research, however the researcher thought that their openness should be used as a backup to the four chosen companies, as due to the frequent process of mergers and acquisitions that the pharmaceutical companies go through, if any unexpected situation arose with any of the chosen companies, then one of these backups could be used as replacement.

The first formal contacts were established by telephone during the summer of 2005, with people the researcher had known through previously working with them (in no case did the researcher make a formal approach to the top management of any of the firms to get approval or support for the research, as in several times had the researcher seen other researchers do this and have watched Chief Executives set the scene and limit the enquiry to specific areas*)*, formalizing the request to enter the companies in two different occasions (Oliver, 2002; Ghauri, 1995; Silverman, 1993;). The first time, to informally talk to the staff of the company and observe the ambience, and acting as an observer-as-participant, maintaining only superficial

contacts with the people being studied by asking them occasional questions, in order to better plan and prepare the questions for the interviews, and the second time, to do the interviews to six people from the company.

Upon agreement of the conditions that the research was to be done in the companies, it was arranged that a written request for access authorization to the premises should be sent by email, outlining the aims, design and methods of the research, the justification for doing it, and also very precisely in operational terms the data needed to be collected and the conditions under which the data was to be collected, as well as the timing and duration of the study. One of the crucial elements here, was the guarantee of confidentiality and anonymity which were given. Also the researcher provided a brief reference to previous research in the field and to her own experience, indicating her qualification and status.

It was also arranged that the researcher would submit copies of the interviews questions, before the interviews were to be made.

When approval was given to the researcher to approach the premises and the individuals, with whom a meeting would later be requested for the interviews, an assurance of the confidentiality of any data obtained was required. This confidentiality applied to the responses of individuals, none of whom should be identifiable in any published work or thesis. Likewise, no data from individuals should be made available to anyone outside the research.

What it is meant by access, is not simply physical admission to the setting, but rather the opportunity to observe, and possibly participate in everyday activities in the various parts of the setting, and to talk informally, and perhaps more formally, with participants (Cresswell, 1998; Oliver, 2002). Furthermore, the researcher wanted this access not for an hour or two but for weeks. Authorization had been granted

previously by the four participating companies for the researcher to move around in the companies and talk informally to the staff.

3.4.3 - <u>Data collection method</u>

The data collection relied on a combination of two main qualitative data sources: participation observation and individual semi-structured interviews. Other data sources included observation of the Internet sites and an early functional case study.

Participant observation: For 16 weeks the researcher acted as a participant observer on a daily basis, observing the work internally and externally of the four organizations under study. Extensive field notes were taken in shorthand during the session and then rewritten and extended. There was also some follow-up after the 16 weeks of the participant observation through new visits, phone conversations and emails.

Individual interviews: Individual semi-structured interviews were carried out at the premises of the four companies under study. A group of 6 people, from each company, from the ICT, Finance or Distribution, Regulatory Affairs, Medical, Marketing and Sales teams, was interviewed. It was the management team of the company that decided who could be interviewed depending on the availability, from these functional areas.

As the time spent in each interview should not be too long, each interview took, on average, between one hour and a half and two hours. The researcher thought it was important to explain how the particular respondents came to be selected for the sample and why it was important that he or she, rather then someone else, took part (Bynner & Stribley, 1978). Also that all the results would be analyzed and presented globally so that no special attention was given to individuals, with the promise that the final report, or an abstract of the findings of the study, would be made available

to respondents upon request. The interviews took place, by previous appointment, in an office, only with the presence of the researcher and the respondent. The purpose of the study as a whole has been explained satisfactorily to the respondent, a certain rapport has been set up between the two parties to the interview in reasonably congenial surroundings, such that the respondent was at ease and perfectly willing to try to answer the questions (Boyd & Westfall, 1970). The researcher tried to develop instant ways of engaging the respondent's interest and attention, to create and sustain 'rapport' at just the right level, and to leave the respondent feeling that something pleasant, interesting and worthwhile had been accomplished.

Coming to the interview in itself, the researcher tried to approach as near as possible to the notion that every respondent has been asked the same questions, with the same meaning, in the same words, same intonation, same sequence in the same setting and so on. Although it is very helpful for the exploratory interviews to be recorded on tape, so that in this way they can be analyzed in detail afterwards, for there is much that will have escaped the busy interviewer in the stress of the actual interview, also the tapes can be examined by more than one person, the researcher thought that the respondents would not feel at ease knowing that their answers were being recorded. As the researcher is a keen shorthand writer it was not difficult to take down what it was said verbatim.

The researcher acting as a depth interviewer had to 'listen with the third ear', or better, using also her long experience in the industry, she had not only heard what was being said but also what was being omitted: picking up gaps and hesitations and exploring what lied behind them: and create an atmosphere which was sufficiently permissive for the respondent to come out with seemingly irrational ideas, hatreds or misconceptions, and keep him/her talking.

The basic ethical principle governing data collection is that no harm should come to the respondents as a result of their participation in the research. If, for example, a

respondent had been upset by some of the questions in the interview, then the interview would have been abandoned rather than taking the risk of upsetting the respondent still further. The researcher tried not to turn the data collection into an attempt to sell things to the respondent or bring any undue pressure. The respondents were assured that professional confidentiality would be respected, which meant that any data on identifiable individuals would not be published or otherwise made available, and that no-one outside the research team would have access to the raw data, which was to be kept in a safe place.

The respondents may answer in terms that they regard as polite or socially desirable rather than in terms of their actual views. The researcher, based on the previous observation work done, giving an interactional aspect of the interview tried also greatly enrich the data that was being collected. Such departures from a rigidly imposed format may be justified on the grounds of improving the validity of the interpretation of the response. Discrepancies between what people say and do in different contexts can arise from a number of sources, whether due to misconceptions and myths, impression management or other.

3.4.4 - Data analysis method

The interviews were transcribed into Portuguese and translated into English by the researcher, generating a total amount of 410 pages. In cases where statements did not translate well, the original expression was kept in Portuguese and English. Since the mother language of the researcher is Portuguese, an equivalent translation, as suggested in Brislin (1993) was not conducted because in case of doubt it was always possible to check the original data.

The time spent by the researcher transcribing and translating the data also enabled the researcher to have a deep knowledge about the statements provided by each interviewee, making it easier to find, analyse and compare statements.

Typical of qualitative case studies in the information systems field (Walsham, 1993), the analytical process followed aimed at building a conceptual understanding of the problems at hand from qualitative data. One of the first tasks was to process the voluminous sources of information into manageable (and more deeply analyzable) data (Miles and Huberman, 1994).

The selection of analytical techniques was considered in great depth involving the study of several before the final decision was made (Madill, Jordan and Shirley, 2000; Hood, 1998; Denzin, 1989).

Grounded theory

Due to the intuitive nature of the approach, Grounded Theory (Strauss and Corbin, 1990) was considered and later rejected. Grounded theory attemps to generate a theory as the research progresses and as the data are analysed, resulting in the identification of a theory. In this way, at the end of the study one 'should simply code and analyse categories and properties with theoretical codes which will emerge and generate their complex theory of a complex work' (Glaser, 1992). This is an attempt to discover how people act. Grounded theory is defined by 'its insistence, from the start, on generating abstract conceptual categories to account for the data being studied' (Punch, 1998).

Grounded theory is intuitive and close to the data, enabling themes to be tested as patterns emerge (Eastergy-Smith et al, 2002). In many respects this methodology would have been suitable for this research, however, the fundamental requirement that the researcher continually return to the source of data to collect further information in order to achieve saturation was not achievable for this work.

Interpretive interactionism

The tools of Denzin's (1998) interpretive interactionism were also, at the beginning considered and later abandoned. These tools consist of deconstruction, capture, bracketing (reduction) the identification of the epiphany (transformational experiences), construction and contextualisation. This method was developed by Denzin in 1989, a 'critical-interpretive method' which 'seeks to situate and understand a particular class of subjects within a given historial moment' (Denzin, 1989). Also as this author states, Interpretive interactionism is 'an attempt to develop interpretations grounded in the worlds of lived experience' and is an appropriate method to aid in the discovery of the perceptions of individuals.

This method was not used as the researcher wished to identify the causes and effects of the subject under investigation, and also the relationship behind the actions.

Cognitive mapping

We propose to apply the methodology of cognitive mapping to address these concerns and supply the researcher with an efficient tool for constructing a collective map of the industry under study to measure social components of the value of its business relationship.

Cognitive mapping is a qualitative technique designed to identify cause and effect as well as to explain causal links (Eden, 1990; Eden & Ackerman, 1998) and which has been used widely by management researchers in different contexts to explore individual perceptual schema (Bougon, 1992; Eden, 1992, 1994, Wang, 1996). Cognitive maps have been used in IT strategy development (Smith *et al.*,1995) and for information systems planning (McBride & Hackney, 2001). As these last researchers refer "key concepts are identified and described with short, characteristic phrases which are quotes directly extracted from interview transcripts. Relationships between concepts are indicated by arrows". They provide a holistic picture of an

individual's overall perspective, without any loss of detail enabling the researcher to undertake inductive analysis to clarify emergent issues and they may also be used to record transcripts of interviews or other documentary evidence in a way that promotes analysis, questioning and understanding (Ackerman *et al.* 1990).

Following Clarke (2001) "this technique is inherently interpretative, and involves the judgement of the researcher to develop themes from the data, allowing these to be stated as propositions to be developed further". The technique is based on Kelly's theory of personal constructs, which suggests that individuals interpret data differently, and present contrasting perceptions of problems (Ackermann *et al.*, 1990; Kelly, 1955).

Cognitive approach allows us to focus on the shared vision of the group involved on social aspects of business relationship value and they provide a simple and intuitive means of highlighting important strands of thought. The collective cognitive map of a group presents a hierarchy of aspirations, strategic issues, problems and strategic options (Eden, 1991). Through this technique, we can present the beliefs of members of a group involved about causal relations and the reasoning behind the purposeful actions.

Cognitive mapping is an important tool in a representation of thoughts as it is able to reflect different views of group members, aide to structure a problem, facilitate mutual understanding (Eden & Ackerman, 1998). That is why we suggest to applying this technique to measure issues influencing the adoption of e-business within the Portuguese subsidiaries of the pharmaceutical industry. As referred by McBride & Hackney (2001) "these cognitive maps are built within the minds of individuals and developed within the organization to become the agreed view of how things are, what is important and what should be done".

As referenced by Kitchin (1994), Couclelis (1986) explains that we have become interested in answers to questions such as 'how do people really behave' or 'how do people really make decisions'. The general belief is that cognitive mapping explains and leads not only to the understanding of special behaviour, but the cognitive map is a mental construct (be it explicit, analogical, metaphorical or hypothetical) that actually influences behaviour. We consider the collective map of a group as a collection of the shared beliefs of group members involved into a business relationship (Chameeva, T. *et al.*, 1997). A group in this case is a sum of individuals who form a group. It is natural that different members of a group have different individual maps – it is almost impossible to imagine that there could be two identical individual maps. The shared vision (common ideas and collective ideas) presents the guide for a better understanding of the value of business relationship and interpretation of a group's action. Comparison of individual maps of a group is a tool to construct different types of a collective map. The comparison of cognitive maps permits the identification of similarities and differences between individuals; develops an instrument for measuring agreement of opinions between individuals; defines the zones of common interests and tensions (Bougon M. G., 1992).

The success or failure of an e-business strategy depends on the cognition of key people, their mental models and beliefs systems and how they make sense of their organizational environments (Weick, 1995) as referred by McBride & Hackney (2001).

CHAPTER 4 - RICH DESCRIPTION OF EMPIRICAL WORK

4.1 - Preliminary fieldwork

4.1.1 - Introduction

Due to the non-existent literature on the business processes of the pharmaceutical industry in Portugal, the objective of the preliminary fieldwork was to establish the usage of e-business and explore the nature of the Portuguese subsidiaries of the Pharmaceutical industry in order to identify its potential for the research. Two studies were made: an early functional case study and a study using a frame to qualitatively examine what the subsidiaries of the PPhI were actually using the Internet for.

4.1.2 - Functional case study

To confirm the nature of the pharmaceutical industry methods, a case study describing the functionality of the Portuguese pharmaceutical company was done in the local subsidiary of a multinational pharmaceutical company, to provide a better starting knowledge and a descriptive understanding of how this type of industry works in Portugal and establish the nature of the business process and operation which could be used to identify the potential of e-business usage.

The company selected was the local subsidiary of a British multinational, as the researcher had direct access to this organization, avoiding extra time spent in obtaining permission to enter the company, which was long established in the market, its pharmaceutical products covered a wide range of therapeutic classes, and had had the recent experience of a merger between two British pharmaceutical Groups.

The visits to the company were scheduled during one week, the first time in December 2000 and again later in January 2005, to do an update of the original findings, as in the meantime, the organization had gone through a new merge with an

American pharmaceutical group. Five people from the different main functional areas (ICT, Finance and Distribution, Sales and Marketing, Regulatory Affairs and Medical departments) were interviewed at both times. It was asked to each interviewee, to describe the functional process of the department/area that he/she was representing, hence there was not the need to prepare a questionnaire for this functional case study. The company started in Portugal in 1974 and has always been a marketing driven company with no production. Products continue to be imported from the Group factories in Europe. Policy was mainly decided in the headquarters of the Group in the UK being about 30 to 40% of the decisions taken locally for cultural needs. The company is run by a Managing Team headed by a Managing Director to whom report the Finance, Commercial (there are different product lines), Operations, Medical and Human Resources Directors.

The ICT Department run by an ICT Manager, now called ICT Country Lead, reports to the Finance Director. The reporting of the ICT department has been in constant change in the last 10 years; it started by reporting to the Managing Director, then moved to the Finance Director, then at a time showed the tendency to smoothly report again to the Managing Director – there were some pressures from the other different departments of the company that the ICT should be independent from any specific area, having so more freedom to give a quicker reply to the different needs – and lately, with the new head-quarters (HQ) directives, being all ICT decisions centred at the HQ, the ICT could report just for functional reasons, to any Director and in the case of Portugal, it was decided to continue with the Finance Director - in real facts the ICT Manager (Country Lead) reports to the ICT Director of the Cluster (area which includes Portugal, Belgium, Greece, Austria and Israel). The local administration has no power of decision over ICT.

The ICT Steering Committee, chaired by the Managing Director, including all Directors of the Company and the ICT Manager, which originally had the role to analyse and decide the ICT strategy in terms of priority and investment, lost its

weight in terms of decision and continues to exist in fact to analyse the existing problems and decide the local ICT needs to be presented to the ICT Director of the Cluster for approval in conjunction with the HQ. According to the new policy, new local systems can be developed but first have to be submitted fully justified, to the HQ, be fully paid in 12 months and implemented in not more than 6 months. There is no restriction or limitation to local systems besides this one. ICT policy previously was decided centrally in the UK headquarters converging for the use of the same solutions worldwide on what concerned central technology and financial/production applications, and now also laptops, desktops, commercial applications and methods.

The whole activity of the company is focused on medical doctors, which together with Government and patients, make the customer of this market (a trilogy). The pharmaceutical products are promoted near the doctors by three main ways: Through the medical representatives, which regularly receive training on the diseases of the therapeutic classes and active ingredients that they introduce to the doctors. They continue to work in 6 weeks cycles, during which they visit their 'territory' of doctors through the whole country. Before each cycle, the whole team join together for two or three days, so that elements from the marketing and scientific (medical) departments may present the next cycle's promotional program. Some of the visits to the doctors have to be done by appointment and there is a public and Government reaction against expensive gifts being given to the doctors. New restrictive government laws on the subject now exist. This company follows very strict codes of conduct concerning gifts and publicity which have to be strictly adhered to by the sales representatives. The representatives are the main mediators between the medical doctors and the company. All the results of the visits done to the doctors are transmitted daily by each representative to the company using a laptop, in order to feed the territory system that provides an up-to-date situation of the doctors visited at any time.

Seminar and congresses, fully organized or sponsored by the company, where the new products are launched or opinion leaders make presentations on the latest discoveries or experiences, involve a lot of work and investment and are under the responsibility of the Congresses department. Mailings and scientific magazines distributed to the medical doctors, present the latest news on the different clinical trials or experiences. Newly launched products are subject to clinical trials by chosen groups of doctors, which protocols are statistically controlled by systems owned by the company.

Doctors prescribe patients who buy the medicines from pharmacies. Medicines that need a prescription are called 'ethical products'. Pharmacies are supplied by the wholesalers, which in turn are supplied by the pharmaceutical companies. So pharmaceutical companies do not sell to the final consumer (patient). They also sell directly to hospitals who buy in bulk. The Government, an important entity in the whole circuit, finances part of the prescribed medicines whether in private clinic, social service centres or hospitals.

Concerning the adoption of new ICT solutions, there has been already some unsuccessful experiences in the past, mainly related with the commercial/marketing sectors of the company, due to a weak or non-evolvement of the managing team of the company and the use of several ICT systems, like one accounting system, two territory management systems for the representatives and one executive and information system.

The Internet attracts a lot of attention not only from some of the members of the Managing Team but also from the rest of the staff who start to understand the richness of this source of information. The attitude of the Company towards the Internet is the following: The Internet policy is decided and controlled by the UK headquarters; an Intranet is implemented worldwide, having all the staff from Portugal access to it; the connection to the Internet has been outsourced first to

Global One and now Equant, responsible for the world connection of the Group. In Portugal there is a router installed to access the servers via Internet through the company vpn (virtual private network). The access to the Internet is free for any member of the local staff. The Internet is now used for searching information, although before Portugal had developed a link to the site of the Spanish subsidiary – developed for the scientific community, where scientific documentation, on-line multimedia courses, access to scientific international data bases and use of e-mail could be done - and access was going to be given to all doctors interested. The whole service was due to be introduced to the medical doctor by the representative, during the visit and using the laptop, where the doctor could appreciate on-line what was available and ask to be included with a special password. The younger doctors were already 'computer minded' and open to any use of the technology, but the older ones, considered very important to the pharmaceutical companies as opinion leaders, had a negative reaction towards the use of computers. This project was being pushed to be adopted by the company by the Managing Director at the time, who was a strongly computer minded person and was interested in through the adoption of new technological solutions to be better prepared to face new challenges. However, in the meantime, the project was abandoned. There is a local site of very good informative quality, which was developed at the request of the previous Managing Director.

The wholesalers have access to the old EDI system to place their orders, received as a message, not integrated online with the existing back-end Oracle systems. Tracking of international supplies is not processed through the access to the site of TNT any more as before, but through the company intranet. Frequent training sessions on the use of the laptops and the Internet connection has been carried out to train the large group of medical representatives, which by tradition are adverse to technology and their strong reaction has been in the past the cause for the failure of two new report systems. The sales representatives also receive regularly updated scientific and commercial training on products and inherent diseases. This training is partly done in group classes involving teams from the medical, pharmaceutical and marketing

departments and partly done individually through a compact disk that they use in their laptops. E-learning is a project spoken but not yet put in practice.

The pressures that the company was having from the growing demands derived from strong competition were pushing people to look at other ways of doing things in a more effective and productive way and so the Internet and possibly e-business were attracting the attention of the previous Managing Director as how it could through the use of the new technology help to solve their problems. Also the high costs associated with the way promotions were being done, through large teams of representatives (the whole marketing and sales areas represent 80% of the whole company) that travel daily all through the country to contact the doctors in person, are a heavy burden for the pharmaceutical companies with the inherent reflection of the high prices of the medicines. New ways of successful promotion of pharmaceutical products near the medical class through e-business would certainly be very easily adopted.

From the study of this case, done twice through the time in the same company, it was concluded that: (a) the way the company works locally has not changed with both mergers which only had effect on some reporting functionality. (b) ICT is a small department under a heavy load from HQ to give a good and quick response to the group systems, to which priority is given, lacking staff for the local demand, which only under the pressure of a local computer minded managing director can come to be of priority. (c) The influence of the Managing Director on the priority of ICT systems. (d) The take-up of e-business would require a technical and managerial mind-shift from the company. (e) Success, however, in e-business would require significant changes in internal ICT infrastructure and usage accompanied by changes in managerial attitudes to information value, information flows and relationships in the information and supply chain.

The case also showed that the Pharmaceutical industry provides a fertile field for the deployment of Internet technology and the use of electronic business. Reasons for this being: The global nature of the industry and the need for international communication; The immense information gathering and communication required for the clinical testing of a drug; The large variety of regulatory bodies requiring information and documentation; The distinctive nature of the customer base and the need for information channels linking General Practitioners to the industry, as well as pharmacists, research laboratories and the general public as consumers; The constant need of training (scientific and promotional) of the medical information representatives team; The requirements of registration. This requires up to 30 large files of information for each drug. This could be submitted electronically. These reasons suggest the potential for electronic commerce and Internet usage in the Pharmaceutical industry is immense.

4.1.3 - Internet study

Upon the functional case study where the functionalities of the different business processes of a Portuguese pharmaceutical company were described, a comparative Internet study was done, with direct visiting of the web sites four times over a period of 5 years (2000, 2002, 2004 and 2005).

The objective of this investigation was to discover which Portuguese subsidiaries of the pharmaceutical companies were using e-business and for what. The specific survey questions were: (1) Which Portuguese subsidiaries of the pharmaceutical companies were present on the Internet? (2) For what purpose were they using the Internet for? (3) How have those companies exploited the virtual opportunities of the Internet ?

The study was based on a similar research done in 1998 within the Australian insurance sector by Costello and Tuchen.

At the time when the first visit to the web sites was done, in 2000, several sites of the pharmaceutical companies were, 'under construction' or 'being redesigned', what has been assumed as a positive attitude concerning the use of e-business. When the second visit to the sites of the Portuguese subsidiaries of the pharmaceutical companies, was done in 2002 (Alvarez & Fragata, 2002), using the same list of indicators, from the 21 companies originally investigated in 2000, two of them had merged in the meantime. Later again in 2004 and 2005, new direct visits to the web sites, using the same list of indicators, were done to investigate the new situation of the presence of the total universe of the 135 registered pharmaceutical companies in Apifarma (the Portuguese Association of the Pharmaceutical Companies).

From these studies with the objective of investigating which Portuguese pharmaceutical companies were using e-business and for what, where the specific survey questions were on which companies were present on the Internet, for what purpose were they using the Internet for and how have those companies exploited the virtual opportunities of the Internet. the findings were the following: (a)The main purpose of using the Internet for Portuguese pharmaceutical companies at present continues not to be for the generation of electronic business.   Also, features related to client interaction such as medical doctors/patients assistance, interactive feedback and guest book are scarcely used. (b) Most of the visited sites need to improve usability. Being the majority (80%) links to the sites of the headquarters, the language used is never Portuguese – medical doctors may have some knowledge of English, the most used language in the sites, but as for patients, this is a strong inconvenience. Also search, help and FAQ are rarely used. (c) Only two of the 135 companies are making use of the Internet to do some transactions. These results indicate that very few Portuguese subsidiaries of the pharmaceutical companies are using the Internet in areas of online business with customer interaction. (d) The Internet is rarely used (4%) for gathering patient feedback in order to disseminate that information through the scientific community. (e) The Internet is also not used

by any of the companies to the organization of medical seminars and congresses, and made available to the medical community, as well as scientific training. (f) The use of the Internet is mainly focused on information – no electronic transactions are carried out.

This study showed what the Portuguese pharmaceutical companies are using the Internet for, from an outside perspective. The observations and interviews that follow, on the main fieldwork will show if there are hidden links to doctors or business electronic transactions through intranets or extranets.

4.1.4 - Summary of the preliminary fieldwork

These two studies demonstrate the limited use of the Internet beyond the provision of information and a lack of change in the situation over a number of years in the Portuguese subsidiaries of the pharmaceutical industry as well as no evidence that the use of e-business internally was being done.

4.2 - Main Fieldwork

4.2.1   - Observations

So, before pursuing to the case studies, and to have a better knowledge of the culture and activities of the collaborating companies, the researcher did some observational work, first internally, by immersion in the Portuguese pharmaceutical companies culture and activities and later externally, by looking at the work of the sales teams.

Under the auspices of the researcher role, passing as a member of the group and building relationships with participants, one often is authorized to move about the setting and ask questions (often knowingly stupid or naïve questions) in order to uncover taken-for-granted aspects of the participants' perspectives. Observation as a data collection tool entails listening and watching other people's behaviour in a way

that allows some type of analytical interpretation. The main advantage is that first-hand information in a natural setting can be collected (Silverman, 1993; Ghauri, 1995).

Since the case study observations take place over an extended period of time, the researcher can develop a more intimate and informal relationship with those he is observing, generally in more natural environments than those in which experiments and surveys are conducted.

Inside the collaborating organizations

To gain a proper appreciation of the local environment, its internal culture in which the respondents work and to help in the planning and wording of the questions for the semi-structured interviews for the in-depth case studies, for one month the researcher, passing as a member of the group, and acting as a participant observer, maintaining only superficial contacts with the people being studied by asking them occasional questions (Silverman, 1993), moved around in the collaborating subsidiaries of the pharmaceutical companies, observing, hearing and asking questions, often knowingly stupid or naïve questions, in order to uncover taken-for-granted aspects of the participants perspectives.

Combining theory with the results obtained from the preliminary fieldwork, some themes were already being considered to be the base of the questions for the interviews. However, before moving straight on to the in-depth interviews, the researcher decided first to do all this observational work, with two different types of observations, to be more prepared and documented to question any respondent that during the interviews would be replying what he/she thought should happen and not in fact what was occurring. Without these previous observations, the researcher would be in no position for argument.

What it was necessary was to formalize near the participating subsidiaries of the pharmaceutical companies, and the choice was done with four contrasting organizations with different parent culture of the available group (since the beginning, that the researcher had kept informal contacts with several local pharmaceutical companies, which had showed interest and availability in participating in this research when needed) : one company with Anglo/American culture, one Italian, one Swiss and one Dutch/American, for the in-depth studies.

For a start, the first formal contacts have been established by telephone during the spring of 2005, with people the researcher had known through previously working with them (in no case did the researcher make a formal approach to the top management of any of the firms to get approval or support for the research, as in several times had the researcher seen other researchers do this and have watched Chief Executives set the scene and limit the enquiry to specific areas), formalizing the request to enter the companies in two different occasions (Oliver, 2002; Ghauri, 1995; Silverman, 1993). The first time, to informally talk to the staff of the company and observe the ambience, and acting as a participant observer, maintaining only superficial contacts with the people being studied by asking them occasional questions, in order to better plan and prepare the questions for the interviews, and the second time, to do the interviews to six people from the company, being one the ICT coordinator, one from admin, one from the sales team, one from the marketing team, one from the medical team and another one from the regulatory affairs sector. These referred areas of work, are general denominations of these functional areas. However, each company, names differently each of these areas, according to their business and organizational strategy.

Upon agreement of the conditions that the research was to be done in the companies, it was arranged that a written request for access authorization to the premises should be sent by email, outlining the aims, design and methods of the research, the justification for doing it, and also very precisely in operational terms the data needed to be collected and the conditions under which the data was to be collected, as well as the timing and duration of the study. One of the crucial elements here, was the guarantee of confidentiality and anonymity which were given. Also the researcher provided a brief reference to previous research in the field and to her own experience, indicating her qualification and status.

It was also arranged that the researcher would submit copies of the interviews questions, before the interviews were to be made.

When approval was given to the researcher to approach the premises and the individuals, with whom a meeting would later be requested for the interviews, an assurance of the confidentiality of any data obtained was required. This confidentiality applied to the responses of individuals, none of whom should be identifiable in any published work or thesis. Likewise, no data from individuals should be made available to anyone outside the research.

What it is meant by access, is not simply physical admission to the setting, but rather the opportunity to observe, and possibly participate in everyday activities in the various parts of the setting, and to talk informally, and perhaps more formally, with participants (Cresswell, 1998; Oliver, 2002). Furthermore, the researcher wanted this access not for an hour or two but for weeks.

Authorization had been granted previously by the four participating companies for the researcher to move around in the companies and talk informally to the staff.

No recording techniques were also used in this type of observation; the field notes were written on paper. The researcher thought that the use of audio-visual techniques involved the danger of increasing the reactive effect of observations and the people informally contacted for a simple chat would not feel at ease.

