

# How to develop an innovation strategy.

## The case of Cerbios-Pharma SA



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### Abstract

This master's thesis explains how an innovation strategy was created within Cerbios-Pharma SA. Innovation is an imperative nowadays, even though it remains a risky activity. Innovating randomly or carelessly can be counterproductive, potentially leading to a waste of resources. One of the challenges in innovation management is to clearly define an innovation strategy: this needs to indicate the direction and scope of innovation activities within the company, whilst also considering that unforeseen opportunities and challenges may emerge, changing the whole innovation landscape. The strategy described in this thesis has been formulated drawing inspiration from several theories about innovation, innovation management, corporate strategy and innovation strategy. Among the leading authors that influenced the innovation strategy creation process we find Tidd & Bessant (2008), Mintzberg (1978), Wernerfelt (1984), Hamel & Prahalad (1990) and Teece & Pisano (1994). The concept of customer-centricity developed by Galbraith (2005) has also been included. The methodology used is based on Arbnor & Bjerke's (2009) "actors approach". This thesis can therefore arguably be used as a literature review on innovation strategy, as well as a source of inspiration for firms with similar characteristics to those of Cerbios-Pharma SA, who similarly would like to formulate an innovation strategy.

## Summary

This thesis describes how an innovation strategy has been formulated within the company Cerbios-Pharma SA, and it stems from practical work carried out over the course of four months. The firm is a medium-size company located in Southern Switzerland that produces Active Pharmaceutical ingredients (API). Its main customers are other pharmaceutical companies located worldwide, mainly in the EU, USA and in Japan.

The thesis is divided into five main chapters. Chapter one is the introduction, which highlights some of the elements that led to the developing my practice-based work. Cerbios' executives decided to formulate an innovation strategy in order to improve the quality of general innovation proposals sent to the existing Innovation Committee, and to align innovation efforts company-wide.

The second chapter includes methodological considerations, and is divided into three main sections: a theoretical contribution about theory; a section dedicated to the application of the operative paradigm, which refers to the practical application of theory; and a section that explains how the thesis was developed in practice. Here, I have decided to follow Arbnor & Bjerke's (2009) actors approach because it sees reality as a social construction, with the researcher being part of it, rather than an abstract construction that sees the field from a distance.

Chapter three contains a literature review of the main study areas connected to the thesis: innovation; innovation management; corporate strategy; innovation strategy; and customer centricity. The chapter is organized according to these themes. The first section, which defines innovation and discusses its main implications, is based mainly on Tidd & Bessant (2009). The same authors also play a central role in the section dedicated to innovation management, as their framework was chosen as reference model before I began this thesis. "Corporate Strategy" is the biggest section. It includes the perspectives of several authors, which are used as inspiration for the creation of the innovation strategy. This section has been focused on especially because innovation strategy still does not exist as stand-alone research field. The main contributions here are: Mintzberg's (1978) discussion on patterns in strategy formation; Wernerfelt's (1984) Resource-based View; Hamel & Prahalad's (1990) Core Competencies; and Teece & Pisano's (1994) Dynamic Capabilities. The section dedicated to innovation strategy has also been based mainly on Tidd & Bessant (2009). The last section includes several concepts about customer-centricity, from the point of view of Galbraith (2005). The work of this particular author was chosen by Gabriel Haering, Cerbios-Pharma SA's CEO: in this thesis, I will therefore analyze it critically. The concept of Customer Centricity has been included in the literature review as it is an important concept for the company, as it will influence its innovation activities.

Chapter four explains how the innovation strategy was formulated in practice by following the advice of various authors, whose theories were integrated to gain a multifaceted kind of inspiration. The main sections of chapter four are: the role of innovation strategy within

Cerbios, which involved understanding the existing context and how innovation strategy can fit with Cerbios' reality; and Innovation strategy formulation, which refers to formulating the intended innovation strategy and deciding how to monitor the environment for elements that may constitute an emergent strategy. On balance, the innovation strategy implemented during the past several months appears to have been effective and to have addressed the issues identified at the start appropriately. However, one should be aware of the relative inexperience of the researcher, and – at least partially - view the project as a learning process for everyone involved. Related critical reflections are found at the end of the chapter.

Chapter five outlines some issues and discussions relevant to this thesis, and draws the conclusions of this research. Implications for future research are also addressed here.

This thesis combines practical knowledge and theoretical understanding of the development of innovation strategy. The mix of grounded, contextual research practice and transferrable theoretical ideas make the usefulness of this thesis twofold: on the one hand, it can be referred to as a review on innovation strategy literature; on the other, it can be used as a source of inspiration for companies similar to Cerbios-Pharma SA, who are looking to formulate an innovation strategy much the same way we have.

