



LUNDS
UNIVERSITET

School of Economics and Management

BUSN68 – Degree Project in Accounting and Management Control
Spring 2016

Management Control Systems in Innovative Firms:

Linkages between cultural and other control elements

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Abstract

Title: Management Control Systems in Innovative Firms: Linkages between cultural and other control elements

Seminar Date: May 30, 2016

Course: BUSN68 Degree project in Accounting and Management Control

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Key words: Management control, package, innovative company, cultural control, interface

Purpose: This thesis will examine how the management control systems of innovation companies operate as a package and which linkages are there between the cultural and the other control practices.

Methodology: The methodology is based on a qualitative approach carried out in the form of a multiple case study.

Theoretical review: The theoretical review integrates different frameworks and theories on management control systems and innovation. Malmi and Brown's package (2008) will be applied along with Davila's (2005) typology to explain the different role of MCS in the innovation context and identify the interface between the cultural and the rest of the controls.

Empirical foundation: The empirical findings presented were generated from interviews with three case companies.

Conclusion: The findings of this study point out that the innovation strategy of an organization has an effect on the design and function of its MCSs. Cultural controls lay the foundation upon which the other types of practices are built. The linkages between the cultural controls seem to be very clear with some elements or more indirect with others.

Acknowledgements

We would like to thank our supervisor Mattias Haraldsson for his guidance and constructive feedback throughout the process of writing this thesis. We would also like to thank the participating companies for their contribution and engagement in this study.

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1 Introduction

In this section, a background of the research topic will be introduced to provide a general overview of the research subject and its relevance. The section also depicts in detail the discussion concerning the main problem. Moreover, the purpose as well as the research questions are stated. Lastly, the structure of the thesis is presented.

1.1 Background

The intense competition that companies face nowadays has led organizations to the pursuit of value creating activities that will enhance their performance and ensure their long-term success (Dunk, 2011; Rosenbusch, Brinckmann & Bausch, 2011). Being innovative and adaptive to the constantly changing needs of the markets can be relevant sources of competitive advantage, which can create time monopolies that will ultimately lead to high profitability and growth (Peteraf, 1993).

Innovation though is complex and can vary enormously between different industries and organizations (Smith, 2010). Its profound impact can be portrayed not only on the organizational level, but also on the society and the economy in general. Therefore, innovation attracts a great deal of attention which has also led to the development of a number of different theories associated with the innovation process, based on a series of factors such as the degree of novelty. The consensus view though of all these models is that innovation does not just happen. It is not inevitable and it does not just take place on an entirely unpredictable basis (Smith, 2010). This implies that at the firm level, systems that ensure an efficient control of the processes followed need to be established. Equally important is to monitor the company's progress so as to assure that a creative use of their limited resources is fostered (Simons, 1995; Davila, Foster & Oyon, 2009; Haustein, Luther & Schuster, 2014).

This balancing act between the need for creativity and control is of high interest given the opposing purposes that have to be achieved. Yet until recently, most research has focused on studying single tools of control deployed by the companies (Alvesson & Kärreman, 2004; Sandelin, 2008; Haustein et al. 2014; Malmi & Brown, 2008). But the complex environments that contemporary organizations operate within require the usage of different types of controls, which are simultaneously active and linked with each other (Alvesson & Kärreman, 2004; Sandelin, 2008). Particularly, in relation to the innovative companies there have been two main streams of research: the first one advocating the culture as an efficient form of control allowing for the much needed adaptation to unexpected contingencies (Ouchi, 1979;

Robertson & Swan, 2003; Koc & Ceylan, 2007) and the second one which is more recent supports the idea that formal control tools like the almost universally used budgets or performance measurement systems can also be flexible and dynamic, evolving to the needs of innovation (Simons, 1995; Abernethy & Brownell, 1999; Bisbe & Otley, 2004; Davila, 2005; Hausteine et al., 2014).

On that account, the design of management controls is a process that requires significant attention, especially within the innovation context. In these companies, the necessity to develop innovation is driven by the kind of strategy supported, which in turn influences the adoption of certain MCSs (Chenhall, Kallunki & Silvola, 2011). On the one hand, as it was previously mentioned the investigation of both formal and informal controls in the innovation companies is of special interest since they have to balance their efforts for control and creativity for generating innovations (Hausteine et al, 2014). On the other hand, the design and use of informal controls as well as their linkages with the other type of controls is also an interesting topic to be further explored.

1.2 Problem discussion

Earlier studies that have explored the relationship between MCS and innovation have provided inconsistent findings, resulting in different lines of research. Particularly, several authors from the innovation management literature tend to minimize the role of formal MCS in supporting innovation. Ouchi (1979), Robertson & Swan (2003) and Koc & Ceylan (2007) belong to these representatives highlighting the significance of cultural controls instead of traditional management control tools in organizations with high educated professionals. Formal MCS hinder creativity and act as deterrents for coping adequately with the uncertainty associated with product innovation (Burns & Stalker, 1961). However, another line of research argues that MCSs can have a positive effect on innovation, by being flexible and dynamic to adapt to the unpredictable requirements of change (Simons, 1995; Abernethy & Brownell, 1999; Bisbe & Otley, 2004; Davila, 2005; Hausteine et al., 2014).

Concerning the context of “a control package” which combines multiple management control elements, informal MCS are expected to encourage innovation, while formal MCS can also help in the generation and implementation of new ideas (Bisbe & Otley, 2004). In line with this, given that most contemporary organizations use simultaneously a diverse set of controls, different frameworks have been developed that study control elements in an integrated

manner (Alvesson & Kärreman, 2004; Malmi & Brown, 2008). In addition, it has been argued that despite their different characteristics, formal and informal controls support and link with each other. This might be used as a response to those advocating single elements of controls as predominant while ignoring others. In fact it could be argued that cultural controls with their broad, yet subtle nature, form the context within the MCS of each organization is built (Malmi & Brown, 2008). Hence, investigating individual elements might not be valuable and can partly justify the contradictory conclusions of these studies.

Based on that notion, different approaches have been used to capture the linkages between the distinct controls practices applied in the innovation context. To be more specific, Sandelin (2008) describes the operation of management control practices as a package in a growth firm context by paying particular attention to the couplings among cultural, personnel, action and results controls which comprise Merchant's object of control framework (2007). Furthermore, Haustein, Luther and Shuster (2014) synthesize the literature so as to provide a model for the effect of a group of contingency factors for innovative companies on a broad scope of controls, which is also based on Merchant's typology. In addition, other studies have chosen Simon's levers of controls framework (1995) to examine the role of MCS (Widener 2007, Davila 2005; 2009; 2012).

In this study, we will contribute to the field of integrating MCS in innovative companies by adopting the holistic framework of Malmi and Brown (2008) which views MCS as a package. Particularly, we seek to increase our understanding of the simultaneous operation of multiple control practices at the firm level by addressing the interfaces between the cultural and the other components-namely the planning, cybernetic, rewards and compensation and administrative controls- included in the Malmi and Brown framework. This is mainly motivated by two factors. Firstly, generally the interplay between control tools has been analyzed only to a limited extent (Brown 2005; Brown et al. 2008 cited in Sandelin, 2008). Secondly, the subtle nature of the cultural controls significantly shapes the context within the other control practices that take place (Malmi & Brown, 2008). Consequently, considering the large number of interconnections that can be drawn among the various control tools presented in the chosen typology of Malmi and Brown as well as the difficulty of mapping them all, we decided to pay particular attention to the way cultural controls are interfaced with the other control practices used by the innovation organizations.

1.3 Purpose and Research Question

The purpose of this study is to describe the design and use of MCS of innovative companies by devoting special attention to the interfaces between the cultural and the other control practices. In consideration of the purpose of the paper, the research questions that will be addressed are:

1. How do MC practices operate as a package in innovation companies?
2. Which linkages exist between cultural and the rest of the controls in those firms?

1.4 Structure of the paper

This thesis is constructed as follows: firstly, the methodology as well as the argumentation supporting this choice will be described in chapter two. Afterwards, chapter 3 will be devoted to the theoretical approach where the concept of innovation, the definition and presentation of the MCS as a package and the interaction of cultural controls with the other elements of the package will be provided. Additionally, Davila's framework (2005) will be described. Then chapter 4 will focus on the empirical findings generated by the three cases studies; and based on these findings, an analysis will be carried out in chapter 5. Finally, chapter 6 will provide a summary of the discussion and conclude with the contributions, limitations and opportunities for future research.

2 Methodology

In this section, the research design of this thesis and the argumentation for this choice are presented. We also provide a detailed description of the selection of the companies and the data collection techniques and sources used. In addition, the design of the interview guide is analyzed along with the literature review. Lastly, the limitations of the research method are acknowledged and the reliability and validity of the study is assessed.

2.1 Research design

Considering the purpose of this paper, the most suitable method to follow is a qualitative based research. This choice can be supported by a number of factors. Firstly, it allows the researcher to dig deeper than the surface and study a phenomenon or a situation thoroughly (Silverman, 2005). This is necessary in order to enable the tracing of the couplings between the cultural and the other control tools used in the MCS of the innovation companies. Secondly, several sources can be used to investigate the research questions such as interviews, observations and documents (Baxter & Jack, 2008). Therefore, a more comprehensive approach to the study topic is ensured. Lastly, some of the authors that have previously explored the relationship between MCS and innovation companies in general have used a qualitative method (Alvesson & Kärreman, 2004; Sandelin, 2008; Chiesa, Frattini, Lamberti & Noci, 2009). Consequently, it can be argued that by adopting this method we will be able to address our purpose in an appropriate way.

According to Creswell's (2007) classification of qualitative methods in phenomenology, ethnographies, case study etc, we believe that the case study method is the favored one for this topic. Particularly, as it was already mentioned a case study will provide a deeper understanding of the problem addressed by taking a more comprehensive approach to the study of the different controls of the innovative organizations (Otley & Berry, 1994; Ahrens & Dent, 1998). This is also enhanced by the little prior theory of the linkages between the different control elements which makes less in depth methods like surveys not so fitting. Moreover, based on Yin (2009) the case study is a mode of enquiry that gives answers to the questions of "how" and "why". Obviously, this serves our goal of examining how the MCS of innovative companies operate by paying special attention to the relationship among cultural and the rest of the control practices, considering the lack of the empirical data in this area

Based on Yin (2003), the multiple case study has been selected for this paper. The main advantages of this alternative are mainly associated with the fact that a multiple case study in

opposition to a single case is considered to be more robust in terms of stronger results. It has to be highlighted though that a multiple case approach requires the selection of two or more cases that are comparable with each other (Rowley, 2003). Even though the companies that are going to be analyzed in this paper possess different characteristics mainly in terms of size and industry, their common denominator is the innovation part. To conclude, an accounting case study can be further classified into descriptive, experimental, explanatory and exploratory. This case study is both descriptive and exploratory in the sense that it seeks to investigate the interfaces among cultural and the other control elements while describing how the MCS of the innovative companies operate (Ryan, Scapens & Theobald, 2002).

2.2 Selection of companies

The selection of the case companies was made after a two stage screening procedure was followed. According to Yin (2009), the goal of the screening process is to ensure that the final cases selected are properly identified prior to the stage of data collection. This is further supported by several authors, who underline the significance of the strategic selection of cases as vital to the research project (e.g. Rosch 1978; Ragin 1992; cited in Flyvbjerg, 2006). Therefore, the first step was to define the criteria upon which potential companies would be reviewed to be classified as qualified or not, with regards to our research topic (Yin, 2009). Particularly, the criterion used for this study is associated with innovation and the selected candidates should be innovative either in terms of product, service or process development.

After the basis of selection had been agreed, a web-based search of innovative companies in the region of Skane took place. The reason behind the choice of this geographic location is largely explained by the short time limits that the paper had to be completed. Specifically, our first focus was in the areas of Lund and Malmo, given their close proximity, but then we extended our search to the whole Skane region as well as to Copenhagen to broaden our selection base. After a several number of companies were obtained, a preliminary review of their websites was conducted in order to evaluate the organization's activities and operations as well as which of them seemed to pay particular attention to their innovation or research and development activities. Hence, after the end of the first stage of the screening process, thirty five companies have been shortlisted for the next stage.

During the second stage of the followed process, a more thorough check of the firm's website took place in order to collect broader information and if possible access the contact details of the chief financial officer (CFO) or the chief controller of the organization. The chief controllers or CFOs were considered to be the best representatives to provide a complete

outlook on the MCSs deployed by the company. Specifically, with regards to the cultural controls, given the difficulty to capture their nature, the chief controllers or CFOs could well articulate how the culture of the respective organization is shaped and affects the certain controls employed. In addition, their position inside the organization could justify a satisfying analysis of the innovation aspect with regard to new products or processes.

All the companies were first contacted by email. So if the contact details of the targeted representatives were found, then an email was sent directly to them explaining our background, research topic and the possibility of conducting an interview with them. If not, an email was sent to the general email address of the organization with the same information, by explicitly asking though to be forwarded to the person responsible.

A few days later, phone calls were made to the chosen companies to follow up the mails sent. Some of the organizations refused stressing the fact that the targeted representatives have a quite busy agenda to fit in the interviews requested. Other firms failed to respond at all while some sent us a positive response. Out of the thirty five companies contacted, three companies were interviewed. These are going to be described and analyzed in more detail in the following parts.

2.3 Data collection

The activity of the data collection requires certain preparation. This might be complex and difficult, but it is considered to be necessary for the success of the entire case study investigation (Yin, 2009). Essential skills such as asking good questions, being able to interpret the answers, being a good listener as well as being adaptive towards the changing circumstances have been acquired and practiced during our study period. Furthermore, prior to the conduction of the interviews, there has been a thorough review of the websites of the selected companies so as to identify potential issues or specific information (Yin, 2009). Additionally, a firm grasp of the research topic has been gained through a careful study of the existing literature regarding the management control systems within the innovation context and the interfaces of cultural and other control elements.

When conducting case study research, it is highly recommended to use multiple sources of evidence since it allows the opportunity to address a broader range of historical and behavioural issues (Yin, 2009). Yet the biggest benefit of using various sources of evidence is that the findings and conclusions presented are likely to be more convincing and accurate. Different sources of evidence with different strengths and weaknesses are available and can

be complementary to each other. In this study, there is a combination of both primary and secondary data which are going to be discussed in the next sub-sections.

2.3.1 Primary data

The primary data of this paper were mainly collected through interviews, which form one of the most significant sources of case study information (Yin, 2009). According to Yin (2009), the interview process can provide answers to both “how” a specific process takes place inside the organization but also to “why” this activity occurred in that certain way (Yin, 2009). Hence, it could be argued that interviews are insightful as well as targeted by giving relevant information for the case study topic (Tellis, 1997). Moreover, it needs to be mentioned that the method of the semi-structured interviews has been adopted for this study. This enables a dialogue, where the interviewee’s position is made more explicit and easier to be developed (Flick, 2009). In addition, interviewees can propose their own insights into some occurrences, which can lead to new valuable inquiries (Yin, 2009).

Based on our choice to follow a semi-structured (in-depth) interview, we designed an interview guide which contained a list of questions. For an overview of the interview guide, please refer to the Appendix.

As it was already mentioned in the company selection section, three case companies are going to be presented in this study. The persons interviewed are respectively the CFO, who is also responsible for the human relations function (HR) for company A, the Director – Group Business Control for company B and the chief controller officer for company C. The questions prepared were sent to each of them one week prior to the interview date. Also, all the three interviews were conducted face-to-face at the premises of the respective firm. In addition, further clarifications for supplementary information or misunderstood points were requested in certain cases by email. At this point it needs to be highlighted that ethical considerations were taken into account throughout the entire interview process. In other words, considering that the interviewees required remaining anonymous, we ensured the anonymity of the participants and of the respective organizations. Hence, just job titles are disclosed since only this aspect is relevant for the data analysis and the corresponding findings. Also, with regards to the companies, only basic information is provided, based on the interviews and the official companies’ websites. In the following *Table 1*, a summary of some basic interview details are provided.