So, under the auspices of the researcher role I was allowed to move about the setting and ask questions, passing as an 'old' member of the group. In fact, 'passing' is the only available strategy for secret participation observation; in the case of 'passing' as a member, the researcher must already possess the knowledge and skills required by the role (Silverman, 1993). Although, the researcher often knowingly asked stupid or naïve questions in order to uncover taken-for-granted aspects of the staff' perspectives, the general talk had to be of someone well aware of the pharmaceutical industry, or otherwise no one would have the patience to lose their time on unrelated subjects. The researcher was treated by participants not as a researcher who was temporarily participating in the setting but simply as a fellow participant.

The researcher walked around in the areas in which the interviews were to be conducted for the case studies, in order to gain a proper appreciation of the local environment in which the respondents lived and worked.

Here the researcher was often simultaneously an active participant and this obviously detracted from her ability to observe. Even when she was just sitting in the staffroom, pretending to be reading a newspaper while staffroom activity went on around her. The researcher had to rely on what she heard much more than on what she saw. It was quite evident for the researcher that although she was in that world, she was not truly of it. She could not completely give herself over to participation,

because she had to be considering and remembering all that occurred in order to record it.

At this time of the investigation, there was already a clear idea of the focus of the questions for the interviews, based on the fieldwork already done and the literature studied. The questions to be asked to the respondents, should be organized in an order that when flowing would make sense to the people being interviewed but also based on the issues referred in chapter 2, section 2.8.

The moving around observation was done during one week in each company, usually during the morning period. Starting by 10 am, (with the usual entrance time by 8.30 or 9 o'clock, during the first hour people usually were concentrated on what they had to do during that day, or starting early meetings, and only after 10 am they moved around to contact other colleagues or departments or would go for a coffee break) the researcher first did some talking in the reception with the receptionists, always in a very distended and humoristic way and where they passed in a very gossip way the information about how they were expecting that day to run, considering how the staff already arrived was in a good or bad mood. They were also always very interested in passing the 'corridor complaints' about the daily life in the company and the problems between people. Upon this introduction, the researcher walked through the corridors slowly and for those that had the office door open and that did not seem to be very busy at that moment, the researcher entered and saluted them giving some occasional comments on whatsoever that would come on purpose. And finally went to the staff room where once in a while someone would come to drink a cup of coffee or tea (it is not usual to drink or eat in the work place). Whenever possible the researcher, in the middle of a conversation was putting a naïve question related with the themes to be included in the interviews. Humour reduces stress and enhance communication (Romero, 2006) so the researcher tried always to use a sense of organizational humour whenever talking to anyone in the company. The people

contacted was not chosen. Anyone from any department or function that would be available, would be welcome.

Around one o'clock, when people would start going out for lunch, at a nearby Restaurant, the researcher always joined one of the groups, taking this opportunity to continue with the informal questioning and observation.

As said above, the researcher feared that when an individual is placed in the presence of another one, he/she may wish to give another impression of him/herself (Goffman, 1973) and that with the formal interviews the respondents would struggle between their personal identity and his or her various social identities, as the demands of the social identities infringe upon the uniqueness of the personal identity (Kreiner, 2006) and would not be completely honest on the views given. The self is a multidimensional dynamic-knowledge structure that comprise multiple self representations that embody knowledge about oneself, including personality attributes, social roles, past experience, future goals and the like (Gelfand, 2006). Also as Goffman (1974) refers, *face* is the positive social value that one individual claims effectively through the line of action adopted during a given contact, being the image of the self delineated according certain approved social attributes.

So having had already an informal and previous contact before the interviews, and talked in a distended way on some of the subjects, he/she would probably be less concerned with the impression given.

The results of this study will have a direct effect on the questions of the interviews.

So, before pursuing to the case studies, and to have a better knowledge of the daily work of the sales teams of the pharmaceutical companies and which represent over 50% of the headcount, the researcher did some observation, in two hospitals and two social health centres. Also because the sales team only return to their company

premises at the end of each working cycle (every 8 or 10 weeks), for promotional meetings for the cycle to begin, their activity could not be observed in the moving around observation that the researcher also intended to do in the participating pharmaceutical companies, before the in-depth interviews.

There has been considerable argument about the legitimacy of secret research. One kind of consideration is professional. When it is revealed that a social scientist has studied a particular group without the permission or awareness of its members, will this not reduce the trust the public has in social scientists and result in access to many settings being barred. Some argue that there are ethical issues to be taken in consideration – the invasion of privacy and dishonesty. However others have argued that large organizations and public services bureaucracies in particular, have no right to secrets and therefore targets for secret research: sociologists should make these institutions accountable to the public. Bearing this duality in mind, permission was not asked to grant access both to the two hospitals and the two health centres as these are public places that the researcher has free access as a user and also because these hospitals and health centres are public institutions heavily bureaucratic. This secret observation to the sales team was in fact an extension to the work that had been done inside the pharmaceutical companies.

Secret research was done in two hospitals and two social health centres. Keeping her research identity secret, the researcher spent five working days in each of the four chosen settings, as a complete participant, acting as a normal user and merely standing back and observing the daily work of the pharmaceutical information representatives near the medical doctors.

More than eighty percent of a Portuguese pharmaceutical subsidiary headcount is taken by the commercial department, including medical and regulatory affairs, being the sales team above fifty percent of the whole headcount.

So, the only way to observe the daily work of the large group of information representatives that constitute the sales teams of the companies, was to go to the settings where they do their jobs – hospitals, social health centres and private consultancy, since when they come to their companies is only for promotional meetings.

Private consultancy was discarded from observation, as only one or two medical doctors work in each place, usually during the afternoon, working in the morning in hospitals. In general, information representatives are received by appointment. Their work at those sites can be more organized, with shorter waiting time.

As for this observation, in the two hospitals and the two health centres, the researcher decided to access the setting in some disguise, as a normal user, keeping her research identity secret. If the sales team of the pharmaceutical companies did not realize that they were being observed, that they had a researcher in their midst, they were likely to carry on their natural everyday activities. This secret research required the researcher to take a role of a user of the settings investigated.

The first goal of the researcher was to learn the way the sales teams were developing their activities near the medical doctors and also to learn about the ambience and cultures of the participant companies, in order to plan the interviews questions. This was one of the reasons the researcher spent a period of time in the settings and adopted relatively unstructured methods, thereby minimizing, as far as possible, the effects of her own cultural assumptions.

Inside two hospitals and two health centres
In order to observe how the sales teams of the Portuguese subsidiaries of the pharmaceutical companies performed their jobs near the medical doctors, the researcher stayed for ten working days in two hospitals.

The first hospital, is the greatest public hospital in the Lisbon area. It is located in the city centre. The second hospital, in the surroundings of the Lisbon area, a smaller peripheral hospital, supports the whole area of the village. Everyday, for five days in each of the two hospitals, in a different therapeutic service (Dermatology, Cardiology, Neurology, Surgery and Intensive Care) from 9 am to 1 pm, the researcher observed, disguised as a user waiting to be treated, the way the information representatives of the pharmaceutical companies acted to contact or be received by the medical doctors. This observation in both hospitals was done only in the morning period, as in the afternoon, hospitals do not have specialist consultations.

There are a number of different ways of recording participant observation data. The most common one is the writing of field notes. While field-notes are used by almost all researchers to record observational data, it is becoming increasingly common for these to be supplemented by the use of audio-visual recording techniques (particularly the audio-tape recorder, but also video-tape and (film) sometimes to the point where field-notes become secondary). Part of the appeal of these techniques is that, to some degree, they overcome the problem of the selectivity and inference. The use of audio-visual techniques involves another danger: they may increase the reactive effect of observations. Whereas it may be possible for an observer to fade into the background, it is rather more unlikely that a video or film camera, or even a tape-recorder, will be entirely forgotten by participants; participants do seem to regard being recorded by such techniques as rather more significant than being watched or written down. In our case, the researcher decided to take written notes while observing. Acting as a secret observer, it would not be ethical to use a video or film camera. The use of a tape recorder would not be adequate for this sort of observation.

Social health centres, are open from Monday to Saturdays, from 8am in the morning to 8pm, and it is where the family doctors work, and also a few specialists. No

urgencies. There are several in a city, one per each neighbourhood, and every Portuguese citizen must be registered in the social health centre near his/her home or, alternatively, can also be near his/her working place. There are three shifts of medical consultancies: from 9am to 12am, from 2pm to 5pm and from 5pm to 8pm. The premises of a social health centre, comprise 2 or 3 floors, at the maximum.

During two weeks from Monday to Friday (on Saturdays the information representatives do not work) from 8am to 8 pm, the researcher observed, disguised as a common user, two Social Health Centres. One of these was located in central Lisbon and the other in a village 30 km from Lisbon.

Concerning the field notes, it also applies to this observation what we say in the previous chapters for the observation done in the two hospitals. Written field notes were done by the researcher, no audio-visual techniques were used.

In the hospitals, it could be observed that in each of the therapeutic services, a group of 10 to 12 information representatives, from various pharmaceutical companies, were coming everyday, around 9h 30m, and stayed until around 13h 30m. They waited in the corridors until any of the medical doctors, working in the services, would come out, in order for them to talk and introduce their products. Few of the information representatives were called to enter the medical doctors'offices, to have a more relaxed talk. The average of doctors contacted daily by each representative was between 3 and 4. We could conclude that it is still the same traditional way that is being used by the pharmaceutical companies to contact medical doctors and present their products.

During those four hours of waiting to be received or succeeding in contacting a medical doctor passing by, the group of information representatives entertained themselves talking to each other and commenting on all sort of news, films that they had seen recently and also gossip about other colleagues or occurrences in their or

other pharmaceutical companies. They all were formally but very fashionably dressed and usually have very diplomatic attitudes. They focus on a behaviour expressed through tone of voice, facial expression and spoken words, as they are expected to display positive emotions towards doctors, regardless of actual emotions felt (Tan, 2004). Dressing belongs to the scene of the environment, as a sign of the importance of its 'etiquette' (Goffman, 1973). The representatives are all motivated to manage impressions (Barsness, 2005) in an attempt to achieve a good outcome and create a positive image.

Although they are given laptops to record and transmit the result of their visits, these are not carried with them and probably left in the car or at home.

In the social health centres, as the premises are small, the information representatives from the several pharmaceutical companies, gather at the entrance of the centre, with the same attitude as in the hospitals, talking to each other, until they were called to talk to the medical doctor to whom they had the appointment booked.

Visits of the information representatives to the medical doctors, in social health centres, are regulated by previous appointment (each pharmaceutical company can only visit four times a year each medical doctor). To face this limitation of four times a year, the pharmaceutical companies have organized themselves in lines of therapeutic classes, or even sub-companies, so that they manage to see each doctor more times during the year.

The average of medical doctors seen by each representative was not more than 2 per shift per day. The observation of the daily work of the medical information representatives from the pharmaceutical companies, both in the two hospitals and the two social health centres, showed that these professionals continue to work in the same traditional way.

The information representatives are a working group with a culture of their own. Their attitude as public relations specialists, usually dealing with a scientific community, appears to be adverse to technology. It looks like they find technology very restrictive, limiting the creativity work and allowing no margin for unexpected inspiration. For them, writing down information is not a priority and the statistics on the visits done to doctors do not have much meaning, since, to them, quantity does not mean quality. This is in fact a point that deserves further research, investigating the particular culture of this group towards a satisfactory acceptance of ICT systems.

The interviews that will follow for the in-depth case studies, will reflect the preliminary fieldwork and tackle the points and particularities observed. The reason for the internal and the external observations of the collaborating companies was to challenge certain views of the researcher on the internal culture of this industry and also to allow that the questions of the interviews, following cultural factors obtained from literature, would not be, in a sense, generalized, but that they would touch sensitive points of the industry under investigation and which could only be referred if the investigation had been done by someone with a large experience on the sector.

4.2.2 - The interviews

After completing the observation phase, where matters concerned with the daily life, functions, attitudes and beliefs in the settings under study had been noted, the researcher continued with the planning and wording of the questions for the interviews of the in-depth case studies.

Before starting on the phrasing of specific items or questions (Moser & Kalton, 1979), a design specification was agreed and a rough outline prepared of the main sections or topics to be covered, in a given order, integrated with the research objectives and with the planned analysis (Oppenheim, 1966).

So, it was decided that the list of questions would be segmented into four parts. The first part would cover company information, the second part employee information, the third part would be destined only for the ICT Coordinator, and the fourth and final part would be for everyone to be interviewed.

The reason for separating the third part, with questions about the ICT environment (hardware and software), was due to the information gathered from the functional case study where we had learned that ICT strategies in large multinationals are known by the local ICT Coordinator as the main contact on this area by the headquarters, and so, it would not make sense to ask questions to anyone else about something connected with ICT if that facility, by group strategy, was not allowed to the subsidiary. Or better, the question/s affected, should be slightly 'rephrased' at the moment of the interview, with an introduction like 'we know that due to the ICT strategy from headquarters this is not allowed (or available) to you, but if it were possible what would you think of ….. '. Also, understandably, the ICT Coordinator (if there was one) should be interviewed first, so that the researcher should determine if the ICT strategy of the company towards Internet/Electronic business, was to affect the general questions for all the respondents.

The questions in the fourth part, to be asked to all the respondents, were to be organized in an order that, when flowing, would make sense to the respondents but would also be based on the issues referred in section 2.8.

The wording or phrasing of questions, attitude statements, etc., is much of an art and pilot work was to be the ultimate arbiter. It was only natural to underestimate the difficulties because in everyday life, for the most part, we use language and obtain information in interaction with people we know; it was therefore difficult to realize just how ambiguous most words can be and how different people are from ourselves

in their use of words. It was also difficult to think of all the angles when we came to focus on a given problem.

On writing each question, the researcher sometimes had to go back to the fundamentals of the research and ask to herself: 'why am I asking this question? '. It is obvious that different question writers have different sets of assumptions and expectations, which are expressed in the ways they have worded their questions and that, in turn, forced us to the important point of what kind of detail or degrees of precision were required.

So after pondering as above, the researcher designed the set of questions, which were to go through pilot interviews in company 4 before continuing to companies 1, 2 ,3 and company 4 again.

One further point to explain is that the questions referred in this thesis are all written in English language. The researcher, first had to think in national terms what was going to be asked, created a Portuguese version for the questions, and afterwards, created an English version of the same to be reported in this thesis. It is known that the constant translation of statements from one language to another, even if the translator involved dominates both languages as well as the relative subject, tends to mislead some of the results. In this concern, the researcher tried to minimize this problem as mush as possible. But being this research coordinated in United Kingdom, by British researchers, over fieldwork done in Portugal, carried out in the local Portuguese language, the researcher had to be all the time translating back and forwards, from Portuguese to English and vice-versa. And that is a constant from the beginning to the end of this research.

Only the English versions are referred and described in the context of this thesis.

4.2.2.1 - <u>Pilot study</u>

The questions for the interviews were piloted in October 2005, in the company that was used for the functional case study and which will be referred from now on, as Company 4, and alterations were made as a result of that.

Pilot work is a term that describes all the preliminary trying out and development that has to go into the interviews procedures to make sure that they will work as intended, covering many aspects, not only the planning and wording of questions but also sampling frames, feeding back into the design further ideas for improving the sample and the best method for contacting respondents. Thus it frequently happens that some decisions made at an earlier point have to be changed in the light of subsequent experience.

The pilot study of the interviews enabled the researcher to determine whether the wording of the questions made the respondents understand their real meaning. This allowed the researcher to check that the content of the questions was easily understood and that there were no problems with the sequencing of the questions and the length of the interview. The pilot study involved three members of the staff of company 4 (one product manager, the ICT manager and one admin clerk).

The language spoken in the offices of the four companies is Portuguese. Being the researcher also Portuguese, had to translate the proposed questions to this language. Care was taken to avoid the problem of a change in the meaning and concept of terms by translation (it is always difficult to translate one language into another language without a change in real meaning).

After reviewing the results of the pilot study the researcher thought it would be wise to:

- On *company information* the address should be taken out as the collaborating pharmaceutical companies did not want to be identified.

- Rephrase question 4.4 as the respondents were saying what they thought of e-business and not what they knew about e-business.

After these alterations were introduced to the questions, the interviews pursued in the four collaborating Portuguese pharmaceutical companies.

4.2.2.2 - Case Studies Summaries

The following sections present a summary of each of the four cases studied. The interviews were conducted in the period from November 2005 to February 2006. As said above, the identity of the companies that collaborated in the research is confidential and so they will be referred as Company 1, Company 2, Company 3 and Company 4. The identity of the people interviewed or mentioned in the observations is also confidential. All the notes of the interviews were handwritten down in shorthand by the researcher. The detailed translation of the relevant parts of the interviews and the observations can be found in a second volume of this thesis. This second volume has nearly 500 pages and includes all the real data of the interviews and firms involved, detailed description of the internal and external observations of the collaborating companies and the preliminary fieldwork which include the functional case study and the internet study.

The summary and discussion of each case study, presented in sections 4.2.3 to 4.2.6, is structured in the following subsections: introduction, organizational factors, managerial factors, environmental factors and discussion of the significant issues. Table 4.1 exhibits the main characteristics of the interviews in the case study research.

4.2.3 - <u>Case Study Company 1</u>

4.2.3.1 - <u>Introduction</u>

Company 1 is the Portuguese subsidiary of an Italian pharmaceutical company. It has 90 employees and only commercial activities, ranking 20th in the local pharmaceutical market. There is no local production and the products are imported from the factories in Italy. It is a company with a very informal atmosphere. When entering this company, we can already feel tradition, as from the building, an old manor house in the centre of Lisbon, keeping the original design and not having almost suffered any changes to adapt to an enterprise of these days, to the way we are received by the people working there.

Case Study	Parent Culture	Number of employees	Department	24 Interviewees
1	Italian	90	Administration Finance Commercial Commercial Commercial Commercial	1)Assessor to the administration & ICT contact 2)Accounts Manager 3)Head of Regulatory Affairs 4)Product Manager 5)Medical Information Representative 6)Sales admin
2	Dutch/ American	120	Finance Finance Commercial Commercial Commercial Administration	1)ICT Manager 2)Assistant to the Fin. & Admin. Director 3)Product Manager 4)Medical Information Representative 5)Sales Manager 6)Secretary to the Direction
3	Swiss	170	Finance Commercial Commercial Commercial Finance Commercial	1)Chief Information Officer 2)Business/Marketing Administrator 3)Sales Efficiency Effectiveness Manager 4)Product Manager 5)Accounts clerk 6)Market Research Assistant
4	British/ American	370	Finance Finance Finance Commercial Commercial Commercial	1)ICT Manager 2)Production Director 3)Accounts Manager 4)Medical Director 5)Medical Information Representative 6)Sales supervisor

Table 4.1 - Characteristics of the interviewees of the collaborating companies

The company has been run by a boad of two directors, one acting on the commercial area and the other on the financial and admin area and until now they managed to survive never having to merge with another pharmaceutical group.

Although working in a very competitive market, the rhythm of work is intense but not hysterical; the six people interviewed showed tranquillity in the way they faced their functions and a certain confidence in the company as not being threatened by the possibility of being fired in case they would not fulfil their responsibilities 100%. As if they were sure that a second or third opportunity would be there for them.

Interviews were conducted with six individuals: the assessor to the administration acting as an ICT contact, the accounts manager, the head of regulatory affairs, a product manager, one medical information representative (rep) and one sales admin.

4.2.3.2 - <u>Organizational factors</u>

The majority of its workers has been already for some years with the company and they feel like a small family. Also the headquarters, when in contact, are felt like an extension of this local family.

Maybe this is the cause why this company uses ICT in a very basic way. Although they are 90 people working there, they do not have an ICT department; it is someone in outsource that assists their needs. The connection with this external specialist, is done through an assessor or old secretary, that showed a good knowledge of all the areas of the company, but no knowledge at all of ICT, in terms of its technicalities and potential, and also has no idea of e-business or the way the Internet could be

used to the advantage of the company, although she considers herself a good user of a PC, email and the Internet for searching information.

There are no central guidelines from the Group relating to the use of ICT, and so there is the freedom to ask for new and different systems. However, in general, people do not ask for new systems because there is a generalized ICT illiteracy and they do not know what can be done or asked for.

> I think that the actual situation of ICT is enough for the company's needs

Also computers have a negative image for the sales and marketing personnel: for them they are something that is useful to help the routine work of the administrative areas, mainly the financial ones. Nothing creative. Also relating to their main concern which is the relationship and visiting of the doctors, computers are not welcome as there is this generalized concept that for the visit to be a success it can only be face-to-face, with no interference of any technology. As observed by the researcher < *reps do not carry any computer when they are waiting to be received by the medical doctors, whether in hospitals or in the health centres* >.

The Internet, to which only a few have access, is still seen by some of the managers as a means of possible distraction to the workers.

> Not everyone can access the Internet. We started by the Directors, then some elements from the marketing department and we now move to a situation where everyone will in the future have access to the Internet. At present our Directors do not see the need for everyone to access the Internet to do their function. Do you know that there is still the idea that the Internet is to distract the workers.!

Those that are allowed to use the Internet in their work, use it mainly to search information. E-business, the new Internet systems, or the general potential of the Internet to be used for business is something still too far away and unknown. Besides the accounts manager, which during her interview showed that has already

some very interesting ideas or how to use ICT and the Internet in favour of her function and her department, and that she has already been putting in practice some of them with very good results,

> I use the Internet to do all the fiscal work since, as you know, both the Tax departments and the public financial departments now have the majority of their services accessible through the Internet.

all the others showed a need of being first clarified on what could be done so that afterwards could start thinking on what could be asked for their functions or departments.

They also claim that the ICT people do not understand their needs and their language, and that most of the time the dialogue is difficult. As observed by the researcher *<the ICT people and the marketing people complain at each other, stating that the other did not understand what they meant>*.

The sales representatives also receive regularly updated scientific and commercial training on products and inherent diseases. This training is usually done in group classes involving teams from the pharmaceutical and marketing departments. Online training or electroning training is unknown. As the pharmacist referred:

> Training of the sales team is a heavy task for all the people concerned. There is the initial training done to the newly recruited reps, which is quite frequent because the turnover is high. Then there is the training before each working cycle, and which is directed to the specific work to be done during that cycle. And there is the so called recycling, and which is the revision of the scientific training on the therapeutic subjects initially learned. Unfortunately this last type of training is rarely done as there is never time to prepare this training and also to bring a group of reps to the office. Online training would be an ideal solution but its usage depends on senior managers support; without this it will be very difficult to have success.

Other activities like the results of the visits to the medical doctors and the organization of seminars and congresses and the training, as already referred, are not done through the Internet:

> In fact that could not have ever occurred to me as I do not know what things can be done using the computer and the Internet. I have heard also about video conferencing, but I do not know exactly what is implicated in its implementation. Sometimes I do not ask for new computer systems as I have no idea of what can be done, unless I have already seen somewhere.

The lack of knowledge on the use of ICT inhibits the respondents to think of new ways of doing things but when confronted with a suggestion, they start thinking it over and ponder the possibilities. On the question "if the visits to the doctors could be improved with the use of a wireless device like a laptop or a mobile phone, giving immediate access to any information in the company Intranet, scientific databases, etc.," then they could visualize one use of the ICT technology, in general, the idea was accepted as interesting:

> We continue with the same. As I already said, that would never have occurred to me. I think that we miss an ICT training informing us of the potential of the new capacities; the training we have is always for the operation of a new program.

There is a common fear of changing the traditional way of doing things near the doctors, which until now have worked well:

> Well, maybe! But I do not see how could that work. Perhaps in the very far away future, things will move that way, but I do not believe it. In fact, I do not believe that the way the visit or contact is done to the doctors today will change. They will not collaborate on that and it is very dangerous for a pharmaceutical company to risk changing the way things are done now and with a good result.

The use of ICT is no doubt already considered by all the respondents very useful in the administrative areas of the organizations, where the quick reply to the various demands is recognized nowadays as indispensable:

> Clearly, yes. For example in our department (Accounts) that has a large load of administrative work, we were 10 people and now are 4 and do more things than before.

As for the parent company culture it does not influence the culture of the local subsidiary through standards and rules:

> We report to Italy. There is not much interference or centralization in the ICT projects. Once locally justified, approved and included in the budget, we have the freedom to buy or develop whatever we wish.

Other areas that reflect the culture of the parent company, are the Group meetings, related to marketing and finance:

> We have many international meetings, where we meet our peers from the other subsidiaries. As our headquarters are Italian, we speak in Portuguese, when only Italians are present, or in English, when there are other nationalities.

All this external interactivity, influences the local organizational culture. The employees of this company have to speak English and/or Italian as the contact language in international meetings.

The Company activities are focused around medical doctors. Doctors are difficult to deal with, and so they are afraid to damage what they have already got, and which has good results, with the introduction of new ways of working near the doctor and that concerns computers. As the researcher observed < *all the corridor talks in the company are about episodes with the doctors and we can feel that any promotional action is done having in mind what would please the doctor* >. However, the medical doctor is not an easy customer, making part of an elitist working class and demanding an interlocutor at his/her scientific level. On the question on how the respondents coped with the problem, the majority said that sometimes it was very difficult to deal with the situation:

> To be received by the medical doctors, and try to catch their attention to hear what we have to say, sometimes is a very hard task. Often we have to swallow 'frogs', or I would better say 'elephants'…

Although there are now strict laws on the kind of gifts that can be offered to the medical doctors, when asked, the respondents referred that still a large group of doctors would prefer an expensive gift to, for instance, scientific information of good quality.

This company cares for the traditions. Although there are some changes with the introduction of technology, the mission of the company apparently continues to be the same. When asked about the change in the traditions, the interviewees generally replied that in general company traditions are still the same:

> I think they are the same.

Also as observed by the researcher < *the atmosphere of the company transpired the tradition of the Italian Group. History could be felt in every corner of the building and the people observed were all well aware of it* >.

Storage of the products is done in a large warehouse under strict rules of cleanliness and healthy environments. The company imposes great care on the good condition of their products, as a defective medicine can damage the company's good name with the immediate negative effect on business results:

> They are products for treating diseases, medicines. They have normally to be prescribed by a doctor, in a private consulting or hospital: they are subject to strict rules of cleanliness and conservation and have a period of validity.

The research and development of the Group provides the regular launch of new medicines:

> Let's say that it is the most important thing to a pharmaceutical company. The companies that have a good research behind, with the regular launch of new good products, have their survival in the market much more guaranteed.

The level of salaries and benefits like bonus, company cars, travelling expenses, are considered good and in terms of other industries, they are above the average level. As the researcher observed < *in the corridor gossip, one could recognize that the people working in the finance and admin areas felt that they were worst paid than the colleagues from the commercial area, which, besides the salary also had bonus*

and other expenses paid. Although in comparison with companies from other industries, they agreed that they were above the average>.

4.2.3.3 - Managerial factors

Until now the Group never merged with another pharmaceutical Group.

The Portuguese subsidiary has been run by a board of two Directors, one acting on the Commercial area and the other on the Financial and Admin area. The researcher observed that just before this fieldwork, the commercial director had left the company *< there was a certain discomfort as people commented that they did not know who was going to replace him, and which changes would occur >.* The way the administrators run the company has a great influence on the local decisions and strategies. Being small and medium enterprises in size, the decisions of the top leader of the company interfere directly in almost all departments. Any decision taken by the general manager, would be implemented even if the person or persons involved would not agree:

> First I would try to show my point of view and why I did not agree. I would not submit to it right away.

4.2.3.4 - Environmental factors

Hierarchy is an important issue for the local culture. In this company there is openness within the different working groups, but when it comes to express open disagreement to their managers, respondents were reluctant and cautious. This was mainly evident during the walkabout observation, *<where people used to do remarks to other colleagues on what they disagreed about their Managers, in the corridors, but were reluctant to say it directly to the person in question, probably afraid of the consequences>.* However, the majority of the respondents, during their interviews, referred that they had no reluctance in disagreeing with their Managers:

> I have no problem at all in telling my Manager when I disagree with him/her, in a very constructive way, of course.

However, based on what was heard during the walkabout observation, the researcher concluded that during the interviews the respondents said what they thought they should do and not what in fact they usually do.

The existent Portuguese law to the pharmaceutical industry is considered very strict, but worst than that, is not properly followed, what causes unexpected situations difficult to deal with:

> It is very strict and unexpected. The Government changes, the laws change. The legal part of the pharmaceutical industry is very politic and influenced by the flow of opinion.

The individual values and attitudes of the people in this company are fair play, consideration for others, tolerance showing some deference in the collectivist group. If hurt, offended or molested by others, the people from this company as the Portuguese in general do not respond with an aggressive attitude and show a soft tolerance towards others:

> Ah, it is difficult to make me angry. I give a little discount to what the other person says and try to calm her/him. If even so he/she continues insulting me, I move away.