# INDEX

<b>1. Introduction .....</b>	<b>4</b>
<b>2. Methodological considerations .....</b>	<b>5</b>
<b>2.1. Theoretical perspectives on methodology .....</b>	<b>5</b>
<b>2.2. Operative paradigm in theory .....</b>	<b>10</b>
<b>2.3. Methodology in practice .....</b>	<b>17</b>
<b>3. Theoretical considerations.....</b>	<b>22</b>
<b>3.1. Innovation .....</b>	<b>22</b>
<b>3.2. Strategy .....</b>	<b>35</b>
<b>3.3. Innovation strategy .....</b>	<b>74</b>
<b>3.4. Customer centricity .....</b>	<b>78</b>
<b>4. How to develop an innovation strategy .....</b>	<b>90</b>
<b>4.1 The role of innovation strategy within Cerbios.....</b>	<b>91</b>
<b>4.2 Innovation strategy formulation .....</b>	<b>94</b>
<b>4.3 Some critical reflections .....</b>	<b>98</b>
<b>5. Discussion and conclusions.....</b>	<b>99</b>
<b>Bibliography .....</b>	<b>101</b>
<b>Annexes:.....</b>	<b>i</b>
<b>Annex 1: Interviews.....</b>	<b>i</b>
<b>Annex 2: Power Point presentation on strategy.....</b>	<b>xii</b>

## FIGURE INDEX

Figure 1: Fundamental dichotomies among the three views	9
Figure 2 The model canvas	20
Figure 3 The research process in practice	21
Figure 4 The “4Ps” of the innovation space	23
Figure 5 Innovation, uncertainty and resource commitment	26
Figure 6 Dimensions of innovation	26
Figure 7 Component and architectural innovation	27
Figure 8 Innovation life cycle	28
Figure 9 The innovation process according to Tidd & Bessant (2009)	31
Figure 10 The "exploring corporate strategy" model	37
Figure 11 Putting strategy in its place	41
Figure 12 The five major elements of strategy	42
Figure 13 Types of strategies	47
Figure 14 Strategy formation as a single process	51
Figure 15 Strategy formation as many processes	51
Figure 16 Resource-product matrix	60
Figure 17 Exploit and develop	60
Figure 18 Sequential entry	60
Figure 19 Stepping stones	61
Figure 20 Appropriability regimes	64
Figure 21 Elements for “sensing” market and technological opportunities	66
Figure 22 Skills enabling strategic decisions and execution	67
Figure 23 Skills necessary for reconfiguring the firm's activities	68
Figure 24 Foundations of dynamic capabilities and business performance	69
Figure 25 Disruptive innovation	75
Figure 26 Portfolio of innovation options	76
Figure 27 The star model	82
Figure 28 Types of networks for customer-facing units	86
Figure 29 Customer R&D strategy	90
Figure 30 The initial perception of the relationship among different strategies	93
Figure 31 Different emphasis on the different pillars	93
Figure 32 Mutual influence of the two strategies	94

## TABLE INDEX

Table 1 Dialogues contra interviews	15
Table 2 Stages in the innovation life cycle	29
Table 3 Different generations of innovation processes	34
Table 4 Comparison of the different schools – Part A	48
Table 5 Comparison of the different schools – Part B	49
Table 6 Blending of the strategy formation schools	50
Table 7 Illogical extremes of the different schools	52
Table 8 Product-centric versus customer-centric	81
Table 9 Strategy: product-centric versus customer-centric	83

## ABBREVIATIONS

AAU	Aalborg University
API	Active Pharmaceutical Ingredient
BD	Business Development
CCI	Customer-centric Innovation
CEO	Chief Executive Officer
CFO	Chief Financial Officer
G-CSF	It is the name of a Cerbios' product
HPAI	High Potency Active Ingredient
HR	Human Resources
IT	Information Technology
MIKE	Master in Innovation Knowledge and Entrepreneurial Dynamics
M&S	Marketing and Sales
QA	Quality Assurance
QC	Quality Control
R&D	Research and Development
SCM	Supply Chain Management



# 1.INTRODUCTION

During the 3<sup>rd</sup> semester of the Master in Innovation, Knowledge and Entrepreneurial Dynamics (MIKE) at Aalborg University (AAU) I carried out an internship at Cerbios-Pharma SA (hereafter Cerbios). Gabriel Haering, CEO of the company, gave me the opportunity to extend my internship to the 4<sup>th</sup> semester and to write the Master thesis on a topic related to Cerbios in the same period. I accepted the offer: this document is my Master thesis report.