Name of the organization	Position of the interviewee	Date of the interview	Duration of the interview	Duration of position
Company A	CFO/HR	04-22-2016	1 hr and 20 min	9 years
Company B	Director-Group Business Control	04-26-2016	1hr and 30 min	5 months
Company C	Chief Controller Officer	04-28-2016	1 hr and 10 min	6 years

Table 1: Summary of basic interview details

As it can be seen in *Table 1*, the dates of the interviews differ depending on the availability of the interviewed persons. Moreover, in companies A and C, the interviewees have spent a substantial amount of time in the respective positions so they were able to provide a very thorough description of the requested information. At this point, it has to be mentioned that in Company B, the person interviewed while recently promoted in the position of the director of business control for the whole group, he had worked in the business control department for more than two years before. Also, all of the interviewees consented on recording the interviews, improving therefore the overall accuracy of the interviews' interpretation (Yin, 2009). Additionally, the recording allowed us to focus completely on what was stated, observing also some non-verbal elements given by the respondents. Finally, both of us were present during the interviews, which increases the reliability of the study, since we could discuss any potential differences or queries.

2.3.2 Secondary data

The secondary data used for this study were mainly collected from documents and the official websites of the case companies. To be more precise, one of the case companies (Company B) provided us with certain documents with relevant information for our research purpose. Yet, for all the three organizations their websites were accessed in order to gather complementary information related with our topic. Finally, a large number of scientific articles and textbooks were deployed for this study. The articles were accessed from LUBsearch and Google Scholar, while the textbooks from the School of Economics and Management library, at Lund University.

2.4 Design of interview guide

As it has been aforementioned in the sub-section of primary data, semi-structured interviews were conducted for this multi-case study. Also, the questions prepared were not strictly followed, depending on the context of each case company. Therefore, the chosen questions serve more like a ground to ensure on the one hand that all the important aspects are covered and on the other hand that further questions can be developed based on the circumstances of each interview.

Particularly, the interview guide consists of seven parts. The first part deals with some general information that can provide a general overview of each case company. Hence, it is rather an introduction for the interview where basic information such as the size or the basic operations of the firm are provided. In addition, some background information about the respondent are obtained. In the second part, the issue of innovation is explored. Our goal is to learn about how the innovative process is in each organization and the strategy followed in terms of innovation.

The remaining parts deal with the Malmi & Brown package, where we investigate what controlling tools are implemented in each company regarding the planning, budgeting, cybernetic, rewards and compensation, administrative and cultural component. The questions are designed in such a way to understand not only which tools are implemented but also how they are used and why they are used in that particular way. This is done in an attempt to capture also the couplings between the cultural and the other control elements, according to our research purpose. Lastly, as aforementioned, the detailed list of the questions prepared can be found in the Appendix.

2.5 Literature review

According to Saunders, Lewis, & Thornhill (2007), “reviewing the literature critically will provide the foundation on which your research is built” (p.57). The purpose of reading the literature will largely depend on the approach intended to be followed, which is either a deductive or inductive approach (Saunders et al., 2007).

The method of reasoning for this thesis will be a combination of these two approaches. Particularly, the inductive approach takes a bottom-up outlook where based on the data collection, the issues to be further explored are decided. Only the general aspects of the study were determined in advance and data collection was undertaken before the final formulation of the research questions. Obviously, a comprehensive literature review of the research topic

was conducted prior to the interviews as a ground for the questions prepared. This allows the researcher to understand better the nature of the problem, depending also on the context of each case company. However, there is also a deductive component, with a top-down outlook where the theoretical review also affects the propositions developed, which will be compared against the empirical data. Thus, the literature review will be applied in the context of each case company.

2.6 Limitations of research method

Despite the strengths of the chosen research method, there are also certain inherent limitations to be acknowledged. Firstly, one of the most common pitfalls of the case-study method is that it leads to problems of generalization (Yin, 2009; Flick 2009). In other words, the findings or conclusions drawn from a case study might not be similar in different settings or contexts. It is recognized that the limited number of cases used for this study, only three, is not representative for other organizations as well. However, it needs to be highlighted that the aim of this thesis is not to expand and produce a theory (Yin, 2009) but rather provide insights of the research topic within the selected organizations.

Another criticism about case studies is that they are prone to bias, which might influence the direction of the findings or conclusions drawn (Flyvbjerg, 2006; Yin 2009). It is understood as a tendency of interviewees to give biased replies in an attempt to “prove” that the organization they work for is characterized by positive qualities. The targeted representatives of each case company, considering their position have a thorough understanding of all the aspects related with our research topic. Yet, given the complexity of the concept of culture with its intangible and illusive nature, which can be observed at multiple levels in an organization, it would have been more beneficial if we could have conducted complementary interviews with other employees as well at different levels. This would have given us a more spherical view of the notion of culture and how cultural controls are interpreted by different organizational members. Yet, as it has been mentioned in the data collection part, multiple sources of data were used for this study in an effort to increase the trustworthiness of our findings.

2.7 Validity and Reliability

In order to assess the quality of the research method followed, four criteria are going to be reviewed, namely construct validity, the internal and external validity as well as the reliability

(Yin, 2009). These tests deserve explicit attention and should be applied throughout the case and not just at the beginning (Yin, 2009).

Construct validity can be increased by the use of multiple sources of data (Yin, 2009). As it has been aforementioned, three interviews have been conducted with one targeted representative of each case company. In addition, further information has been obtained by the companies' websites as well as from some internal documents for company B. Therefore, the construct validity of this thesis has been strengthened by relying not only one source of data.

Regarding the internal validity, the use of multiple cases in contrast with single case studies is preferable in terms of the reliability and the robustness of the results (Yin, 2009). This has been already explained in greater detail in the research design part. Concerning the external validity, which refers to the extent that findings can be generalized, the case study methodology is not applicable to generalizations. But it has to be emphasized again that the goal of this paper is not to generalize the conclusions drawn. It is acknowledged that each company has tailored MCS, which is closely tied to its context. Hence, generalizations to other organizations might not be feasible.

Lastly, reliability refers to the possibility of a new researcher to reconstruct the study with similar results as the first researcher by using the same approach or procedures (Flick, 2009; Yin, 2009). We have throughout the thesis documented our work clearly so other researchers can undertake the same study, generating similar findings.

3 Theoretical review

This section presents the reviewed literature for this thesis. It is divided into five sub-sections; the concept of innovation, MCS as a package, the interfaces among cultural and the other control practices as well as the different innovation strategies. Each sub-section is separately evaluated below and addresses useful information for the analysis and discussion of this research paper. Particularly, the MCS as a package along with the noticed interrelationships between the cultural and the other components will be used for analyzing how innovative companies design and use their MCSs while emphasizing the couplings among the previously mentioned components. Finally, Davila's framework (2005) of management control systems design for innovation will be deployed to analyze the type of innovation strategy followed by each case company and how MCS underpin this.

3.1 Definition of innovation

The relevance of innovation to the attainment of competitive advantage has been explored in several studies (Ghemawat & Cassiman, 2007). Particularly, firms that are able to innovate are more likely to gain competitive advantage and enhance their financial performance (Dunk, 2011). According to the OECD's definition (OECD Library, 2013) innovation is "the implementation of a new or significantly improved product (good or service) or process, a new marketing method or a new organizational method in business practices, workplace organization or external relations". Based on Smith (2010), innovation is a complex process including three phases; the exploration, which is related with new ideas, discoveries or breakthroughs; the exploitation which is concerned with the commercialization of the potential new products and services; and lastly the diffusion, which involves the rate at which an innovation is taken up and adopted by the consumers once launched into the market. It has been argued that both small and large companies need to encourage creativity that will lead to potential new ideas and innovations if they want to ensure their survival in the long-run (Rosenbusch, Brinckmann & Bausch, 2011).

However, innovation is about taking advantage of exceptions and unexpected opportunities (Davila, Foster & Oyon, 2009) that demand substantial resources and imply increased uncertainty and risk (Rosenbusch, Brinckmann & Bausch, 2011). Innovation can be successful if it is linked with the organization's overall strategy and it is monitored and assessed on a consistent manner (Davila, Epstein & Shelton, 2012). As Davila, Epstein & Shelton (2012, p.16) explicitly mention "Innovation, like many business functions, is a management process

that requires specific tools, rules and disciplines-it is not mysterious.” Therefore, different types of innovation like incremental or radical innovation projects require the design of different forms of MCSs (Davila, Foster & Oyon, 2009).

3.2 MCS as a package

Because of its critical significance for this study, the term management control needs to be defined first. There are various notions and definitions of the term provided in the literature. Antony (1965 cited in Otley, Broadbent & Berry, 1995 p.32) was among the first ones who described management control in terms of “the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishments of the organization’s objective.” In other words, superiors perform this kind of control to make sure that their subordinates act as planned. This approach was mainly accounting focused without considering any social-psychological or cultural controls.

MCS in the context of a “control package” is not a new phenomenon. A number of influential conceptual frames have been developed which are available for studying control elements as a package (e.g. Ouchi’s framework, 1979; Simon’s four levers of control, 1995; Merchant’s object of control framework, 2003; Malmi & Brown, 2008). In order to make a thorough analysis of how the MCS are designed in the context of innovative organizations and explore the couplings of cultural controls on the other components, the framework presented by Malmi and Brown (2008) has been chosen.

Although not dismissing the other frameworks, the main arguments behind this choice are associated with the fact that Malmi and Brown take a wider approach by studying four decades of MCS research, which results in a typology of a package of controlling tools used by managers to ensure control of organizational behaviour. In their approach, there is a clear distinction between control systems and decision-support systems with the latter being excluded from their study. Moreover, it can be argued that since the design of MCS has evolved throughout the years, the model of Malmi and Brown (2008) contains more contemporary tools responding to the needs of the complex organizations within the innovation context. Another reason lies in the well-rounded depiction of cultural controls considering the special attention they receive in this study.

Particularly, Malmi and Brown (2008) use the term package to underpin the fact that in most contemporary organizations a number of MCSs are introduced by different groups at different times and therefore they have not been designed as a single system. To illustrate the strengths

of their typology, the authors emphasize the broad scope of controls analyzed as a whole in opposition to a deep discussion of individual MCS (Malmi and Brown, 2008). The model (Figure 1) is constructed by five types of control: planning, cybernetic, reward and compensation, administrative and cultural controls. These represent equally important parts of the package and will be further described and analyze to provide a complete portrayal of the framework.

Cultural Controls						
Clans		Values			Symbols	
Planning		Cybernetic Controls				Reward and Compensation
Long range planning	Action planning	Budgets	Financial Measurement Systems	Non Financial Measurement Systems	Hybrid Measurement Systems	
Administrative Controls						
Governance Structure		Organisation Structure			Policies and Procedures	

Figure 1: Management control systems package (Malmi and Brown, 2008)

3.2.1 Planning controls

The purpose of the planning control is on the one hand to define the goals of the different functional areas of the organization and on the other hand to provide the targets that need to be achieved for benchmarking purposes (Malmi & Brown, 2008). Consequently, planning directs employees’ efforts and behavior as well as enables goal congruence within the organization. Planning includes two different approaches: the strategic planning that sets the goals for the medium and long term, by keeping a strategic focus (Boyd, 1991); and the action planning that establishes the goals for usually up to twelve months and maintains a rather tactical focus (Malmi & Brown, 2008). It has to be highlighted that planning can serve two functions; either it can be done to decide on which activities the firm will engage in the future or it can involve employees in a process which aims to increase their commitment towards organizational goals. As a result, planning may not always be linked with financial measures. This is in contrast with Merchant and Van der Stede’s object of control framework, where planning and budgeting are grouped and presented as the financial controls (2007). In other words, it is essential that a differentiation is made between planning as a motivation driven tool and a way to make future decisions (Malmi and Brown, 2008).

3.2.2 Cybernetic controls

Cybernetic control, with its different methods, has long been associated with the execution of control within an organization (Malmi & Brown, 2008). It is described as a process which includes measures that enable the quantification of an observed activity or system; standards of performance or targets to be achieved; a feedback process that allows comparison of the outcome to the target and the ability to modify subordinates' behavior towards the organization's objectives (Green & Welsh, 1988). There are four components in this category: budgets, financial measures, non-financial measures and hybrids. Budgets are used almost universally and can serve several purposes. However, their primary purpose as a control mechanism is setting appropriate plans for the employees' behavior as well as evaluating results to standards. Financial measures can be the result of frequently used techniques such as target costing, activity based costing or include for example return on investment (ROI) (Ittner & Larcker, 1998). In addition, the usage of non-financial measures has gradually increased in many contemporary companies. An indicative example here could be customer satisfaction indexes. Lastly, hybrids contain both financial and non-financial measures like the Balanced Scorecard (BSC) (Malmi & Brown, 2008).

3.2.3 Reward and compensation controls

The reward and compensation system is a control tool which is also known as incentive system. Specifically, reward is described as a method which aims to motivate and improve the performance of individuals for desirable behaviour and it can be classified into extrinsic or intrinsic (Flamholtz, Das, and Tsui, 1985). Flamholtz et al (1985) define extrinsic reward as tangible, visible outcomes received after an evaluation process by hierarchical superiors. In contrast, intrinsic reward is non-financial, based on the satisfaction derived from getting involved in meaningful and ego involving tasks. These two types of rewards are not necessary implemented in isolation by the organization; rather, they can be applied in a complementary way as well (Allen & Helms, 2001). There is an inexhaustible list of incentives such as individual or collective payments and benefits, organizational-based reward, recognition and promotion (Flamholtz et al, 1985). Therefore, many innovative companies rely on the one hand on collective incentives which are designed to reward employees' involvement or commitment to maintaining high quality standards in every company's process. On the other hand, individual rewards are also extensively used in order to spur creativity and innovation (Lau & Ngo, 2004).

3.2.4 Administrative controls

Implemented to guide, to monitor employees' behaviour through rules and procedures and to make employees responsible for their actions through task specification; administrative controls were primarily narrowly defined by Ouchi as bureaucratic controls (1979). However, different approaches of administrative controls have been introduced over the years depending on the type of the administrative controls an organization intends to implement (Abernethy and Chua, 1996; Alvesson and Karreman, 2004).

In their research, Malmi and Brown (2008) highlight three different types of administrative control: organisation design and structure (organizational structure); governance structure within the firm; and the procedures and policies. Each of these tools of administrative controls is considered as a response to the organization's needs. Particularly, the use of the organizational structure is a means for the organization to align with different factors in order to respond better to issues related to the industry or the environment (Tushman & Nadler, 1978). Some of these factors that shape the structure of innovative companies are the business strategy, technological complexity, decentralisation, ownership dispersion, firm size and organisational maturity (Haustein, Luther, and Schuster, 2014). Hence, it is argued that innovative firms should have an organizational design which should be decentralized, loose and fiat, flexible, dynamic, adaptive and informal, stressing on employees' potential (Chenhall, 2003).

The governance structure is the formal authority of the organization that comprises the board structure, the management of different functional areas as well as team projects in case of a company with project orientation (Malmi and Brown, 2008). This type of control aims to ensure a good operation and coordination of the firm's activities at all levels, both vertically and horizontally and at the same time to direct employees' behaviour through meetings.

Lastly, policies and procedures, which are initially based on the traditional approach of bureaucracy, shape the behaviour of members within an organization and include approaches like the standard operating procedures (SOPs) (Macintosh & Daft, 1987). Merchant and Van der Stede (2007) describe them as action controls. However, Merchant & Van der Stede's typology is only a part of Malmi & Brown's compilation of administrative controls, which is argued to be more complete.