Competition is heavy and innovation is the key to combat the competitors:

> By the pressure that they do launching new competitive products, strategies and marketing campaigns.

There are several external local procedures and policies that have to be followed in the health sector, specifically in the pharmaceutical sector and which condition the business model of this company, mainly controlling the work done by the sales and marketing areas:

> In our case, in the marketing, the guidelines we have to follow are those given by the headquarters on the promotion of the products.

4.2.3.5 - <u>Discussion of the significant issues</u>

Several factors were identified in the company as influencing the adoption and use of e-business:

- The board that runs the company comprises two directors – one commercial and one financial. They have not been great supporters of the adoption of new technologies by the company.

- The company is very traditional and the rhythm of work is intense but the atmosphere is very friendly.

- The majority of the workers is already working for some years with the company in a family behaviour.

- ICT is basic and although there are 90 people working there, they do not have an ICT department – it is someone in outsource that assists their needs. The connection with this external specialist is done through an assessor to the administration (an old secretary) with a good knowledge of the company practices but no knowledge of ICT, in terms of its technicalities and potential. Also she has no idea of e-business or the way the Internet could be used to the benefit of the company.

- There are no central guidelines from the Group relating to the use of ICT and so there is freedom to ask for new and different systems. However, in general, people do not ask for new systems because there is a generalized ICT illiteracy and they do not know what can be done or asked for.

- Computers have a negative image for the sales and marketing people: for them it is something useful to help in the routine work of the administrative areas, mainly the financial ones. Nothing creative.

- Computers are not welcome to be used in the visiting of medical doctors as the generalized concept is that for the visit to be a success it can only be face to face and without the interference of any technology.

- The Internet, to which only some have access, is still seen by some of the managers as a means of possible distraction to the workers. Those that are allowed to use it in their work, do so mainly to search information.

- There was only one ICT champion – the ICT manager – that put in practice some systems through the Internet to improve the performance of her department.

- E-business, the new Internet systems or the general potential of the Internet to be used for business is something still unknown.

- The sales and marketing people complain that the ICT specialist does not understand their needs.

- The company runs around the main customer – doctors – which are considered difficult to deal with. The results obtained with the way that they have been working until now are good and they do not want to damage what they have got with the introduction of changes.

- For the reps, the computer only means more work and carrying more weight, once they already have to carry samples of medicines, promotion leaflets and sometimes gifts.

4.2.4   - Case Study Company 2

4.2.4.1 - Introduction

Company 2 is a small and dynamic organization with Dutch/American parent culture. It is located in a floor of a modern building in the centre of Lisbon.

The company has 120 employees, 90% of which are from the sales and marketing area. The sales representatives are 70% of the headcount of the company.

The General Manager has recently been replaced and the new one has a different approach to leadership. The impact was already being felt in all the sectors of the company. With 70% of the employees always out, the office of this company shows the ambience of a small company.

4.2.4.2 - Organizational factors

In terms of ICT, the company is well equipped with updated technology – AS400 as the central system, HP and DELL for the servers, workstations, and printers. The system software Windows XP, Microsoft Office 2003, and the applications ERP, BPCS. PCs and laptops are from HP and DELL. All the company's results are online, nothing on paper. For security reasons the access to the Internet is centralized through the central servers at the headquarters, in Holland, and there is a Group Intranet. No Extranets. The ICT department is small with 3 people working there plus some outsourced contractors. Priority is given to the applications for the operational departments, whether through legacy systems or international software such as ERP and BPICS. The functional areas of distribution with invoicing, accounts, finance and payroll use ICT systems for long. Also the international financial systems connecting headquarters, have always existed, first through EDI and now using the Internet. The strategy for ICT, concerning the acquisition of hardware and the intra-operational systems, is becoming more and more centralized in the parent company. The advantages being that negotiations as a whole, for the Group purchasing, guarantees much better conditions for all the subsidiaries, and also a standardization in terms of equipment (IBM AS400 and HP and DELL) in the whole Group. So the ICT Manager, reporting to the Finance Director, has the responsibility to ensure that the Group standards towards ICT are kept locally.

> In what regards hardware and operational systems, we have to follow the guidelines from our headquarters. ICT strategy is decided centrally, both in what regards hardware used and software. However, local needs, fully justified, must be submitted for approval to the parent company and usually are approved. The problem is that sometimes our human

> resources in the local ICT department are so few that priority goes to the international systems and to the operational systems, leaving very low availability for other needs.

Although locally the ICT department works on a budget base, approved by the Finance Director and the General Manager, new ICT systems must also be approved by the supervising ICT department from the parent company. The company had no strict or limited access to local systems. Local needs if fully justified must be submitted for approval to the parent company and are usually approved. However, due to the small size of the local ICT department and its limited human resources the priority goes to international systems and to the operational systems, leaving low availability for the other local needs. With the previous General Manager, the ICT manager made part of the management team and so participated in the strategies of the company. Nowadays, as there is no steering committee, decisions are usually taken between the ICT Manager and the Finance Director, on a common sense base. In management meetings, where the local strategy is analyzed and decided, it is the Finance Director that represents ICT:

> Sometimes it is very difficult for us in ICT to satisfy the needs at the right time, as strategies decided in the management meetings most of the time interfere with ICT, whether through the existing systems or a need to implement new ones, and only at the very last moment people understand the impact of that campaign or strategy on the computer systems. When they come to us, or we figure the problem, time is already very short to cope with the situation. If the ICT Manager would have attended the management meeting where that decision was taken, he/she could have alerted for the technical implications.

The size of the ICT departments is 2,5% of the total headcount of the subsidiary. From the perspective of the ICT people, who do their best to satisfy the priorities decided, they find that they do a good and sufficient job. The most critical computerized systems have been those related to the marketing, sales and promotion activities:

> They are always very difficult to please, and the poor results of previous systems is due to their non collaboration and bad use of the systems developed.

From the perspective of some of the users, mainly from the commercial area, they claim that their needs are frequently not considered a priority or if designed and implemented, they poorly correspond to what was expected. The people from these areas, by tradition, are the type of individuals that enjoy the face to face dealing, they are not *computer minded*, and any electronic facility is not well received:

> Computer systems are good for the administrative systems. With us it is different. I think that our work is more creative and the ICT people although showing a good will, difficultly understand our demands and the resultant systems are always useless.

The use of desktops is now available to everyone in the company. Word, Excel and Powerpoint, are the tools from the Microsoft Office more commonly used as well as the email and the Internet for the search of information:

> For safety questions, the access to the Internet is centralized. The access to the Internet is through our central servers at the headquarters.

However, beyond the spread use and knowledge of the PC's, through the interviews, and previously through the walkabout observation, the researcher could verify *<that there is a general lack of knowledge of ICT and their capabilities>*. On e-business, those that had some idea of what it was, only thought it is used for order processing. Only the ICT Manager had some ideas of the possible application of e-business to the different sectors of the pharmaceutical companies. The product manager interviewed also gave some suggestions denoting that he is beginning to understand the potential of e-business:

> I think it can help, for instance, to control the medical prescription. The doctor does not keep a record of what he prescribes. If there was a way of, through a computer, he could keep that information, it would be very useful. I think that something different should be arranged to optimize the free times of the reps. It is possible to alter something, but what and how, should be very carefully thought.

Regarding the possibility of the function of the medical information representatives be rethought taking advantage of the new electronic facilities, for their daily work in contacting the medical doctors, this was considered by almost everyone interviewed

and observed as something very far away to be considered or almost impossible, particularly from the commercial people:

> That is unthinkable! Only in a very, very far away future and even then we will see if there is any logic in that.

The general lack of knowledge on how to use ICT, of the people not only related with the marketing and sales departments, but also with other sector of the companies, including general management, makes them think, as observed by the researcher *<that any electronic help to the promotional work carried out would simply be the replacement of the function of the medical information representative by a contact with the doctor through the computer>*. Also electronic mail is something that most respondents confused with electronic business. The majority of respondents ignore and are not able to visualize other uses of electronic support that would bring a more competitive value to the company and at the same time reduce the actual expenses. Also, everyone questioned about the reaction that these professionals (the reps) would have to an alteration on the way that they work and are used to working, thought that in such a situation, the medical information representatives would have a strong negative reaction. Not only were they afraid of the consequences of the change but also they feared that they could loose the extra economical benefits that they actually have. These benefits are not extensible to the people working inside the offices of the companies. As the admin clerk interviewed referred:

> Change the function of the rep? And do it with the help of a computer? Ahahah!! Well, I do not know how the doctor would react, but the rep, would be completely against it, I am sure! And with the danger of losing the excuse for all the benefits (travelling expenses, free working hours, company car) that they actually have??? Uhmm! That would be a very difficult change! They constitute a large group and are very strong in the company.

The adoption of new technological solutions related with the commercial/marketing sectors of the company can only be successful with the involvement of the managing team of the company, as it happened with the previous general manager, otherwise the systems may be boycotted due to the negative reaction towards the ICT department in the company.

They have implemented a territorial management system to analyze the results of the fieldwork done by the medical information representatives that now finally appears stable and with a reasonable use. Reps have laptops to register and transmit the results of the visits done to the doctors. Although they should carry the laptop with them, people in the company believed that they were not doing so. In fact, the external observations done by the researcher in the hospitals and health centres *<confirmed that the reps from any company were never carrying a laptop with them during the daily work>* so they probably enter data on the visits at the end of the day. Some of the interviewees thought that the reason for this is the fear that medical information representatives have to be controlled by the system on their working timetable.

The ICT department carried frequent training sessions on the use of the laptops and the Internet connection to train the large group of medical representatives, which, by tradition are adverse to technology. The sales representatives also receive regularly updated scientific and commercial training on products and inherent diseases. This training is usually done in group classes involving teams from the medical, pharmaceutical and marketing departments. Online training is a project spoken but not yet put in practice. Growth of Internet usage for online training depends on senior managers support. Without this, the Internet usage for training may remain a single terminal in the marketing department. While Internet usage is being spread within the offices, its usage has not been promulgated amongst the representatives as of yet, due to resources constraints and the effort required to bring all representatives together for training. As the researcher observed in the company *<people did not trust the collaboration and the full success of this task unless the new general manager would be more involved in the project, which apparently was not the case>*:

> Besides the results of the visits to the medical doctors which are registered and analyzed electronically, and which is considered of great value to the company, other activities like the organization of seminars and congresses and the training, as already referred, are not done through the Internet: I

> think it can help, for instance, to control he medical prescription. The doctor does not keep a record of what he prescribes. If there was a way of, through a computer, he could keep that information, it would be very useful. I think that something different should be arranged to optimize the free times of the reps. It is possible to alter something, but what and how, should be very carefully thought out.

The lack of knowledge on the use of ICT inhibits the respondents from thinking of new ways of doing things, but when confronted with a suggestion, then they start thinking it over and ponder the possibilities. On the question if the visits to the doctors could be improved with the use of a wireless device like a laptop or a mobile phone, giving immediate access to any information in the company Intranet, scientific databases, etc., then they could visualize one use of the ICT technology, and in general, the idea was accepted as a good one; they could see the immediate advantage, as referred above.

The younger respondents, being regular Internet users in their free time, knew about portals, chat-rooms, forums or discussion groups. For the rest of them the Internet meant checking their e-mail, getting some information on holidays and little more. The use of a service allowing exclusive access by the medical and health community to online applications where meetings and interactive discussions would take place, would be an excellent opportunity for the pharmaceutical companies to introduce their products and the latest research. However as observed by the researcher *<these ideas lie still very far away from the current reality>*. There is a common fear of changing the traditional way of doing things near the doctors, which until now have proven to work well:

> This is an interesting idea. But there is a lot to do to take advantage of the technologies to assist the visits to the doctors.

The use of ICT is with no doubt already considered by all the respondents very useful in the administrative areas of the organizations, where the quick reply to the various demands is recognized now-a-days as indispensable:

> Computer systems are good for the administrative systems. With us it is different. I think that our work is more creative and the ICT people although showing a good will, difficultly understand our demands and the resulting systems are always useless.

However, besides the administrative systems there is a gap between what is being done by ICT and what is considered necessary by the other non-administrative departments. The ICT people complain that the marketing, sales, medical and regulatory departments are not very clear about what they need from ICT, as the financial assistant remarked:

> I don't believe in that; because they (the doctors and the reps) do not understand anything about computers, and do not want to understand.

and as the researcher observed *<the only systems that have been implemented and are working, after some unsuccessful attempts in the past, is the territorial management for the control of visits to the doctors, and that is because it was imposed by the General Manager>*. As the ICT manager referred:

> Now, we have a new General Manager and the change is tremendous! With the previous one, the ICT passed through a period of great development. He gave us a great support and was keen in being involved in all the needs and demands of the new ICT systems. Now the situation is like passing from 200 km/h to 20 km/h!!

On the other side, the sales and marketing, medical and regulatory affairs respondents, refer that the ICT never really understand what they need and that the systems implemented, do not reflect their reality, which is more creative than the administrative reality, where computer systems do the routine work.

New ICT systems for local needs, once their use is fully proved, can always be requested to be implemented, although they will need to go through the allocation list of priorities that the ICT management decides in conjunction with the Finance Director:

> In what regards hardware and operational systems, we have to follow the guidelines from our headquarters. ICT strategy is decided centrally, both in what regards hardware used and software. However, local needs, fully justified, must be submitted for approval to the parent company and usually are approved. The problem is that sometimes our human resources in the local ICT department are so few that priority goes to the international systems and to the operational systems, leaving very low availability for other needs.

On the question of whether the introduction of computers was the cause for unemployment, as they would replace people, the respondents all were firm saying no:

> No, I don't think so. Although there are many people unemployed because their functions became simplified with the use of the computer, not needing so many employees for the same service; I think that the problem has more to do with the fact of the forgotten conversion of the available people, to other functions.

From the trilogy that constitutes the customer of the pharmaceutical company, it is the doctor that is the first priority of the pharmaceutical companies, although the other two parts of the trilogy, the patient (mainly) and the government, are also very important. But all their work is focused on the doctor to attain the patient. However, the medical doctor is not an easy customer, belonging to an elitist social class; he demands an interlocutor at his/her scientific level. On the question on how the respondents coped with the problem, the majority said that sometimes it was very difficult to deal with the situation:

> We try to have a privileged relationship with the medical class, and some doctors have an excellent cooperation with us, but yes, we have others, very difficult doctors that make our task very difficult.

Although there are now strict laws on the kind of gifts that can be offered to the medical doctors, when asked, the respondents referred that a large group of doctors would still prefer an expensive gift to, for instance, a scientific information of high quality.

As observed by the researcher, *<this industry has a long tradition of an ethical business, caring for the well being and health of the community>*. Things have changed with the evolution of technology but the mission of the company continues to be the same:

> It has changed in the last years, mainly in the administrative processes. I think that the concepts did not change much.

Although some of the respondents said that they had the freedom to challenge traditional ways of doing things in the company, as the researcher observed, *<they meant new forms of doing the daily routine of administrative work>*.

The pharmaceutical companies create expectations on each employee through a good planning of each career, giving opportunities for promotion, but demanding good results. The attitude of this company in general, as the researcher observed, *<is to give top level benefits, training and good working conditions so that, in turn, may demand outstanding performance>*:

> My Manager defines strict objectives for my function for each year, and I have to work hard to attain them. If I do them at 100%, then I will be fully rewarded.

In this industry, the products (medicines) are subject to strict procedures on the way that they are stored, handled, and controlled as they have an expiry date. As the researcher observed *<if a problem is encountered in one unit, the whole production batch is immediately withdrawn from the market. Storage of the products in large warehouses is kept under strict rules of environmental cleanliness>*. Great care is taken by the pharmaceutical companies about the good condition of their products, as a defective medicine can damage the company's good name with the immediate negative effect on business results:

> They are products for the health therapy. They cannot be sold to the public in any shop, other than pharmacies. They have the prices controlled by the Government, and are subject to a period of patent.

This company has strong research and development units which traditionally have discovered several very good medicines.   This fact puts the company in a privileged position towards the local pharmaceutical market :

> This company has research and development in our parent company, which allows us to have new products regularly. When the period without new products is too long, the marketing function of our company is more difficult as we have to work with, in a way 'old' products which requires extra promotional efforts to try to refresh an already known and used product.

In regard to the level of salaries, benefits like bonus, company cars, travelling expenses, the researcher observed that *<they are considered by the people in the company above the average level of other industries in Portugal - rewards are given on the results of sales, stocks, market share and individual and group performances, although there were some complains from the people of the financial and admin sector, including ICT, that the best benefits and salaries are always for the sales and marketing people>*.

4.2.4.3 - Managerial factors

The General Manager of this company had just been replaced. The researcher could observe that *<people in general referred that the previous general manager was very enthusiastic about new systems especially ICT, and the company had passed through a period of great development>*. The way the General Manager runs the company has a great influence on the local subsidiaries of the pharmaceutical companies. Being in size, small and medium enterprises, the decisions of the top leader of the company interfere directly in almost all departments. Any decision taken by the General Manager, would be implemented even if the person or persons involved would not agree. *<In terms of ICT, the new general manager had a different attitude, left all the decisions for the finance director and ICT manager, not interfering in the strategy. The result was already being felt by a decrease in the*

level of adoption of the systems by the users, especially the sales and marketing people>. As the ICT manager referred:

> Now we have a new General Manager and the change is great! With the previous one, the ICT passed through a period of great development. He gave us a great support and was keen in being involved in all the needs and demands for the new ICT systems. Now the situation is like passing from 200 km/h to 20 km/h!!

4.2.4.4 - <u>Environmental factors</u>

Hierarchy is an important issue for the local culture. The researcher could observe that in this company the atmosphere was more formal and although there was also a certain openness within the different working groups, when it came to express open disagreement to their managers, respondents were more reluctant. When asked if anyone had the freedom to challenge traditional ways of doing things in the company:

> The freedom, has. It may be necessary to stand for the consequences.

This was mainly evident during the walkabout observation, *<where people used to do remarks to other colleagues on what they disagreed with their Managers, in the corridors, but were reluctant to say it directly to the person in question, probably afraid of the consequences>*. The majority of the respondents, during their interviews, referred that they had no reluctance in disagreeing with their Managers:

> I have no problem at all in telling my Manager when I disagree with him/her, in a very constructive way, of course.

However, based on what was heard during the walkabout observation, the researcher concluded that during the interviews *<the respondents said what they thought they should do and not what in fact they usually did>*.

Heavy bureaucracy and sometimes even bribery, constitute the environment of the public departments, whether from the government, Banks, or other public

institutions; to overcome this, or even to get a business deal, the respondents whenever possible, said that they would use an influential friend or relative that could help in solving the situation.

In what regards the transnational culture or the culture from the parent Group, this influences the culture of the local subsidiary through standards and rules. ICT strategy is at present strongly centralized, although freedom is given to the local subsidiary to ask for new systems and solutions to local needs, once they are fully justified. As the ICT manager referred:

> In what regards hardware and operational systems, we have to follow the guidelines from our headquarters. ICT strategy is decided centrally, both in what regards hardware used and software. However, local needs, fully justified, must be submitted for approval to the parent company and usually are approved. The problem is that sometimes our human resources in the local ICT department are so few that priority goes to the international systems and to the operational systems, leaving very low availability for other needs.

Also other areas reflect the culture of the parent company, through international activities, like Group meetings, headquarters policies and standards, marketing and financial directives, although, however, in what concerns salaries and other benefits are aligned to local level:

> The international strategies on the way to promote the products, as well as the international meetings.

All this external interactivity, influences the local organizational culture. The fact that all the employees of the company have to speak English, likewise affect the company culture.

The existing Portuguese law to the pharmaceutical industry is considered very political and strict, but worst than that, is not properly followed, what causes unexpected situations difficult to deal with:

> The pharmaceutical industry is always under the constant attention of Governments and the press, as this industry is in permanent legal and

> political negotiation. Strict laws are put in practice, and we have always to be attentive to what comes next. But worst than a strict law is the way it is put in practice and followed, which is not always the same. For instance we developed a site with information for women on a contraceptive we sold. We had to withdraw the site as the information was considered as a promotion to the product. However, if a site from any of the existing organizations for women' defence or so, would give the same information, it would have no problem.

Innovation is the key to combat the competitors. This company is well positioned due to its research and development resources. New drugs are regularly launched, which means local clinical trials, heavy scientific and promotional training for all the staff, organization of seminars or congresses for presentation to the medical community in the whole country, the submission to the government entities that regulate this industry and which stipulate the sales price of the product, whether or not will be funded by the government and on which percentage, and whether it is an ethical product (needs to be prescribed by a medical doctor) or an OTC product (free sale without a prescription).

> All that our competitors do, affect us directly. If they do a more aggressive campaign on a product, that can affect the sales of our product and we have to react to recover from the effect.

Concerning procedures and policies, there are several that have to be followed in the company, either imposed by the Group or specific to the pharmaceutical sector and which condition the business model of this subsidiary, whether controlling the work done by the sales and marketing areas:

> The local procedures that affect us more are those concerning the gifts to the doctors.

or by, for instance, the ICT department, where there are some standards on the good use of the Internet, email or the type of sensitive information that can be disclosed to others, or the procedures for the different levels of purchases:

> In our company here in Portugal we have several procedures and policies to follow. Some caused by external causes and others internal. There is, for example, the procedure for purchases, which stipulate the

> value that each level of management has to sign a purchasing order, or when that order has to be passed to the next level for approval.

4.2.4.5 - <u>Discussion of the significant issues</u>

Several factors were identified in the company as influencing the adoption and use of e-business:

- There is an ICT department and the company is well equipped in terms of hardware and software, following a very strict Group strategy. All the hardware and software purchases are analysed and authorized at Group level. There is a brand standardization through all the Group.

- There is the freedom to ask for new systems for local needs that, if duly justified, can be approved. However, as the department is small and the ICT human resources reduced, priority is given to the international and operational systems.

- The attitude of the Leader influences the whole company. With the previous General Manager who left the company recently, ICT has received a lot of investment and support and even the ICT manager made part of all the committees and new projects teams.

- The expansion and the use of computers and Internet through all the company was very quick and they even gave the first steps in an e-business system which created an interactive private site with the scientific community and related with one of the products. However, all the system had to be reviewed for legal reasons that, as the site was from a pharmaceutical company, the subject was treated with a strictness different than if it were from any other organization.

- With the new General Manager, with a different leadership, the impact was already being felt in all the sectors of the company, mainly the ICT. The rhythm was already slowing down. ICT decisions are now only taken between the ICT manager and the Finance director to whom he reports,

without the involvement of any sector of the company, with the danger of having a partial vision of the priority of the project.

- The ICT manager does not belong any longer to the Company management committee. This causes several problems, as decisions are taken there for the company strategies which most of the time interfere with the existing systems without the knowledge of the ICT department. When the subject comes to the knowledge of the ICT people it is some times too late.

- There are two large working subgroups with different attitudes and culture. Those belonging to the Finance and Administrative area, and those belonging to the Sales and Marketing area. The first ones, more used to routine work and the use of technology, computers, to do their functions, represent at the maximum 15 or 20% of the company headcount. The second subgroup, comprising several sectors that go from scientific, medical, pharmaceutical up to the commercial, consider computers useful for office work. Besides that, they have the idea that computers complicate more than help.

- And everything that is connected with the contacts with doctors, is unthinkable to use computers. Visit is to be done face to face, without any technology. Even carrying a laptop is considered a nuisance and a burden by the reps.

- It is noted that there are many pre-conceived ideas on the use of computers, and also, the problems like change in functions or even unemployment that ICT can cause. There is a lack of knowledge of the potential of the Internet or other electronic solutions used in favour of the business as well as ICT in general. The "apparent" weak communication between the two subgroups, with mutual recriminations, with the ICT and finance saying that the sales and marketing people are bad users jeopardizing the results of the computer systems, and these claiming that the others do not understand them.

- The doctor is the main objective of all promotional actions. Considered a difficult and some times unexpected customer, it makes the sales teams to double their efforts to catch his/her attention.
- In general, the rewarding system is considered good, although the subgroup from the finance and administrative area (where ICT is included) referred that their colleagues from the sales and marketing have more privileges, considering even them as 'spoiled'.

4.2.5 - Case Study Company 3

4.2.5.1 - Introduction

This company with Swiss parent culture, shows a dynamic and enthusiastic atmosphere. It is the product of a merge of three companies all from the same country.

It occupies a modern building, in a luxury Office Park near Lisbon. The working conditions are very good, with almost everyone working in a sole office room. There are 170 employees, 63% of which is the team of the medical information representatives.

The internal decoration of the offices is very modern and the majority of the employees looks with an average age of between twenty eight and thirty five years old. Only the administrators and a few managers looked older. Also the reps team is very young in age.

4.2.5.2 - Organizational factors

This company is well equipped with up to date ICT technology – IBMAS400 for the central system; HP, DELL, IBM and Xerox for the servers, workstations, PCs, laptops, terminals and printers; OS400, Aix, Oracle, SQL, Windows XP, for the

operating systems, databases and main software applications. Access to the Internet is available to everyone in the company, since the security of the central system and the firewall was installed and an Intranet for the Group. No Extranets. The ICT department comprises 6 people and according to the ICT manager (named Chief Information Officer) the results can be considered acceptable. There is also some outsource support. Priority is given to the Group financial applications and the operating applications for the operational departments. All the international financial systems connecting headquarters, were first done through EDI and now over the Internet. The strategy for ICT is centralized at the headquarters:

> The strategies for hardware and software, of large operating systems, are decided in the headquarters. A new system can always be proposed, but it will have, besides the local authorization, to be submitted to the central group to be approved. If duly justified, it is authorized. It can also become a group standard.

This last referred point that a local system, if justified, can become a group standard, shows the involvement and dynamism of the Group that looks at subsidiaries not only as subordinate units but also as laterally collaborating units that can enrich the whole world organization with their local experience.

There are advantages of centralized strategies like that negotiations as a whole, for the Group purchasing, guarantees much better conditions for all the subsidiaries, and also a standardization in terms of equipment in the whole Group and disadvantages due to the smaller flexibility. The Chief Information Officer, reporting to the Finance Directors, has the responsibility towards the headquarters to assure that the ICT Group standards are kept locally.

> There are local and global decisions. There are meetings with the departments for analysis of the proposals.

Although locally the ICT department works on the base of a budget, approved by the Administrators, new ICT systems are decided in the ICT Steering Committee of the company:

> It exists a Steering Committee to analyse the ICT needs, and the ICT

> manager makes part of all the regular meetings of all departments.

Due to the small size of the ICT department in this subsidiary, although the bigger proportionally to the size of the company from the four participating companies in this research, there is always a heavy burden of work for satisfying both the demands from the parent company and the local department needs. The size of the ICT department in this company represents almost 4% of the total headcount of the subsidiary, which is well above the usual 1 or 2%. From the perspective of the ICT people, who do their best to satisfy the priorities decided, they find that they do a good and enough job. The more critical computerized systems have been those related to the marketing, sales and promotional activities. As the Chief Information Office referred:

> Developing systems for the sales and marketing, and also medical and regulatory affairs departments is always very hard as they tell us that they need one thing and when we implement the system they say that is not doing what they have asked for. It has always been the same!! And although we train them, correct operation of the system is rare, causing errors in the outputs, and then they come to us saying that the system does not work properly! It is always the same with them!

From the perspective of some of the users, mainly from the regulatory, medical, marketing and sales, which report to the Business / Marketing Administrator, as the researcher observed <*they claim that their needs are frequently not considered a priority or if designed and implemented, they poorly correspond to what was expected*>. The people from these areas, by tradition, are the type of individuals that enjoy the face to face dealing, they are not computer minded, and any electronic facility is not well received. As a product manager referred in the interview:

> The computer systems are useless in our area; they are good for administrative areas. Our work is creative, we deal with people, and we cannot be constrained by the restriction of systems.

However, it is in this area of the company, much less computerized, that the there is a need to introduce computerized systems, to improve their base of information, performance and decision.

Through the interviews, and previously through the walkabout observation, the researcher could verify that *<although the people in this company are the best users of ICT there is a general lack of knowledge of ICT and their capabilities. On e-business, those that had some idea of what it was only thought it is used for order processing>*. The Chief Information Officer showed that he had already some ideas of the possible first steps of the application of e-business to the main area of the company; a new private site is being developed:

> That is one way to move forward. Our site will have forums, where one can only enter with security. There is, however, the legal aspects to consider.