My role in the company has been to support Cerbios' management in transforming the company into an innovative customer-centric organization. Because this is a very complex process, we<sup>1</sup> decided that the thesis would focus on the first stage of the transformation: the development of an innovation customer-centric strategy. Thus, my task has been to provide them with some suggestions on which actions to carry out, based on literature on innovation management and corporate strategy, and with the integration of the concepts of customer-centric.

During the making of this thesis we have discovered that it is more suitable for Cerbios to divide the innovation strategy and the "customer-centric" strategy, which will therefore be developed separately. In this thesis, I will specifically focus on the first topic. Because the concept of customer centricity is very important for Cerbios, it will inevitably influence its innovation strategy<sup>2</sup>. In order to improve understanding, I will present some theoretical considerations regarding the above-mentioned strategies. Because for the part relating to innovation I was inspired by Tidd & Bessant (2009), I will describe their approach in detail, focusing especially on the chapter "Developing an innovation strategy". In addition to the suggestions provided by these authors, I decided to analyze literature about corporate strategy more in depth; therefore, I will integrate several theoretical contributions. There will be also a section specifically dedicated to "innovation strategy", an aspect that is of great weight. In addition to this, I will briefly summarize and elaborate on the book "designing the customer-centric organization", written by Galbraith (2005). Because this book was chosen by Gabriel Haering, Cerbios' CEO, it will be analyzed critically.

After the chapter dedicated to theory, there will be one describing the practical aspects of the thesis. I will therefore start by discussing how the two different strategies (innovation and customer-centric) relate; and then describe how I integrated theory and practice, thus how I used theoretical considerations to decide which actions to carry out within the company, according to Cerbios' characteristics.

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<sup>1</sup> Although this thesis is a personal final dissertation of a master degree course, the actions taken within the company have been discussed with someone working at Cerbios on many occasions, and most often, with

<sup>2</sup> How the two different strategies affect each other will be discussed in chapter 4, which is dedicated to the practical aspects of the thesis.

The paper also contains an in-depth description of the methodology adopted. There are two main reasons why I will emphasize this part. Firstly, this project is part of the master program I am attending, thus examiners will likely be interested in how I created the new process for selecting and implementing innovation projects. Secondly, it could be useful for people interested in implementing similar processes to draw inspiration from this project.

Cerbios-Pharma SA is located in Lugano, Southern Switzerland. It is a privately held company with about 100 employees and its own R&D department. It is specialized in the manufacturing of APIs (Active Pharmaceutical Ingredients), both chemical and biological. The main activities of the company are the production of APIs; research and development; and services to third parties. The main customers are pharmaceutical companies located worldwide, especially in the European Union, in the United States of America and in Japan. Cerbios started managing innovation in 2010, with the help of Ticinotransfer (the knowledge transfer office of Southern Switzerland). The company is still working towards becoming an innovative organization.

## **2. METHODOLOGICAL CONSIDERATIONS**

This chapter contains the methodological considerations regarding the thesis. It is divided in three sections. The first section provides a theoretical perspective on methodology. The second section explains, still at theoretical level, how to implement the chosen operative paradigm. The last section illustrates how I developed the research in practice, following the ideas outlined in the first two sections.

### **2.1. THEORETICAL PERSPECTIVES ON METHODOLOGY**

For the master thesis I decided to follow Arbner & Bjerke's (2009) methodology approach. The choice has been taken after a brief comparison with some other approaches. In fact, the literature offers many interesting, valuable perspectives on how business methodology should be approached (e.g. Bryman & Bell, 2007; Saunders, Lewis & Thornhill, 2009; Cooper & Schindler, 2001; Zikmund, 2003), and every contribution has its own characteristics and focuses. I chose to follow Arbner & Bjerke's (2009) because of its emphasis on the relation between the researchers' beliefs about reality and life and the subject of the research. Such issue has been also discussed by Bryman & Bell (2007), but I did not chose to follow their approach because I did not like their classification of paradigms that, according to them, have emerged historically<sup>3</sup> in social sciences. Saunders et al. (2009) focus instead on how the research process should be managed, dividing such process into distinct stages. A similar approach is described by Zikmund (2003), but at the centre of his work, he places the individual techniques used in business research. The focus on the individual techniques

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<sup>3</sup> According to Bryman & Bell (2009) the four possible paradigmatic positions are: functionalist; interpretative; radical humanist; and radical structuralist.

has also been adopted in Cooper & Schindler's (2001) approach to business research method.