3.2.5 Cultural Controls

Described as a force steering human behavior, culture is a concept that has been defined by the Cambridge Dictionary as “the way of life, especially the general customs and beliefs, of a particular group of people at a particular time”. This definition highlights a more general approach of the notion of culture. However at the organizational level, which is the focus of our study, culture is defined by Flamholtz et al (1985) as “the set of values, beliefs and social norms which tend to be shared by its members and, in turn, influence their thoughts and actions” (p. 158). This definition of Flamholtz et al (1985) is also endorsed by Birnberg & Snodgrass (1988) and Malmi & Brown (2008), and is used as a backbone for Malmi and Brown’s (2008) theoretical research on cultural control. Based on that, their framework relies on three different aspects of cultural controls: values, symbols and clans. These are going to be analyzed further so as to cover the full spectrum of cultural controls in a comprehensive way.

Value-based controls

Value-based controls are also known as belief systems (Simons, 1994-1995) which are “the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization” (Simons, 1995 p.34). In other words, a valued-based control is the expression of managers’ beliefs (basic values, purpose and direction) that are formally communicated to administer the organization. According to Simons (1994), these beliefs are formally transcribed in the mission and vision, the credos and the statement of purpose of the organization. Values are not only shared at the general level of a firm, but might also exist at the organization’s sub units or functional areas (Pratt and Beaulieu, 1992).

The aforementioned beliefs are used within the organization to shape the so called organizational commitment of its employees, which can be defined as the psychological relationship between an individual and the organization in which they are employed. This linkage can be expressed in terms of either the levels of involvement with work or the employee’s loyalty and adherence to the values of the organization (Bass. and Avolio, 1993). According to Kelman (1958) & O’Reilly (1989), this organizational commitment is expressed in three different ways:

-Compliance: This refers to the situation where employees follow the organization's values without abiding them (Malmi and Brown, 2008). Employees who comply with the organization's values are likely to develop an alienated involvement (acting out of their personal values) or a calculative involvement (interested in the extrinsic rewards) (Mullins, 2008).

-Identification: Alvesson and Karreman (2004) present this phenomenon as a way for employees to adjust their values to the organization's values in order to act accordingly, even if they do not personally adhere to them. As a result, the employees identify themselves with the organization and take satisfaction and pride.

-Internalization: This means that the employees' values coincide with the organizational values. Malmi and Brown (2008) point out that, organizations generally recruit people having such features.

Symbol-based controls

Presented as the visible aspect of an organization, symbol-based controls or otherwise artifacts are all the physical aspects of an organization that can be observed, felt and heard. These artifacts might be the physical architecture of an organization; the features of its products; its style such as dressing, language, emotional displays; the organization's myths and stories; and its rituals and ceremonies which can be seen (Schein, 1997; Dent, 1991). While these symbols might be easily observable, still they are not so easy to interpret (Schein, 1997). This is especially true for an outsider who is not familiar with the organization's culture like an insider. In other words, experience and time are needed in order for these artifacts or symbols to be explicitly understood by a newcomer in the firm.

Clan controls

First introduced by Ouchi (1979), clan control was defined as a process where shared values, norms and common goals shape behaviours in an organization, so its employees should act in accordance to those behaviours and therefore could be identified as members of the organization (Kirsch, Ko and Haney, 2010). Based on this definition, it is argued that clan control requires a high level of agreement among the members of an organization, based on what constitutes proper behaviour and a deep level of commitment to the socially norms (Kirsch et al., 2010). Therefore, the socialization of employees might be done through various processes such as ceremonies, rituals and trainings in order to teach or reinforce these behaviours within the organization (Kirsch, 1997). However, within a company, shared

values, beliefs and philosophy may differ from one division or functional area to another, especially if each division or functional area is characterized by a specific specialization. Another reason could be the firm's size (Dent, 1991 and Pratt & Beaulieu, 1992).

Clan control in an organization has effects not only on employees' behaviour; it is also a means of sharing practices and experiences that help to achieve common goals. As a result, it can enhance solidarity among members and increase the level of employees' commitment to the clan (Singh, 2008). Finally, the importance of clan control is emphasized when an organization has ambiguous performance outcomes; unclear individual performance or when it is difficult to implement explicit monitoring (Singh, 2008).

In view of the above analysis, it needs to be mentioned that the framework presented might operate differently, dependent upon common contingency factors (Malmi and Brown, 2008). Based on Chenhall's comprehensive review (2003), some of the factors that impact management control choices are: technology, external environment, ownership and size. Particularly, technology in terms of complexity, task uncertainty and interdependence can affect the design of MCS. To illustrate, highly specialized products might require complex batch technologies, work processes whose outcomes are difficult to be measured and reciprocal interactions with customers, suppliers or other functions inside the firm like production. External environment is mostly associated with the concept of uncertainty, in which the elements of the environment are not predictable (Chenhall, 2003). Industry could possibly be considered a proxy for uncertainty. Similarly, the influence of ownership and size of the organization are other contingent factors to be considered. An indicative example is that larger companies are usually associated with higher formalization of procedures or divisonalized organizational structures (Chenhall, 2003).

As it can be observed from the theory disclosed above, there are different control practises that organizations use in various configurations, which can be affected by a number of contextual factors. Also, different relationships are established between these elements which operate as a package.

3.3 Interface of the cultural controls and the other components

The idea that organizations emphasize main forms of control as dominating is very common. Van Maanen and Kunda in their study of a US high technology company state that "culture"

can replace “structure” and can be used to guide and explain employees’ actions. Hence, it is stated that the formal organization is not particularly significant (Van Maanen & Kunda, 1989 cited in Alvesson & Kärreman, 2004). However, in contemporary organizations various forms of control are used simultaneously (Alvesson & Kärreman, 2004; Malmi & Brown, 2008). According to Mintzberg (1983), in professional settings, both formal and informal controls might be linked and support each other. Despite their different characteristics, this does not necessarily mean that they exclude each other, rather it can even be stated that formal controls can have a cultural dimension (Alvesson & Kärreman, 2004). Taking into consideration the aforementioned ideas and the focus of this study, this section investigates the interfaces between the cultural and the other components of the MCS as a package. In other words, it is interesting to explore how formal or “strict” controls like the cybernetic model for example are affected by the indirect, cultural controls of a company. It has to be highlighted that this section is based on a synthesis of literature review.

Culture & Planning

Planning in terms of strategic and action planning can be influenced by the culture promoted by the organization. Specifically, when setting the goals for each functional area of the company, the management communicates their strategic plans to its employees. These plans are considered to be linked with the core values, beliefs and priorities of the firm (Alvesson & Kärreman, 2004) which motivate and inspire the workforce (Mundy, 2010). Moreover, a significant factor that needs to be emphasized is that the participation of the employees in the goal setting process leads to an increasing chance of internalizing the values of the company and therefore to a higher possibility of attaining the organizational objectives (Flamholz, Das & Tsui , 1985). Furthermore, the clarity of the goals is another dimension related with the values and beliefs of the enterprise. Actually, goals can be clear and specific ones or more general like “do your best” (Flamholz et al., 1985). In the innovative settings, the MCSs need to encourage flexibility and creativity but at the same time they have to exert control over how goals are achieved (Abernethy & Brownell, 1999; Bisbe & Otley, 2004; Bonner, Ruekert, & Walker, 2002; Marginson, 2002; Tuomela, 2005). This balance is very fragile and difficult to achieve, given that strategic and action plans need to be constantly reviewed up to a certain degree so that they respond to the identified changes. These changes can either be discussed between managers and subordinates or determined solely at the top management level, by simply communicating the new updates (Mundy, 2010). Lastly, the emphasis on the

long-term or action plans is also interesting since extensive pressure to achieve short-term results might discourage employees from the desire to learn and try new ideas (Mundy, 2010).

Culture & Cybernetic process

The cybernetic model, which consists of budgets, financial, non-financial measures and hybrids can be related altogether or individually to cultural controls in different ways. Several authors like Dent (1990), Goddard (1997) and Henri (2006) have investigated the interface between cultural controls and the components of the cybernetic model. Though Dent (1990) underlines that by using only financial measures, innovation can be hampered because of its little correlation with the organization's culture; Henri (2006) proposes a combination of both financial and non financial measures that would foster creativity. Furthermore, Henri (2006) concludes that these two types of measures are tools to convey signals throughout the organization which aims to drive lateral communication.

According to Goddard (1997), "budgetary control systems will only be really effective if they are designed to complement organizational culture." (p.120). In view of this, depending on the culture of the firm, different styles of the budgeting process might be established. Some factors that can affect the style of the budget can be the participation of the employees during the process as well as the usefulness of budgets to underpin the role of the managers. In other words, in the first case the degree of socialization or the orientation of the organization can lead to different levels of participative budgeting like a bottom-up approach that involves the cooperation of managers at different levels of the organization. Yet, the second case is mostly associated with budgets that support the managers' role by being flexible and enabling instead of firm controlling mechanisms. This is also known as the "managerial" budgeting style (Goddard, 1997).

Lastly, the performance measurement systems, previously mentioned, can serve on the one hand a monitoring function where deviations from standards or targets are measured so as to initiate a feedback procedure and the necessary corrective actions (Abernethy & Brownell, 1999; Simons, 1995). It can be argued that in this case, their function is mainly limited on a score-keeping role (Mundy, 2010). On the other hand, the cybernetic process can provide a basis for dialogue, challenge and debate between superiors and subordinates. In this approach, deviations are mainly seen as an opportunity to learn by stimulating discussions about different uncertainties and how to deal with them. It can be argued that this mode of use of the cybernetic model can increase the commitment of the employees towards the targets and

the visibility of their actions which may even cause resistance in certain occasions (Tuomela, 2005). Thus, a balance between formal feedback for monitoring established targets (Henri, 2006), and informal feedback for promoting a high degree of interaction between managers and employees (Kerr & Slocum, 1987) can be pursued to spur dialogue within the organization.

Culture & Rewards and Compensation

Few researches have been done on the interface between reward system and culture based on Ouchi's (1979) approach. Nevertheless, Kerr & Slocum (1987) and Chen (2010) have developed their studies around the topic. Particularly, Kerr & Slocum (1987) argue that the primary purpose of culture in an organization is to control the behaviour and attitudes of its members and this can be achieved through the reward and compensation system. Based on this approach of the interaction between organizational culture and reward, Kerr & Slocum (1987) design another definition of the reward system which is "the relationship between the organization and the individual member by specifying the terms of exchange: It specifies the contributions expected from members and expresses values and norms to which those in the organization must conform, as well as the response individuals can expect to receive as a result of their performance" (p.99). This definition clearly highlights the importance of culture in the reward system. In this study, Kerr & Slocum identify two approaches of reward system in relation to organizational culture: the corporate hierarchy and the performance based reward system.

In the first type of reward system, performance is defined by both qualitative and quantifiable aspects (Kerr & Slocum, 1987). The criteria used for the evaluation of subordinates, based on these two aspects are largely defined by superiors. "Numbers do not tell the whole story" (p.100) so other contextual factors are taken into consideration as well, depending on the manager's interpretation. A few indicative examples could be the leadership style adopted or inter-functional collaboration. In this system, informal feedback is held on a regular basis and is more oriented towards the professional development of the employee, rather than the result of the evaluation itself. Consequently, the interaction between managers and employees increases and can be conveyed as a signal for the organization's commitment towards the development and future of its employees. Lastly, the bonuses are based more on corporate performance, instead of the individual one. Additionally, salary increases are determined through established formal salary systems and lateral promotions can be more frequent than

vertical ones, considering the dedication towards the employees' development. Hence, cooperative behaviour is enhanced in favour of a competitive attitude (Kerr & Slocum, 1987).

In contrast to the corporate hierarchy, which stresses the qualitative aspect of performance, the performance-based system focuses on the quantitative aspect of performance (Kerr & Slocum, 1987). Financial criteria in this system are the root of this system, which implies that extrinsic reward is linked to the attainment of financial targets, and intrinsic incentive (promotion) is not the result of commitment to the organization rather to the value placed on the performer (vertical promotion). Consequently, mentorship or socialization, to promote the organization's values and norms, are not conducive to this system (Kerr & Slocum, 1987).

In the same vein with Kerr & Slocum, Chen (2010) emphasizes rewards based either on formal policies or myths and beliefs. The rewards based on formal policies can be assessed as an outward manifestation of the organization's cultural attributes. However, the intended messages contained in these policies may be interpreted differently. The second approach of rewards through myths and beliefs is a means of employees' acceptance to the reward system in place. Yet, Chen points out that this last approach would be a fruitful field of further research.

Finally, Kerr & Slocum (1987) stress the importance of culture in the reward system and underline that even though the reward system of innovative companies is mostly based on the performance based rewards, a typology of reward systems linked to culture does not exist. Rather, it is up to the organization to convince its members, through its values, beliefs and norms, for the fairness of its reward system (Galbraith, 2004).

Culture & Administrative controls

Over years, attention has been given to the use of culture as a tool to enhance administrative control. In different studies, authors underline how intertwined organizational culture is with administrative control (Meyer & Rowan, 1977; O'reilly, 1989; Teece, 1996; Grugulis, Dundon, & Wilkinson, 2000). Meyer & Rowan (1977) state that norms and beliefs are the source of the organization's values. Consequently, these values are expressed in a powerful way through rules and procedures, which affect the management of the whole organization. In addition, Kirsch (1997) argues that the expression of values into the rules and procedures of a company leads to formal administrative controls, which are not flexible.

However O'Reilly (1989), Teece (1996) Grugulis, Dundon, & Wilkinson (2000), Chenhall, Kallunki & Silvola (2011) develop another perspective of the interaction of organizational culture with administrative controls. They argue that the use of values aims to shape an organization's structure, which can result in a free flowing communication and decision processes that foster idea generation. Moreover, Haustein, Luther & Schuster, (2014) and Chenhall, Kallunki & Silvola (2011) point out that, innovative companies possess such features. Furthermore, they state that the implementation of cultural controls by an innovative company is a response to the requirements of decentralisation and participation in creative decision making. Thus, the organizational governance has to promote curiosity, tolerance toward mistakes and support for idea generation (Chenhall, Kallunki & Silvola, 2011). In addition, O'Reilly (1989) explains the significance of the different management levels, acting as role models, by behaving consistently with the values of the organization to communicate the organization's strategy. This should be done on a constant basis, starting from the top leadership to the bottom levels of the firm.

Cultural and administrative controls are so tightly linked that it is not possible to clearly illustrate the interface of culture with each of the three components of administrative controls, namely the governance structure, the organizational design and the policies and procedures. This is revealed by O'Reilly (1989) who explains the process in which cultural controls embed with these aforementioned types of administrative controls. Managers express their vision of the company through values and beliefs which later translate into rules and procedures that aim to shape employees' behaviour, or encourage their commitment towards the company.

3.4 Different innovative strategies

Davila (2005) classifies the four processes that capture the effect of different types of innovation on strategic change. This categorization is based on two dimensions. The first one explains the locus of innovation or in other words where the innovation happens in the organization, whether at the top management level or throughout the organization. The second dimension explains the type of innovation, whether it is an incremental or a radical innovation project. Particularly, an incremental innovation modifies the strategy of the organization within its current strategic context while radical innovations completely redefine the future strategy of the firm (Davila, 2005). Please refer to *Table 2* to review the four types along the dimensions.