Regarding the possibility of the function of the medical information representatives, which represent a heavy economic burden to the enterprises, be rethought taking advantage of the new electronic facilities, for their daily work in contacting the medical doctors, this was considered by everyone interviewed or observed as completely impossible. As the medical information representative commented:

> That would be unthinkable as medical doctors are adverse to technology and if we stop visiting them in person, as it had always been, and start contacting them through email, the promotion of the products would not have any success at all. It would be a disaster.

Also electronic mail is something that most respondents confused with electronic business. Some of the respondents ignored other uses of electronic facilities that would bring a more competitive value to the company and at the same time reduce the actual expenses. Also, as observed by the researcher *<everyone questioned about the reaction that these professionals (the reps) would have to an alteration to the way that they work and that they have always done, thought that in such a situation, the medical information representatives would have a strong negative reaction>*. Also observed *<not only they were afraid of the consequences of the change but also that they could loose the extra economical benefits that they actually have, and which are not extensible to the people working inside the offices of the companies>*.

Actually the territory management systems, to analyze the results of the fieldwork done by the medical information representatives, are now finally apparently stable and with a reasonable use. Reps have laptops to register and transmit the results of the visits done to the doctors. Although they should carry the laptop with them, and enter data just after the visit, they do it at the end of the day. This company thought that the reason is the fear that medical information representatives have of the control that the application could do on their working timetable:

> They only have them since one hear ago. And they do not know how to use the system very well. They only do the essential. But it is already noted the feedback of an information much more updated than before.. On the other side they are afraid of being controlled on their free time between visits. For example, they only enter the results of the visits at the end of the day, instead of doing it upon each visit, fearing that we may control where they went during the day.

Frequent training sessions on the use of the laptops and the Internet connection have been carried out to train the large group of medical representatives, which, by tradition are adverse to technology. The sales representatives also receive regularly updated scientific and commercial training on products and inherent diseases. This training is usually done in group classes involving teams from the medical, pharmaceutical and marketing departments. Online training is a project that is giving its first steps, as the sales efficiency effectiveness manager referred:

> We start thinking in that. They even already have a small test program.

Growth of Internet usage for online training depends on the administration support. Without this, the Internet usage for training may remain an unused system in the sales and marketing department. While Internet usage is being spread in the offices, the researcher observed that *<its usage has not been promulgated amongst the representatives as yet due to resources constraints and the effort required to bring all representatives together for training>*.

Besides the results of the visits to the medical doctors which are registered and analyzed electronically, and which are considered of great value to the company, other activities like the organization of seminars and congresses and the training, as already referred, are not done through the Internet. Some of the people interviewed are looking at technology as something that can help optimize this sector but they want to move with care:

> As I said before, I think that technology could help a lot. It must however be very well analysed, as at present. Done in the traditional way, the results are very good although highly costly. However, hospitals and Health Centres are adhering to ICT so quickly, that a new pressure can come from outside to inside of the company, in the sense of new restrictions being created to the personal contact with the doctor and other new facilities having to be used.

The lack of knowledge of the use of ICT inhibits the respondents to think of new ways of doing things but when confronted with a suggestion, then they start thinking it over and ponder the possibilities. On the question if the visits to the doctors could be improved with the use of a wireless device like a laptop or a mobile phone, giving immediate access to any information in the company Intranet, scientific databases, etc., then they could visualize one use of the ICT technology. In general, the idea was accepted as a good one; they could see the immediate advantage:

> Oh yes, that would be very interesting! When I hear people talk about wireless, I thought we could access the Internet, to see the mail. I did not know we could contact the company and get the information the doctor needed at that moment, right away (I think they call the Intranet, or something similar…). Yes, that would be of great help to do a good impression during the visit to the doctors.

The younger respondents were regular users of theInternet in their free time. The others only used the Internet for searching information. The use of the Internet, with an exclusive access, for the medical and health community, where they could meet and discuss online and interactively their experiences and where the pharmaceutical companies could also have access, introducing what is being done in investigation

and give information about the existing products, as the researcher observed *<was something that never had occurred to their minds that could be done in a business environment>*.

The use of ICT is no doubt already considered by all the respondents very useful in the administrative areas of the organizations, where the quick reply to the various demands is recognized nowadays as indispensable:

> I cannot imagine today, invoicing, payroll, accounts, sales statistics, inventory control and all this sort of administrative activities, without a computer system.

However, with the exception of the administrative systems there is still a gap between what is being done by ICT and what is considered necessary by the other departments. The ICT people complain that the commercial area of the company are not very clear about what they need from ICT, and the only system that has been implemented and is working, after some unsuccessful attempts in the past, is the territory management for the control of visits to the doctors, which was imposed by the General Manager:

> Developing systems for the sales and marketing, and also medical and regulatory affairs departments is always very hard as they tell us that they need one thing and when we implement the system they say that is not doing what they have asked for. It has always been the same!! And although we train them, correct operation of the system is rare, causing errors in the outputs, and then they come to us saying that the system does not work properly! It is always the same with them!

On the other side, the people from the commercial area refer that the ICT never really understand what they need and that the systems implemented, do not reflect their reality which is more creative than the administrative areas, where computer systems process the routine work:

> The computer systems are useless in our area; they are good for administrative areas. Our work is creative, we deal with people, and we cannot be constrained by the restriction of systems. And they do not understand our needs for creativity.

Once their use is fully proved, new ICT systems for local needs, can always be asked to be implemented, although they will need to respect the priorities decided by the ICT Steering Committee and subject to the approval of the local administration and Group:

> I am free to suggest and ask for a new ICT system. However, my request must be fully justified referring the advantages expected, be approved by my manager and then passed on to the ICT department for decision on the possibility of implementing the request or not.

When some years ago, computers started to be introduced in the organizations, there was the generalized feeling among workers that it would be the cause for unemployment as they would replace people. This was caused by the fear of change and lack of knowledge of what the computers could do, and it reflected the stage of computerization that existed in that organization. The respondents when asked their opinion about the fact that computers were the actual cause of unemployment in Portugal, all were firm saying no:

> No, I don't think computers cause unemployment. They help do the routine work in the companies, and get more on time and accurate information to help business. I think that with computers some of the functions had to be readjusted.

From the trilogy that constitutes the customer of the pharmaceutical industry, it is the doctor that is the first priority to this company, although the patient is indirectly their main concern. But all their work is concentrated on the doctor to attain the patient:

> I would say that the patient is our major concern, but it is through the doctor that we come to the patient. So, in fact our main priority is the doctor, as it is near him/her that we can introduce our products.

However, the medical doctor is not an easy customer, as the researcher observed *<making part of an elitist working class and demanding an interlocutor at his/her*

scientific level>. On the question how the respondents coped with the problem, the majority said that sometimes it was very difficult to deal with the situation:

> With much diplomacy and patience. There are difficult doctors but also there are also others with an extraordinary collaboration.

Although there are now strict laws on the kind of gifts that can be offered to the medical doctors, when asked, the respondents referred that still a large group of doctors would prefer an expensive gift to, for instance, a scientific information of good quality.

This company has a long tradition of ethics, as a carer for the well being and health of the community. Things have changed with the evolution of technology but the mission of the company continues to be the same:

> In terms of industry tradition related to its mission, I would say that it is still the same. As for the business processes, they have changed following the evolution of the times, with the introduction of technology and the legal and governmental changes arisen in the industry.

Some of the respondents said that they felt at ease to challenge traditional ways of doing things in the company, they meant new forms of doing the daily routine administrative work.

The pharmaceutical companies create expectations on each employee through a good planning of each career, giving opportunities for promotion but demanding good results. The attitude of the industry in general is to give top level benefits, training, good working conditions so that, in turn, may demand outstanding performance:

> All of us have a plan of objectives or career. It has a certain degree of demand but it is reasonable. It is discussed between both parts.

In this company, like in all the others studied, the products (medicines) are subject to strict procedures on storage, handling, and control of the expiry dates. As the researcher observed *<if a problem is encountered in one pack, the whole production batch is immediately withdrawn from the market>*. Storage of the products in large warehouses is kept under strict rules of cleanliness and healthy environments. Great

care is taken by the company over the good condition of their products, as a defective medicine can damage the company's good name with the immediate negative effect on business results:

> Well, what can I say about the characteristics of the products of this industry? They are medicines, to treat diseases, and so for public health. They are sensible products, have to be treated since the production up to storing, with great care, in very clean places. They do not have a long life as they are subject to a validity date. Pharmacies return the medicines to the pharmaceutical companies, before the expiry date, if they are not sold and are credited for that value. When they first are launched in the market, they are protected by a patent period.

This company has a long tradition in research and development having discovered many of the best medicines in the therapeutic areas they are specialized in. This fact makes them one of the most important companies in the pharmaceutical market.:

> The production of new molecules is essential for the stability of a pharmaceutical company.

On what regards the rewards system and measurement, in general the level of salaries, benefits like bonus, company cars, travelling expenses, are above the average level of other industries in Portugal; rewards are given on the results of sales, stocks, market share and individual and group performances:

> Yes, we are used to having a salary and rewarding system that motivate us to do our different functions. Of course that the group more privileged is that of the sales people but the rest of us, also receive some rewards when the results of our work is according or above what was expected.

4.2.5.3 - Managerial factors

The way the General Manager runs the company has a great influence on the local subsidiary. This company is very decentralized, although local administration is responsible for the local strategy involving commercial, legal and governmental activities. And being the decisions for the local systems in the hands of the local

management, if this is not sensitive for the ICT potential, any initiative that may arise will not go forward:

> He (the general manager) is the sole total responsible for the use of this system. I would have to accept if it followed the company standards.

The researcher observed <*that this company reflected a dynamism that was beyond the parent culture and strategy, it was caused by the local administration. The administrator interviewed in fact was one of the people more ICT minded of the interviewees, and although needed more clarification on what was e-business and its potential, he already had some idea that the computer could help to optimize or do new things for the company, mainly the commercial area which is the less advanced in ICT use*>.

Being in size, small and medium enterprises, the decisions of the top leader of the company interfere directly in almost all departments. Any decision taken by the administration, would be implemented even if the person or persons involved would not agree. As the researcher observed <*in terms of ICT, the direct support of the administration to the introduction of a new system, is the one of the main points that contributes to success*>.

4.2.5.4 - Environmental factors

The influence of the parent Group culture, is felt in the culture of the local subsidiary through standards and rules. ICT strategy is at present strongly centralized, although freedom is given to the local subsidiary to ask for new systems and solutions to local needs, once they are fully justified:

> The strategies for hardware and software, of large operating systems, are decided in the headquarters. A new system can always be proposed, but it will have, besides the local authorization, to be submitted to the central group to be approved. If duly justified, it is authorized. It can also become a group standard.

Also other areas reflect the culture of the parent company, through international activities, like Group meetings, headquarters policies and standards, marketing and financial directives, codes of ethics, or principles to be followed by human resources, although, however, in what concerns salaries and other benefits paid they reflect the local country level:

> We have strict standards to follow from our parent company in what concerns working conditions, and a code of ethics, which all the subsidiaries have to follow, but salaries and benefits are left to be paid based on the local level of life.

This is the only company that shows a strong activity on business ethics, covering all the sectors of the company and which is introduced by a Group policy. All this external interactivity, influences the local organizational culture. The fact that all the employees of the company have to speak a foreign language, usually English, likewise affect the company culture:

> Speaking at least one foreign language, usually English, is a pre-requisite in the staff recruitment in out company; for all functions, whether for the written contact with our parent company or the other subsidiaries, through the email or other, or to attend international meetings.

Hierarchy is an important issue for the local culture. In this company there is a certain openness in the relationship within the different working groups, but when it comes to express open disagreement to their managers, respondents are cautious. The majority of the respondents, during their interviews, referred that they had no reluctance in disagreeing with their Managers:

> I have no problem at all in telling my Manager when I disagree with him/her, in a very constructive way, of course.

Heavy bureaucracy and sometimes even bribery, constitute the environment of the public departments, whether from the government, Banks, or other public institutions; to overcome this, or even to get a business deal, the respondents whenever possible, use an influential friend or relative that could help in solving the situation:

> You know how it is! If you do not know important people in our country, you go nowhere! Whether to get a job, or to obtain a credit from a Bank, or to solve a situation in any of the government departments, or even to have an appointment in a public hospital with a specialist, you always have to use your influential friends or relatives! Another way would be to invite to lunch the person responsible for the decision I need; you know that in our country the most important things are decided on a lunch table… or offer an expensive gift! That always works! Otherwise, we stay at the end of the queue!!!

and this conditions the way to act in the company.

Concerning legislation, the existent Portuguese law on the pharmaceutical industry is considered very strict, but worst than that, it is not properly followed, what causes unexpected situations difficult to deal with:

> I think that at this moment is at the European level. The problem is that not always is put in practice.

As the researcher observed <*there is a constant negotiation between Apifarma, the Organization representing the pharmaceutical industry in Portugal with the different Governments, trying that legal things do not pass the frontier of what is considered reasonable*>.

The local individual values and attitudes are fair play, consideration for others, tolerance and deference in a collectivist society. If hurt, offended or molested by others, the Portuguese in general do not respond with an aggressive attitude and show a soft tolerance towards others. It is known as the people of 'soft attitudes and uses':

> If someone hurts or offends me, I may at first have a strong reaction but than I think that maybe my aggressor is not very happy to act that way, or has a strong motive leading his attitudes and I try to calm him/her down and solve things in a social way. At the beginning I may decide to keep some distance to avoid further problems, but if he or she comes back and talks normally I keep no offence and act as things never happened. I have no resentments! We all have our bad days and problems…

Innovation is the key to combat the competitors. The company can only survive with good and new medicines, of recognized quality. The launching of a new product, means local clinical trials, heavy scientific and promotional training for all the staff, organization of seminars or congresses for presentation to the medical community in the whole country, the submission to the government entities that regulate this industry and which stipulate the sales price of the product, whether or not will be funded by the government and on which percentage, and whether it is an ethical product (needs to be prescribed by a medical doctor) or an OTC product (free sale without a prescription). And all this to stay ahead of the competitors:

> Of course that all the actions of our competitors have to be taken in consideration and so, influence our business process.

There are several local procedures and policies that have to be followed in the health sector, specifically in the pharmaceutical sector and which condition the business model of the local subsidiaries, whether controlling the work done by the sales and marketing areas:

> There are always new policies and procedures that we have to follow, whether legal or as guidelines. For instance, now there are new local laws on the promotional gifts that we can offer to the medical doctors, but besides that, our own company created some internal procedures on the sort of promotion that we are allowed to follow and do during our visits to the doctors. I agree that before, when there was no control on the gifts offered to the doctors, visits were easier. A nice gift would always leave the medical doctor in a better disposition to hear what we had to say.

or by, for instance, the ICT department, as the researcher observed *<where there are some standards on the good use of the Internet, email or the type of sensitive information that can be disclosed to others, or the procedures for the different levels of purchases>*.

4.2.5.5 - <u>Discussion of the significant issues</u>

Several factors were identified in the company as influencing the adoption and use of e-business:

- The company shows a dynamic and enthusiastic atmosphere.
- There is an openness to the use of ICT in the company processes and this is supported and motivated by the administration.
- ICT is considered useful for all areas of the business although priority is given to international Group systems and operational systems. The ICT manager makes part of all the main strategic meetings of all departments.
- The use of ICT for the doctors visits is looked cautiously although in the future it is expected that the reps function change.
- The marketing but mainly the large team of reps is considered adverse to technology and difficult users. Also they fear that computers may control their free time. On the other side, sales and marketing people complain that ICT people do not understand their creativity and the subjectivity of dealing with people as they claim they would need more divulging of ICT potential for their information.
- However, it can already be noted that some people start having good ideas of how to use technology to get better results on the commercial work.
- The company is subject to several Group standards. The Group is very strict on ethics, which standards have to be followed in all the company areas, including marketing and human resources.
- The results of the company based on the traditional working ways of the reps, are good. So it is thought that great care must be taken to any change towards the use of ICT especially as this would certainly unstable the sales team.
- A new pressure to use ICT may however come from the outside, as the public hospitals and health centres are adhering very quickly to the use of computers. The existent Government has implemented a technological plan for all the public institutions which is being implemented very fast in all the areas, including the health sector.

- This company considers that the pharmaceutical market has a culture of its own, beyond organizations.
- Company rewards and payments systems are considered very good. The existent alternate conditions are also very motivating. Everyone has an yearly plan of objectives adapted to the function.

4.2.6 - Case Study Company 4

4.2.6.1 - Introduction

This company is the largest of the companies studied, with 370 people working in the local subsidiary. It is run by a management team headed by the general manager and comprising the directors of the main areas of finance, commercial, operations, medical and human resources.

The parent culture is now British/American, having undergone through several mergers during the last 15 years. There is no local production, the company is only marketing driven and even the warehouse of the products is now being considered to be outsourced. Products are imported from the factories in Europe. The actual company reflects a mixture of past different strategies and is now heavily centralized in the UK headquarters which control the whole European operations. 30% to 40% of the decisions can be taken locally. The rest is for the Group to decide.

The company is located in a whole modern building just outside Lisbon, with very good working conditions for everyone and is the one among the four companies studied having more space per worker. Almost everyone works in a spacious office, with large windows and the corridors have the double of the usual width. There is an auditorium with the latest technology and decoration where scientific meetings and seminars take place, with surrounding rooms for all the concerned catering, besides several meeting rooms with different capacities available to any department.

This company was long established in the Portuguese market, since 1974, and very quickly attained the first places in the pharmaceutical marketing, which maintains, with products covering a wide range of therapeutic classes.

4.2.6.2 - Organizational factors

In terms of ICT this company is well equipped with up to date ICT technology – IBMAS400 for the central system; HP for the servers and printers; DELL for the PCs and IBM for the laptops; SAPOS, OS400, SQL, Windows XP, SAP for the operating systems, databases and main software applications. There are no restrictions to the access to the Internet and all the employees are allowed to use it since the security of the central system and the firewall was installed and an Intranet for the Group in UK. No Extranets. The ICT department comprises 3 people plus 1 outsource and according to the ICT manager (named ICT Country Lead) the results can be considered acceptable for the normal daily status-quo. When large projects have to be implemented there is an overload. Due to this, a central department was created to give some support:

> Because of the overload, central European centres were created to help taking care of some infrastructure daily tasks.

Priority is given to the Group applications and the operating applications for the operational departments. All the international financial systems connecting headquarters, were first done through EDI and now over the Internet. The strategy for ICT is centralized at the headquarters:

> The strategies for hardware and software, of large operating systems, are decided in the European board of ICT in the corporate headquarters. A new system can always be proposed, but it will have, besides the local authorization, to be submitted to the central group to be approved. There are no restrictions if it is compliant with strategy and return on investment (ROI) proved by facts.

The ICT Country Lead, reporting to the Finance Director, has the responsibility towards the headquarters to assure that the Group standards towards ICT are kept locally.

There is no steering committee and the priorities are analysed and decided between the finance director and the ICT country lead. Any new system or technology is hierarchically introduced to the company.

Due to the small size of the ICT department in this subsidiary, which makes this ICT department the smallest proportionally to the size of the companies studied (with the exception of company 1 that has no ICT department) in this research, there is always a very heavy burden of work for satisfying both the demands from the parent company. The local needs have a minimum priority. The size of the ICT department in this company represents less than 1% of the total headcount of the subsidiary, which is under the usual 1 or 2%. From the perspective of the ICT people, they have no power of decision to get more human resources and so they attend their main priority which are the ongoing operations of the international systems, which are complex and demanding, and do their best on the support of the daily operational problems. As the researcher observed <*the ICT people concentrated on Group's requirements and any other needs are not even considered, with the exception of one report system to register the visits of the reps*>. The more critical computerized systems have been those related to the marketing, sales and promotional activities. As the ICT country lead explained, they even implemented previously two report systems that without the support of the management team were boycotted by the sales team:

> The systems for the sales and marketing, are always very hard as they tell us that they need one thing and when we implement the system they say that is not doing what they have asked for. It has always been the same!! And their opinion is more taken in consideration by the general manager than our explanations. And although we train them, the incorrect operation of the system cause errors in the outputs, and then they come to us saying that the system does not work correctly.

However, as the researcher observed <*this is the company with more complains from the users of the others departments, including even from the administrative areas. They were sceptical about the efficiency of the ICT, as their needs were never taken into consideration. They had to use the standardized operational systems, every time less flexible than before and much of the work they have to do is not contemplated by the computer systems*>.

All the commercial area that is well equipped with PCs and laptops, do not have any computerized systems to their own special needs. The researcher observed <*that there are no Internet systems*>. It is in this area of the company, much less computerized, that the there is a need to introduce computerized systems, to improve their base of information, performance and decision.

Through the interviews, and previously through the walkabout observation, the researcher could verify that <*the people in this company are good PC users but lack a general lack of knowledge of ICT and their capabilities. ICT was frequently referred in a depreciative way. There was no knowledge of e-business potential*>. Even the ICT country lead when asked of what e-business was, gave a vague reply:

> Very useful and potentially a money-saver tool, reducing resources and speeding up processes.

Regarding the possibility of the function of the medical information representatives, which represent a heavy economic burden for the enterprises, be rethought taking advantage of the new electronic facilities, to their daily work in contacting the medical doctors, this was considered by everyone interviewed or observed as completely impossible. As the sales supervisor referred:

> We have to be careful and not be 'playing' with serious things. At this moment the way the visits are done, face to face, we have established a good relationship with the doctors and the results obtained are very good. The doctors express a negative opinion of the use of computers. If we start using them to help the visit, may we incur in the probability of

> indisposing the doctor against us and he not receiving us. There are so many other things that the computer can help!!

E-mail is sometimes confused by the respondents with e-business. In general, as the researcher observed *<there was a generalized illiteracy on the potential of e-business, although some of the people showed to be a good PC user and asked for new minor facilities related with PC systems>*. Also observed that concerning the use of electronic systems to help the visit, there was a generalized opinion that *<there would cause a strong adverse reaction from the reps, as not only were afraid of loosing their job and be replaced by a computer, but also that they could loose the extra economical benefits that they actually have, and which are not extensible to the people working inside the offices of the companies>*.

Actually the territorial management systems, that analyze the results of the fieldwork done by the medical information representatives, are now finally apparently stable, (after two unsuccessful attempts in the past) and with a reasonable use. Reps have laptops to register and transmit the results of the visits done to the doctors, to the company. The ICT country lead opinions that:

> It is not simply the laptop usage by the reps that has increased the competitive advantage of the company on its own, but the correct usage of the applications with correct configurations and with the right requirements/facilities – that is where the competitive advantage resides.

The sales representatives receive regularly updated scientific and commercial training on products and inherent diseases, and also training on how to use the report system. This training is usually done in group classes involving teams from several other departments of the company. E-training for the reps has been implemented in the past, during the period of a general manager very ICT participative, but it has been abandoned. In fact as the researcher observed *<this company in the past passed through a period of great development in computer systems, with very potential solutions to the local needs and later on with the successive mergers, the ICT resources were reduced and priority is every time more concentrated on the central systems, what explains the somewhat disillusion people express with ICT>*.

Besides the results of the visits to the medical doctors which are registered and analyzed electronically, and which is considered of great value to the company, other activities like the organization of seminars and congresses and the training, as already referred, are not done through the Internet or the computer:

> It looks interesting! Now that you refer that, I can image what could be done with the computers and Internet in this area. We would need that someone could explain and clarify us with the potential of this new technology so that we could have new ideas on how to use it in benefit of our work! But that never happens with our ICT colleagues. They are always busy with their work!

The lack of knowledge of the use of ICT inhibits the respondents to think of new ways of doing things but when confronted with a suggestion, then they start thinking it over and ponder the possibilities.

The use of ICT is no doubt already considered by all the respondents useful in the administrative areas of the organizations, but there was a general complain that much more could be done:

> We now have this new system, I think is called SAP, and it is not at all flexible. There are a lot of requirements I have to optimize my work that are not considered. Why, I don't know if by lack of time or because it is not possible to do. The ICT people do not have the availability to clarify us. In the past we have had other systems that have been designed for our needs and we were much better served.

As the researcher also observed, *<there is a gap between what is being done by ICT and what is considered necessary by all the departments in the company>*. The ICT people complain that specially the commercial area of the company is not very clear about what they need from ICT, and the only systems that have been implemented and are working, after some unsuccessful attempts in the past, is the territory

management for the control of visits to the doctors, and that is because it was imposed by the General Manager and the Marketing Director.

On the other side, the users and not only from the commercial area refer that the ICT never really understand what they need and that the systems implemented, do not reflect their reality which is more creative than the administrative areas, where computer systems do the routine work.

New ICT systems for local needs, once their use is fully proved, can always be asked to be implemented, but at the end they can never be considered as the scarce human resources of the ICT are absorbed with the international and operational systems.

When computers started to be introduced in the organizations, some years ago, there was the generalized feeling among workers that it would be the cause for unemployment as they would replace people. This was caused by the fear of change and lack of knowledge of what the computers could do, and it reflected the stage of computerization that existed in that organization. The respondents when asked their opinion about the fact that computers were the actual cause of unemployment in Portugal, some agreed others said that:

> Yes, but not entirely. Also the absence of computer systems that would lead to modernization may be a cause of bigger unemployment numbers. I agree that the introduction of computers forces the restructure of some old functions that disappear.

From the trilogy that constitutes the customer of the pharmaceutical industry, it is the doctor that is the first priority to this company, although the patient is indirectly their main concern. But all their work is concentrated on the doctor to attain the patient:

> The doctors, I believe, but the patient is becoming more important and object of focus, through their newly born associations.

However, the medical doctor is not an easy customer, as the researcher observed *<making part of an elitist working class and demanding an interlocutor at his/her scientific level>*. On the question how the respondents coped with the problem, the majority said that sometimes it was very difficult to deal with the situation:

> In our company, according to our new code of conduct, there are no exceptions or privileges to certain types of doctors. All of them must be treated the same way.

There are now strict laws on the kind of gifts that can be offered to the medical doctors, and when asked, the respondents referred that the company is very rigid on gifts and that they think that the majority of doctors would now prefer scientific information of good quality.

Up to a certain time, this company was a very traditional one but with the successive mergers and the mixture of strategies and cultures, now they find themselves in a new born organization with a mixture of traditions and new routines.

The pharmaceutical companies create expectations on each employee through a good planning of each career, giving opportunities for promotion but demanding good results. The attitude of the industry in general is to give top level benefits, training, good working conditions so that, in turn, may demand outstanding performance:

> All of us have a plan of objectives or career. The performance is evaluated and according to the real performance indicators, we get the raise in salaries and bonus.

Concerning the products, this company has decided to outsource the warehousing of the products although it is up to them to make regular auditing to the premises where the products are kept.

The original Group of this company, already had a long tradition in research and development, having discovered many of the best medicines in the therapeutic areas where they are specialized, and now with the two last mergers with other Groups also with good research and development units, that position is even stronger. This fact has allowed them to stay as one of the best pharmaceutical companies in the pharmaceutical market.

4.2.6.3 - <u>Managerial factors</u>

Although this is a larger company than the other three studied, the researcher observed that through several comments made on the past and actual company *<that the way the General Manager runs the company still has a great influence on the local subsidiary, mainly on the local needs as the Group and operating systems are controlled by the headquarters with no interference from the local manager>*. This company is the one that is more decentralized and this decentralization absorbs all the ICT resources. Only through the interference of the general manager, increasing the resources of the ICT department and supporting the claims for the local needs, could this situation change:

> If our general manger would pay any attention to our claims, maybe this situation could change, but he had always been a marketing specialist and does not understand computers so he leaves all this subject to be analysed and decided by the Finance director and the ICT country lead which are only concerned in satisfying the Group's needs as a priority.

So according to what the researcher observed *<those in the company that had passed through the period of great development of ICT, are the most unhappy with the actual situation of the ICT in the company; those that came from the other merged groups or that adhered to the company more recently, accept better the situation assuming that is a company strategy>*.

In this company, although much larger than the other 3 companies studied, with its 370 employees, 220 of whom are medical information representatives, usually on the whole only 150 people are in the offices (in Lisbon, Coimbra and Oporto). Reps come to the company once every four weeks, and due to their large number (100 in Lisbon, 50 in Coimbra and 70 in Oporto), or their meetings are done locally or when they have to join all of them together, that meeting is organized in a hotel. So, in fact in size, is still a medium company and the effect of the type of the general manager's leadership affects the way the company works. Any decision taken by the administration, would be implemented even if the person or persons involved would not agree. As the researcher observed <*in terms of ICT, the direct support of the administration to the introduction of a new system, is the one of the main points that guarantee success, as it was the case with the reps' report system*>.