Although I chose to follow Arbnor & Bjerke's (2009) methodology approach, the other contributions presented above can be used as complementary source of knowledge and inspiration when addressing a specific topic (e.g. Saunders et al., 2009 about literature search strategy; Cooper & Schindler, 2001 about ethics, Zikmund, 2001 about interviews; and so on). It may be important here to make a distinction about two terms used to describe the researcher's relation with theory: "inspiration" and "guide". I refer to inspiration as receiving insights that I may not have considered before. In contrast, I use the term "guide" as something more concrete and detailed than just as inspiration. This does not mean that I will follow the suggestions provided by theory step-by-step, uncritically, but up to a certain degree I will follow its logic. Such way of learning from theory fits with the methodology chosen. The role of theory in the actors approach will be described in the next section.

Arbnor & Bjerke's (2009) methodology approach has several characteristics that led me to the choice of such framework. As mentioned previously, the authors argue that methodology is not simply about taking some predefined "recipe" for methods and following it during research. They assert that the choice of methodology starts by understanding one's own beliefs of reality and life, as well as the problem one wants to solve. According to the authors, another important element when creating knowledge is to think and to reflect critically. They define this as *"developing alternative ways to think about and to look at things. Such ability is thus related to the researcher's creative ability and the ability to think unconditionally"* (p.23).

According to Arbnor & Bjerke (2009), within their approach there are three different methodological views that will influence the knowledge creation process of a researcher: the analytical view, the system view and the actors view. The authors provide a description of these – and some of their peculiarities – in chapters two and three. I will now highlight these briefly.

The analytical view is based on the assumption that reality is filled with "facts", and consists of summative components. The summative character of reality also allows new scientific findings to be added to previous research. According to this view, knowledge is independent from individual observers, thus descriptions and explanations of reality are general and absolute. The sole ambition of the analytical researcher is to explain reality from a general point of departure. In order to explain reality, the analytical researcher seeks causal relations, and often advances patterns, regularities and representative models. The theory of reality becomes increasingly accurate, consisting of more and more verified hypotheses. The description of the study area is not a sufficient condition for analytical researchers. When studying new problems, the researcher can build on existing theory, either by developing on or discrediting existing knowledge. The analytical view is seen as very homogeneous in terms of methodical procedures and methodics.

The system view similarly assumes a reality filled with facts, but it is not summative. According to this view, these facts cannot be separated from each other and thus create systems (this also implies that the research area can only be explained or understood in its context). The description of reality consists of pictures of systems (or part of such systems), which are normally not regarded as general laws, but as valid only for specific system classes. The ambition of the systems researcher is to make every new system picture better than the last. Some of the aims of the researcher are to seek finality relations and to generate understanding of the system studied. "Finality relations" refers to explaining a phenomenon according to its purpose<sup>4</sup>. The theory of reality becomes an ever better explanation or understanding of the behaviour of different classes of systems. The creator of knowledge often offers a representative metaphor or model, which does not only describe and explain but also provides an accessible understanding of the reality under study. When studying new problems, the researcher is relatively free to draw analogies from previous studies. These analogies, however, must be adapted to the specific case.

The third view is called "Actors view". In the next paragraphs I will explain why I have utilized this particular framework for my own research, and provide a theoretical description of it. Because this paper will be structured following the actors approach, in the next paragraphs I will describe this particular view a little more in depth, compared to the two above-mentioned theories.

According to Arbnor & Bjerke (2009, p.67), "*the actors view differs markedly from both the analytical and system views and their assumption of a factive reality, independent from its observers*". Reality exists only as a social construction, thus not independent from its observers. Reality is seen as the common beliefs (called "finite province of meaning") shared by the actors involved in the subject of the study (including the researcher himself<sup>5</sup>). Such assumptions derive from the perception that we live in "*a world, which to the largest extent is dependent on us human beings, where the creator of knowledge also participates as one of its constructors*" (p.41). According to this view, objectivity has a totally different meaning if compared to the other two views. In fact, it is created by people and can therefore be questioned and changed. On the other hand, such objectified reality, also influences the people who created it. This leads us to another characteristic of this view: in addition to aiming to understand the situation or subject under study, it also aspires to define dialectic relations, described by the authors as "*ambiguous relations that are continuously reinterpreted and given different meanings*" (p. 75). Because of these elements, including the direct involvement of the researcher, the dualism between actors and reality,

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<sup>4</sup> For a comparison of causality and finality, please see Box 3.5 at the bottom of page 57 in Arbnor & Bjerke (2009).