	Types of innovation defining strategic change	
	Incremental	Radical
Locus of innovation		
Top management formulation	Deliberate strategy	Strategic innovation
Day-to-day actions	Emergent strategy / Intended strategic actions	Emergent strategy / Autonomous strategic actions

Table 2: Strategic concepts for MCS (Davila, 2005, p.42)

Initially, strategy was considered to be a linear process where formulation and implementation were taking place at different stages (Andrew 1971 cited in Davila, 2005). Top management was responsible for any changes to strategy and MCS were used at the implementation phase. Gradually, the notion of strategy changed as an evolutionary process where formulation and implementation happen at the same time. This means that strategic change is not an isolated event but rather takes place throughout the whole process which results in a realized strategy. The realized strategy is a combination of the deliberate and emergent strategies. Innovation is shaped at the top levels of a company (deliberate) but it also happens through the day-to-day actions (emergent) when adapted to the contingencies present (Davila, 2005). Simon's levers of control typology made MCS relevant in managing the emergent strategies, without being limited only to the implementation stage (Davila, 2005). The case of incremental innovations is characterized by lower levels of risks, where the firm makes use of its existing or relatively easy to acquire competencies. This happens within its current business model or technological domain. On the contrary, in the case of radical innovations, the levels of uncertainty are significantly higher with the power structure, competitive strategy and core competencies of the firm being radically shifted (Davila, 2005).

When the top management of an organization does not force the implementation of the deliberate strategy but focuses its efforts on defining the general rules that shape the emergent strategy, then the intended strategic actions emerge. When these actions emerge out of the current strategy of the firm throughout the whole organization from individuals or small groups then these are called autonomous strategic actions. Lastly, strategic innovations capture the concept of radical innovations which take place at the top of the company (Davila, 2005).

3.5 Innovation strategy and MCS

Davila (2005) developed a model of MCS based on how the innovation gets embedded in the strategy of the organization. The typology takes into account different types of innovation and the different methods with which innovation emerges. Moreover, the model defines the role of

the MCS as well as the organizational context within it operates. The model of MCS for innovation strategy is presented in *Table 3*.

Componnets of strategy	Organizational context	MCS role
Current strategy		
Deliberate strategy	Structural context	Support the execution of the deliberate strategy and translate it into value
Induced strategic actions	Structural context	Provide the framework for incremental innovations that refine the current strategy
Future strategy		
Autonomous strategic actions	Strategic context	Provide the context for the creation and growth of radical innovations that fundamentally redefine the strategy
Strategic innovation	Strategic context	Support the building of new competencies that radically redefine the strategy

Table 3: A model of MCS for innovation strategy (Davila, 2005 p.47)

Four roles of MCS are identified in Davila’s typology: executing deliberate strategy, guiding induced strategic actions, crafting autonomous strategic actions and building strategic innovation. Each of them will be further analyzed in the following section.

Executing deliberate strategy

Within the context of a deliberate strategy, MCS mainly support the execution of the strategy into actions, monitor the execution and indentify any deviations for correction (Davila, 2005). Efficiency and timely decisions are ensured at the expense of the organization’s ability to innovate. This might be desired in environments where attention to detail and standardization of processes are required. Specifically, in this type of strategy, consistency and reliability are delivered by the MCS, which prescribe the processes that should be carried out and the ways to deal with any discrepancies noticed. Malmi and Brown’s administrative controls like certain policies such as the code of conducts that define off-limits behaviors to avoid risk exposure are highly applicable in this case. Another indicative example from the same category could be the standard operating procedures (SOPs) that need to be followed. Regarding though goals and targets, their role is more related with motivation instead of monitoring. Innovation is not blocked, but still it is disregarded since managers are held accountable to their goals and can achieve them the best way they see fit, within the limits set

by the company. Similarly, budgets are also focused on the outcomes without specifying certain behaviors or actions that should be taken. Hence, it can be argued that MCS of this type fit in mechanistic and stable environments, where efficiency and speed are highly valued. The opposite is true for environments that are in need of innovations since these MCS would be too coercive and dysfunctional, with a focus on the short-term performance instead of the long-term success. Finally, the function of these MCS, when executing the current strategy, is crucial given their ability to translate the innovation into value (Davila, 2005).

Guiding induced strategic actions

When environments are dynamic requiring innovative solutions other than the codified knowledge already existing in the organization, then MCS can be used to capture the learning that takes place when processes are carried out (Davila, 2005). In contrast with the deliberate strategy, the new solutions or learning that happens are not ignored as noise but rather seen as an experiential process. Particularly, MCS in the induced strategic actions take into account the incremental innovations to the current strategy through the interaction between the day to day actions and the deliberate strategy of the firm. Therefore, any deviations from manuals or standard procedures are seen as a way to capture and code new knowledge. In other words, the MCS provide a framework within improvements, updates and new knowledge occur to refine the current strategy of the organization. Innovation is a significant aspect of these systems that can be supported by tools such as product development systems or groups in quality circles. In the first tool, MCS are used to build feedback mechanisms with customers through market research or prototyping that in turn stimulate innovation, which is mainly of incremental nature and might lead to new products. In the case of the quality circles, the purpose is largely process improvements. Therefore, MCS are used as part of an adaptive routine with a dialogue between the existing knowledge of a firm and the experiences of its employees (Davila, 2005).

Lastly, it needs to be highlighted that these MCS are within the structural context of the organization ensuring that the current strategy is developing (Davila, 2005). They actually provide a frame shaped by the goals and the strategy of the company, within which employees are free to search for new approaches and solutions and initiate discussion and exchange of information. Malmi and Brown's planning component is deployed in not such a rigid way, stimulating the exploration of new ideas. In the same respect, budgeting could be used on a participative basis. Top managers are involved in the decision activities of their subordinates through regular interactions which enable discussion about the strategic uncertainties of their

current business model (Davila, 2005). This implies relatively flexible administrative controls as well as an open culture within limits set by the MCS.

Crafting autonomous strategic actions

A company that seeks an aggressive innovation strategy might be unpredictable and less structured in their innovation process. Consequently, this process can happen anywhere and at anytime within the company and sometimes without the top management's awareness. To achieve this type of strategy, companies ought to develop the appropriate MCS that will enhance and guide the innovation process (Davila, 2005). Additionally, Barnett and Burgelman (1996) specify also that these MCS should be constructed on the basis of variables that fit better the organization's strategy. Therefore, for an autonomous strategy Davila (2005) stresses the importance of cultural and formal controls as variables of the MCS.

Culture in this sense refers to the values and beliefs that the company promotes to motivate employees for more creativity, exploration and experimentation that go beyond the company's strategy scope (Larsson, 2015). Furthermore, the use of culture in these firms can encourage socialization processes through mingles, training, knowledge sharing and external collaborations that help employees to discover new alternatives (Davila, 2005).

But formal controls can also support radical innovations by providing stable goals that employees can relate to (Amabile et al. 1996 cited in Davila 2005) and structure to the experimentation taking place in the organization. Moreover, the resource allocation process, which is characterized by uncertainty and longer time horizons, also relies on the MCS. The same applies to the selection and retention stage, where an idea becomes a business proposal and subsequently part of the organization's strategy.

Thus MCS in autonomous strategic strategies combine cultural controls as well as planning, incentives and training to ensure the integration of the innovation within the company, by fundamentally redefining its strategy.

Building strategic innovation

The market situation in which an organization evolves can lead its leaders to adjust their strategy in response to a need for a radical change. This change, in some particular situations, is initiated at the top management, instead in the functional areas of the company. In this case, strategic innovation is defined as the "process of formulating a strategy at the top

management level that radically changes the current strategy (Davila, 2005, p.55). Strategic planning systems, budgets and profitability reports are relevant when building strategic innovations. Particularly, these tools do not only serve a monitoring function, but mainly highlight opportunities for both incremental and radical innovations. Finally, MCSs need to monitor the environment that the organization operates so as to identify new technologies, changes in regulation as well as new trends in customers' needs (Davila, 2005). Also, learning is facilitated by promoting motivation for new competencies to be developed. Then, during meetings, exchange of information takes place and people with different backgrounds are brought together (Davila, 2005).

3.6 Summary of the literature review

From the literature it can be suggested that MCSs are tailored to the innovation strategy of the company in order to support and enhance the innovation process (Davila, 2005). Other contextual factors can also have an impact on the design of the MCS. Additionally, various forms of controls are used simultaneously by modern organizations, which are linked and support each other (Mintzberg, 1983; Malmi & Brown, 2008). Hence, considering that cultural controls have a broad nature, which provides a contextual frame for the other practises (Malmi & Brown, 2008), the interface between cultural and other elements reveals distinct patterns, implicating a cultural dimension to all control elements (Alvesson & Kärreman, 2004).

4 Results from the case studies

This section provides a description of the empirical data for the analysis of this study. The data consist of three cases that are outlined separately. Each case is divided into four categories. First, a brief description of the company is presented, followed by the innovation strategy. Then, the MCS of each firm as well as the interface between cultural and the other controls are explained.

4.1 Company A

4.1.1 Background of the company

Company A is a contract developer and manufacturer of pharmaceuticals based in Malmo, Sweden. Its range of activities revolves around three main areas: product development, manufacturing and project management. Particularly, concerning product development, company A focuses on creating formulations and technologies, mainly in two areas: the solid dosage products, which are supported largely in late clinical stages and the polymeric controlled release systems, which are developed from early clinical phases. Regarding manufacturing, the services offered cover the production of a wide range of products associated with the two aforementioned areas, packaging, technology transfers and supply of raw materials. Project management is about handling customers' inquiries in a structured way, by stating clear objectives, timelines, analysis of activities and costs as well as identification of potential risks. The customers of the firm, as the interviewee clarified, are not the final consumers but other pharmaceutical organizations.

Company A is a private owned company, with its history going back to the 70's, but after undergoing several changes the organization became a contract developer in 1999, the same way as it looks today. At the moment, the number of people permanently employed in company A is 160 but if contractors are taken into account as well then this number goes up to 200 people. Lastly, the company belongs to another group of pharmaceutical companies with its headquarters in France. Yet, according to the interviewee, the firm is not so tied to the group, being relatively independent.

4.1.2 Innovation strategy

Considering the scope of activities of the company A, the organization offers specialized pharmaceutical services with an emphasis on product development and manufacturing. It needs to be highlighted that the development is a rather complex and time consuming process. Moreover, it is characterized by a high degree of uncertainty, especially related to the building

of costs. Particularly, new medicines, which contain a new substance might take up a time period of thirty years before brought in to the market. However, drug development that does not include the discovery of a new substance takes significantly less, usually around ten to fifteen years. According to the interviewee, company A focuses mainly on the development and manufacturing of drugs that are made up of the polymeric controlled release systems and does not undertake projects with new substances. Hence, it can be safely assumed that the organization gives emphasis on incremental innovations and most inventions and research results can be found within the core business of the organization. *“Our main strategy is to be contract developer of the control release system of polymer. That’s what we are suited for.”*

Therefore, the development or manufacturing of a new drug can be considered more as an incremental innovation that can be developed, evaluated and implemented within the existing strategy of the company. Concerning the locus of innovation, it can be assumed that it can be both at the top-management level and on a day-to-day action basis. A top-management locus assumption is based on the fact that the direction of innovations is predefined by the firm’s core businesses, set by the top management. Day-to-day actions locus is assumed since innovations themselves are produced by the employees in terms of their daily activities, not by the top-management. The top-management only provides the guidance, but does not participate in the process itself. Thus, two types of strategic concepts for MCS according to Davila’s (2005) framework can be observed at company A – deliberate strategy and emergent strategy/intended strategic actions.

There is also a development department in Company A whose primary tasks are revolved around improvements of existing products as well as new products. But, at the same time continuous improvements are encouraged all the time throughout the whole organization. *“Employees have room to bring new ideas. Usually, it is about smaller ideas that have the potential to become bigger ideas.”*

4.1.3 Existing Management Control Package

Cultural controls

Culture in company A is rather explicit with its core values being present everywhere and signed by all its employees. Being close to the customer, best workplace and make a difference are the organization’s key values, which are further analyzed. They are relatively new and according to the interviewee they have been identified over a period of one year where all the personnel were involved during this process. Training programs were set up and

surveys have been filled by all the employees in order to ensure that everybody knows what they mean and what they stand for. Also, a professor in ethics took part in this process to evaluate the results and review the overall attempt. *“We put a lot of effort to get it right and that all the employees are involved in the process.”*

Subsequently, these values have been broken down to each department with regards to the respective employees, objectives and plans that need to be achieved. Thus, clan controls are relevant in this case. Furthermore, the “punishments” that should be imposed in case these values are not followed have been decided by the employees themselves. A typical example could be to buy a cake. Also, adherence to this set of values is closely followed by regular updates since as the interviewee explained just one week before the scheduled interview the salary differences between male and female in the different departments has been analyzed. Therefore, in the light of the foregoing, it can be argued that it is vital for company A to structure and formulate the culture and create a language for it.

Considering the high technical skills that are required for company A given the strict regulatory and safety conditions of the pharmaceutical industry, the recruitment process and selection of employees is dependent on both their technical skills and personality attributes. *“We look for very specific skills but it is also very important that the person can fit in the project.”*

In addition, due to the high level of specialization required, professional development programs and constant learning are also greatly valued and linked with the rewards and compensation scheme of the organization, as it will be explained later. Finally, meetings are mostly related to the everyday work issues and are regularly held by the specific project groups. But there are also bigger company meetings of informative character, usually seven to eight times per year, where the whole organization takes part and new product or staff related updates are provided. In the same line, small celebrations are held throughout the year when an occasion arises such as new customers or products reach certain stages. While the culture of the organization promotes interaction, communication and transparency the offices are not designed in an open way, because of the old design of the building. Employees work mostly in different offices, in teams of two or maximum three people. Yet, as the interviewee mentioned *“We have looked into the office landscape, but we don’t have it yet”*. Thus, it is a change under consideration. Moreover, the laboratory dress code in response to safety and health requirements is followed when necessary.

Finally, as the interviewee described, most employees are part of their respective professional association. The firm has a close collaboration with these unions in order to stay updated with all the current affairs. Also, certain values and beliefs are shared among all members of the firm, which derive from the industry that the organization operates within. An indicative example is providing affordable medicine to patients (European Federation of Pharmaceuticals Industries and Associations, n.d.).

Planning

Company A's planning practice contains elements of both long term and action planning. Long term planning is in the form of five and ten year plans with the latter being mostly related with strategic matters. These are designed by both the executive management of the organization and the group as well, especially with regards to investment planning activities. In addition, there is a budget process designed for four and one year respectively. Budgets will be analyzed in more detail in the next component of cybernetic controls. Action planning is carried out through the previously mentioned one year budgets along with the forecasting process that takes place twice a year as well as the production planning. These are decided by the CFO after receiving all the necessary information from each project and are approved by the board. Project managers are responsible for the economy within their project and during monthly meetings all managers present their results and discuss potential problems and decisions to be taken so that these are reflected on the action plans.

Cybernetic controls

The budgets, prepared on a four and one year basis respectively, are monitored and used as a control and information system at the management level. The yearly budget is reviewed each month by the CFO in order to ensure that each project/department still operates within the budget guidelines. The four-year budget is then updated accordingly. The budgeting process is used in conjunction with forecasting, which is prepared for the forthcoming eight months and is updated two times per year. The budget is updated according to the forecast. Hence, it can be argued that the organization recognizes the necessity to keep the budgets flexible since it faces uncertainty. Particularly, each project or department manager can follow their progress with regards to the budget and they hold large responsibility in meeting the goals within limits of course, given the changing conditions.

Company A has in place several financial and non-financial metrics. As the interviewee explained there are a lot of different key process indicators (KPIs) depending on the relative

department or project. Some indicative examples are yield per batch, package time, units per hour or complaints from customers, overtime and accident ratio. The results are reported to the group every month.