4.2.6.4 - Environmental factors

The parent Group culture interferes in the culture of the local subsidiary through many standards and rules. ICT strategy is at present strongly centralized, although freedom is given to the local subsidiary to ask for new systems and solutions to local needs, once they are fully justified although there is never time or opportunity for them.

Also other areas reflect the culture of the parent company, through international activities, like Group meetings, headquarters policies and standards, marketing and financial directives, codes of conduct:

> We have strict standards to follow from our parent company in what concerns all the departments, but mainly in ICT.

All the employees of the company have to speak English:

> All of us have to speak English. It is a condition to be admitted to the company. It is necessary for our daily work, not even for those that have to travel and have meetings with the other subsidiaries and headquarters, but also that many systems and documentation, emails, phone calls, are done in English.

Hierarchy is an important issue for the local culture. In this company there is a certain openness in the relationship within the different working groups, when it comes to express open disagreement to their managers, respondents are cautious. The majority of the respondents, during their interviews, referred that they had no reluctance in disagreeing with their Managers:

> I have no problem at all in telling my Manager when I disagree with him/her, in a very constructive way, of course.

However the researcher observed that *<there was not much openness in this company, and people had the habit of commenting things that they did not agree in the corridors as gossip, but did not have the courage to confront their managers with that, although in the interviews they said the opposite>*.

Heavy bureaucracy and sometimes even bribery, constitute the environment of the public departments, whether from the government, Banks, or other public institutions; to overcome this, or even to get a business deal, the respondents whenever possible, use an influential friend or relative that could help in solving the situation:

> Well, if I know someone with influence in that public institution I would certainly use it to speed up things.

As the researcher observed <*Apifarma, the Organization representing the pharmaceutical industry in Portugal with the different Governments, to which the general manager of this company belongs, is in constant negotiation with the governments trying that things stay within what is reasonable>*.

Concerning innovation, considered the key to combat the competitors, the launching of new products, puts the company in a stronger position towards the competitors.

There are several local procedures and policies that have to be followed in the health sector, specifically in the pharmaceutical sector and which condition the business model of the local subsidiaries.

4.2.6.5 - <u>Discussion of the significant issues</u>

Several factors were identified in the company as influencing the adoption and use of e-business:

- Policies and decision taken is around 60% done by the headquarters, leaving for the local subsidiary a 40% capacity of decision taking.
- The company is run by a management team, headed by the general manager.
- The ICT manager, named ICT country lead, reports to the finance director. The reporting of the ICT has been in constant change during the 12 years of the three mergers. The decisions are taken between the finance director and the ICT country lead, once the general manager does not involve himself. The ICT steering committee, although still existing, lost its importance and rarely takes place.
- The ICT department, which is very small, less than 1% of the headcount of the company, only has the capacity to support the international Group systems and the daily work of the operating systems. The local needs are left behind.

- The whole activity of the company is focused on medical doctors although the patient is now growing in importance through the associations. The visits to doctors continue as traditionally, done face to face without the interference of any technology. Laptops are used to register the details of the visits, *<but are never carried by the reps during the day>* as observed by the researcher.

- This company follows very strict codes of conduct concerning gifts and publicity which have to be strictly adhered to by all medical information representatives - the main mediators between the company and the doctors.

- The other commercial activities, like the organization of seminars, training, promotions, are done as traditionally, without the use of a computer.

- The adoption of ICT systems by the sales team already had two unsuccessful attempts in the past due to the boycott of the reps.

- The Internet, accessed by everyone in the company, is used mainly for searching information. There are no e-business systems as yet. The previous general manager, who was more sensitive to the use of technology in favour of the processes of the company, wished to invest in this area but with the change to the new general manager, things have not pursued in this direction.

CHAPTER 5 - ANALYSIS OF THE CASES

5.1 - Introduction

In this chapter the data collected in the four case studies is discussed, analysed and interpreted. Cognitive mapping was the methodology of analysis chosen for this research as referred and duly justified in chapter 2. Maps were drawn individually, based on the individual interviews, and aggregated, first by company, based on the themes of the individual maps, and after, by industry, based on the aggregated company maps.

5.2 - The structure of the analysis

5.2.1   Individual cognitive maps

Individual interviews were held with each of the members of the four collaborating companies at their workplace, as described in chapter 4. Following the interviews the researcher analysed the transcript to extract the themes or elements. The researcher considered what it was a 'logical order' and described how each element related to each other element in terms of cause and effect relationship. Following this study of the interview, the researcher was able to draw the 24 individual participants' detailed cognitive maps (Fig. 5.1 illustrates an example) which represented the unique way in which each of the individuals viewed the several issues spoken during the interview. Each map consisted of themes or elements expressed in the individual's own language, with causal linkages between those elements. Next, the researcher examined the elements and clustered any elements which were thought to have essentially the same meaning, thus effectively reducing the total number of elements and producing another 24 second individual cognitive maps, resumed. Figures 5.2 to 5.5 illustrate four examples of the resumed individual cognitive maps of the participants.

The whole 48 individual cognitive maps (24 detailed plus 24 resumed) can be found in the second volume of this thesis containing all the fieldwork data. However, for illustrative purposes, some more examples are also included in the Appendix C of this first volume of the thesis.

The maps represent different levels of seniority and roles and are used to explore potential differences within the organizations under study.

It is natural that different members of a group have different individual maps – it is almost impossible to imagine that there could be two identical individual maps. The comparison of cognitive maps allows to identify similarities and differences between individuals, develops an instrument for measuring agreement of opinions between individuals, defines the zones of common interests and tensions.

It was found in the fieldwork that interviewees in the same organization may have completely different levels of satisfaction with ICT. The level of ICT satisfaction of the interviewees is influenced by several factors, such as their professional role in the organizations, level of ICT knowledge, computer system's usage, or prior expectations about the benefits they may get from ICT. For example in company 1 the administration assessor responsible for ICT revealed high levels of satisfaction with ICT and she seemed completely unaware of the problems the firm has with ICT implementation; problems that were reported by the other interviewees. This could be explained because this Assessor does not have much ICT knowledge. She is a simple PC user and does not seem to realize the full set of benefits that the firm may get from ICT/e-business adoption and use. Moreover, there is a perceived "large power distance" between the administration assessor and the accounts manager (that can be considered the only ICT project champion of this company), which makes communication between them difficult. The accounts manager seems to avoid making suggestions to the assessor about how ICT must be implemented in the company. The ICT expert from the software house that gives support to the

company also does not discuss ICT matters with the assessor either. His preferred contact in the company is the accounts manager or the user directly, although the assessor is the person in charge of ICT towards the administration of the company.

In some other cases, differences of opinion amongst interviewees were also found, although during the observations and interviews the level of satisfaction with ICT performance, is not seen as completely objective and unquestionable. In some cases, in spite of the interviewees clearly identifying and revealing existing problems with ICT (as observed by the researcher), they seemed to avoid a negative evaluation of the process of ICT adoption and use in the organization. For example, in Company 2, although the sales manager evaluated his level of satisfaction with the computer systems as 'satisfactory', he also mentions that the software specifically developed for the enterprise is a 'failure' and expresses disappointment about its performance and accuracy. In Company 4 the statements provided by the sales supervisor did not fit with the observations done. This manager, although in the observation he clearly expressed his low level of satisfaction of the process of ICT adoption and use, in the interview he contradicts the prior negative evaluation of ICT, and gives a more tolerant appreciation.

In some of the cases, the top manager tried to present a slightly better situation of ICT adoption and use in the company than it really was. It is interesting to note that although several people both in observations and interviews expressed low levels of satisfaction with ICT, the top managers declared that they were at least satisfied with ICT adoption and use in the enterprise. Since data was collected from several sources, mainly observations and interviews, it was possible to identify through data triangulation where and why some data did not match.

Users have different roles, knowledge, backgrounds, and interests, which cause them to have only a partial view of the situation. Therefore, it seems much more relevant from an academic perspective to understand each case by analysing the different

views expressed by the interviewees than trying to force consensus where sometimes it may not exist.
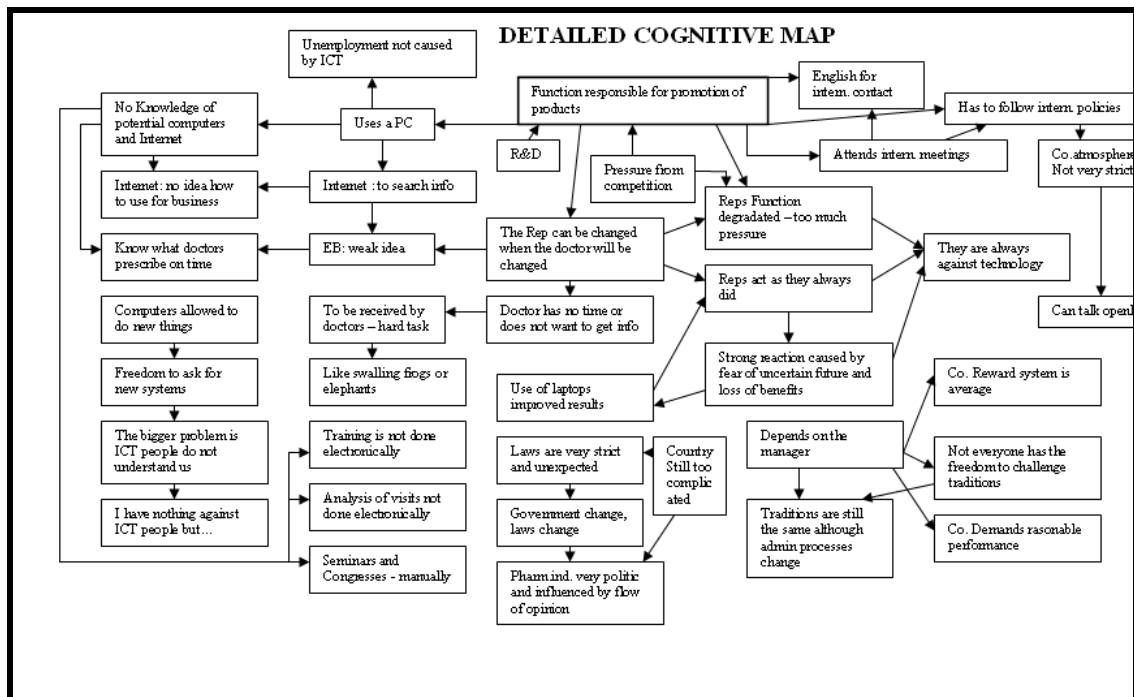
Fig. 5.1 - Interview 1.4 (Detailed Cognitive Map)

5.2.2 - <u>Aggregated cognitive maps per company</u>

Insight into potential similarities and differences between the four companies studied is made by a comparison of the findings examined with reference to four additional maps each one aggregating the individual maps of the interviews.

The shared vision (common ideas and collective ideas) presents the guide for a better understanding of the value of business relationship and interpretation of actions of the Portuguese subsidiaries of the pharmaceutical industry, under study. The construction of the aggregated map of each company is based on the results of the comparative analysis between the individual maps drawn from the interviews.
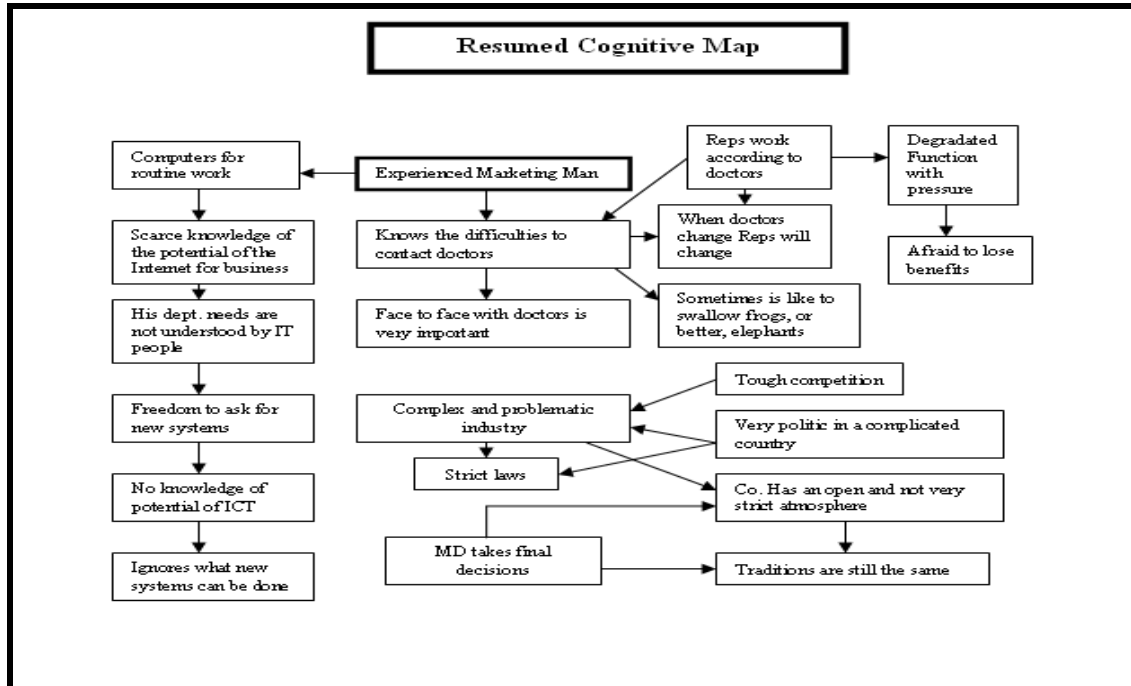
Fig. 5.2 - Interview 1.4(Resumed Cognitive Map)

Comparative research of cognitive maps has to acquire all the ideas and links for validation and comparison of the maps. Then it is important to transform the expressions and phrases used by an individual into a standardised vocabulary and use different formats for description and comparison of maps. The type of collected data (ideas and links) and the format of data representation was chosen accurately. It was necessary to standardise the procedure of each individual map analysis, formulate the principles of cognitive map comparison and select the methods for comparison. The comparative analysis implied the profound analysis of each cognitive map. The researcher identified the common elements assuming some degree of agreement about syntactical equivalence, recognised the holistic properties of the maps, detected the emergent properties of each map, and finally compared structural and graphical properties of the maps as suggested by Ginsberg (1989).
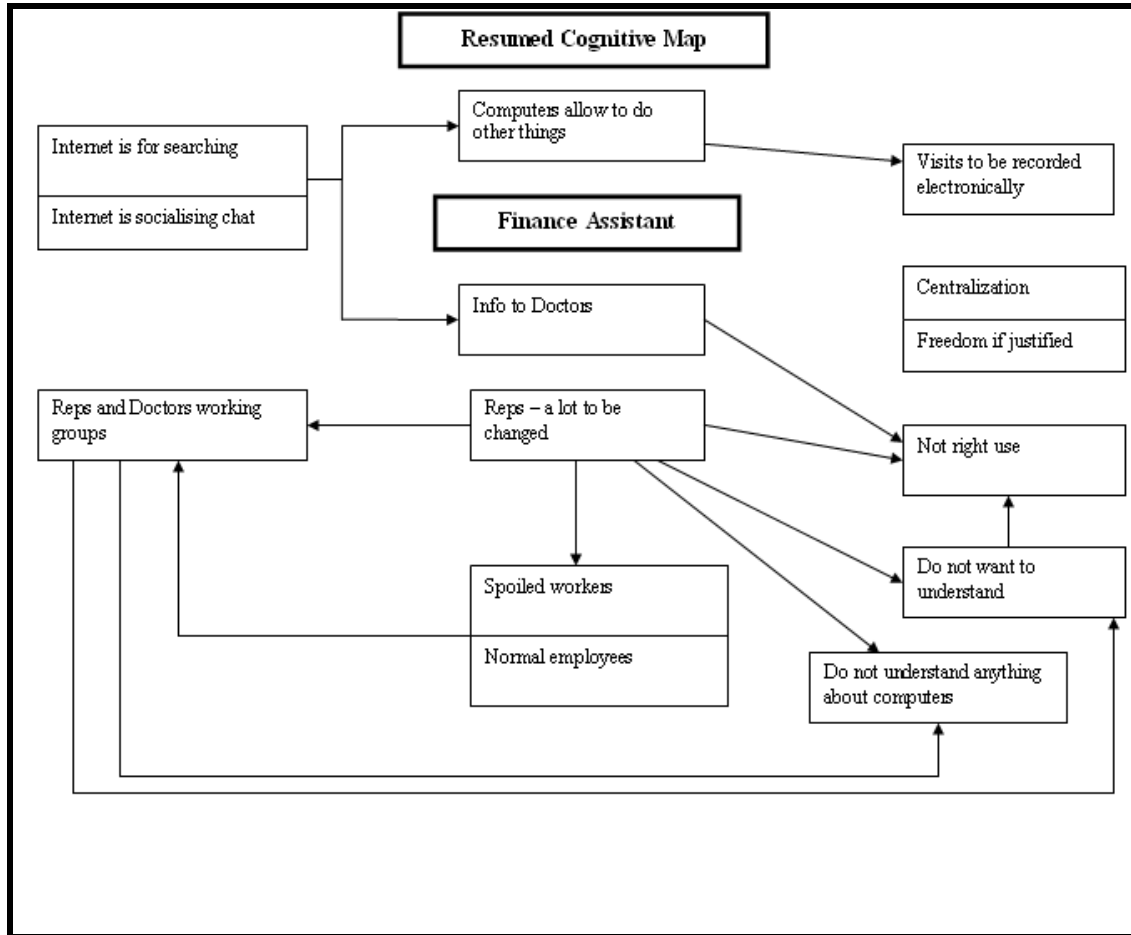
Fig. 5.3 - Interview 2.2 (Resumed Cognitive Map)

Resumed Cognitive Map

Reports to Finance Director

CHIEF INFORMATION OFFICER
ICT department

Function heavily affected by local and internat.Group standards

English is language of contact.

ICT Professional responsible for ICT - enthousiastic

Makes part of all company meetings

Has a good knowledge of how Internet can be used for business

Are developping na interactive site with forums for scientific community

ICT strategy controlled by Group

Genralised knowledge of ICT implications in Company

All operating activities computerised

Local ICT needs if justified can be authorised

Systems for Sales & Mkg harder to implement

Sales & Mkg users say they need one thing and expect another

General adherence to Internet

Use of laptops by Reps allows info arrive quicker

Fig. 5.4 - Interview 3.1 (Resumed Cognitive Map)

Resumed Cognitive Map

Ph. Law too strict and confusing

Fierce competitions

ICT only complicates creative Marketing work

Product Manager

Make function of PM more difficult

Computers good for admin work

Sceptical about ICT innovations in the Marketing area

Success of doctors visit is diplomacy and patience

Work of Reps is creative

Contact with doctors must be personal

Use of ICT in visits is unthinkable

ICT too rigid for situations dealing with people

Use of laptops by Reps is said to be badly operated

BUT system gives more work than results

ICT people do not understand creativity of Marketing work

Fig. 5.5 - Interview 3.4 (Resumed Cognitive Map)

The four aggregated maps of the four collaborating subsidiaries are illustrated in figures 5.6 to 5.9.
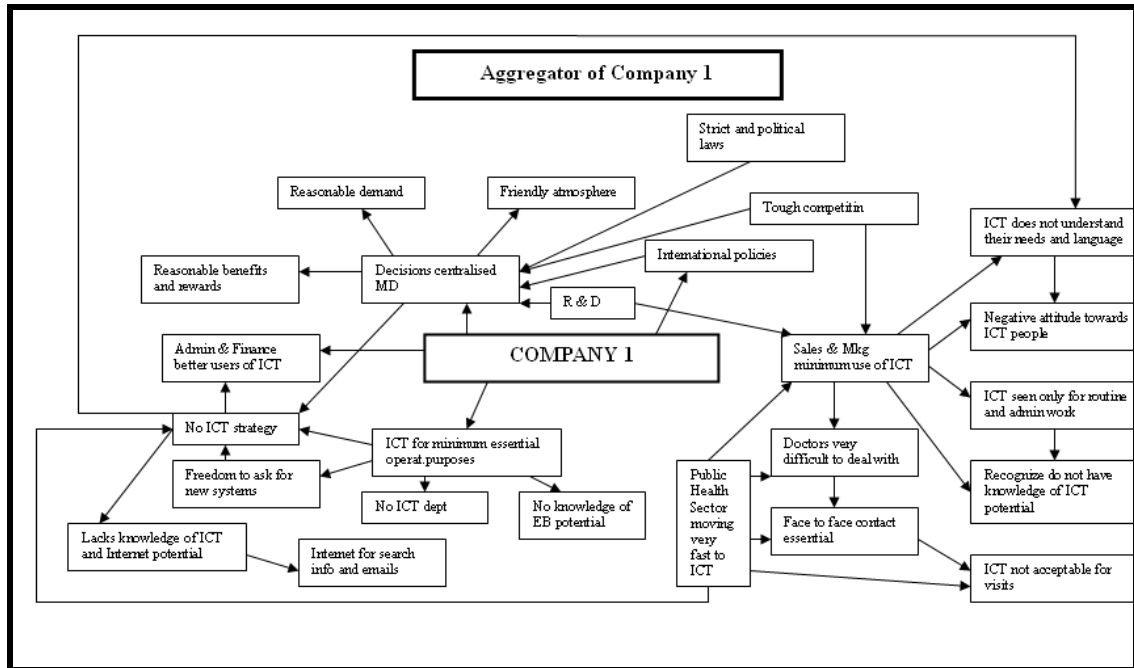
Fig. 5.6 - Aggregator of Company 1

5.2.3 - Aggregation by industry

An aggregated cognitive map for the pharmaceutical industry in Portugal was prepared (see Fig. 5.10), based on the insights of potential commonalities of the cognitive maps of the four subsidiaries, to act as a guide for a better understanding of the actions of the pharmaceutical institution.

Every institution has its own body of transmitted knowledge and that knowledge supplies institutionally appropriate rules of conduct. This knowledge includes shared beliefs. An individual could have a variety of domain-specific belief systems. For example, beliefs about the way to succeed in marketing the company's products, or beliefs about the nature of the relationship between managers and workers

(Langfield-Smith, 1992). Upon entering an organization, through a process of socialization, a person may undergo 'cognitive reconstruction' in order to acquire this stock of knowledge and the orientation that is required to be a member of the group. Every institution has its own body of transmitted knowledge, and that knowledge supplies institutionally appropriate rules of conduct. This knowledge includes shared beliefs. Shared beliefs and values are an integral component of an organization's, or of a group's cultural identity, and are a necessary prerequisite to collective functioning. Members of an organization share to a greater or lesser extent beliefs, values motives and orientations. The degree of sharing varies greatly between individuals in an organization, and from organization to organization. In order for an organization group to function, individuals must share a set of domain-specific beliefs, that is, a collective map. Initially people may share 'space, time, and energy' but not necessarily 'vision, aspiration, and intentions' – these may occur in a later stage.

The cognitive map for the Portuguese pharmaceutical industry was prepared identifying the common elements of the cognitive maps of the four companies studied, considering the syntactical equivalence and the detection of emergent properties of each of the four maps.

5.3 - <u>Initial findings from the analysis</u>

Initial findings from the aggregator analysis suggest that an understanding of the organizational, external contexts, the development of internal ICT competences and management perspectives, and attitudes towards ICT adoption is extremely relevant to the understanding the issues influencing the adoption of e-business within the companies studied.

The three research questions identified in the previous chapter 1 are interpreted and developed with reference to the maps and textual extracts from the interviews to