<sup>5</sup> Whilst, of course, I acknowledge that researchers can be either female or male, from here on I will refer to the researcher as male because of my own gender and experience. I will also refer to the creator of knowledge as a researcher, independently of his role in the study area (e.g also for consultants and investigators I will refer to them as researchers).

and the focus on understanding (rather than simply describing), I decided to follow the actors approach<sup>6</sup>.

As I stated before, the actors view sees reality as a social construction. Although this is filled with uniqueness and chaos, it also includes relatively stable structures, mentally anchored within the actors. This approach has further distinctive attributes. The actors researcher, in his conception of science, sees taken-for-granted concepts as obstacles to real understanding and renewal. This also implies that all pre-scientific, existing concepts<sup>7</sup> must be objects of reflection when creating knowledge (p. 41). Also when using theories previously created, these are not seen as “the truth”, but must be considered critically and adapted to the specific context. Such perception of theory does not require extensive preliminary literature search, as required by the analytical approach. The scientific ideal of this view is a knowledge-creating and consciously active interaction. Ethically, this view requires the researcher to take responsibility for his actions. Aesthetically, actors researchers seek creative descriptions and interpretations. This perspective also aims at driving change, rather than simply describing it.

Another characteristic of the actors view is the concept of language development. According to Arbnor & Bjerke (2009), “actors” researchers attempt to develop a language that will improve understanding and action when studying a particular area. It is a conceptual development that aims at linking the actor’s own mental language with the (developing) descriptive one of the researcher, thus deepening understanding between the actors involved. Moreover, this view encourages researchers to be open and not overly influenced by clichés. Improvisation and creativity are thus important concepts for “actors” creators of knowledge. The authors stress the fact that without language development and action there is no transformation in the research, which can only lead to confirming what is already known (p. 143).

According to the authors, when planning and conducting the study, it is important to approach reality on the researcher’s own terms. The researcher immediately looks for the “inner qualities” – the defining aspects and intrinsic characteristics - of the study area he is facing; he then tries to re-create it in order to understand the pivotal components and bring the experience forward. The researcher needs to look for idiosyncrasies and enter a dialogue with the reality he identifies. He needs to make reality intelligible by using first hand expressions coming from the study area, as well as his own concepts (pp. 43-44). Actors who are part of the study area become subjects of knowledge interest. Methodics, defined by Arbnor & Bjerke (2009, pp. 17 and 176) as the way techniques are developed and integrated (among them and according to the view and the study area), become

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<sup>6</sup> Arbnor & Bjerke (2009) define the actors approach as the application of the actors view.

<sup>7</sup> Arbnor & Bjerke (2009, p. 424) define a pre-scientific concept as “*a concept that will be taken for granted when conducting a study, because of its belonging to the special subject, the lingo of the profession, the study area, etc. in question*”.

processual. This means that they evolve gradually, according to what emerges from the dialogues and choices of leading actors. This is a constant work of interpretation, leaving room for trial and error and creativity.

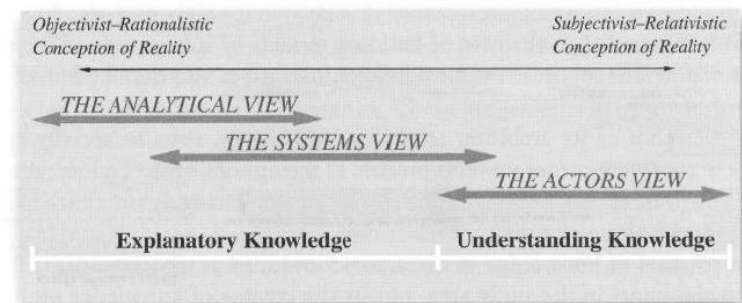
The actors view differs fundamentally from both the analytical and the system views; the core “identity” and defining philosophy of the former is at the polar opposite of the latter two. In what Arbnor & Bjerke (2009) refer to as “fundamental dichotomies”, the actors view stems from a view of the world that is subjectivist and relativist, while the analytical and systems views find their logic in an objectivist, rationalist discourse. These differences are simplified visually on pages 50 – 52 (see figure 1). Here is a recap of the different theories.

The **analytical view** has the sole purpose of **explaining** reality. Such reality is **fact-filled** with objective and subjective facts that are **summative** (which means that its parts can be considered in isolation from other parts).