Rewards and Compensation

Company A uses different kind of systems regarding this component. Specifically, there is a bonus program when targets are met and the results are good and this is reflected on both managers and employees. Also, the organization places a great deal of emphasis on the training and professional development of its personnel. This is demonstrated by the amount of money invested each year for this purpose. Additionally, the healthcare of the employees is also of great significance, with big health investigations every three years and annual checkups.

The incentive system is mainly individual-based for both blue and white collar workers. As the interviewee mentioned salaries can increase on a scale from zero to twenty percent, based on a number of criteria such as punctuality, training of new personnel and maintenance of equipment or even honesty. Hence, a variety of aspects are evaluated, including technical skills and personality characteristics. Moreover, formal evaluations are performed twice a year between the employee and the manager. During the evaluation process, goals are set for the upcoming term regarding assignments and career development plans, while targets from the previous period are also discussed and followed up. However, during the course of a project an employee and their manager discuss work related issues and provide feedback to each other for improvements or potential risks. This is performed on an informal basis.

Administrative controls

Company A has a two level management structure, which serves to build long-term customers' relations by providing the flexibility needed to meet their expectations. Particularly, the executive management team provides strategic direction and an effective business environment. It is made up of the managing director, the finance, HR and administration director as well as the production manager and logistics and supply director. Concerning the operational level, managers ensure an efficient flow of the customer projects. The operational level is consisted of the project director, who is ultimately responsible for all projects undertaken; the development and engineering director, responsible for the procurement as well as the maintenance of equipment, buildings and media systems; the quality control and assurance directors, primarily accountable for all quality related

procedures and tasks and the safety, health and environmental (SHE) director. Furthermore, the management structure is supported by a steering committee that reviews on-going projects and facilitates plant modifications. The executive and operational teams along with the steering group meet on a monthly basis to discuss any issues arising, decisions or changes that have to be made.

As the interviewee commented the structure of the organization is rather flat which helps them responding to their customer needs in an easier, more flexible way. *“We have to change all the time, but that makes us strong also. We are a small pharma company and we can adapt to these changes. We see it as strength.”*

Finally, due to the firm regulatory requirements related to the industry that the company A operates within, there are detailed standard operating procedures (SOPs) that have to be strictly followed. In addition, any changes or updates have to be informed and signed by all the departments. Lastly, it needs to be mentioned that in the early stages of development which are mainly associated with the controlled release systems of polymer, there is a higher degree of flexibility in contrast with the later development stages.

To sum up, taking into consideration the previously identified innovation strategies of the firm, the role of the MCS seems to be consistent with the presented theory. Firstly, they support the deliberate strategy of the organization by ensuring attention to detail and standardization of processes as required (Davila, 2005). This consistency and reliability of the MCS can be manifested through the strict character of the SOPs that have to be followed. Secondly, the accountability of the managers for their goals as well as the flexibility to achieve them the best way they see fit, within the limits set by the top management, is a proof of the motivational instead of monitoring function of the goals. Hence, the MCS as previously described fit the environment of the firm, where efficiency and timely delivery to the customers are highly valued (Davila, 2005). Yet, the MCS present also characteristics that support the emergent strategy of the firm. Particularly, this is apparent in the possibility of the employees to bring new ideas within limits of course as dictated by the contract agreements and the industry regulations. Therefore, the MCS are used as part of the routine of the firm which adapts to the new knowledge resulting from the existing knowledge of the organization and the experiences of its employees (Davila, 2005).

4.1.4 Interfaces of the cultural controls and the other components

Culture seems to be interrelated with the other control elements. Specifically, with regards to *planning*, strategic and action plans seem to be linked with culture in different ways. The five, ten year plans which are more long-term are decided on the executive management level without the participation of the operational managers. The four year budget is also part of this category, but adjusted according to the relative changes in the one year budgets in combination with the forecasting process. However, action planning, which is mostly associated with the one year budget and forecasting, follows a rather bottom-up/top-down approach to consider the different perspectives and interests. As the interviewee of the company A mentioned the needs of the various projects are evaluated on a monthly basis and updates take place given the high uncertainty and the need to constantly meeting customers' needs. This means that there is a certain degree of flexibility but within certain limits, considering the limited resources available. Furthermore, the goals can be characterized as explicit, quite clear and specific but at the same time adapting to the changing circumstances, largely driven by the customers' requirements. Moreover, it could be argued that planning in general is linked with the core values and beliefs of the organization related with the positive impact on the world, the customers and employees. An indicative example here is the decision of the organization to engage in the development of an intra-vaginal ring against the human immunodeficiency virus (HIV) since 2004. This project is commonly undertaken with another non-for profit US organization. Lastly, this demonstrates a general interest or emphasis toward the long-term strategy of the firm.

The *cybernetic process* is also connected and affected by the cultural controls imposed by the organization. Budgets have already been discussed in the previous paragraph, where it was emphasized that there is a certain degree of flexibility, mainly serving as an evolutionary response towards the clients' requisites. Therefore, it could be argued that the budgeting process has characteristics of both participative and managerial budgets. In addition, the meetings held on a monthly basis among the executive and operational management teams as well as the steering committee serve as a dialogue-enabling tool. Particularly, as it was explained by the interviewee of the firm, the purpose of these meetings is not only to monitor or evaluate the progress of each project in relation with the budgets or the KPIs used but rather to discuss the relative results, potential deviations or problems faced. Therefore, continuous information exchange in order to achieve knowledge sharing and stimulate learning is a relevant factor of the firm's culture. However, it has to be highlighted that even

though deviations and uncertainties are discussed, the adjustments that take place are within firm limits in view of the strict contract agreements and industry regulations in general.

Concerning *rewards and compensation*, the linkages with the cultural controls are not so clear-cut. In fact, it could be argued that the cybernetic process seems to be more closely tied with the incentive scheme in place. In particular, company A follows mainly a performance based reward system which is largely comprised of individual rewards. However, characteristics of a hierarchy-based system can also be traced through the trainings and the professional development of employees, which is associated with one of the key values of company A about personal development and being the best workplace. In addition, it can be noted that group rewards are not part of the incentive system implemented by the firm. Yet, according to the interviewee when project targets are met, there is a bonus program, which is set though on an individual basis as well. During the formal evaluation procedures, several aspects including personality attributes are checked, which is related with the core values of respect and honesty as well as responsibility and caring.

Finally, cultural and *administrative controls* are tightly interconnected, being consistent with the presented theory. The two level governance structure of the firm serves one of the crucial beliefs of the organization to being close to the customer, which can be broken down to maintaining long-term relationships, creating value and being flexible. Besides, the organization design and structure of the firm is rather flat, characterized by a free flowing communication which can be explained by the frequent changes. This can be further supported by the regular meetings along with the steering committee on a monthly basis, but also within the projects for stimulating discussions about current issues, decisions and results. Lastly, the policies and procedures of the organization such as the SOPs are firm, given the strict contract agreements with the customers and the industry's governing rules. This can also be connected with the strong concepts of keeping a scientific approach and a high quality.

4.2 Company B

4.2.1 Background of the company

Company B is in the security industry and is based in Malmo, Sweden. Specifically, it is a leading company within professionally monitored fire, intrusion alarms and smart home services. To ensure customer care and loyalty, every stage of the whole value chain from the product and software design and development to the sale, installation and maintenance is covered. In addition, with the aim of broadening its services, company B has developed

partnerships with various suppliers of home-based professional services. With a strong presence in 14 countries, in Europe and Latin America, the firm has a total of 9,600 employees with its headquarters situated in Malmo, Sweden along with its innovation centre. The history of the organization traces all the way back to 1934. Yet, the firm with today's concept was founded in 1988. After undergoing several changes, it is now acquired by a private-equity organization based in the US. Lastly, it should be clarified that the focus of the research of this study lies within the group.

4.2.2 Innovation strategy

Innovation plays a crucial role in company B and is placed at the beginning of its value chain (*Figure 2*). Its innovation centre, based in Sweden, is devoted to the design and development of new products and services so as to respond to customers' needs. Considering its fast growing pace, the innovation centre deals with various activities including the management of the business' critical system and database, software and product testing, quality and security assistance.



Figure 2: Value chain of the firm

Most new products or services are within the core activities of the firm. Projects usually last a period of two years and get validated by the executive management team. This implies that people employed in the innovation centre are required to design at least one big new product or service per year. Yet, besides the development of new products in the innovation centre, as the interviewee described *“Innovative ideas can come from all over the company and even through all kind of sources.”* In an attempt to stimulate innovation, attention is given to any source of idea generation, either internal or external. Particularly, inside the company, feedback mechanisms are implemented to receive information regarding products and services to better satisfy customers' needs. Externally, immediate feedback from customers or partners is also used to initiate improvements in existing products or services. An indicative example here, in terms of improved services is the increasing use of social media like Facebook or Twitter, mainly for promotion or communication purposes.

Based on the aforementioned, it can be argued that company B deploys a deliberate/emergent strategy, according to Davila's framework (2005). This is justified on the one hand by the direction of innovations which are within the core strategy of the firm, determined at the top-

management level and on the other hand by the personnel employed in the firm itself that has the possibility to recommend new proposals and realize these ideas through their work processes.

The firm has experimented also with certain ideas out of its core strategy, especially in the area of smart phone connected appliances. But as the interviewee explained due to the intense competition in this market, it was decided not to enter it. Instead, as he expressed *“We decided that partnerships in these areas would be better for us and we went more on our core business, which is fire and home intrusion”*. This could be a sign for entering a more autonomous strategy, based on Davila’s typology (2005).

4.2.3 Existing Management Control Package

Cultural controls

The firm is in an ongoing process of structuring the organization’s culture and create a language for it. Currently, there is a project under process, which lies in the idea of explicitly defining *“the company’s DNA”*. To be more specific, a big survey has been carried out throughout the whole group, where the board of directors with employees from all the 14 affiliates have taken part. The aim of this survey is to determine the core values of the firm, based on the employees’ understanding. As the interviewee explained, after narrowing down the results from the research into a certain number of values and beliefs, the board of directors will make the final decision, considering the gravity of this stage. The general objective of this process is to formally communicate the firm’s values, which will serve as a steering point for motivating, retaining and building employees’ commitment towards the organization.

Culture is of great significance and is currently expressed through several ways. Firstly, the company’s vision: *“We believe it’s a human right to feel safe and secure. We connect and protect what really matters. Our service brings peace of mind to family and prosumer small business”* provides a sense of purpose and direction. Secondly, various employees’ testimonials in the official website of the company provide some of the key values of the firm like putting customers’ needs first or professional development. An illustrative example can be *“At the start, I had basic technical skills but had never worked with alarm systems. Initially, I just enjoyed gaining new skills”*. Other values emphasized are team spirit through openness; free flowing communication between managers and employees; intrinsic rewards such as recognition of individual effort and initiative and acknowledgement of everyone’s contribution. In addition, based on the interviewee’s description, the culture of the

organization is “*open, entrepreneurial and innovative in terms of both products and services.*” Hence, open communication, curiosity as well as both the performance and attitude of employees are highly valued. There is also high tolerance towards mistakes, especially during the early stages of the design and testing of new products and services, since “*We are a company that promotes mistakes because we want to be innovative.*” This is most apparent in the innovation centre of the group, where honesty and openness aim to foster idea generation and enhance knowledge sharing.

The attitude of the employees based on the aforementioned aspects is crucial and assessed both formally, during the evaluation process and informally as well. More information about this will be provided in the rewards and compensation practices. Another important point that has to be mentioned is the absence of a human relations function in the group until recently. Consequently, any informative sessions or trainings were held from employees in the upper management levels. In addition, during recruitment, hiring the right person is ensured by assessing the technical skills of the candidate. Personality traits do not seem to be stressed in the selection process.

Finally, offices follow an open space design. According to the interviewee, “*It is a good way for an innovative company to drive business*”. In addition, there is no dress code in place. Also, interaction and socialization among employees is further enhanced by mingling every Friday, where usually a cake is shared among the personnel. On top of that, team building activities are organized among the employees of each functional area with the goal of improving communication as well as boosting motivation and morale. These activities are related to clan controls, since they are designed in accordance with the values and preferences of the respective groups of employees to encourage wider engagement (Alvesson; 2004 Single; 2008). Moreover, some employees are involved in their professional association, which has an impact on the respective employment contracts and the salary levels as well.

Planning controls

With regards to planning, a distinction is made between the group’s strategy and the country’s strategy. Obviously, there is an overall group strategy providing the general direction of the company. It is based on a four to five year perspective and is performed on an annual or biyearly basis, when it is considered relevant. This is determined at a group level, by the top management level of the organization. Yet as the interviewee made clear, each country has some flexibility defining its own goals and plans as they see fit, which need to gain approval

by the group's management team prior to implementation. This is within the context of the group strategy. Then action planning is in the form of detailed one year budgets for each country. More information with regards to budgeting will be provided in the component of the cybernetic process. The boundary between planning and budgeting is very thin because most of the company's planning is based on the budget.

Cybernetic controls

Budgeting plays an important role in company B since budgeting is the main planning tool used at a country level. Particularly, the procedure follows a bottom-up/top-down approach, where each market/country proposes a budget according to their planned activities and needs. In other words, every department/project of a certain country proposes its respective budget that sums up to the total budget of that market. Then this has to be approved by the group's upper management. Sometimes as the interviewee mentioned certain markets need to have two or even more rounds, prior to the final approval by the group. One characteristic of the budget is that it is not flexible, since it cannot be updated during the year. With regards to the innovation centre, a business controller is part of the team to monitor the progress on a monthly basis and ensure that the resources will be enough until the end of the year. In addition, employees tied with the budget have a lot of accountability to deliver the results planned. As it will be analyzed later, this is explained by the fact that their bonus depends on the budget's targets. Furthermore, a variety of financial and non-financial performance measures are prepared on a monthly basis to monitor the results and cover several aspects. Some indicative examples of financial measures are return on investment (ROI), payback, earnings before tax, depreciation and amortization (EBITDA) and recurring monthly revenue/cost (RMR/RMC). Non-financial measures include number of employees by country, market shares or number of installations per country. Also, no hybrid measurement system is used. Finally, concerning the innovation centre, it is of crucial significance to deliver timely any potential product designs.

Reward and compensation

The incentive scheme in place uses a combination of extrinsic and intrinsic rewards. Particularly, there is a bonus program that is highly linked to the budget, which means that addresses only the upper management level of the organization. These are individual bonuses distributed only when the relevant shared targets (growth and financial performance) and individual (specific performance tasks) targets are met. For the rest of the employees the

salary levels can increase largely based on their performance. *“We are very performance oriented.”* Yet, apart from the skills, attitude is also extremely significant. Qualities such as *“honesty, going the extra mile, feeling part of the company’s DNA”* are highly valued. In the same light, intrinsic rewards are also used, in terms of recognition or celebration for the launch of a new product or other similar reasons. This is the case mainly for the Innovation centre, where no extrinsic rewards apply in that division. This aims to keep a friendly atmosphere among employees and to build a strong company culture. Finally, the firm has in place a formal evaluation system twice a year, where subordinates’ progress is assessed and employees have the opportunity to discuss their development and future goals.

Administrative controls

Growing in a fast pace, company B makes use of administrative controls in a particular way, which is characterized by a decentralized structure that still tries to enable a good information flow, both at a group and country level. The group is divided in two groups; the north and south countries. Each country is an entity with its own structure. On the one hand, the northern group of countries consists of Sweden, Norway, Denmark, Finland, Belgium and the UK. On the other hand, the south market is made up by some European countries, specifically France, Spain, Portugal, Italy and the Latin American ones; Chile, Brazil and Peru. Based on this classification, different products and different services are provided in these two markets (Figure 3).