provide additional insights into the concept of the facts influencing the adoption of e-business in the industry under investigation.
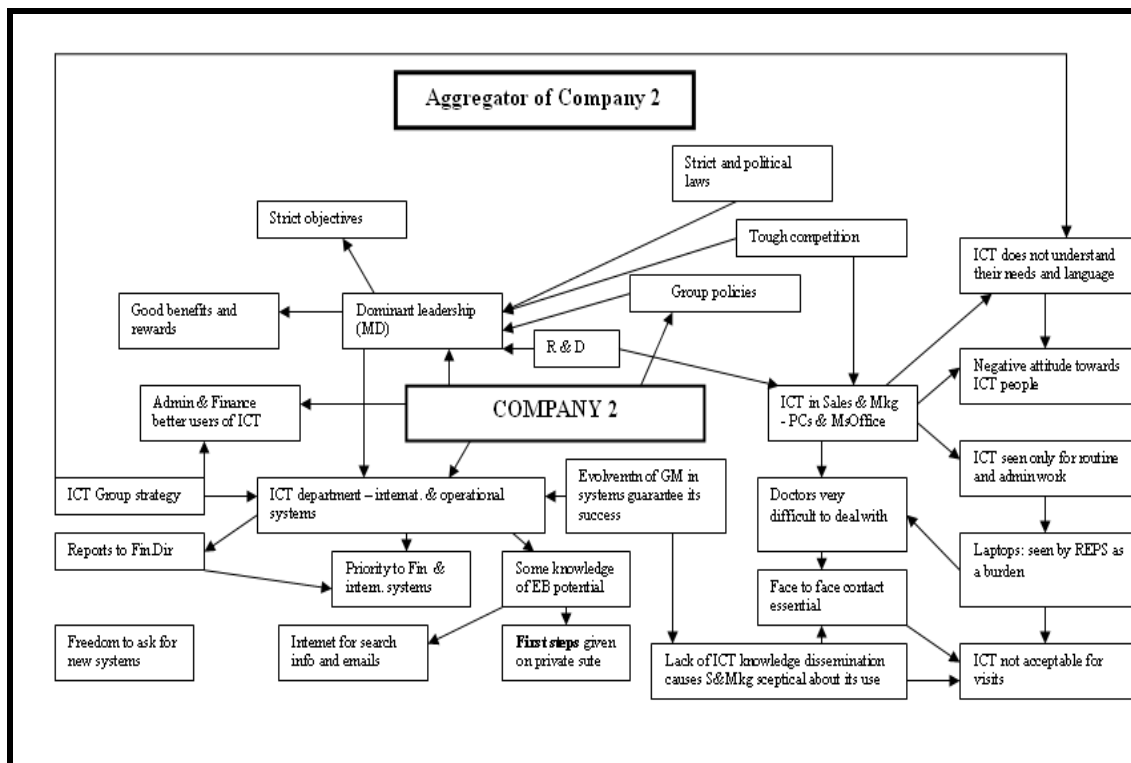
Fig. 5.7 - Aggregator of Company 2
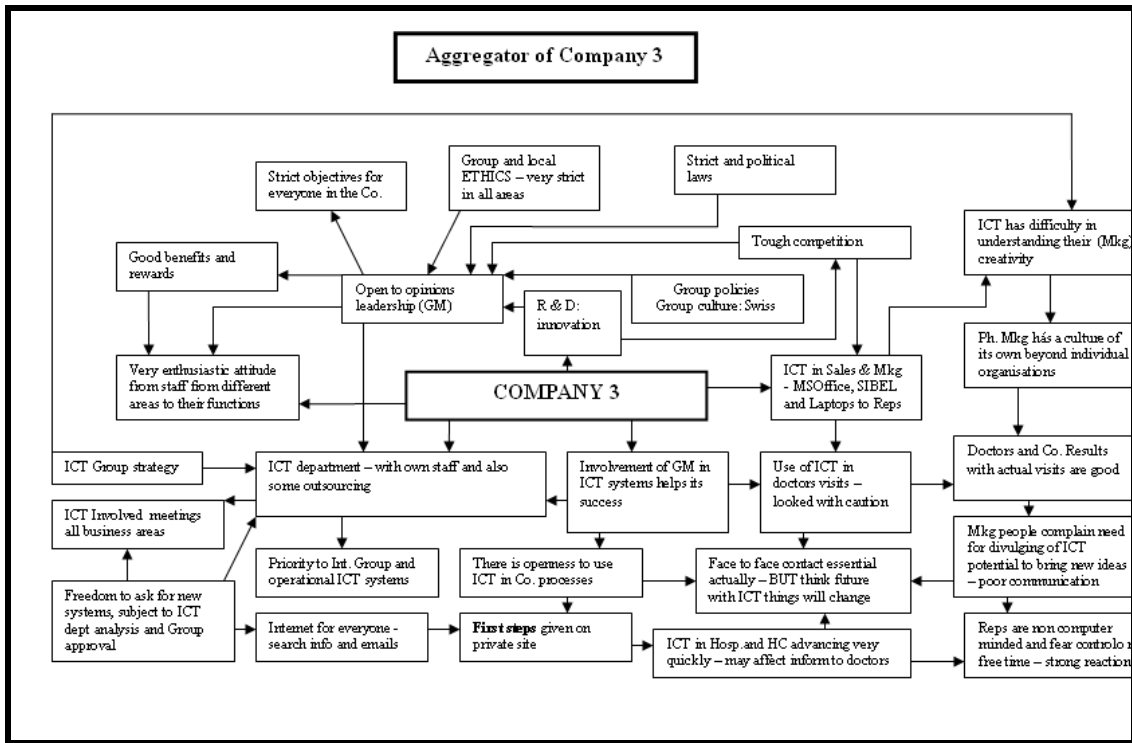
Fig. 5.8 - Aggregator of Company 3
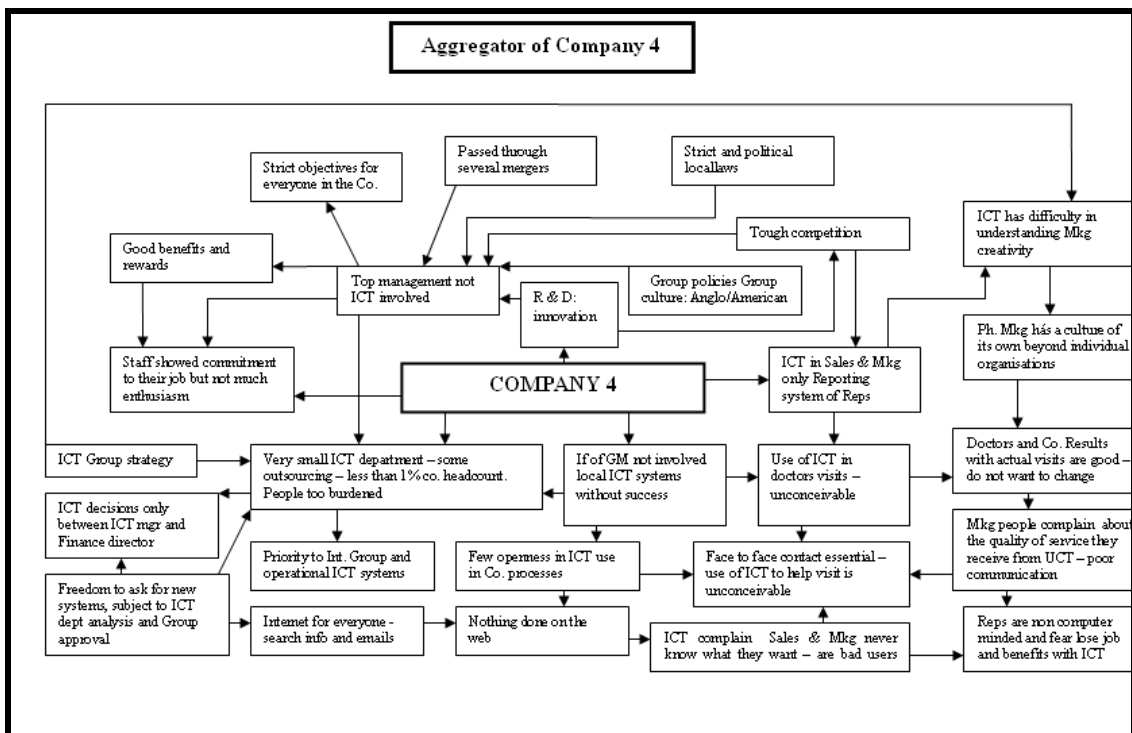
Fig. 5.9 - Aggregator of Company 4
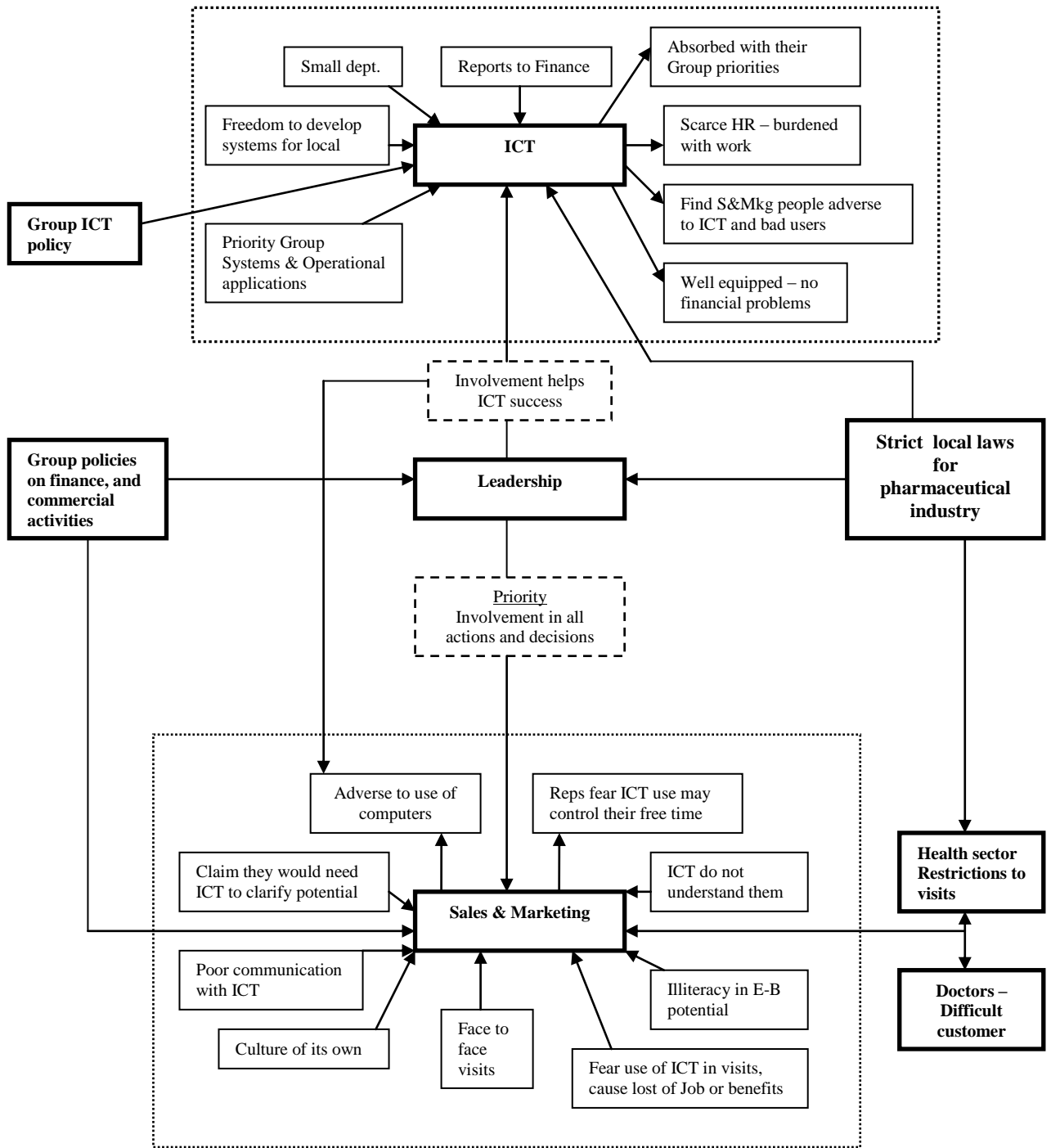
Fig. 5.10 - Aggregator of the maps of the four companies

The research questions were used as a basis for exploring the structure and the content of decision-making constructs through the cognitive maps. The research required simultaneous assimilation of the overviews of the 24 individual interviews as well as the details of their cognitive understanding.

The research questions developed from literature and findings from the preliminary fieldwork are explored through inductive interpretation of the constructs of cognitive maps. This process is naturally interpretative, requiring the active engagement of the researcher in developing emergent themes from the data, allowing broad structural features to be compared, and enabling themes to be amplified by illustrations from the body of the research text.

The three research questions are discussed in this section based on the analysis of the data gathered in the case studies.

1) – **Why is there not widespread adoption of e-business within the Portuguese subsidiaries of the pharmaceutical industry**?

The analysis of the data led to the identification of several groups of issues influencing ICT/e-business uptake according to their influence on the process of its adoption and use. These issues were grouped in conditional, decisive and resultant issues.

Conditional issues are prerequisites that are important for ICT / e-business adoption and use but are not critical to achieving ICT / e-business success. These issues include: financial resources, human resources as users, quality and type of ICT, ICT objectives and time schedule of ICT/e-business uptake.

Decisive issues are those that appear to explain relative ICT / e-business success. Data collected in the fieldwork provided evidence that these issues actually

determine the influence of ICT / e-business adoption and use. These include: ICT competences, management perspective and attitudes towards ICT adoption and use and the hierarchical position of the ICT manager in the organizational structure.

Resultant issues are those that result from the prerequisites (conditional issues and decisive issues).   These include: users' attitudes, power relationships, business pressure to adopt ICT and ICT training.

Conditional issues

Regarding the financial situation of the companies under study, the lack of financial resources was not stated by interviewees as a constraint to e-business adoption. The ICT manager from company 4 declared that "in our case it is not cost that inhibits ICT development. Cost does not impede us from doing anything". In the four companies the managers responsible for ICT and finance directors hold a similar perspective. Once the system would be approved by local management and Group, it would be included in the budget and could be implemented. An internationally approved ICT project would be financed or locally or internationally if there would be the need. This issue can be tested through the cognitive maps of the individual interviews, and as also evidenced from the aggregator map of the four companies (Fig. 5.10) through the common theme of the ICT such as "*well equipped – no financial problems*". It is also interesting to note that company 4, an enterprise that presented very low levels of satisfaction with ICT adoption and use, was the one that invested most, whereas the individual cognitive maps contain references to the financial situation, such as "*once any item is included in the budget and this is approved first by the local management and later by the Group, it can be implemented, although ICT projects also need an extra approval by the international ICT Committee*" or "*money is no problem. The problem is the availability of ICT people*".

In what concerns the human resources as users of the ICT systems, some of the companies reported problems with ICT because users were not qualified to use computers properly, as evidenced on some of the individual cognitive maps, such as *"the bad use of the ICT systems by some people can be caused by negative attitude or lack of proper training"*. However, these problems were solved in most cases by top management intervention, providing a good ICT training and motivation to the users. This attitude from the top management contributed to solving a problem of resistance to change in the sales and marketing and enabled the firm to add another organizational capability. In the adoption of reps report systems the board was always involved and put pressure on the staff to use those computer systems, as some individual maps evidenced *"when the top management is involved, then the results of the ICT system are much better"*.

Concerning the quality and the type of ICT, the companies studied, with the exception of Company 1, the hardware and software operational systems, international and operational applications are of the headquarters decision, leaving for the local management the decision on local needs. This situation allows the subsidiaries to have access to the latest ICT technology available in the market, at very reasonable conditions, as negotiation with the vendors is done globally by the Group. There is also a Group standardization that makes the international systems easier to implement. Evidence from some of the maps of the managers of ICT, such as *"in terms of purchasing, we benefit from the good central negotiations"*. Systems for the local needs, can be developed using outsource services, once approved, as it is easy to find in the market good ICT experts and services for the technology used in the company. The ICT departments in the companies studied are so small, and in Company 1, even inexistent, that the main problem with the use of ICT in the companies is the lack of qualified people or the time available that the ICT people from the company has to study what the local needs are. Some of the individual maps contain several references like *"they (the ICT people) do not have time for us"*, or *"we are so absorbed with the international and operational*

applications that have no time for the other local needs", whereas the aggregated map of the four companies has the common theme or element "*Priority is for Group Systems and Operational applications*". In what concerns the operational applications, problems occur when trying to adopt and use supply chain management and enterprise resource planning packages as they are complex and need to be adapted according to the processes of the company, and the ICT has no time to do this.

The ICT objectives have an international part and a local part. The international part has the priority, is stipulated by the Group and is assumed to be controlled and implemented by the local ICT staff following the policy established by the headquarters and with no interference from the local team, as evidenced by arising themes of the individual maps of the ICT managers of companies 2, 3 and 4 "*priority is given to the international needs*", or "*the international systems have the major priority and are not questionable by the local management*" or "*I am responsible towards the Group to assure that their ICT systems and policies are correctly followed in this subsidiary*". The local needs, studied with the local ICT decision team, can also be considered and included in the budget but need a special authorization from the Group ICT team and have a minor priority. In Company 3, if this local system would be considered of interest to the other subsidiaries, could also become a Group standard and adapted to the other companies of the Group, as the individual cognitive map of the manager of ICT raises "*... a local system could also become a Group standard*". The study of the local needs and its priority, if analysed by a committee where all the sectors of the company are represented, usually called the ICT Steering Committee, may have a more global view of the needs of the company. However, in the cases where that is not the case, for instance in Companies 1, 2 and 4, the decision stays between the finance director (to whom the manager of ICT reports) and the ICT manager. This will bring a partial view of the priorities of the needs of the company.

It was expected that companies with an ICT department established more recently could get advantages from that, because they were able to recruit people with better qualifications and implement modern ICT. This is very clear in company 3. The new reorganized company that arose from the mergers was established in 2001 and unlike the other companies almost all the people in ICT held a first degree in computer science. Also the ICT manager explained his point of view that *"the main problem with the implementation of ICT may be the adaptation of people to new technologies… that cannot be found in this company because it is a newly set up enterprise and workers are relatively young"*. Although the time of ICT adoption is not a critical issue for ICT success, it is relevant to understanding ICT success. It is considered a conditional issue because the enterprises that were established or reorganized more recently can start implementing more up-to-date information technology and it is easy for them to get more qualified people. Company 4, from the companies studied, the one with an older ICT department, having already passed through several migrations in different technologies, and by large the company with more investment on ICT, is the one that showed a lower satisfaction from the users towards ICT and also that the ICT department was smaller and much under the average headcount of the other companies.

Decisive issues

Concerning the development of ICT competences, the ICT knowledge is used to develop in-house or through an outsourcing ICT enterprise, tailoring applications software that fits the business processes of the company and to collaborate in the development of software contracted out to software houses. Company 1 did not develop its ICT competences in-house; it used outsourced services. The firm has no computer centre and the management of the computer system and the users' support is done also by outsource. The assessor in charge of ICT matters and the accounts manager (ICT champion) explain that although these services are independent there is a good relationship that goes far beyond a common business partnership, as evidenced from their individual map "*things run with our external specialist as if he*

were in-house…". It was found from the fieldwork that company 4 that revealed lower levels of satisfaction with ICT adoption and use had few human resources in the ICT department, although they had expertise, to implement their systems. It was clear that besides the poor communication with the ICT department, also the lack of time from the ICT people to study their needs, select and adapt the software, was one of the reasons for the complained lack of satisfaction, both the concepts *"they (the ICT people) do not understand us…"* and *"we would need to be clarified on the e-business potential…"* can be interpreted as clues of the low satisfaction with ICT.

In relation to the support given by top management to the processes of ICT adoption and use in all the companies studied, some of them had already gone through the experience that when the general manager has involved himself in the past in the process of study and implementation of a new ICT system, the results and the acceptance had been good, as evidenced from some of the individual maps from the ICT managers *"with the involvement of the general manager things get easier"*. A common concept arises from the map aggregating the four companies *"involvement of the leader helps ICT success"* showing that the top management had a crucial role in ICT development and acquisition. Also themes like *"the most important factor for ICT success in our company is the capability of the general manager to be open and support the ICT development"* or *"I do not believe in a project like that without the involvement of the general manager. People start talking in the corridor, rumours, that he said this, that he smiled about it, that he does not agree, and the people that are involved in the ICT project are completely crucified. It is necessary a complete engagement and involvement from the top down to the bottom"* also arose from the study of the individual maps. The researcher could interpret that in the companies with lower levels of satisfaction and major communication problems, the general manager did not involve himself in the study and implementation of that ICT system.

Apparently, and as pointed out in the literature related to ICT success, the position of the ICT manager in the company structure could be considered a crucial issue. In all

the companies studied, the ICT did not report to the general manager or administrator, being an area of the company that should give support to all the different areas independently. However, all the ICT departments report to the finance director as can be evidenced from the map aggregating the four companies studied *"ICT reports to finance"* and so the inherent decisions are taken with a partial view of the priorities of the company. Also the fact that the manager of ICT responds directly to the headquarters in terms of the international systems, without the interference of the local management, including the finance director, makes the ICT people consider their first priority, the Group policies, by which results they will also be evaluated internationally.

Resultant factors

The data collected and the interpretation of the cognitive maps, suggest that user attitudes are a consequence of the involvement of top management in the process of the ICT systems adoption. Company 2 states that with the previous general manager that was very computer minded and involved in all ICT projects, once the employees knew that top management was involved, their attitude and collaboration changed. The ICT manager and the Finance director of Company 2 argued that the sales people do not use the computer system actually as they should because neither the marketing director or the new general manager put pressure on employees to start using the software. In several other cases, resistance to change was solved by top management. Top managers provided ICT training and forced staff to do their tasks using ICT. Evidence from this research as raised on some of the individual maps and on the aggregated map of the four companies supports previous findings that the effect of user attitude in ICT success depends on top management support and involvement in the process of ICT adoption and on the level of ICT training.

Also power conflicts may result from the adoption of ICT in the organization. An environment of latent conflict or lack of communication may already exist being activated by the introduction of ICT in the company. Cases studies of company 2 and

4 provide evidence of some of these conflicts. An interesting fact is that in these firms that show lower levels of satisfaction with ICT adoption and use, there was an eminent conflict of perspectives between the ICT manager and the sales and marketing team. In company 4, the ICT manager says that the implementation of ICT in the sales and marketing area is perceived by these professionals as able to affect the balance of their actual power in the organization. They are afraid of losing their power and benefits, hence do not co-operate *"when an information system comes in, there is a revolution because it will affect privileges and information will be available for anyone. ... people are afraid of losing importance and prestige in the company, and also that the system discloses their free time, and there are some negative reactions".* Since in any of these cases the general manager was not much involved in ICT matters, these conflicts affected the process of ICT implementation. However in the cases where the general manager was deeply involved in the process of ICT adoption and use, power conflicts and problems related to resistance to change were solved. Evidence from Company 3 suggests that the impact of power conflict on the success of ICT adoption and use depends on top management attitudes. If the general manager is involved and leading the process of ICT adoption these conflicts are minimised or solved and do not affect significantly ICT adoption and use.

Concerning the pressure that the pharmaceutical business and health sector put to the adoption of ICT, the only pressure that was found out was from some government departments, like the payment of taxes that made the companies use the Internet to use this service. Until now the companies studied have not felt any pressure from any other organism to use ICT. On the contrary, their main focus of external work, the medical doctors, have until now been also adverse to technology. The traditional way of working, doing visits face to face to all the doctors of the country, is what is practiced. Only one of the interviewees, from Company 3, mentioned that it may be expected that once the Government is advancing very quickly with new electronic facilities in all the sectors, that the hospitals and the health centres may in the near

future also introduce new electronic facilities that could interfere with the way the visit is today booked and done to the doctors.

The ICT training on the use of the ICT systems takes place usually in most of the companies studied. In some cases, it may occur in an hotel when training large groups of medical information representatives (reps) due to the difficulty of bringing all of them together to the offices of the company. The training concerning the use of the personal computers and laptops, and its available office software is not so frequent. Each one tries to learn by him/herself.

2) - **What is the thinking behind people in the Portuguese subsidiaries of the pharmaceutical industry which influences their view of e-business?**

From the several cognitive maps drawn individually from the interviews of the 24 people from all the sectors of the companies, the researcher could interpret that e-business was not in their minds. On a time where the subject of e-business is studied and looked with attention by organizations to see how they can apply its potential to their business, in the pharmaceutical industry, however, it looks like that is not happening. Several may be the reasons, probably the first one being that the results of the companies are considered good and healthy and they do not feel the pressure at this moment to change some of their traditional ways of working. In fact, from the evidence of some of the individual cognitive maps *"the use of ICT in some of the areas must be looked with care…"*. Also, the generalized knowledge of what is the potential of e-business in the companies studied is none. On the question of what was e-business *"I think it is the possibility of sending emails…"*, *"e-business is to buy things through the Internet"* or *"I do not know exactly what it is"*. This industry is heavily controlled by international policies from the parent Group *"we have to guarantee that Group policies are strictly followed locally"*, *"the pressure from our headquarters on the new international systems is huge"*, and national laws and policies that condition their way of working *"the local laws are strict and*

unexpected", *"worst than being strict is the fact that the laws exist but not always followed",* besides dealing with a difficult customer, the medical doctor "*doctors are difficult to deal with*".

Apparently, this lack of interest and knowledge of the potential of e-business that the people interviewed showed, could be because they are all so absorbed with their daily tasks that had no time or need to think in a different way of working using computers. Computers for them is already an asset but for the routine work.

For the ICT people, burdened with all the Group policies, strategies, international systems and the daily support to the operational systems (accounting, distribution, invoicing, salaries), struggling with very reduced ICT human resources, they do not want to think about e-business until they will be forced to, and that would be through the headquarters or the local general manager. The traditional order entry, once the Portuguese pharmaceutical companies can only sell to the wholesalers, that means an average of less than 20 invoices per day, does not represent a problem for the companies. Where e-business could bring competitive advantage would be in the commercial area, and that is an area where the ICT people have difficulty in communicating "*sales and marketing people are adverse to technology and bad users*".

For the people working in the finance and administrative areas, the few legal impositions to be done through the Internet, are being solved but they are small simple connections to the electronic-government services.

For the leader of the company, usually with a marketing background and also not much computer minded, with few knowledge of the potential of the use of computers in benefit of the business, much influenced by the attitude towards ICT of the commercial area, leaves all the ICT decisions for the finance director and the ICT manager and in very few occasions involves him/herself in the ICT projects. So e-

business is a subject that he has already heard, but does not know anything about and maybe until the headquarters forces the company to go that way, that step will not be taken.

For the people working in the commercial area of the company (mainly sales and marketing), showing ICT / e-business illiteracy, some of them not even heard anything about that *"don't know what it is"*, *"may be it is good for the admin area"*, they find that their work is creative and that technology is only there to give problems *"computers are good for routine work"*. Also their negative attitude towards computers is associated with a suspicion that they may be controlled through the use of computers, as evidenced from one of the individual cognitive maps from company 3 *"reps post their visits at night as they fear that their free time may be controlled"*. However, during the interviews some of the people said that they would need to be informed and clarified about the possibilities and potential of the use of ICT in their area, but also evidenced that *"our ICT colleagues never have time for us. We do not know what can be done"*. Also their lack of knowledge makes the sales team think that they could be replaced by computers and that they could lose their job and benefits, as they know it happened in other functions of other industries. Even the simple use of a computer to help and assist the visit to doctors is refused, as they like the face to face visit without any interference of other means. And as the results of the companies are considered good, the people that take decisions from the commercial area, are not open to the introduction of any change that may unstable what is working well.

3) - How does the institutional structure of the Portuguese subsidiaries of the pharmaceutical industry affect communication related to e-business adoption?

Communication in the institutional structure of the Portuguese subsidiaries of the pharmaceutical industry flows mainly vertically. Starting by the ICT department, which is the local representative of the Group ICT team, is burdened with the resultant work from this responsibility and also to assure that the local ICT structure

works and that the daily operations function with no problems. This is their priority, which consumes all their human resources and time available. As evidenced from the aggregated map of the four companies, "*the priority are the Group systems and the daily operational applications*". They are completely absorbed by the ICT department or institutional structure and do not have the time or availability to establish a good communication with the other areas where e-business could be implemented. Also, once their ICT human resources are all absorbed by their priority, they do not feel it would be worthwhile as it would not be possible for them to start new local projects due to the scarcity of the ICT specialists. Even with outsource services, there is always the need for someone from ICT to act as an interface between the user department and the external services, attend to meetings and follow up the project.

As for the commercial area of the company, mainly sales and marketing, their main pressure comes from the local laws and the difficult customer that they deal with, mixed with the internal pressure of the ambitious sales targets that they have to attain. On their side, they are also very absorbed with all this structure of the institution. The communication that flows is also vertically, from the top management or international Group sales meetings through on to their final target, the medical doctor "*we have to attend regular meetings before each cycle, and also internationally*". They consider their work creative, and the richness of the results is the establishment of a good relationship with the doctor through formal or informal contacts, even taking advantage of common interests between the rep and the doctor being visited. Rigid timetables or the use of computers is against their nature. Reporting has always been a difficult task for them. They consider their main priority as the promotion of the products to the doctors and everything else lacks of importance. Their communication with their colleagues from ICT is poor, and they always complain that computers are a waste of time mainly because the systems are not good as the ICT people never understand their work "*we are creative. ICT people never understand us*". So they avoid everything connected with computers.

5.4 - Summary and conclusions

The three research questions developed after the initial fieldwork and presented in chapter 1 were discussed and analysed according to the research findings. These findings provide evidence that this industry has the potential and economic stability that during all this research has been referred, has a complex culture of its own mixing the influence of the culture of the parent group, as more than 95% of the Portuguese pharmaceutical companies are subsidiaries of multinationals, with the local industry culture, heavily regulated and controlled by the government entities. The people working in this industry has an academic preparation above the national average, working conditions, salary and rewards systems of top level in relation to the other local industries and the existent gap between this potential and the use of e-business, can be concluded that is mainly due to:

- There is a generalized illiteracy of the use and potential of e-business applied to any of the functional areas of this industry business processes and there is not a divulging attitude from the ICT staff to clarify and inform all the people from the company on the new technology to come and how it could be applied to business demands.

- Different attitudes and cultures from different working groups cause misunderstandings and poor communication and inhibit a successful collaboration with and use of ICT in all the areas of the company.

- There are no restrictions from the parent companies in relation to local ICT demands if fully justified; freedom is given to the local company to decide how to cope with the local needs and difficulties.

- The commercial area, which include the medical, sales and marketing, and regulatory affairs sectors, representing 80% or above, of the headcount of the companies, have a negative attitude towards ICT systems and do their function in the same traditional way, claiming that the results are good and

so why change; they also allege that their needs are not fully understood by the ICT people and so it would be useless to have a computer system that would not give the expected results.

- The involvement of the top management in the computer projects is a step forward to its successful implementation and use.

- The ICT department reports to the finance department and has no seat in the management committees where company strategies are decided. They claim that when people come to them it is already late.

- The ICT departments, with a very reduced staff, have a passive attitude, doing their best to cope with the burden of work to design and implement what is considered of priority and that is the international systems and the daily support to the operational applications. Priority is given to operative and international financial systems, although in terms of the size of the company, these areas represent on average 20% of the whole local headcount of the companies.

- The institutional structure of the Portuguese pharmaceutical companies is strict and heavy; communication flows vertically through the existent structure of the inherent sector but apparently not horizontally between the several sectors, and the researcher means between ICT and the commercial area.

CHAPTER 6 : THEORETICAL VALIDATION OF THE FINDINGS

6.1 - Introduction

In this chapter the findings presented in chapter 5 are analysed and validated with the institutional theory of organizational communication (ITOC) that will be extended into a new research area, the information and communication technology (ICT).

An application of this theory can contribute as an explanation of the different reactions of the people working in the Portuguese pharmaceutical industry to the adoption and use of e-business and in so demonstrate the utility of an institutional perspective on organizational communication research. The findings demonstrate the value of communication as a source of explanation in the study of the pharmaceutical industry. Moreover, understanding the institutional aspects of professional identity and behaviour may contribute to successful communication between professionals and managers.

6.2 - Institutional theory of organizational communication (ITOC)

This theory focus on the role of institutions in organizational communication that views institutions as constellations of established practices guided by enduring, formalized, rational beliefs that transcend particular organizations and situations.

6.2.1 - The concept of institution by Lammers and Barbour

Combining the insights of organizational sociology and the concerns of organizational communication researchers, Lammers and Barbour (2006) offered a definition of institutions integrating these elements and which was the base for the proposal of the institutional theory of organizational communication. It was more important to them "to articulate a useful understanding of markets, professions and governments than marriage, family or greetings protocol, even though it may be

argued that the latter are also institutional in some sense". They suggest the following six interrelated issues to understand institutions:

1) *Institutions as manifested in practice*: Consisting of observable routines and behaviours, roughly consistent accross a variety of social settings – institutions of medicine, education, health sector, pharmaceutical sector.