The **systems view** may have the aim **either to explain or to improve on existing understand** of the research subject. Reality is also seen as **full of facts**, but such reality is **systemic** (which means that its parts cannot be seen in isolation from each other. The parts are more or less structured as relative wholes, called systems).

Both the **analytical and the system** views, when looking for explanations build **models**. Such models are defined as mental constructions made by the researcher. Here, he is subtracting (or neglecting) irrelevant facts and circumstances from the fact-filled reality (seen as either additive or systemic respectively). As already mentioned, in the **system** view the researcher can focus specifically on **understanding**: here, he tries to reproduce and represent his version of reality through models that may include metaphors, structural images, narratives and so on.

Figure 1: Fundamental dichotomies among the three views



Source: Arbnor & Bjerke (2009, p. 51)

The **actors view** has the intent of **understanding** reality. Such reality is seen as a **social construction**. The models created (such as metaphors, structural images, narratives, ...) are seen as **constituting** reality (being a part of it), not just representing it (as stand-alone pictures).

**Actors researchers** understand reality thorough dialogues with the actors in the study area; not on their own, as in the case of **systems researchers**. As the authors state, understanding through the system view could be called **representative understanding**, whereas understanding through the actors view could be called **constitutive understanding**.

## 2.2. OPERATIVE PARADIGM IN THEORY

The following section contains some suggestions about how to implement an operative paradigm following actors view principles (Arbnor & Bjerke, 2009). Although it is still a theoretical perspective, I decided to separate it from the previous part because of two reasons: the complexity of the topic, which includes several elements; and the practical application of the theory, which requires an even more critical reflection when deciding how to proceed in the study area.

Arbnor & Bjerke (2009), in chapter 7 of the book, start by reviewing research techniques that are common to the three views, offering suggestions on how to adapt each technique to the different views. At a later point, they describe view-specific techniques. In this section I will maintain the structure the authors adopted; therefore, I will first describe the common techniques, already adapted to the actors view, then I will focus on the techniques that are specific to the actors view.

To facilitate the reader's understanding, before explaining the individual techniques it is important to address a few points as a means of introduction to a complex topic – even if running the risk of being repetitive. The introductory section is based upon that offered by Arbnor & Bjerke (2009) at the beginning of their chapter.

“Operative paradigm” is defined by Arbnor & Bjerke (2009, pp. 12, 17-18, 175-6) as a bridge between the methodological view and the study area. It contains methodological procedures, which refers to adapting a technique to a methodological view, and methodics, defined as the practical application of such adaptation (pp. 17-18). The authors provide insights and understanding of some of the elements that are necessary to develop an operative paradigm. It is only through independent and critical thinking, however, that such suggestions can be applied in practice (p. 174). Reflecting carefully necessitates asking oneself *When?, Where?, How?, Why?* each technique should be used (Arbnor & Bjerke, 2009). Whether and how a techniques may be created or modified depends on the methodological view chosen and the character of the study area (p. 177). Furthermore, the authors point out that the operative paradigm is an ongoing, evolving process. They write: “*an operative paradigm in an actors approach study will not be complete until the study is complete: it is completed gradually over the course of study*” (p.176).

According to Arbnor & Bjerke (2009, p.177), the common groups of techniques are:

- A. Selection techniques (for units of study)
- B. Traditional data collection techniques
- C. Measurement and reliability techniques
- D. Validation techniques.

Techniques specific to the actors approach<sup>8</sup> are:

- E. Dialogue
- F. Language development

#### A. TECHNIQUES FOR SELECTING UNITS OF STUDY

The following considerations aim at selecting units to be studied when creating knowledge. This is an important part of the study because of the impossibility of representing reality in its entirety. Actors view is not interested in the same selection techniques as the other two views because of its conception of reality, which is a social construction. From this perspective, after choosing the right company<sup>9</sup>, it is important to select the individual actors to focus on. Three principles are applicable here, alone or in combination:

- **Recommended selection**, which means letting different actors recommend other interesting actors;
- **Understanding selection**, which means selecting actors who turn out to be important in the diagnostic development of understanding;
- **Problem/opportunity-oriented selection**, which means choosing individuals that are connected to the problem/opportunity being studied.

The authors underline that there is often an interchange between these three types of selection.

#### B. TRADITIONAL TECHNIQUES FOR COLLECTING DATA

According to Arbner & Bjerke (2009), there are two main categories of traditional techniques for collecting data:

- **Secondary information**, which mean using material previously collected;
- **Primary information**, which means collecting new data.