Figure 3: Products and services in the North and South markets

On a group level, meetings are held on a monthly basis by the top management team for the evaluation of the results achieved. While on a country level, meetings are held, according to their own needs. In addition, general meetings, of a mainly informative character, are held every quarter, in each country, with a question and answer session, where all employees take part and have the opportunity to raise any potential issues or ideas.

The decentralized structure of the company serves as a mechanism for the different needs of the different countries. As the interviewee explained, overall the group tries to maintain an open communication system. The reader can have a better overview of the structure of the firm in *Figure 4*. As it can be noticed, there are clusters among big and small markets. Finally, concerning rules and procedures, they are not perceived as formal process documentations but rather as general guidelines. To illustrate this, the application of the standard operating procedures (SOPs) is quite flexible, since “*If an employee has a better way to do a task, and then let it be done that way*”.

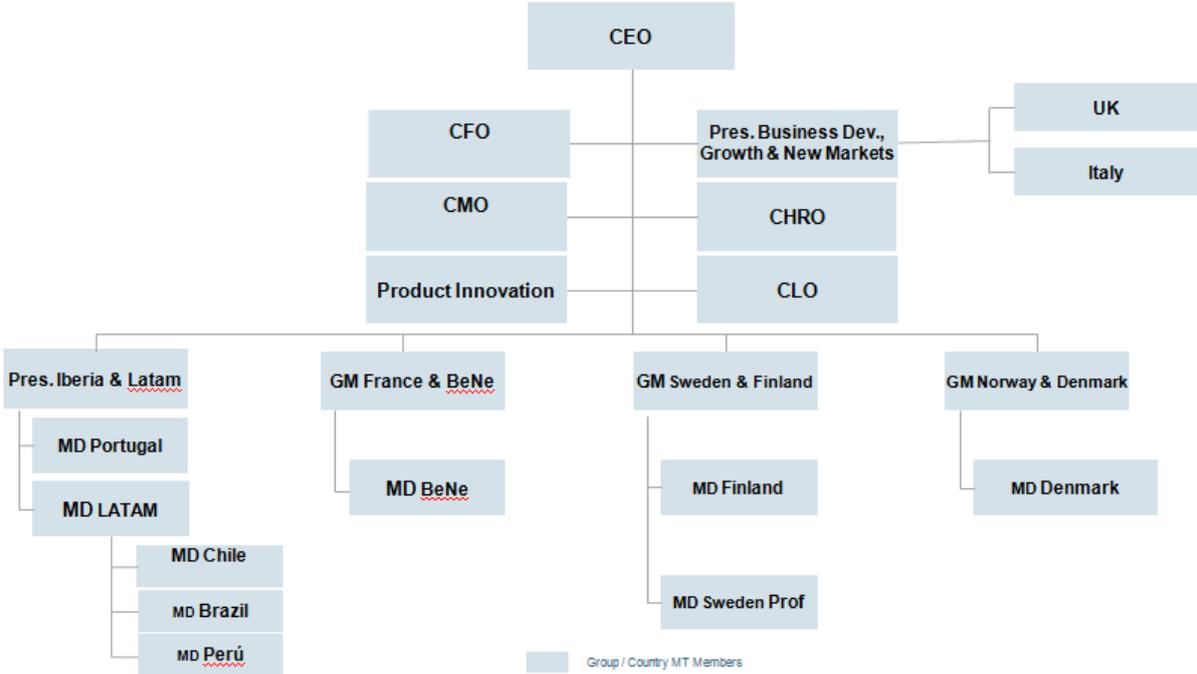


Figure 4: Organizational chart of the group

In light of the foregoing, the role of the MCS, as previously analyzed, seems to be in accordance with the theoretical review. Particularly, while there is a large responsibility for managers to succeed their goals, the flexibility to identify new or better ways to achieve them is also high (Davila, 2005). Furthermore, budgets are mainly focused on the outcomes without defining the actions that should be taken. Besides this role of the MCS as a way to support the deliberate strategy of the firm, there are also some further characteristics with regards to the organization’s emergent strategy. New solutions or learning are not disregarded but rather

accepted as an experiential process (Davila, 2005). Lastly, product development systems are in place, which build feedback mechanisms with customers (Davila, 2005) through the sales workforce of the firm or its partners.

4.2.4 Interfaces of the cultural controls and the other components

Cultural controls seem to interact with each element in a particular way. Particularly, *planning controls* interconnect with the cultural controls in a rather clear way. This is especially true at the country level, concerning the action planning. The communication between the director managers of each country and the executive management team, leads to flexibility in planning with regards to the attainment of goals or planned activities. Additionally, the three times forecast in the short term and the two times forecast in the long term planning is another aspect of the interface between cultural controls and planning. During these forecasts, the upper management team may use the strategic planning of the company to remind managers of the company's vision, which is the formalization of the company values and beliefs. Lastly, the communication of the organization's plans to its employees may also be a way of communicating the firm's vision.

The cybernetic model and the cultural controls seem to be linked to each other in a rather indirect style. Specifically, dealing with the budgeting process, its bottom-up/top-down approach which requires collaboration between the executive management team and the director managers of each market, can be used as a basis to characterize the budget as semi participative. This implies that it does not involve the company as a whole, but only those who are tied to the budget. In other words, there is a communication flow to achieve the sharing of any issues, ideas or experiences, which is a cultural feature for innovative companies. Though not taking part in the budgeting process, the employees' awareness of the budgets is also a way of sharing the company beliefs. Yet, as it has been aforementioned there is no flexibility in the budgeting process during the year. As the interviewee explained "*This is the idea to have them (budget targets) tough to motivate them (director managers) to perform. It is a constant pressure*". This might be associated with the emphasis given to strong performance. Furthermore, the firm possesses both financial and non-financial metrics. These are discussed on a monthly basis with the aim to evaluate the progress succeeded and identify any deviations. Also, the fact that the evaluation centre is mainly evaluated based on non-financial measures can be argued to increase employees' motivation and commitment.

The interplay between the *reward and compensation system* and the cultural controls is not so straightforward. While a combination of extrinsic and intrinsic rewards is used, it can be argued that the firm is very performance oriented. Yet, this is mostly applicable to the employees whose bonus is directly associated with the budget. This shows a more direct relationship between the cybernetic process and the incentive scheme of the firm. The fact that apart from skills attitude is also evaluated demonstrates the significance of key values of the company and their connection to the rewards. In addition, the implementation of rather intrinsic rewards like recognition and celebrations, especially in the innovation centre, shows a slow change towards more implicit rewards, in accordance with the strong culture of the organization, as it will be expressed through the ongoing project of defining the firm's DNA.

Finally, with regards to *administrative controls*, this interplay with the cultural controls is manifested through several features like the decentralized structure of the firm, the decision making process followed, the ceremonies held to communicate the organization's strategy and the usage of the company's values to spur employees' commitment. To be more specific, the decentralized structure of the company is reflected at both a country level and at the innovation centre of the firm. This is in accordance with the cultural controls of facilitating decision making and providing the necessary flexibility within each market and the centre. In addition, the meetings held on a monthly and quarterly basis, as previously described, play a dominant role stimulating discussion about any potential issues and communicating the values and beliefs of the company to its employees, enhancing therefore their commitment towards the organization. Furthermore, the guiding principle behind the formation of clusters among the big and small markets is to initiate and enable learning and knowledge sharing. Finally, the application and interpretation of the standard operating procedures (SOPs) as general guidelines supports the curiosity and flexibility necessary to remain innovative.

4.3 Company C

4.3.1 Background of the company

Company C is in the pharmaceutical industry and is based in Copenhagen, Denmark. It consists of three different divisions, namely the Innovation centre, the Diagnostics and the Pharmaceuticals. Its main operations include preclinical research and development, early detection and diagnosis of diseases as well as development and production of drugs for the treatment of diseases. Particularly, it is part of one of the largest biotech companies with drugs in five major disease areas, oncology, neuroscience, infectious diseases and immunology. In

addition, it is one of the largest suppliers of pharmaceuticals to Danish hospitals. Furthermore, the company offers personalized treatments and clinically differentiated medicines which lead the market for their innovation and design.

With regards to the personnel, company C employs 260 employees; the Pharmaceuticals division has 110 employees, the Diagnostics approximately 90 employees while the Innovation Centre approximately 60.

The headquarters of the organization are in Switzerland, which is a public listed company with subsidiaries all around the world. Yet, it has to be highlighted that the focus of the research of this study lies within the affiliate in Copenhagen, which is privately held.

4.3.2 Innovation strategy

Regarding the activities of the interviewed company, innovations are an integral part of its strategy and ensure long-term sustainability. In order to be competitive and meet the patients' needs as well as demands, it is crucial to continuously develop new drugs and treatments. Undoubtedly, the development and testing of new drugs and diagnostic tests is very complex and time-consuming. Furthermore, there are only limited resources that lead to a competition for funding and prioritization of new projects, depending on a set of criteria like the impact for patients, the target group and the commercial potential. According to the interviewee, innovation happens all the time inside the organization and it is reflected in their purpose *"Doing now what patients need next"* or in the slogan *"Meeting the unmet need"*. One example of the latest innovation is the area of personalized healthcare which aims at defining the best treatment for each patient by using special genomic tests. This is considered more like an extension of the main operations of the firm. The collaboration between the pharmaceutical and diagnostic division has also contributed to this new direction and provides a competitive advantage over other drug companies. As the interviewee emphasized: *"Targeted therapy, that's where the future is"*.

Each department works within a specifically identified direction such as oncology or immunology. Therefore, it can be argued that the focus of the organization is on incremental innovations and most research takes place within its core business. Yet, as it was stated, radical innovations could also be pursued in case of future drastic changes in patients' needs or in the technology. Concerning the locus of innovations, it is argued that it can be both at the top-management level and on a day-to-day action basis. A top-management locus is based on the integration of the innovation support in the overall company's strategy. Moreover, the

direction of innovations is predetermined at the top-management level in line with the group's strategic trajectory. Since innovations themselves are produced by the employees in terms of their daily activities, a day-to-day actions locus can be assumed as well. This means that the top management provides support and guidance, without participating in the process itself. A relevant example here could be the discovery of a new molecule during the daily work routines of the employees. Hence, based on Davila's typology (2005) company C follows a deliberate and emergent strategy/intended strategic actions.

4.3.3 Existing Management Control Package

Cultural controls

The organizational culture at Company C is strongly rooted in its values. Three key values sustain this culture and help employees stay engaged, namely integrity, courage and passion. These play an important role and are considered as critical drivers of innovation. Supplemented by an open and transparent communication, these controls contribute to building a sense of purpose and establishing common goals. Employees are encouraged to try things, take risks and at the same time accept failure and mistakes. The use of "*rewarding failures*" that will be explicitly analyzed in the part of rewards and compensation demonstrates the acceptance of failures as an inseparable part of following new patterns. This is mostly applicable in the early stages of the research phase, since later there are stricter limits and regulatory requirements that need to be considered.

According to the interviewee, there is significant autonomy between the employees but within certain boundaries, which is expressed in the slogan "*Freedom under responsibility*". This is also demonstrated by the fact that employees are expected to initiate their evaluation process by recommending themselves what exactly their next year personal development plans should include. More details concerning this are going to be provided in the section of rewards and compensation. In general, it can be stated that the organizational culture of company C facilitates the creation of new ideas and their hierarchical upward communication.

Employees hold face-to face meetings with their managers on a monthly basis to discuss any potential issues, ideas or decisions. This is explained by the belief in company C that many things matter to the employees, ranging from their well-being and support from their leaders to their career development and tools to perform their tasks. Also, inter-functional communication and cooperation is in place to promote organizational learning and knowledge

sharing. An indicative example already mentioned is the increasing collaboration among the pharmaceutical and diagnostic division.

The values of the company are written in big posters which are located at the entrance of the premises of the building. Furthermore, there is diverse video material in the official website of the organization emphasizing the importance of an innovative culture, which empowers its people and keeps them committed to improving medicine. This is also reflected in the recruitment process, where candidates who are curious and fit the values of the firm are preferred. Of course, specific skills are also necessary up to a certain degree depending on the position. Lastly, the offices as explained by the interviewee are not designed in an open space despite the free flow of communication supported. Rather the majority of the employees work in individual offices, which is in accordance with their preferences of being able to *“focus on their tasks, with peace and quiet.”* Additionally, dress code is not so strict but more like *“business casual”*. Also, laboratory dress code is in place where relevant.

Finally, employees are free to be members of a professional association, but this membership does not have an influence on the company’s management. Rather, the pharmaceutical industry implies particular values and beliefs shared among the firm as a whole, which is associated with clan controls.

Planning

Company C uses a mixture of long-term and short-term plans in the form of budgets. Long range planning is in the forms of three year detailed plans, which are mostly related to strategic matters and they are an extremely significant factor in the whole management control process. This makes sense considering the long lasting drug trial and approval process and the mission of the company which is reflected in *“Doing now what patients need next”*. Action planning is carried out through one year budgets along with forecasting. More information with regards to budgeting will be provided in the component of the cybernetic controls. Revisions of the action plans and consequently of the long-term plans take place three times per year. There is a bottom-up/top-down approach in the planning element, which means that the upper management team of the company receives all the relative information from the different projects about their planned activities, costs etc. Then the top management, based on the overall strategy of the group and the agreed focus areas, approves these plans and submits them to the headquarters. This cycle usually is initiated in May, approved and

submitted to the group by September. Lastly, monthly meetings are conducted to discuss the performance and to plan actions.

Cybernetic controls

The budgets, which are a very important tool for company C, are prepared on a three and one year basis respectively. The yearly budget is reviewed each month where the different project leaders meet with the upper management to assess the progress achieved and ensure that they still operate within the limits imposed. The three year budget is then updated accordingly. The review of the budget is based on a precise forecast procedure. However, the organization recognizes the significance of having certain flexibility because of the high level of uncertainty. Still, each project bears responsibility for its results and monitors its advancement. Finally, the performance measurement system includes both financial and non-financial metrics. This is expected since customer needs are the major driver for innovation, which implies the necessity to apply non-financial measures as well. As it was explained during the interview, there are several different KPIs which can be related to sales, patients, employees as well as suppliers and the environment.

Rewards and Compensation

Company C has in place a twofold evaluation program, based on each employee's performance plan and individual development plan. On the one hand, the performance plan is mostly about tangible, specific goals that need to be achieved during the relative six-month period. On the other hand, the individual development plan is more of a qualitative nature, assessing personality traits and skills that can be acquired and built on. The general procedure followed is initially a self-assessment conducted by the employees themselves and then a dialogue with their managers follows, where reflections are made on what has been achieved and the possibility of additional improvements is discussed. Explicitly, this is called the "What", which concerns the deliverables as well as the goals achieved and the "How", which deals with the way and the general attitude that these goals were succeeded. So taking these two conditions into account, there is a bonus program, which depends on the position of the employee inside the organization and the results of the formal evaluation program. Then, there are certain multipliers, based on the achievement of certain goals at a regional or global level. In other words, when certain collective targets are met in the whole region or group, then some extra monetary rewards are given. Moreover, as it was aforementioned, there is a "failure rewarding" aspect that is highlighted inside the firm. "Sometimes even failures are

rewarded in order to create incentives for a more creative thinking.” Other group rewards, of a rather intrinsic character, are associated with recognition and the celebration of successes. *“Celebration of success is also very important to us.”*

Administrative controls

Company C has a rather hierarchical structure and is organized in a matrix organization. But as it will be analyzed in the section of the interfaces among the cultural and administrative controls there is still room to raise new ideas and communicate them easily up the hierarchy. In broad terms, the overall structure of the organization consists of the board of directors, the leadership team and the line managers.