2) *Institutions as manifested in beliefs:* Consisting of cognitive and emotional elements in the decisions and choices that individuals make. Institutional beliefs can be seen as propositions that participants hold as true related to established norms that exist across the organizations.

3) *Institutions involve individuals:* Individuals act as actors and carriers of beliefs in the institutions where they belong to as members. Institutions can so be understood as established associations among people.

4) *Institutions have low rates of change:* The elements of behaviour, ideas and individuals involved in an institution exhibit a fixed and enduring quality. Institutions endure and are characterized by low rates of change.

5) *Institutions are formalized:* In relation to organizational communication institutions are formalized, with written and archived procedures.

6) *Institutions reflect a rational purpose*: In relation to organizational communication, institutions involve procedures and policies for how things should be followed and done. It can be understood that institutions are composed of rules, procedures and policies for conduct and guide individuals via knowledge formally stored and followed.

The authors view institutions as "constellations of established practices guided by formalized, rational beliefs, that transcend particular organizations and situations".

6.2.2   -   <u>The propositions of the ITOC</u>

Based on the general argument that "institutions contribute to our understanding of organizational communication", Lammers and Barbour (2006) suggested five propositions that expand this argument, employing the fundamental components of institutions (behaviours, actors and beliefs), also formal knowledge and established practices and link these elements to concepts from literature of membership, rational myths, isomorphism and hierarchy.

1) *Communication sustains institutions*:   Institutions are communicatively constituted. The daily routines and practices, based on the established beliefs and practices, that mainly sustain institutions through organizing. Institutions can be understood as slow to change.

2) *Communication aligns organizing with institutions:*   Individuals who become members of an institution tend to reproduce those rules in their communication. Communication aligns organizations and institutions, as exemplified in the ways institutions both constrain organizational change and serve organizational decision making. Also accepted and established ways of doing things limit change.

3) *Institutions operate in organizing through formal communication*: The prevailing manifestation of institutions towards organizational communication is formality. Institutions reside in beliefs, "which are nearly always explicitly stated in formally recorded knowledge", that are reflected in behaviour. Knowledge becomes formalized (written) when there is a need to transport it accross space and time or to apply it to broader audiences. Much of the communication in organizations reflect the efforts to interpret and conform generally institutional demands.

4) *The success of boundary-spanning communication depends on the presence of institutions*: Organizations communicate with its environment through individuals, referencing to institutions. Institutional communication is enacted through organizational negotiators, public relations professionals and the writers of mission statements. Emergency plans need to draw on defined practices for a clear

communication and strict coordination to be seen as successful. Spanning of the organization boundaries is done through the users and carriers of the institutional rules. External communication takes the organizational members to reflect in their decisions, the features of an institutional environment.

5) *Institutional hierarchy is manifested in organizing*: Formal rules apply unevenly to institutional members whether within or accross organizations, so institutional power is not evenly distributed accross organizational environments. A decision hierarchy represents and differentiates the types of decision and their relative concentrations within institutions, where some of the organizational members or organizations have more or less power to challenge prevailing institutional rules. Institutions may also have different effects, at different levels, on organizing and those that are most relevant to formal organizations, show the tendency to reflect hierarchical stratification.

In applying ITOC to the Portuguese subsidiaries of the pharmaceutical industry, we see communication as the process by which institutional beliefs and the arrangements of each pharmaceutical organization interact to influence ICT / e-business uptake. Specifically, the researcher demonstrates that the communication of ICT and sales and marketing in the institution of the pharmaceutical industry influence their views on the adoption and use of e-business in their organization. In taking this approach, the researcher hopes to help to resolve the findings mentioned in chapter 5 and demonstrate the value of an institutional approach. Beginning with the practical problem under study, the researcher first reviews the research on the attitude of the sales and marketing people to the use of ICT /e-business, focusing on their satisfaction as an indicator of the quality of that service. Two sets of contradictory findings will be highlighted: first the research has shown that the adoption and use of ICT has deleterious effects on the sales and marketing satisfaction, and second, that ICT is dissatisfying for the sales and marketing people because they fear that it threatens their autonomy and benefits. The ITOC will be used as a framework to study the inconsistencies of the communication between ICT and the sales and

marketing as influenced by the Portuguese pharmaceutical institutional beliefs. The inexistent studies of sales and marketing and ICT, including several organizations, or considering the communication between these two sub-institutions, limit the external validity and explanatory power of the research. Understanding the institutional aspects of professional identity and behaviour may contribute to successful communication between ICT and the sales and marketing in the industry under study.

6.3 - Strategies for investigating ITOC

Four strategies for investigating an institutional theory of organizational communication are suggested by the authors of ITOC, Lammers and Barbour, as a list of ways to uncover institutional aspects of organizational communication.

The first one suggests that the institutions associated with given organizations may be explained. Researchers should study what traditions, professions, associations, industries, sectors or markets make part of the institution under study. Consider the requirements, benefits and cost of membership, who might be a member and why.

The second strategy may attempt to understand organizational communication over time; because institutions endure and are slow to change, research must discriminate the knowledge of the history if possible supplemented with longitudinal data.

The third strategy suggests studying multiple organizations simultaneously doing comparative research. This type of research can identify when the communication behaviours observed evidence a single organization or a generalized tendency in the organizations investigated.

The fourth strategy suggested by the authors, approaches the institutional study by levels and units of analysis. It suggests a shift towards new units of analysis, more focused on formal communication – policies, laws, regulations or contracts.

Our research approaches the third strategy suggested, having studied four pharmaceutical companies simultaneously, accross space as well as time. Some communication behaviours have been evidenced of a widespread tendency in the companies investigated. The identified institutional pressures have also been teased out with the study of the four companies. The companies studied have been chosen from different parent cultures so that the likelihood could be better tested

6.4 - Applying ITOC to this research

Focusing on the findings from the analysis of the case studies, referred in chapter 5, we will be applying the institutional theory of organizational communication to understand how the institutional forces of the Portuguese subsidiaries od the pharmaceutical industry operate on identity formation.

Lammers and Barbour defined institutions as "constellations of established practices guided by formalized, rational beliefs that transcend particular organizations and situations". To apply ITOC it is necessary to identify the dominant modes of practice and beliefs in particular settings. In the behaviour and beliefs of individuals and within a setting more than one set of beliefs and their associated practices may be identified. In the ITOC framework, the ICT professionals carry competing institutions, that is, established beliefs and practices, into organizing. Their communication with the vendors, colleagues, administrators, managers, headquarters, outsource specialists and staff from other functional areas, about those beliefs and practices constitutes, in part, the organizing of the ICT department. Also, the sales and marketing professionals carry competing institutions into organizing, through their communication with medical doctors, hospitals, health centres, nurses, colleagues from other pharmaceutical companies, colleagues in the organization, managers, administrators and staff from other functional areas, constitutes, in part, the organizing of the sales and marketing department. The different institutions of the Portuguese subsidiaries of the pharmaceutical industry present different and contradictory means-ends arguments about how ICT should be accomplished. Also

according to ITOC, formal arrangements shape institutional communication, and sales and marketing relationships with ICT are based on formalities. Sales and marketing therefore are participants in the Portuguese subsidiaries of the pharmaceutical industry organizing who also have attachments to extra-organizational entities and hold beliefs by virtue of those attachments.

Indeed, the salient characteristic of professionals for the study of organizations is their extra-organizational connections and beliefs (Scott, 1997). In our study in multiple organizational context, the researcher may argue that the sales and marketing experience with ICT may reflect the fact that the pharmaceutical industry has traditionally operated with a team of professionals that has been loosely affiliated with the formal organization and whose professional values emphasize autonomy and freedom from bureaucratic control.

Specifying Portuguese pharmaceutical institutions, ITOC suggests that an attempt to understand the institutional aspects of particular communication phenomena should begin by explicating the institutions involved (Lammers and Barbour, 2006). The Portuguese pharmaceutical institution, an institution of cost, represent "an era of managerial control and market mechanisms, emphasizing the efficiency of services" (Scott, 2001), with norms of efficiency and market values.

ITOC underscores the importance of modelling potential conflict between institutions. In general, ICT has been construed as a threat to sales and marketing traditional beliefs about the creativity of their work antagonist to any technological interference, and therefore arrangements typical of ICT are against the sales and marketing satisfaction.

Below, the findings from the analysis of the case studies are considered, following the five propositions described in section 6.3:

Communication sustains institutions. The pharmaceutical industry is characterized by constellations of established practices guided by formalized rational beliefs that transcend the particular organizations and situations. Also the ICT and the sales and marketing of the pharmaceutical industry, can be viewed as sub-institutions of the pharmaceutical industry, as both of them are also characterized by constellations of established practices guided by formalized rational beliefs that transcend each organization. They are communicatively constituted. The daily practices of meetings in the several sectors, contacts by telephone and email, the written communications within the several departments, whether by email or on paper, the contacts with the parent company, all following the company rules and procedures. In the ICT department, their daily operations to give support to the users of the operational applications, to clarify any doubt or problem than may arise with the use of the computer systems, the meetings and contacts with the vendors and the internal and external staff, the follow-up of the operational activities in the computer centre, the meetings of the ICT manager with the finance director with whom the decisions are taken, based on the Group strategy, the contact or meeting with any user department on any new project, sustain the communication practices of this sub-institution of the pharmaceutical institution. Also the commercial sector, mainly constituted by sales and marketing, have a culture of their own, their day-to-day routines assure that are sustained in their communication practices of the individuals. Both ICT and sales and marketing have their own policies and rules which in the case of ICT are stipulated mainly by headquarters, and in the case of the sales and marketing, is a mixture of international and local rules and policies which shape their way of work. These rules and policies that each working group has to follow, by tradition are slow to change, or if some change may occur it is slowly introduced to the daily practices. The pharmaceutical institution is traditional, the changes are slow and endure.

Communication aligns organizing with institutions. The existent rules of the pharmaceutical institution are followed and reproduced internally and externally. The administrative services, reproduce those rules through the practices and the way

they develop their functions, the way the medicines are warehoused and subject to a rigour of cleanliness, the control of the validity dates, the quality of the packing and despatching the products, the established policies concerning the supply of the products to the wholesalers. The ICT sector with a culture of its own that transcends the organization, as the uptake and use of computer technology can be considered an institution itself with standards, rules and policies from the market and also from the own organizations. Their rules and policies are passed internally to the users and internal practices, through written standard, training, or meetings, and even in the own computer systems, and externally with the contacts to the vendors and the headquarters. The sales and marketing, representing 80% of the headcount of each company, reproduce their own rules and policies internally, through their regular cycle meetings, every 6 weeks, in the company or in an hotel where the whole sales team gets together, and externally in their regular contacts with the medical doctors and nurses in hospitals and health centres, besides the pharmacies. So each pharmaceutical organization is situated in conformity to the pharmaceutical institution and the health sector institution through boundary-spanning inter-organizational communication (Finet, 2001). That communication, according to the findings of this research, flows mainly vertically within the institution of ICT and also within the institution of sales and marketing. However, from the findings of the analysis of the case studies, the communication between both institutions is poor and even apparently there is some conflict between these two institutions. The fact that institutions are slow to change, may be the cause for this finding as both institutions of ICT and sales and marketing evidence full commitment to their own function and their institutional beliefs.

Institutions operate in organizing through formal communication: The beliefs of the Portuguese pharmaceutical institution reflect on the behaviour of its elements. The ICT people, whose beliefs are that they have to guarantee that in the local company the Group rules and strategies for ICT adoption and use are fully followed, and that the computer centre and the daily work of the operational systems must be supported

and followed, reflect their attitude focused on these priority that inhibits them from transporting knowledge throughout the organization decreasing the ICT illiteracy that the findings of the analysis evidence. Their behaviour also reflect the thinking that once they are very few, they do their best to guarantee their commitment to their ICT institution. Also the fact that part of their evaluation and reporting is towards the Group ICT team, inhibits them from improving their communication with the other major sector of the company, an institution itself, the sales and marketing. The rules and standards for the ICT are all written down and regularly audited by external auditors, on behalf of the Group headquarters, to check if strictly followed.

The sales and marketing institution within the broader institution of the pharmaceutical industry, is also focused on their own rules and policies with the main focus on their work near the medical doctors. Promotion of the products near the medical doctors is based on written standards transmitted to the sales team every cycle of work (6 weeks). They also have their own internal rules and policies and codes of ethics concerning the gifts and their behaviour near the main customer of the company, the medical doctor. The products that they promote are medicines, so they need constant scientific training as well as marketing training. The companies still work traditionally, and the visit to doctors is done as always, face to face. This group, has a culture of its own, with formal and informal rules, that transcend the organizations. Their main concern is the knowledge they need on the products and inherent diseases. They do not show any interest in acquiring any technological knowledge concerning the use of computers. Their behaviour reflects the belief that their main task and priority is the information of the medical doctor. They are adverse to the use of computers as they think that their work is creative and that computers are too 'inflexible'. They manifested the opinion that computers are only good for routine work. There is also the evidence, that once the results of the companies are considered good, there is no need to change their traditional procedures. Other evidence is that, once their knowledge on computers is very low,

they fear that even a simple system as the reporting of the results of the visits, may control their free time.

The success of boundary-spanning communication depends on the presence of institutions: The external organizational communication in the pharmaceutical institution is mainly done by the sales team and this group has strict established practices for a clear communication with the health sector, mainly the medical doctors; they act as the main organizational boundary spanners as users and carriers of the institutional rules. Their regular visits to the medical doctors, nurses, hospitals, health centres and private consultancy, are reported back to their organizations. It is through this regular external communication that the marketing manager and the general manger reflect in their decisions the features of the institutional environment. Also the pharmaceutical companies belong to an association called Apifarma, which represent them near the Government, and through which all the existing or coming laws can be known and negotiated.

Institutional hierarchy is manifested in organizing: The pharmaceutical companies studied, although in general evidence a friendly atmosphere, they are small or medium companies and hierarchy is a fact. The power is not evenly distributed accross the organizations, and the formal rules apply unevenly to all the pharmaceutical institution members, whether within or across the organizations. Not all the members have the power to challenge rules or traditions. The companies studied evidenced centralization and concentration of the decision making authority. Concerning the ICT department, which reports to the finance director, their decisions are centralized in these two members. The fact that in the hierarchy of the organizations, the ICT manager is not present in the management committees is the alleged cause of a late interference of ICT in some new business projects. Top management, usually represented by a general manager, perspectives and attitudes towards ICT adoption and use is a decisive factor for the success of the ICT project. They have a critical role in decision making. They have the knowledge of the

business and are personally involved in most strategic, tactic and sometimes also operational decisions.

6.5 - Summary and conclusions

In the Portuguese pharmaceutical industry success with the adoption and use of ICT / e-business may be achieved by companies that present a better communication in the way they approach and manage the process of e-business adoption and use. The exploration of the five propositions of the institutional theory of organizational communication evidenced that understanding the institutional beliefs may help to understand the link between communication and the divulging of knowledge and success in e-business projects.

The multiple pharmaceutical institutions influence the pharmaceutical organizations in multiple settings. The relationships between organizations and institutions parallels the relationships between individuals and organizations.

The following paragraphs discuss the analysed issues:

1)   The way the pharmaceutical institution works with its beliefs and behaviours, strict rules and policies, inhibits the sub-institutions of ICT in a way that sales and marketing communicate horizontally between themselves. ICT and sales and marketing as institutions function under very strict beliefs, rules and policies, and are slow to change; these two sub-institutions are so committed to their function that it is this commitment that inhibits them from communicating between them, transporting the ICT knowledge necessary for evaluating the e-business potential and application in the local business process of the industry with a major incidence on the commercial area.

2)   Top management has an important role in the process of ICT adoption and use; they are the only ones that can interfere in the poor communication between the ICT and sales and marketing first supporting the development of e-business capabilities in the institution, by providing the necessary resources, processes and ICT knowledge, second being involved and committed in the process of e-business adoption and use, solving the problems of resistance to change and the potential conflicts between the members of the organization, which may arise due to the changes in power and functions as a result of e-business adoption; and third, understanding the ICT needs of the business. The research evidenced that in the ICT projects with success, or the top manager participated in the definition of the needs of the firm, in the selection, evaluation and negotiation of the ICT solutions, or the project is a strategy of the Group and so everyone had to use it without questioning. A strategic vision of the impact of ICT in the business is also important to acquire or develop e-business systems that may enable the institution to have higher levels of performance or achieve competitive advantage by the use of e-business potential.

3)   Also evidence gathered in this research suggests that transporting knowledge on the potential of the new technologies of ICT / e-business to decrease the general illiteracy that the elements of the institutions show, will help to build the competences necessary for the success of the e-business projects and to use the ICT skills available.

CHAPTER 7 – RESEARCH CONCLUSIONS

7.1 - Summary of the research undertaken

The literature review revealed no empirical research into the process of e-business adoption and use in the pharmaceutical companies. This gap is even bigger in some countries, such as Portugal, where this research was done.

A framework to analyse e-business adoption and use in small subsidiaries of pharmaceutical MNCs was developed based on a previous work made by Wang and Cheung (2004) that has been designed to study e-business adoption by the service industry. This framework was used to structure the literature review and to analyse the data gathered from the collaborating companies that participated in the preliminary fieldwork. The analysis of this preliminary data and the observations that followed, helped to define the case study interview contents that was made for the four participating Portuguese subsidiaries of the pharmaceutical industry. These four subsidiaries were selected from different parent cultures.

This research adopted an interpretivist approach to social enquiry and it is argued that, in order to understand the issues influencing the e-business adoption and use in the Portuguese pharmaceutical industry, it is important to understand the perspectives and roles of the key actors involved in the process of e-business adoption and use. The concept of e-business success was developed from the literature.

The data was collected through semi-structured interviews with the key actors involved in the process of e-business adoption (top manager, ICT manager, sales supervisors, medical information representatives, administrative staff, accounts staff). The data gathered was analysed using cognitive mapping for qualitative data analysis. The data was analysed by individual, by company and by industry.

Finally, the research findings of the analysis were evaluated in the light of existing literature on available theories. Subsquently the institutional theory of organizational communication was chosen to be used to provide a theoretical validation of the findings in a wider context.

7.2 - Key research findings

In this section, the research findings will be analysed in relation to the research questions.

7.2.1. - Research question 1:

Why is there not widespread adoption of e-business within the Portuguese subsidiaries of the pharmaceutical industry?

For this first question the following objectives were pursued: first the factors identified in the literature related to ICT / e-business adoption within subsidiaries of multinational companies and also within small and medium enterprises only as a reference for comparison, were validated; secondly relevant new factors were found to influence of e-business adoption and use in particular to the Portuguese pharmaceutical industry. And last, the evaluation of these factors in determining the issues influencing the e-business adoption and use in the Portuguese pharmaceutical companies.

Individual analysis of potential influencers of e-business adoption and use revealed different levels of influence on these issues, classified into three groups: conditional, decisive and resultant issues. The analysis of the data evidence the conclusion that e-business adoption and use was associated with very similar combinations of the decisive issues. Apparently the conditional and resultant issues have a second level of importance. Their impact on the level of success is indirectly achieved through

the decisive issued. Figure 7.1 shows a list of the issues identified of relevance and their relative importance in determining e-business adoption and success in the Portuguese pharmaceutical industry:

Conditional issues

Financial resources
Human resources as users
Quality and type of ICT
ICT / e-business objectives
Time for ICT / e-business uptake

Decisive issues

ICT competences
Management perspective and attitudes towards e-business adoption and use
Hierarchical position of the ICT manager on the organizational structure

Resultant issues

Users' attitudes towards ICT
Power relationships
Business pressure to adopt ICT

Figure 7.1 – Issues affecting e-business adoption and use

7.2.2 - Research question 2:

What is the thinking behind people in the Portuguese subsidiaries of the pharmaceutical industry which influences their view of e-business?

From the cognitive maps, evidence shows that there is a lack of interest and knowledge of the potential of e-business by the people interviewed; one may assume that is caused by the fact that they are all so absorbed with their daily tasks that have no time or need to think on a different way of working using computers. Computers for them is already an asset but for the routine work.

For the ICT people, burdened with all the Group policies, strategies, international systems and daily support to the operational systems, struggling with poor ICT human resources, do not want to think about e-business until they will be forced to. This change would have to come from the headquarters or the local general manager. Where e-business could bring competitive advantage, in the commercial area which represent 80% of the headcount of the companies, ICT evidenced problems in communication claiming sales and marketing people are adverse to technology and usually careless users.

For the leader of the company, usually with a marketing background and not much computer minded as evidenced, with low knowledge of the potential of the use of computers in benefit of the business, influenced by the sales and marketing attitude towards ICT, usually does not interfere in ICT leaving the decisions to be taken between the finance director and the ICT manager. E-business is a subject about which he has already heard of, but until he is forced to use it by the headquarters he will not go that way.

For the people working in the commercial area of the companies, mainly the sales and marketing, evidencing ICT illiteracy, find that their work is creative and that computers only give problems. Also as evidenced, their negative attitude towards computers is associated with a suspicion that they may be controlled through the use of computers. Some of the people interviewed also manifested that first they would need to be informed of the e-business potential, so that they could be in a position to see the benefits and ask for new systems. Figure 7.2 illustrates how the issues

identified of relevance to the adoption and use of ICT/EB and its success are associated to each other**.**
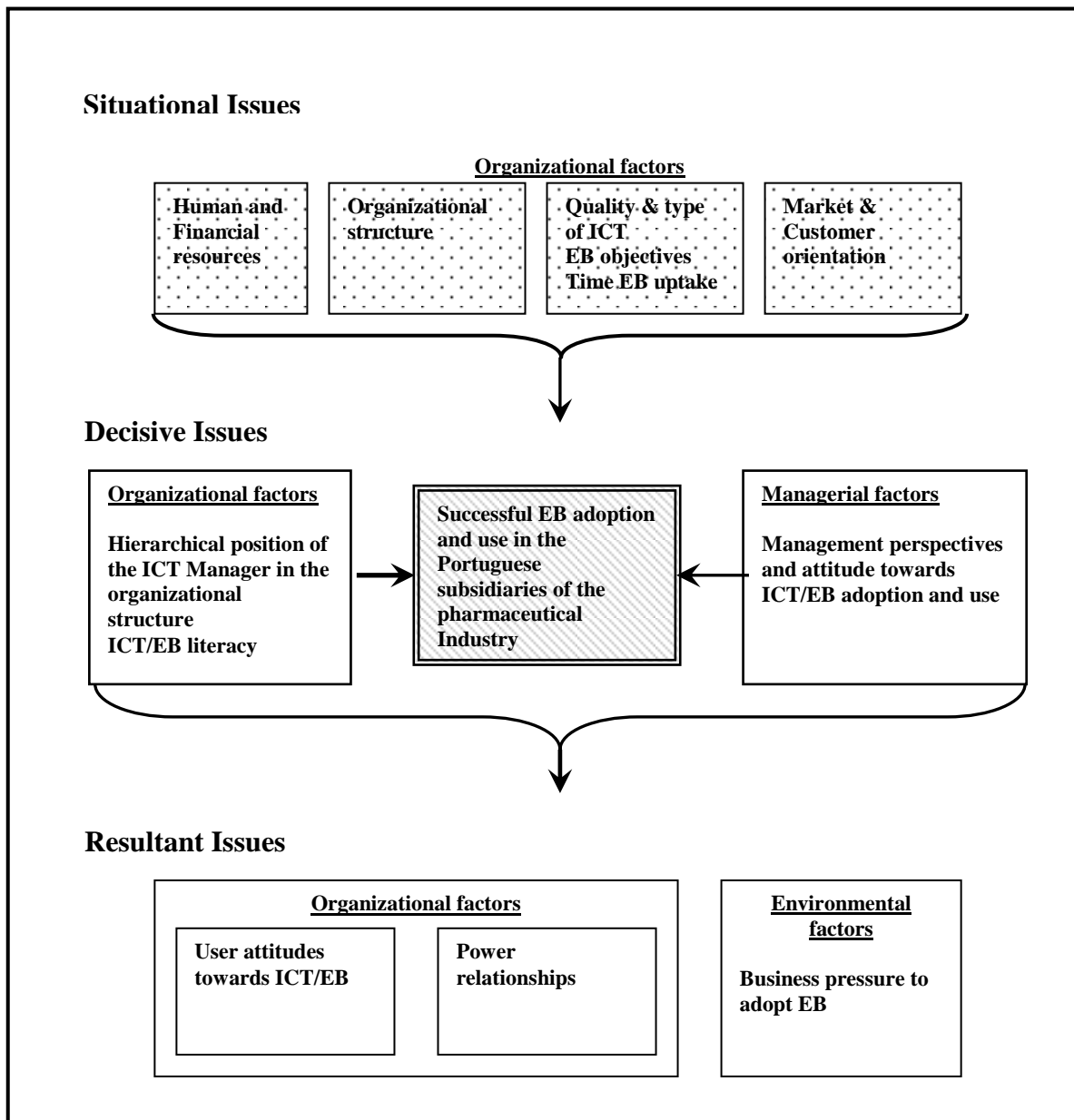
Figure 7.2 – Expansion of Figure 7.1 showing the relationship amongst issues affecting e-business adoption and use and success (Source: Compiled by the author)

7.2.3 - <u>Research Question 3</u>

How does the institutional structure of the Portuguese subsidiaries of the pharmaceutical industry affect communication related to e-business adoption?

ICT and sales and marketing are institutions with their own beliefs, attitudes, rules and policies, that exist within the broader institution of the pharmaceutical industry. Starting by the ICT department, which is the local representative of the Group ICT team, it is burdened with the resultant work from this responsibility and also to assure that the local ICT structure works and that the daily operations function without problems. They are fully committed to their function and their priority consumes all their human resources and time available. They are completely absorbed by the ICT company or their own institutional structure and do not have the time or availability to establish a good communication with the other areas where e-business could be implemented. Also, once their ICT human resources are all absorbed by their priority, they do not feel it would be worthwhile as it would not be possible for them to start new local projects due to the scarcity of the ICT specialists. Even with outsource services, there is always the need for someone from ICT to act as an interface between the user department and the external services, attend to meetings and follow up the project.

As for the commercial area of the company, mainly sales and marketing, their main pressure comes from the local laws and the difficult customer that they deal with, aggravated with the internal pressure of the ambitious sales targets that they have to attain. On their side, they are also very absorbed with all this institution structure. The communication flows vertically, from the top management or international Group sales meetings through on to their final target, the medical doctor "*we have to attend regular meetings before each cycle, and also internationally*". They consider their work creative, and the richness of the results is the establishment of a good relationship with the doctor through formal or informal contacts, even taking advantage of common interests between the representative and the doctor being

visited. Rigid timetables or the use of computers is against their nature. Reporting has always been a difficult task for them. They consider their main priority, the promotion of the products to the doctors, everything else lacking of importance. Their communication with their colleagues from ICT is poor, and they always complain that computers are a waste of time.

It is evidenced from the analysis of the case studies that the institutional structure of the pharmaceutical industry with its strict policies, traditions, rules, an institution that endures in their traditional way of working, apparently inhibit the communication between the two groups, ICT and sales and marketing. On one side forcing ICT to be only focused on the priorities stipulated, not investing in more professional ICT human resources and, on the other side, fearing that any change may affect the results of the company, not interfering and even cheering the traditional way that the sales and marketing team do their function internally or externally near the medical doctors. On what concerns the use of computers in their business processes, the research evidenced that the pharmaceutical industry is mainly sales and marketing and their opinion and attitudes prevail locally. Figure 7.3 illustrates the influence of the institutional structure of the pharmaceutical industry on the communication between the different working groups of the organization.

Conditional Issues

Organizational factors

| Human and Financial resources | Organizational structure | Quality & type of ICT EB objectives Time EB uptake | Market & Customer orientation |

Environmental & Institutional pressures

Laws
Group policies
Competition

Decisive Issues

Organizational factors
Hierarchical position of the ICT Manager in the organizational structure
ICT literacy

Horizontal communication

Successful EB adoption and use in the Portuguese subsidiaries of the pharmaceutical industry

Environmental factors

Communication between institutions

Managerial factors

Management perspectives and attitude towards ICT/EB adoption and use

Resultant Issues

Organizational factors

| User attitudes towards ICT/EB | Power relationships | Communication between different working groups |

Environmental factors

Business pressure to adopt EB

Figure 7.3 – How the institutional structure of the PPhI affects communication related to e-business adoption (Source: compiled by the author)

7.2.4 – <u>A model to understand the successful adoption and use of e-business in the Portuguese subsidiaries of the pharmaceutical industry</u>

A model illustrating the process of e-business adoption and use (Figure 7.4) was developed in order to help to understand the applicability of an institutional theory of organizational communication in explaining the successful adoption and use of e-business in the Portuguese subsidiaries of the Pharmaceutical Industry. This model evolved from figures 7.1, 7.2 and 7.3 and is linked with and expands the analysis of the factors related to e-business success, exhibited in Figure 2.1, to the characteristics of the industry under study.