When using **secondary information**, independently from the view the researcher is following, there are two main problems that need to be addressed:

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<sup>8</sup> According to the authors (p. 178) such techniques are not exclusive to the actors approach, but would require adaptation and often redefinition to be used in the other methodological approaches.

<sup>9</sup> Arbner & Bjerke (2009) provide some useful considerations for the selection of the companies. I will not describe such considerations because I will focus on the company in which I am preparing my master thesis.



- **Compatibility:** because the data was collected previously, and often for another purpose or from another perspective, the researcher should verify if this data fits his research.
- **Trustworthiness:** the researcher who wants to use secondary data needs to be sure that the data was collected in a correct way, and is thus reliable.

In order to avoid bias in the data, it is crucial for the researcher to verify that such requisites are matched for every source of secondary information used.

**Primary data**, according to the authors (p. 180), can be collected in three different ways:

- **Direct observation.** It is a technique used to gather knowledge about what happens in the present. There are four types of direct observation, divided by the level of interaction between the observer and observant, and the subject's awareness of being observed. The main concerns for a researcher using this technique include the choice of setting for the observation (both in terms of time and place), as well as moral considerations about the subjects' appreciation and informed consent.
- **Interviews.** This is a very common technique for collecting primary data in business research, and it can assume different forms. There are several elements to be considered when conducting an interview. Crucially, the researcher should be careful not to overly influence the interviewee, and acknowledge biases created by the interaction.
- **Experiments.** This method aims at reproducing and showing causal relations, and therefore it is suitable only for the analytical approach. The other two approaches can also use the term "experiments. This is, however, not meant in the same sense as the analytical approach, but rather used as a general term referring to carrying out research. Actors approach experiments specifically refer to creative experimental activities carried out in the field, together with actors.

According to Arbnor & Bjerke (2009, pp. 184-185), in the actors approach the collection of data requires the apprehension of the egological spheres<sup>10</sup>, and thus logically leads to a dialogical context. The authors define dialogue as an engagement in a situation on equal terms with other participants, where therefore the researcher acts as he does in everyday life (talking, listening, observing, and so on), but with a disciplined, reflective attitude. Actors must never feel that the researcher seems belittling, self-righteous, supercilious, critical or triumphant when feeding back an interpretation, because this would strongly bias his ability to receive any

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<sup>10</sup> Arbnor & Bjerke (2009, p. 420) define an egological sphere as "*the internal logic of an actor that constitutes his/her finite province of meaning, and by which he/she orients him/herself*".

potential insight. Because cooperation among researcher and actors is required when constructing a fresh social reality, it follows that when reproducing the egological sphere, only personal interviews (as dialogues and indirect observations) should be used.

When not collecting data through interaction with the actors belonging to the research field, researchers may rely on historical material, which can be collected in various ways and for several purposes. This refers to documentary analysis of established or entrenched aspects of the context in which the research is carried out. One aim of historical material collection is to create meaningful mythical images, that may trigger actions.

It may also happen, as an actor researcher, to be confronted with “hard” factors <sup>11</sup>. According to the authors, in this case all the techniques described above can be used, but keeping in mind that a denotation of conceptual meaning can never be fully translated into a questionnaire. They further elaborate that “*denotation of conceptual meaning can only be interpreted and understood, not explained or quantified*” (p. 185).

#### C. MEASUREMENT TECHNIQUES AND TECHNIQUES FOR CONTROLLING RELIABILITY

According to Arbnor & Bjerke (2009), the actors approach does not utilize the same measurements and reliability checks used by the analytical and system approach, as these essentially look to analyze a different type of “reality”. Nevertheless, when the actors researcher encounters factors that can be understood quantitatively, he can use scales and measuring tools just as the other two views do.

#### D. VALIDATION TECHNIQUES

In the actors approach there are no concrete validation criteria, not least because of the idea that reality is socially constructed, and therefore impossible to be measured objectively (Arbnor & Bjerke, 2009, p. 188). Many researchers state that the only real validation is the level of acceptance of the results. According to the authors, this is a rather simplistic answer. In fact, they put forward three indications that suggest the results are correct: an emotional reaction (including the possibility of an actor’s denial); the practical usefulness of the results; and the “dialectic tension” created by the results that can lead to understanding, emancipation and innovative perspectives.

Arbnor & Bjerke (2009) went even further to clarify the concepts mentioned above, by introducing the following distinctions. Firstly, validating the process versus validating the results. Secondly, scientific versus practical validation.