Furthermore, due to the firm regulatory requirements related to the industry that the company C operates within, there are detailed standard operating procedures (SOPs) that have to be strictly followed. Yet, in the research phase, there is more flexibility than in the later stages of the drug development. In addition, working procedures are also in place, which are not so firmly monitored, since employees are not usually equipped with detailed guidelines but they have the freedom to decide the best way to perform their tasks, as they see fit. Again of course this depends on the stage of research and development of the particular drug.

Finally, the group has a code of conduct which is applicable to the affiliate in Denmark as well. It clearly expresses the firm’s expectations and provides all employees with practical guidance and specific examples and references.

In view of what has been said, it can be argued that the MCS identified sustain the innovation strategies of the firm. Explicitly, the MCS employed by the firm ensure that its processes are consistent and reliable to execute its deliberate strategy (Davila, 2005). This is further illustrated by the SOPs that have to be strictly adhered to as well as the code of conduct that defines off-limits behaviors. Obviously, this is tightly associated with the industry in which the company operates. Accountability regarding goals is also extremely relevant considering the so called *“freedom under responsibility”*. This explains as well the opportunity to meet the targets according to the employees’ judgment. Regarding the emergent strategy of the organization, the MCSs provide a framework in which knowledge and information sharing can lead to improvements and other incremental innovations that refine the current strategy of the firm (Davila, 2005).

4.3.4 Interfaces of the cultural controls and the other components

Generally, the organizational culture of Company C is rather strong, with a deep impact on all the other control elements. Cultural controls seem to receive significant attention since they define the nature and the way the rest of the practices are implemented and employed by the firm. Concerning *planning*, in terms of strategic and action plans, several remarks can be pointed out. Firstly, the long-term and by extension short-term plans of the firm derive mainly from the overall strategy of the group whose point of departure lies within the purpose “*Doing now what patients need next*”. Secondly, this is connected with the three key values of integrity, courage and passion. An indicative example here could be the formulation and general updates of plans based on “*what should be done, rather than what has been done*”, which implies courage to take risks. As a result, employees feel motivated and inspired since they feel that their work is meaningful and rewarding. This is confirmed by the results of employee surveys that are conducted on an annual basis.

With regards to action planning, the monthly updates follow mainly a bottom-up approach, where input from different projects guides the necessary changes. In other words, there is certain flexibility within boundaries, given the high uncertainty. However, there is also a top-down component in case of strategic changes decided at the upper management level. Furthermore, clarity of goals largely depends on the type of the position or division. Particularly, goals about compliance related issues are very strictly monitored. Yet, scientists for example in the research division, especially in the early research have more flexibility. Finally, it could be argued that the long-term planning is slightly emphasized more than the short-term. As it is explicitly mentioned in the official company’s website “*We focus on the medical needs of today but also look beyond tomorrow to tackle the world’s most formidable healthcare challenges.*”

The interaction between cultural controls and the *cybernetic model* is rather implicit and indirect. Since budgets are the main planning tools used by the firm, they have already been discussed in the previous paragraph. As it was highlighted, it is important for budgets to stay flexible due to the high uncertainty. This is ensured by the monthly meetings held between the project leaders and the leadership team to stimulate discussion around noticed deviations and serve a knowledge sharing purpose. The same applies for the different performance measures which are used to monitor progress. Hence, it could be stated that the open and risk-taking culture of the firm leads to a more stretch use of the budgeting and cybernetic model. Again, it needs to be emphasized that there are certain limits because of the limited resources and the

need for prioritization. Thus, it could be stated that the budgeting in place incorporates attributes from both a participative and managerial budgeting style.

The interface among cultural controls and *rewards and compensation* is not so straightforward. Company C has mainly elements of a strong performance culture which is more tied with the cybernetic process of the firm. Yet, there are also some other aspects taken into consideration like personality-based traits. Besides fostering strong performance, company C is also significantly interested in the training and development of its personnel, considering the importance of retaining best highly skilled, motivated and talented people. Moreover, the “rewarding failure” initiative clearly demonstrates an incentive system related to organizational learning and knowledge sharing, regardless the success of the innovation. In addition, the compensation system is characterized by fairness and transparency in the pay-decisions, deriving from the general culture of openness of the firm. Finally, the existence of collective targets at a regional and group level increase the commitment of the employees by working together towards a shared set of values.

The last component of the *administrative controls* is firmly linked with cultural controls and the organizational culture of the firm. To be more specific, while the organization has a hierarchical organization structure, organizational learning and knowledge sharing is promoted by the free flow of communication. This is achieved by the monthly meetings that take place on the one hand between managers and subordinates and on the other hand among the leadership team and the line managers to discuss all potential issues that need to be addressed or updated accordingly. This is mainly associated with being “*consistently open, honest, ethical and genuine*”. Finally, the strict character of the SOPs emphasizes the significance of producing safe, effective and high-quality products which are in harmony with the regulations. Also, the code of conduct ensures that the organization does business in a responsible and ethical manner with a commitment to sustainable development.

4.4 Summary of empirical findings

The following Tables (4, 5) provide an overview of the main findings from each company. Particularly, *Table 4* gives a summary of certain basic details like the size, the industry and the innovation strategy followed according to Davila’s framework (2005). Then, *Table 5* summarizes the conclusions drawn based on the Malmi and Brown (2008) typology.

	Location	Industry	Core activities	Number of employees	Innovation strategy
Company A	Malmo, Sweden	Pharmaceuticals	Contract development and manufacturing of solid dosage products and polymeric controlled release systems	160	Deliberate strategy/Induced strategic actions
Company B	Malmo, Sweden	Security solutions	Home alarms and smart home services	185/9600 ¹	Deliberate strategy/emergent strategic actions
Company C	Copenhagen, Denmark	Pharmaceuticals	Pharmaceuticals and diagnostics	260	Deliberate strategy/Induced strategic actions

Table 4: Summary of background information for case companies

¹ Number of employees in Sweden and in the whole group respectively

	Cultural controls						
	Clans		Values			Symbols	
Company A	Entire company, related to the functional area, professional association		Make a difference, Close to customer, Best working place			No-open space design, only laboratory dress code	
Company B	Related to the functional area, professional association		Care for customer, no explicit values/process of defining internal values			Open office, no dress code	
Company C	Entire company, limited influence of professional association		Integrity, Courage, Passion			No-open space design, only laboratory dress code	
	Planning		Cybernetic			Reward and Compensation	
	Long-range planning	Action planning	Budgets	Financial Measurement Systems	Non-financial Measurement Systems	Hybrid Measurement Systems	
Company A	Five and ten year plans , also carried out through four year budgets	Carried out through one year budgets in conjunction with the forecasting process twice a year	Four year and one year budgets with forecasting, Primary control tool updated monthly	Several measurements calculated and repoted to the Group monthly (e.g. yield/batch)	Several measurements calculated and reported to the Group monthly (e.g. complaints from customers, accident ratio etc)	No hybrid systems used	Bonus programs, Training and professional devopement programs, Healthcare programs
Company B	Four year plans	Carried out through one year budgets in conjunction with forecasting three times per year	One year budgets with forecasting	Monthly report with several measurements: ROI, Payback,EBITDA, RMR, RMC	Monthly report with several measurements: number of employees by country, market shares etc	No hybrid systems used	Bonus based budget, relatively few training, recognition, promotion and celebration
Company C	Three year plans (budgets)	Carried out through one year budgets in conjunction with forecasting	Three year and one year budgets with forecasting	Performance measures / variety of KPIs (patients, sales, employees, environment etc)	Performance measures / variety of KPIs (patients, sales, employees, environment etc)	No hybrid systems used	Performance-based rewards, "Rewarding failure", group rewards, Training and professional development
	Administrative controls						
	Governance structure		Organization structure			Policies and Procedures	
Company A	Two level management structure (executive and operational level), steering committee, relatively independent from the group		Flat structure with a top-down/bottom-up decision making process			Detailed procedures regarding projects, compliances (SOPs) and work routines	
Company B	Executive management team, general management team (clusters), managing directors		Pyramidal organization, relatively flat structure with a top-down/bottom-up decision making process			More general policies, no compliance and SOPs as guidelines	
Company C	Board of directors, leadership team, line managers		Matrix organization, easy to communicate ideas up the hierarchy			Detailed procedures regarding compliances (SOPs), code of conduct, work procedures as guidelines	

Table 5: Summary of MCS package for case companies

5 Discussion & Analysis

In this section, the empirical data from the cases is compared, analyzed and discussed in detail.

The analysis will be carried out based on the different theories applied in the empirical part. Particularly, as it can be viewed in *Figure 5*, the innovation context within which the case companies operate will be outlined first. Then, the comprehensive illustration of the MCS of each organization will be used to identify any potential differences or similarities among them. This will be done by examining each component of the MCS package of the case firm in view of its interaction with the cultural controls, which will be compared first.

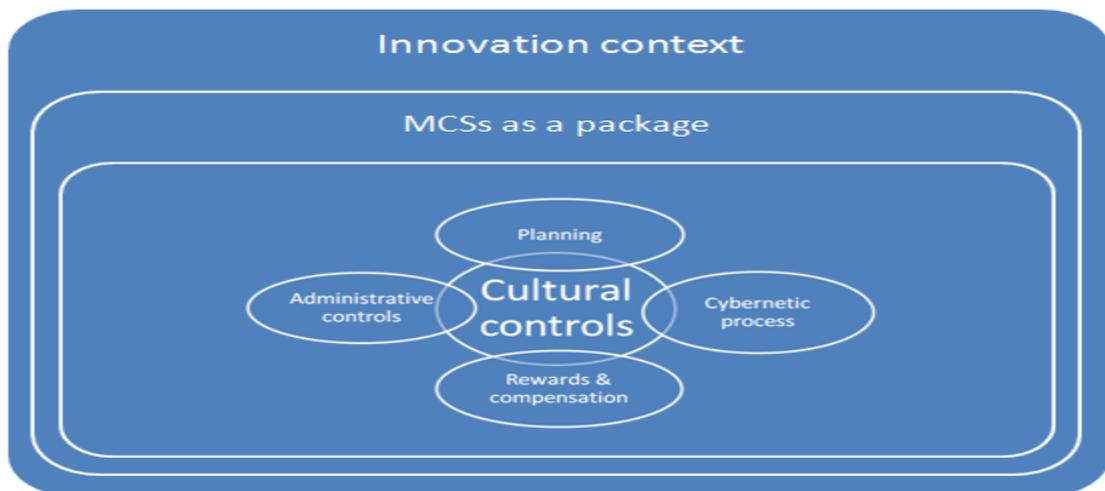


Figure 5: Relationship between different elements of control in the innovation context

5.1 Innovation & MCS

Regarding the innovation context, all three case companies are located in the deliberate or emergent strategy based on Davila's typology (2005). Overall, as it has been stated above, the MCS provide support for the execution of the deliberate strategy as defined by the upper management levels, allowing also for incremental innovations to happen and become part of the firm's strategy (Davila, 2005). In addition, these MCS provide both efficiency, by leveraging existing resources and speed in terms of quick execution. Yet, it can be argued that in general companies A and C seem to have more restrictions than company B because of the industry they operate in and the high uncertainty associated with the development of drugs as well as the mandatory requirements to be fulfilled. Undoubtedly, this has a direct effect in the application of the controls by the firms.

5.2 Cultural controls

The study of the cultural controls, conducted in companies A, B & C reveals the presence of all the three components of cultural controls; namely the value-based controls, symbols and clans. However, the application of each component differs among the case companies. First, the implemented culture of each organization is going to be briefly summarized and then a comparison between the values, symbols and clans will be made.

In company A, being close to the customer, the best workplace and making a difference, guide the overall company's strategy and operations. The way cultural controls are exercised mainly responds to the strict contract agreements with its customers. In other words, they ensure that a high degree of flexibility, transparency, professionalism and compliance are in place. The emphasis on these values can be additionally supported by the strict industry regulations that require the establishment of firm controls. Company C highly values integrity, courage and passion. There is a lot of emphasis on culture and norms, which are considered the main drivers of innovation. Empowering people, accepting that the likelihood of failure is high, facilitating the right behaviour and continuous information exchange are distinct characteristics of the firm's culture. Both companies A and C are flexible within limits. These seem to be stricter in firm A because of the contract agreements with its customers, while company C's boundaries are mainly set by the limited resources and the need for prioritization. Lastly, company B has no explicit values and is largely influenced by its vision. A more performance oriented culture is set up which is apparent in the non-flexible nature of the budgetary system. Yet the necessary flexibility for operating within the innovation context is provided through openness and free communication flow. Finally, during the recruitment process, personality traits are taken into consideration only in companies A and C. On the contrary, the second organization seems to pay special attention only to the skills of the candidate. This can be explained by the drive for strong performance, considering its acquisition by a private equity firm.

Particularly, company B is at the implementation stage of its core values, whereas the other two organizations have articulated in a concrete way the core values that underpin their vision and way of business. The fact that explicit values are used in companies A & C to formally communicate their purpose and direction has been discussed by Simons (1995) and Malmi & Brown (2008). These values are actually written down and demonstrated visually in both companies. Yet, the absence of an explicit "language" in company B, considering the absence

of formal values or beliefs seems to come in contrast with the presented theory. Basically, this situation might cause ambiguity or uncertainty among the employees, which could result to lower levels of commitment or even a high turnover of the personnel. As the interviewee of company B emphasized the main objective of the project of defining the organization's DNA is to give a steering point, a sense of direction, lower the turnover and even enable identification of the new or existing employees with the values of the firm. The possibility of using the firm's values to strengthen employees' commitment or to increase the likelihood of hiring the right candidates during recruitment has also been discussed by Kelman (1958), O'Reilly (1989), Bass and Avolio (1993). It is undoubtedly a clear manifestation of the significant role that values can play inside the organization. Finally, the significance of compliance in companies A and C is portrayed also by the "ethical" nature emphasized in their values, inspiring therefore its employees for greater devotion and compliance at the same time.

With regards to clan controls, these are relevant and applicable in all case firms. Particularly, organizations A and C are subject to clan controls, considering they operate in the pharma industry, which implies meaningful beliefs and norms shared among its members (European Federation of Pharmaceuticals Industries and Associations, 2012). This is in line with Ouchi's (1979) definition of clan as members of a group who share the same values, norms and beliefs. Yet, according to the interviewees of firms A and C, the relevant associations of the pharmaceutical sector have another role as well that of the regulator of the profession, through rule-setting and license approval, within the confines of the national and European legislation. This aspect is mostly related to the administrative controls.

Particularly, in company A the key values of the firm are broken down to each department to fit the respective functional area along with the type of professionals employed there. Whereas in company C, clan controls are mainly imposed by the company as a whole. Dealing with company B, the team building activities organized by the various departments of the organization is another form of clan controls. Overall, solidarity among the personnel is enhanced, consistent with the theoretical research by Kirsch (1997) and Kirsch et al. (2010). Lastly, the membership of a number of employees to their respective professional association seems to have a bigger impact in companies A and B, through trainings or set salary levels respectively, than in the third case. One possible explanation for this differentiation might lie

in the strength of these associations between Sweden and Denmark, taking into account the national context.

Finally, despite the existence of symbols in all the companies, their purpose and significance varies within each case. These differences are explained by Schein (1997) who underlines that symbols might be easily observable; still not so easy to interpret. Specifically, regarding the office design, only company B has an open office design. The interviewee explicitly mentioned that this office landscape promotes exchange of ideas, interaction and innovation. While it is expected that innovation organizations create an open plan office to foster a culture of communication and collaboration (Malmi & Brown, 2008) companies A and C do not have this mainly because of the older design of the respective buildings. In firm A, this is under consideration to be modified whereas in company C employees themselves prefer working on their own offices. Yet, an innovative culture is promoted, where interaction is manifested through an open door policy or frequent meetings to discuss any emergent issues. In addition, in companies A and C, considering they operate in the pharmaceutical industry, they need to follow the laboratory dress code for safety and health purposes.