There are two basic dimensions which sustain the model and moderate the strong influence of the institutional pressures constituting the environment under study. The first one is the existence of the knowledge on ICT/e-business in the organization. The second one, concerns the senior management support to the development of the e-business capabilities. Senior management should be involved in the process of e-business adoption and use, understand the e-business needs of the organization and enforce communication between working groups.

The support of e-business capabilities includes:
- Divulging the perceived advantage of e-business
- Development of e-business knowledge in the organization by in-house or external experts
- Providing the necessary resources for e-business adoption
- Creating an infrastructure to transform e-business skills into e-business competences.

The involvement of the senior management in driving the process of e-business adoption and use is also important. It will set up an e-business strategy, help resolve the problems of users' resistance to change and potential conflicts between managers in the organization, as well as acting as a guarantee for a better communication between the different working groups under the pressure of the institution.
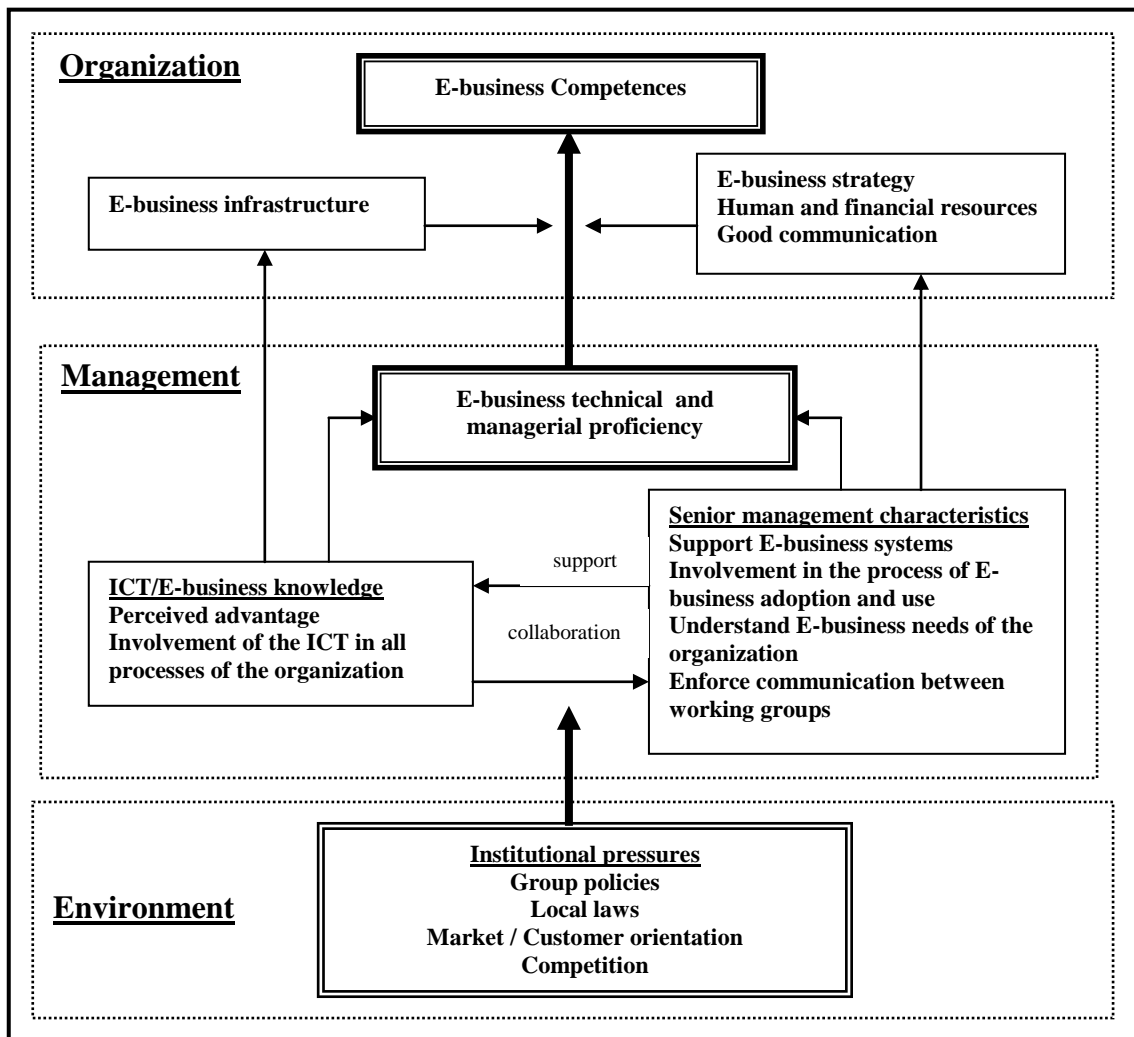
Figure 7.4 – A model to understand the successful adoption and use of e-business
in the Portuguese subsidiaries of the Pharmaceutical Industry
(Source: compiled by the author)

7.3 - <u>Contribution to knowledge</u>

The contribution to the existing body of knowledge of this research is as follows:

7.3.1 - <u>Research subject</u>

This research contributes to knowledge by providing academics and practitioners with an in-depth study and original explanation of the Portuguese subsidiaries of the pharmaceutical industry and analysing the issues that are likely to influence the e-business adoption and use in this industry.

Although many companies have been increasingly investing in ICT, they still lack the knowledge on how to manage the process of e-business adoption and use.

The research provides guidelines and a description which enables the ICT professionals and the business managers of the Portuguese pharmaceutical companies to diagnose why the company is achieving a certain degree of success and to take specific action to address the reason for ICT / e-business adoption and use. Furthermore, this research presents a new model that explains how the combination of issues and factors related to e-business success can be explained within the principles of institutional theory of organizational communication (ITOC).

This study evidences that Portuguese pharmaceutical companies, as mainly subsidiaries of multinational companies, can use e-business innovatively and strategically and achieve business benefits that might not be expected from firms that usually have very limited resources. The work further demonstrates that the study of these companies can contribute to the development of theory in the field of e-business.

7.3.2 - <u>Research context</u>

This research explores structures and validates influencers of e-business adoption and use within a specific context – the Portuguese pharmaceutical industry. Although this industry is dominated by subsidiaries of multinational companies, there is a lack of research in Portugal about this subject. The findings can help many Portuguese pharmaceutical companies to reach higher levels of use of ICT and e-business and to become more competitive in this traditional industry.

7.3.3 - <u>Research methods</u>

It is not much usual that a research strategy in the field of information systems draws on qualitative methods, on an interpretative perspective, thus delivering a methodological contribution to the existent information systems research. The interpretative perspective of social enquiry has proven to be a viable approach to case study research in the field of information systems.

Also the method of analysis, cognitive mapping, is quite recent in the field of information systems. Cognitive mapping is a qualitative technique designed to identify cause and effect as well as to explain causal links (Eden, 1990; Eden & Ackerman, 1998), also an important tool in a representation of thoughts as it is able to reflect different views of group members, aide to structure a problem and facilitate mutual understanding.

Also innovatively, for the theoretical validation of the findings of the analysis, it was used the theory of ITOC (institution theory of organizational communication) extending its application to the field of information systems.

As a result, the study was able to develop a model to help to understand and explain success with e-business adoption and use in the subsidiaries of the Portuguese pharmaceutical companies.

7.4 - <u>Limitations of the study and opportunities for further research</u>

Several limitations of this research provide ways for further research.

1)   Since our study was focused on local subsidiaries of multinationals which represent the majority of the Portuguese pharmaceutical companies, no fully national company was studied, due to the logistics limitations as the national company that could be investigated was on the north of Portugal, and as this research is multi-method the researcher would need to stay at least 3 weeks at Oporto, in the north of the country, what would become very expensive.

2)   This research was essentially exploratory and the findings were inducted from empirical evidence. Using quantitative methods, to test the validity of the findings across the entire population of the Portuguese pharmaceutical industry, deductive research could be carried out.

3)   This research developed for a specific situation, the Portuguese pharmaceutical industry, raises questions about the generality of our findings beyond this industry. Since the companies studied are subsidiaries of pharmaceutical multinationals, questions remain and future research is encouraged as to the generalization of this work to other multinationals or larger companies.

4)   As our investigation focused on the general use of e-business in a local pharmaceutical company, future research is encouraged to explore deeper the resultant findings of this research on the influence of leadership, transnational culture and cultural working groups real differences, in the context of the pharmaceutical industry, for the uptake of ICT systems and successful e-business.
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APPENDIX A

List of the questions of the interviews

ANALYSIS OF INTERVIEW 3.2

The person of this interview is one of the Administrators, with the position of Business Franchise/Marketing Administrator, reporting to the General Administrator.

He has been 3,5 years in this position and company, and has a long career of 22 years in the pharmaceutical industry.

He is responsible for all the Marketing activities of the Company..

QUESTIONS FOR THE INTERVIEWS

I – Company Information

1.1) Code name of the Company

1.2) Subsidiary of a multinational Group |__| National Company |__|

Portuguese Multinational |__| Production |__| Only Marketing |__|

1.3) No. of Employees: 1.4) Ranking in market |____|

1.5)   % Reps in relation to the total n° of employees

II - Employee information

2.1) Number of years in the company

2.2) Number of years in the pharmaceutical Industry

2.3) Actual Position in the company?

2.4) Reporting to whom?

2.5) How long in current position?

2.6) Department:

III - IT COORDINATOR

IV - FOR EVERYONE THAT WILL BE INTERVIEWED

Computerized Information and Control, Systems (cont.)

4.1) Do you use a computer?

4.2) What sort of work do you do through the computer?

4.3) How do you use the Internet to do your Job?

4.4) Do you know what is Electronic Business ?

4.5) How do you see its application to the different sectors of this company?

4.6) If we enter in a social health centre, hospital or private consulting, we can always see groups of reps from several pharmaceutical companies, talking between themselves, waiting to be received by the medical doctors. The function of the medical information representative, well paid and with lots of benefits, represents a heavy economic burden for the enterprise. Don't you think that this function can be rethought, taking advantage of the existing electronic facilities, to pass the message on to the doctor?

4.7) Do you think that these professionals would have a strong negative reaction?

4.8) The use of laptops by reps has increased the company´s competitive advantage?

4.9) Reps' training is done electronically and by distance?

4.10) The results of the visits to the medical doctors is done electronically?

4.11) Seminars and congresses : are they organized, documented, or projected via Internet?

4.12) Do you think that the visit to doctors could be improved with the use of a wireless device, like a laptop or a mobile phone, which could give immediate access to any information in the Company's Intranet, scientific databases, etc. ?

4.13) Do you know what is on the Internet, a chat-room, forum or discussion group?

4.14) Don't you think that using private chat-rooms, forum or discussion groups, with exclusive access, could be one way for the medical doctors of a certain speciality discuss online and interactively their experiences, or for the pharmaceutical companies to introduce what is new in investigation?

4.15) The information provided by your reps' territory management systems is of value to the company?

4.16) The use of computers reduces strongly the administrative work related to the organization?

4.17) If you wish or need a new IT system, that you can prove that will bring competitive advantage to the company, do you have the freedom to ask for it? Do you think your opinion would be taken in consideration?

4.18) Do you think that the current use of the computer systems has caused the existing unemployment situation in this country?

National Culture

4.19) If you need to deal with a non common or not easy situation from a public organization like a government department or a Bank, how would you proceed?

4.20) My colleagues are reluctant to disagree with their Manager

Influence of a dominant leader

4.21) If the Managing Director decided that a certain computer system with which you wouldn't agree, was to be used in your department, how would you react?

4.22) If an employee complains to a person with a higher position than his/her own Manager, he/she would suffer later for doing so

Customers

4.23) The customer of the pharmaceutical industry is a trilogy composed by the doctor that prescribes, the government that pays and the patient that consumes. - Which of the three is a first priority to the company?

4.24) In the Portuguese society, the medical doctor is a working class that one could consider elitist. How does the company deal with a customer of this type?

4.25) In your opinion what do you think would attract more the attention of a medical doctor – an expensive gift or scientific information of good quality?

Legislation

4.26) The law of this country related to the pharmaceutical industry is very strict

Company history and traditions

4.27) Traditions in this company are not what they used to be

4.28) Anyone has the freedom to challenge traditional ways of doing things in this company

Company expectations

4.29) **The company demands outstanding performance from its employees**

Individual Culture

4.30) **If someone hurts or offends you, how do you react?**

Products and Services

4.31) **Tell me about the general characteristics of the products of this industry.**

The Industry and its competitors

4.32) **How does your competitors affect the business process of your company?**

Research and Development

4.33) **How does Research and Development affect a pharmaceutical company?**

Procedures and policies

4.34) **Do you have to follow any sort of local procedures and policies ?**

Rewards System and Measurement

4.35) **Are you happy with the rewards system of your company?**

Transnational culture

4.36) **What international activities like, for instance, policies, group standards, strategy directions, or meetings, interfere with your local function?**

4.37) **In your verbal or written contacts with your parent company or other subsidiaries, which language do you use?**

APPENDIX B

Some examples of the cognitive maps

Aggregator of Company 4

Strict objectives for everyone in the Co.

Passed through several mergers

Strict and political locallaws

ICT has difficulty in understanding Mkg creativity

Good benefits and rewards

Tough competition

Top management not ICT involved

R & D: innovation

Group policies Group culture: Anglo/American

Ph. Mkg hás a culture of its own beyond individual organizations

Staff showed commitment to their job but not much enthusiasm

COMPANY 4

ICT in Sales & Mkg only Reporting system of Reps

ICT Group strategy

Very small ICT department – some outsourcing – less than 1% co. headcount. People too burdened

If of GM not involved local ICT systems without success

Use of ICT in doctors visits – unconceivable

Doctors and Co. Results with actual visits are good – do not want to change

ICT decisions only between ICT mgr and Finance director

Priority to Int. Group and operational ICT systems

Few openness in ICT use in Co. processes

Face to face contact essential – use of ICT to help visit is unconceivable

Mkg people complain about the quality of service they receive from UCT – poor communication

Freedom to ask for new systems, subject to ICT dept analysis and Group approval

Internet for everyone - search info and emails

Nothing done on the web

ICT complain Sales & Mkg never know what they want – are bad users

Reps are non computer minded and fear lose job and benefits with ICT

CLUSTER OF COMPANY 3

Strict objectives for everyone in the Co.

Group and local ETHICS – very strict in all areas

Strict and political laws

ICT has difficulty in understanding their (Mkg) creativity

Good benefits and rewards

Tough competition

Open to opinions leadership (GM)

R & D: innovation

Group policies Group culture: Swiss

Very enthusiastic attitude from staff from different areas to their functions

COMPANY 3

ICT in Sales & Mkg - MSOffice, SIBEL and Laptops to Reps

Ph. Mkg hás a culture of its own beyond individual organizations

ICT Group strategy

ICT department – with own staff and also some outsourcing

Involvement of GM in ICT systems helps its success

Use of ICT in doctors visits – looked with caution

Doctors and Co. Results with actual visits are good

ICT Involved meetings all business areas

Priority to Int. Group and operational ICT systems

There is openness to use ICT in Co. processes

Face to face contact essential actually – BUT think future with ICT things will change

Mkg people complain need for divulging of ICT potential to bring new ideas – poor communication

Freedom to ask for new systems, subject to ICT dept analysis and Group approval

Internet for everyone - search info and emails

First steps given on private site

ICT in Hosp.and HC advancing very quickly – may affect inform to doctors

Reps are non computer minded and fear controlo n free time – strong reaction

CLUSTER OF COMPANY 2

Aggregator of Company 2

Strict and political laws

Strict objectives

Tough competition

Good benefits and rewards

Dominant leadership (MD)

Group policies

R & D

ICT does not understand their needs and language

Negative attitude towards ICT people

Admin & Finance better users of ICT

COMPANY 2

ICT in Sales & Mkg - PCs & MsOffice

ICT seen only for routine and admin work

ICT Group strategy

ICT department – internat. & operational systems

Evolvemtn of GM in systems guarantee its success

Doctors very difficult to deal with

Laptops: seen by REPS as a burden

Reports to Fin.Dir

Priority to Fin & intern. systems

Some knowledge of EB potential

Face to face contact essential

Freedom to ask for new systems

Internet for search info and emails

First steps given on private sute

Lack of ICT knowledge dissemination causes S&Mkg sceptical about its use

ICT not acceptable for visits

Aggregator of Company 1

Strict and political laws

Reasonable demand

Friendly atmosphere

Tough competitin

ICT does not understand their needs and language

Reasonable benefits and rewards

Decisions centralised MD

International policies

R & D

Negative attitude towards ICT people

Admin & Finance better users of ICT

COMPANY 1

Sales & Mkg minimum use of ICT

ICT seen only for routine and admin work

No ICT strategy

ICT for minimum essential operat.purposes

Doctors very difficult to deal with

Recognize do not have knowledge of ICT potential

Freedom to ask for new systems

No ICT dept

No knowledge of EB potential

Public Health Sector moving very fast to ICT

Face to face contact essential

Lacks knowledge of ICT and Internet potential

Internet for search info and emails

ICT not acceptable for visits

Detailed Cognitive map of interview 1.6

Internet: few knowledge	Internet: search info	Uses a PC	Sales Admin	Do not have a plano of objectives	Reps teams have demanding objectives

MS Office Sales applic e-mails

Unemployment: ICT causes some functions to disappear

Doctors difficult to deal with

There are great differences between different working groups

EB: is to send emails

Prepared only to be public relations near doctors

Reps training by computer: didn't know it was possible

Prepare reports on reps visits

Reps cannot be touched

S&Mkg are more privileged

Only managers ask for new systems

ICT people do not understand our needs

They are the most spoiled group in the co.

Function cannot be replaced by a computer

Strong reaction to change

I do what I am asked to do

ICT people understand better finance needs

Recent use of laptops by reps

It hás always worked well how it is

Afraid to lose benefits

To challenge tradition only those with power

Reps are against computers

Doctors will not collaborate

Unemployment also caused bt the use of ICT to restructure functions

RESUME MAP

Good user of a PC

rep

Rewarding system diff.on diff. groups

Understands what the PC can do to help function

No knoeldge of EB potential

Doctors difficult to deal with

Some are more privileged

Email : powerful help

Reps to act as publi relations people

ICT belongs to another group

Personal contacts

Understand better admin and finance needs

ICT people to not understand our need

Laptops to record resulto f visits

Reps fear to lose benefits

Detailed analysis of interview 1.1

INTERVIEW 1.1
RESUMED COGNITIVE MAP OF THE IMPRESSIONS GOT

Position interferes with all finance and admin activities

I use a computer

Computers allow to do other things than before

Internet – search info

Do not use chat-rooms, forums or discussion groups

Centralization: Justifying the Project and comp.advg., there is no problem

Inform.to be given to the doctors

Due to the 2 groups – Drs and Reps – I don't believe in that

More controlled now a days

Reps: There is a lot to be changed in the function

Internet policies interfere with my function

Dominant Leader: I would implement it 4.21

If I have anyone known and influential, I contact 4.19

Companies without R&D have a difficult time

Reps are not interested in learning

There are not many that can disagree with their Mgr

Pass from 'spoiled people to Normal employees   4.7

It can be useful when duly used and explored

The concept did not change much

I don't think they would suffer later   4.22

Visits recorded electronically

Laptops: Reps to not give the right use to it
Leave them in the cars   4.8

Reps and doctors do not understand anything about computers

Freedom hás but may stand the consequences

Law: Life hard and confusing interpret.

Reps training: there are projects in that sense

Offence: it stays registered

Law: Subject to political changes

Spoil the medical class

And do not want to understand

Resumed Cognitive Map

Computers allow to do other things

Internet is for searching

Internet is socialising chat

Visits to be recorded electronically

Finance Assistant

Centralization

Freedom if justified

Info to Doctors

Reps and Doctors working groups

Reps – a lot to be changed

Not right use

Do not want to understand

Spoiled workers

Normal employees

Do not understand anything about computers

DETAILED COGNITIVE MAP

Internet:
Good user on
spare time

Uses a PC to
work (MS
Office)

Product Manager

Nat.culture:
Uses
influences

Trans.culture:
Hás to attend Co.
intern.meetings

Trans.culture:
English is the
lang. contact

Internet in Co:
Uses to search info

EB:
Hás some idea

Doctors:
A priority

R&D: our great
support – new
products make
our function

Dominant leader:
Does what General
Manager decides

If employee
complains upper
level Mgr, is sent
back to his Mgr

ICT:
Hás the freedom to
ask

Future use:
Sys to control what
doctors prescribe

Laptops: only for
info on visit results

Reps adverse to
change

Did not agree with
laptops being taken
to visits, but
accepted decision

Colleagues
reluctant to
disagree with
their Mgr

Future use:
Also something to
optimize free time of
Reps

Laptops: now starts
see benefits

Reps afraid lose
benefits

Competition: all
that is done affect
our work

Tradition people
free to question
but not to change

Seminars/Congressses
Not done by computer
Reps training in class

Use of chat-
rooms/forums:
very futuristic

Law: the way is
put in practice and
followed not the
same

Tradition: : is
still the same on
the overall

ICT & unemployment:
More due to the non
conversion of people
to new functions

ICT:
Computers are good to
reduce admin work

Wireless devices to
help visits: a lot to be
thought

ICT: although
good people,
have difficulty in
understanding
our creative part

RESUMED COGNITIVE MAP

Function influenced by Group strategy for products and local market characteristics

Internet
Good user but only for search info in the Co.

Good user of PC

PRODUCT MANAGER
S&Mkg working group

GM – **dominant leader**

EB:
Hás some idea

ICT
ICT people do not understand S&Mkg creativity

Doctors:
The centre of everything

Difficult **customer**

Traditions:
There is freedom to question but not to do it

ICT
Shows openness
Although thinks what they are good foris for admin work

Face to face is the only considered method of visiting

Industry laws:
Put in practice and followed in different ways

ICT:
Unemployment is caused by lack of conversion of redundant people to new activities/functions

ICT:
Use of technology may endanger sucesso f results

Reps
Fear changes and loss benefits

Pharm. Industry
Very politic and Government interference

ICT: the use of wireless devices and Internet to help visit – far away in the future

DETAILED COGNITIVE MAP

Record results of visits

Uses a laptop

REP

Nat.culture: Patiente

Trans.culture: Hás to attend Co. intern.meetings

Trans.culture: English is the lang. contact

Internet in Co: Does not use it in Co
Good user

EB: No idea
Thinks is email

Doctors: First priority

Relationship with Mgr – quite relaxing

I limit myself to promote products with lots of care

Dominant leader: I accept what is decided

ICT: has nothing to see with function

GIFTS well received

R&D: new products help a lot function

This is a question of personal relationship

Laptops have made our life + complicated

ICT systems is for other people to think of

People only talk about out benefits but forget the results we get

Resultant info is not accurate

Law very strict – controls all our steps

We gave strict and demanding objectives

More things to carry, lots of inf. to enter in comp.

Internet capabilities for S&Mkg – don't believe that

ICT: computers are good for admin. Work and bureaucracy

ICT to help visit? Unthinkable

Competitors: Affect our promotional strategy

ICT people to not understand our needs thus systems are useless

RESUMED COGNITIVE MAPPING

Intern.meetings → English

Laptops: a buden ← Computers good for admin and routine work ← REP → Reports to Sales supervisor Relaxed relationship

REP → Passive acceptance of decisions

Internet potential: Does not believe in its use to help function

Internet: good user on spare time

Doctors: Main priority

Benefits and strict objectives

EB: shows no knowledge

Promotion: Personal relationships

Care & attention

Law: very strict

ICT: strong negative reaction

Competition: affect promotion

R&D: new products make his task easier

DETAILED COGNITIVE MAP

Internet: no knowledge
Does not use spare time

Internet: does not use it for the function

EB: no knowledge of potential

Unemployment: ICT helped a lot

Uses a PC MS Office

Emails: uses a lot

English is compulsory

Int.meetings with peers

Sales admin

R&D: Main base of existence

Dominant leader: not worthwhile to disagree

To respect levels of hierarchy helps avoid conflicts

The Doctor: a priority

Difficult customer : much diplomacy

Freedom ask new systems but heavy process

If the ICT people would pay us more attention…

New EB systems: finish against wall of doctors & reps reaction against computers

Reps: afraid use ICT may change function

A good gift calls doctor's attention

Law: very restrictive to promotional gifts

The problem is when we have a weak

Finance needs always ahead of ours

ICT people also do not have much patience for them – they are different

Reps: afraid lose benefits & unsuccess of visit

Reps: large powerful group and very strong in the company

Traditions in concept are the same

It looks as if admin systems are easier for ICT people to understand

ICT: the particularities of S&M functions are not understood by ICT people

Laptops: reps not computer oriented

Laptops: reps not good users; cause problems in system

Only those with power can challenge

Reps training if GM gets envolved all will be quicker

Reps need be better motivated & informed to use system

National Culture: I tis not like in the old days but we still need a loto f influences

RESUMED COGNITIVE MAPPING

Internet: Does not use it

Uses a PC

Sales admin

Leader: the envolvement of GM in any new system is a guarantee success

Dominant leader: Systems Traditions

EB: Does not know the potential

She hás **the freedom** to ask new systems but is a heavy hierarchical process

Does not belong to the elite of the S&Mkg – hás lower salary and rwards

Doctors: Present difficulties to the S&Mkg people

Direct Manager: Sceptical about computers

ICT people could provide better training and motivation to the reps

Reps: powerful, group, better paid, not computer oriened

Gifts: now + controlled by law

ICT people understand better and give priority to Finance needs, than to S&Mkg particularities

Laptops: reps not good users of the system

DETAILED COGNITIVE MAP

Internet: good user on spare time

Internet: to search info

International policies

English: compulsory

Secretary to the Direction

Uses a PC & MSOffice

Reports to the GM

R&D: guarantee of new products

EB: Hás some idea of EC

The use of computers reduced routine work

Unemployment: not caused by use of ICT

Doctors: A priority

Dominant leader: Accepts decision of GM

Hás some idea of new EB systems for the company

Use of Internet potential to help visits: doesn't believe

Too far away from reality

Visit to Doctors: Use of ICT – difficult put practice

We deal with great difficulty and much dedication

S&Mkg people have strict objectives

Traditions Little by little we start to change

Has freedom to ask for new systems but subject to all levels approval

Reps: are used to work same way for many years with good results

The specialist prefer scientific info

Only some have the freedom to change

Laptops by reps: Info on visits on time

Family doctor prefer expensive gift

RESUMED COGNITIVE MAPPING

Intern.policies

Secretary to the Direction

Dominance of the leader

The recent change of GM affects all procedures

Internet:
Good user spare time

Good PC user

Internet
Uses to search info for her function

ICT
Good acceptance

EB:
Basic knowledge

EB potential
Does not trust

Doctors:
Priority
Difficult Customer

ICT and visits
Difficult to put in practice

REPS - used to work the same way for many years

REPS – the lack of knowledge of computters make them fear that its use may threaten their function

Change that could endanger success of visit

Afraid to lose benefits

DETAILED COGNITIVE MAP

Has several financial group procedures and international reporting – all in English

Reports to accounts manager

Accounts Clerk

Would use influences to get things done

Uses a computer to do her work

No one can touch Reps

Reps do not want to be controlled

Internet: does not use in her function

Strong reaction from Reps to changes

Reps afraid computers may control them

EB - has no idea

Needed to be clarified on EB and ICT potential to have new ideas

It would be interesting that doctors visits could change

I can see that colleagues from marketing make all they can do to attract doctors attention

Computers have allowed to do more things

Cannot imagine all operational work without a computer

Doctors aliciated by expensive gifts

RESUMED COGNITIVE MAP

Influenced by several financial group procedures and international reporting

Concentrated on posting the accounts movements

Knowledge of ICT or Internet is almost none

No idea of EB – never thought of how Internet could be used for business

Accounts Clerk

Intolerance with Marketing people, that she finds are spoiled people

Reps fear that computers control their free time

Due to high costs with Reps, would like to see visits to doctors change