5.3 Planning controls

Planning is an element that can be found in all three case companies, though it is employed differently in each one of them, as it will be explained below. Yet despite its different uses, it is of crucial importance for all organizations to have a forward-looking attitude and guide employees' behavior towards the desired outcomes in order to remain profitable in the fast-paced innovation context. In light of this, company A has both five and ten year plans to define its long-range planning, which are more strategically oriented, aiming for organizational growth. Additionally, four year budgets are also in place, which are rather financial oriented. The short-term planning is in the form of one year budgets, in conjunction with a forecasting process. In company B, budgets are a very important controlling tool, used for both the long range and action planning in terms of four and one year respectively. Company C also has three and one year plans in terms of budgets to determine its strategic trajectory and its activities, costs and revenues for the coming year. In addition, forecasting is used also by both firms, B and C.

Dealing with strategic planning, company A develops very long-term plans, covering both a five and ten year period. Also, the four year budgets are part of this category. This is mostly related to the drug industry and the high degree of uncertainty related to the building of costs.

Particularly, as it has been aforementioned, medicines undergo a long-lasting process from research to development and approval process. In contrast though, company C while operating in the same sector has a three year long-range planning. This contradiction could be likely justified by the fact that organization A is a contract developer and manufacturer of other pharmaceuticals, which requires increased provision of resources, considering the extensive amount of information that need to be disclosed to its customers in terms of activities, costs and processes. With regards to action planning, the bottom-up approach used to gather the information needed for its review and update, on a monthly basis, provides the necessary flexibility to deal with the high levels of ambiguity and risk that characterizes innovation companies. This is apparent in companies A and C, while company B has no flexibility in its one year budgets, as the interviewee explicitly explained. This can be because of the difference in industry, as it has been aforementioned, since companies A and C, given that they operate in the pharmaceutical sector encounter high uncertainty in both demand and technology, which requires substantial innovation management in relation to other industries (Dyer, Furr & Lefrandt, 2014).

In addition, all the three case companies generally have rather clear and specific goals. Company A has certain flexibility, which is a response to the customers' requirements, considering its strict contract agreements. While in company C the modifications are rooted in the large importance of innovation and organizational learning, especially in the research division. Concerning company B, each country has enough freedom to decide on its own strategy and goals depending on the current conditions. Finally, there is a slight emphasis on the long-term strategy in all the three case companies, consistent with the study by Mundy (2010). This is also communicated and interconnected with the vision and mission of each case firm.

5.4 Cybernetic model

The interface between the cultural controls and the *cybernetic process* is rather implicit and not so direct. Particularly, budgeting has a leading position in all the three case companies. Yearly budgets are used by all of them. In addition, forecasting is also employed to ensure the ability to control, by embodying visibility towards the future. With regards to budgeting, all the examined organizations use a bottom-up/top-down approach, where the top management receives input from different projects and then based on this the final decision is made. Still, in companies A and C, budgets are reviewed on a monthly basis where project/department leaders meet with the upper management to discuss the progress achieved, any deviations

noticed and the reasons behind these discrepancies. This can lead to updates within certain limits, given the limited resources and the need for prioritization. Regarding company B, the one year budgets are very strict and cannot be changed, yet the monthly meetings that take place, make sure that there will be sufficient resources until the end of the year. The fundamental cause of this firmness is rooted in the ownership structure of the organization. To be more specific, company B is fully owned by a private equity firm, which implies that in case of underperformance the business might be sold (Kaplan & Strömberg, 2008). Another reason for this contrast lies within the sector and the higher levels of uncertainty for the pharmaceutical industry. Thus, budgets in company B serve a rather controlling purpose, where managers have the responsibility to meet the targets, which as the interviewee explained are quite “*tough*”. In view of what has been said, it could be argued that while all companies have a rather participative budgeting orientation, as outlined by Goddard (1997), firms A and C present also characteristics of a “managerial” budgeting style. In other words, in these cases budgets provide also support to the managers by having a certain degree of flexibility, instead of being a firm controlling mechanism (Goddard, 1997).

Dealing with the financial and non-financial performance measures, the three organizations investigated use a variety of KPIs that cover several different aspects related to products, market shares, employees and quality. This is in accordance with the theory, where it is supported that organizations operating within the innovation context usually apply a range of measures covering different dimensions (Henri, 2006). The range of these measures is used in a similar way like the budgeting process. This means that while in all cases, meetings are held to review and discuss the results; companies A and B are characterized by a higher flexibility opposing to company C. The aspects related to the industry and ownership, as analyzed in the previous paragraph are relevant here as well.

5.5 Rewards & compensation

Reward and compensation practices aim to direct the behavior and attitudes of employees towards the attainment of the organizational objectives by increasing the commitment and motivation of individuals and teams (Malmi & Brown, 2008). Hence, the incentive schemes implemented are usually linked with the company’s strategy and consequently its planning process. Furthermore, another relationship can be identified between rewards and the cybernetic process since the latter assists in assessing the fulfillment of the planned goals. Yet, there is also a rather implicit interplay among rewards and culture. On the basis of this, considering that organizational objectives are linked with the overall vision and mission of the

firm, rewards for the attainment of these goals convey as well the values and norms to which the personnel must conform (Kerr & Slocum, 1987).

Dealing with the case companies, all of them use a combination of extrinsic and intrinsic rewards. Firstly, there is a formal evaluation process taking place twice a year, in all the selected cases. In this procedure two general aspects are taken into consideration the technical skills, which are related to the set performance targets and the personality traits or the overall attitude, which is of a fairly qualitative nature. The latter is directly associated with the values and beliefs of the particular case company. Some illustrative examples are respect, honesty or responsibility. These are also an indication of the employee's devotion to the organization and hence they are reviewed as well. Then dealing with the extrinsic rewards, a bonus program is set in all the firms, when targets are met. Particularly, in the firm A when targets are met, this is reflected on both managers and employees. In company B, bonus is aimed only at those employees closely tied with the budgets, which are at the management level. Also, in the third organization, the bonus distributed depends on the position of the respective employee and the results of the evaluation program. Additionally, distinct levels of salary increases exist between the companies but all of them are determined initially on performance and secondly on personality. This emphasis on performance is more obvious to company B in comparison with A and C, since its culture is very performance oriented. The weight placed on performance is bound up with the ownership structure of the private-equity firm, as it was disclosed above. In contrast, organizations A and C are owned by pharmaceutical companies.

Intrinsic rewards can also be found in all the chosen firms. Recognition and celebration of successes are predominant and receive a lot of attention. In company C, in an attempt to motivate creativity, some failures are also rewarded. Moreover, in company B, the interviewee acknowledged that employees are better motivated by intrinsic rewards. In company A, training and professional development attracts also a lot of attention. This aspect is also highly valued in company C. Lastly, group rewards are only noticed in company C at a regional and global level in terms of monetary incentives.

5.6 Administrative controls

The organizational design and governance structure vary in the case companies along with the policies and procedures. Company A has a rather flat structure which is mainly explained by its small size. Also, it consists of two management levels and a steering committee. In contrast company B, considering its size and presence in 14 countries, is a pyramidal organization with a decentralized structure. Company C also has a more hierarchical structure

with three management levels. Decision-making in the three organizations is done in a similar way. A bottom-up/top-down approach is followed where the different departments/projects provide the information necessary and based on that the upper management teams makes the final decision. Company B also tries to maintain a flat communication despite its size. Similarly, it is easy in company C to communicate any ideas up the hierarchy. Lastly, the policies and procedures also vary correspondingly in the three companies. As it has been aforementioned, companies A and C have strict standard operating procedures (SOPs), justified mainly by the firm regulations of the pharmaceutical industry. A further reason for company A is the strict contract agreements with its contractors. On the contrary, the policies and procedures in company B are used more as general guidelines, since no specific instructions are formulated regarding work processes. This is in accordance with the findings of several researchers, where organizations make use of their policies and procedures either in a more flexible (O'Reilly, 1989; Teece, 1996; Grugulis, Dundon, & Wilkinson, 2000); Chenhall, Kallunki & Silvola, 2011) or in a more rigid way (Kirsch, 1997).

Taking into account the differences and similarities observed among the administrative controls of companies A, B & C, the interaction between cultural and administrative controls seems to be quite strong and significant. Innovation organizations are usually characterized by a free flow communication, a decentralized structure and a successful knowledge sharing. The case companies promote free flow communication as well as knowledge sharing through the regular meetings held between managers and subordinates on both a formal and informal basis (Chenhall, Kallunki & Silvola, 2011; Haustein, Luther & Schuster, 2014). Also, these meetings serve as a mechanism that reminds employees the key values and strategies of the firm. In addition, this is further supported by the flat structure for company A, while company C despite its hierarchical structure, considering its size maintains a rather flat communication system. Therefore, it could be argued that the examined organizations try to sustain a free flow of information to assist in encouraging the necessary reflection, learning and development processes. This is also obvious in the tolerance towards mistakes by all the case firms within certain limits (Chenhall, Kallunki & Silvola, 2011).

Finally, the respective values and beliefs of a company are manifested also through its policies and procedures. It needs to be highlighted that apart from the industry variable, the loose character of policies and procedures in company B, in opposition to the firms A and C, might also be associated with the absence of clearly articulated values in the company until now. In that respect, the need to inspire greater adherence to the organizational rules and

procedures is enhanced by the use of well manifested key values that are used to further inspire and engage the personnel.

6 Conclusion

The following chapter will summarize the major findings of this thesis to provide a clearer understanding to the reader. Also, contributions to the research landscape and limitations of the study are presented as well as proposals are made for future research.

6.1 Summary of findings

The aim of this thesis was to examine how MCS operate in the innovation context and explore the interface of cultural with the other control practices exercised by the firms. The choice of the innovative organizations is motivated by their need to counterbalance between two opposing powers for control and flexibility. Three companies were studied for this purpose in Sweden and Denmark, operating in the pharmaceutical and security industry. In all three organizations, MCS were found to provide stability as well as resilience in order to support the implementation of their strategy and at the same time give latitude for innovations to take place (Davila, 2005). These innovations in turn can lead to a refinement of their current strategy. This is in accordance with the type of innovation strategy identified in the case firms, which is for all of them that of deliberate and emergent strategy (Davila, 2005). Cultural controls seem to impact the make-up of the other practices and lay the foundation on which the MCS of each firm is built (Malmi & Brown, 2008). Particularly, it was discovered that culture has a rather significant relationship with the planning controls, considering the reinforcement of the sense of direction or dedication that plans provide when incorporating the vision and the key values of the organization. Concerning the cybernetic process as well as the rewards and compensation, the connection with the cultural controls is not so straightforward. Actually, a more direct relationship could be outlined among these two elements themselves. Yet, the participation of employees in the budgeting system or the dialogue enabled by the established performance measurement systems can reflect the culture of the organization indirectly. In addition, the core beliefs of each firm affect the formal evaluation procedures used for the employees, which consequently define the level of rewards. Finally, administrative and cultural controls are tightly intertwined. The organizational culture is demonstrated through the structure of the firm, the frequency of the meetings held among the employees and the different management levels as well as the prevailing policies and procedures.

6.2 Discussion of research contributions

This paper contributes to the research landscape of MCS and innovation in several ways. First of all, our findings provide evidence that there are links inside the MCSs of innovation organizations, thus complementing and adding to the previous research of studying management control tools and techniques jointly, instead of individual control tools (Alvesson & Kärreman, 2004; Widener 2007; Malmi & Brown, 2008; Sandelin, 2008; Widener 2007, Davila 2005; 2009; 2012). In particular, the notion that innovation organizations use multiple control practices, both formal and informal, at the same time is strengthened (Alvesson & Kärreman, 2004; Malmi & Brown, 2008). This acts also in response to the debate between the two main schools of thought arguing about the predominance of specific forms of control within the innovation context.

The present study provides empirical examples that cultural controls are contingent upon the values, norms and beliefs of each company. Also, evidence is added on the broad nature of cultural controls, which form the ground on which the MCS of each case company is built (Malmi & Brown, 2008). In this light, the idea that formal controls can also have a cultural dimension is reinforced (Alvesson & Kärreman, 2004). Therefore, the belief that cultural controls are a determinant for the implementation of the other components of the MCS in the innovation context is further supported. Under this approach, more light is shed into the interface among the cultural and the other control practices within the innovation environment. This adds to the call for empirical research from Malmi and Brown about the type of interrelationships between the various control elements (2008).

Finally, our findings corroborate the research that has been undertaken by Davila (2005) that the type and locus of innovation impact the design and operation of the MCS of the organization. Therefore, the managers of an organization should be aware of the various roles that MCS play, based upon the innovation strategy followed.

6.3 Limitations and avenues for future research

The study is subject to a number of limitations that need to be taken into account when examining the results. Firstly, it has to be acknowledged that culture is a very complex attribute, which can have different interpretations to every person. Hence, it might be interesting to study in depth one case company and conduct more interviews inside the organization in an attempt to acquire a more comprehensive picture of the organizational culture, by getting both superiors' and subordinates' perspective.

Another limitation is that all case companies follow a similar innovation strategy, based on Davila's typology (2005). Particularly, the deliberate/emergent strategy was identified in all the three organizations investigated. The presented results might have differed if a firm had experienced radical innovation projects that completely redefined its future strategy. In that case, we would have the opportunity to make a comparison between radical and incremental innovations and by extension contrast the different role of the MCS and cultural controls.

Furthermore, this study focused on the interactions among the cultural and the other control practices. Yet, there are more interrelationships to be explored between the different elements of the Malmi & Brown's package. Also, the type of relations between these various components could be further investigated. In addition, a quantitative analysis could have been undertaken with a bigger sample to test the linkages among the cultural and the other controls. This would have helped acquire an overall picture by examining how strong or clear are these linkages. Finally, contingency theory could have been applied with greater detail within the Malmi & Brown framework. This could have portrayed all the contingency factors that can affect the design of MCS and consequently the interpretation of the research results.

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Appendix 1: List of questions for the interview guide

Basic background information

Background of the respondent

Year of company's foundation

Number of employees

Private or listed

Company activity

Innovation

1- How and why does your company work actively to support innovation? At which level does innovation take place?

2- What is the company's newest innovative product? And when was it?

3- Has the company enhanced any innovation that is out of its core business strategy?

Planning

1- What type of strategy do you use (long term, short term)? And which strategy is the most important for the company?

2- Who sets the plans (managers, subordinates etc)? And how often are they updated?

3- How are plans communicated to the employees? Is there a follow-up on completing the goals set by the plans? Do employees participate in the review of these plans?

4- Are the plans/goals of each functional area clear and specific or are they more general one (e.g. "do your best" etc)?

Budgeting, goals and evaluation

1- Does the company use budgeting? What type of budgeting?

2- How do you monitor progress/results? Do you compare outcomes to targets?

3- What key measures do you use and how often are they reviewed? Do employees participate in this process?

4- Does the company rely heavily on financial measurement or on other measurements such as non financial measurement?

Reward & Compensation

1- Is there a rewards and compensation scheme in place? What kind of rewards do you use?

2- Are there both individual and group rewards?

3- What criteria do you use for the rewards?

Administrative controls

1- What is the general structure of the organization?

2- How is the way of communication?

3- At what level of the company values, procedures and policies are made? Are they supposed to be strictly followed?

Cultural controls

1- What are the core values of the company and how are they communicated?

2- How do you select your personnel? What trade off do you make between skills and the candidate's values?

3- How are the offices designed? Is it open space where managers work in close proximity to employees?

4- Are employees members of their professional association? Does this membership have an effect on employees' behaviour at work?