**Practical validation of the process** takes place through feedbacks from the actors.

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<sup>11</sup> Arbnor & Bjerke (2009) provide some examples of “hard” factors that an actors researcher may encounter at page 184. These may include any that answer questions in terms of “how many?”, “what age?”, “what sex?”.

**Practical validation of the results** is the combination of pragmatic attitude and the attitude that creates dialectic tensions (spurring continuing dialogue and emancipatory interactive actions).

**Scientific validation of the process** is demonstrated if logic and reasonableness are shown in the interpretations and in the development of reports.

**Scientific validation of the result** has to do with the relation of the results to existing knowledge. This is, according to the authors, whether the results can be useful in developing the scientific branch or the business.

#### E. THE ACTORS APPROACH AND DIALOGUE

According to Arbnor & Bjerke (2009, p. 195) dialogue has a central role as an investigative and innovative instrument in the actors approach. In order to describe such technique, the authors illustrate its difference from discussion as well as debate in terms of intrinsic purposes:

The purpose of dialogue is to clarify differences, which are then transgressed toward something new, where a deepened understanding and meaning of life is created. This means that the parties involved in dialogue are looking for the highest common denominator. Consequently, agreement is to come about through what is different.

Discussion, instead, is more similar to the analytical approach, with the purpose of looking for the lowest common denominator to start from when summarizing. Agreement among the parties is to come about through what is similar.

The purpose of debate is not to come to an agreement. The only purpose is to beat your opponent with arguments and tricks of rhetoric.

This introduction provided by Arbnor & Bjerke (2009) allows us to understand that in the actors view, dialogue is considered as the most important technique for “looking for the truth” and groundbreaking acts. It is important to stress that dialogue *“is not only about agreeing on a kind of friendly intimacy but also about forging the very master key in the construction of new social reality”* (p. 195).

The authors also provide a distinction between dialogue – as understood from an actors approach - and interview (see table 1). In my opinion, such marked difference is not as influential as presented by Arbnor & Bjerke, if it exists at all (2009, p. 196). In fact, I see interview as a potential tool for dialogue, making it possible to enter a dialogue through a series of interviews. This opinion is also reflected by the fact that

dialogue is not limited in time<sup>12</sup>. I decided to include below the table presented in the book for two main reasons. Firstly, other creators of knowledge may see the interview solely as defined by Arbnor & Bjerke, and thus as not suitable for the actors approach. Secondly, this can help me (and possibly other knowledge creators) to avoid shifting from using interviews as tools for dialogue to using interviews “in the wrong way”.

**Table 1 Dialogues contra interviews**

	<i>Dialogues</i>	<i>Interviews</i>
<i>Main purpose</i>	To get at meaning and significances in the co-actors' language and culture. To create and emancipate.	To collect data which are facts – to get a mirror reflection of factive reality.
<i>Idea</i>	To create a forum for further co-creation of social reality in a direction of mutual interest according to the knowledge ambitions of the actors view (see Figure 6.2).	To set up a channel in order to transfer objective and subjective facts from respondent to interviewer.
<i>Basic assumption</i>	All meaning is socially constructed. There is no (social) reality beyond this meaning.	There is an objective and subjective factive reality to depict.
<i>The researcher's task</i>	Apart from as other participants in the dialogue, to be an actor (inevitable) and also to be an observer – an “observactor”.	Not to influence the interview in any distorting direction.

Source: Arbnor & Bjerke (2009, p. 196)

The authors also provide some elements that characterize dialogue, which may aid the researcher in the knowledge creation process. Among these aspects we find the following (p.196):

- One must be honest with oneself as a creator of knowledge. Thus, he should try to enter dialogue without his prejudices<sup>13</sup> and he should leave the dialogue feeling that he has not only confirmed something he knew, but he has grown in capacity and has dared to give something up.
- An actors researcher is at the same time an actor and an observer with the ambition of creating knowledge. He should therefore be inside and outside the dialogue at the same time.

<sup>12</sup> This view seems in part to be supported also by the authors as they state (p. 184): “*it follows from this that only personal “interviews” as dialogues [...] should be used when reproducing the egological sphere*”.

<sup>13</sup> For a discussion about prejudices, and the extents to which is possible to abandon them, please read chapter 2 of Arbnor & Bjerke (2009).

- Participating in dialogue means considering other languages than spoken and written, such as body language.
- Social reality is continuously constructed and confirmed, thus dialogue is not a phenomenon strictly limited in time. A researcher should also be aware of what preceded and what will follow the dialogue.
- Participating in a dialogue can be compared as being a creative and curious artist, who finds alternative interpretations, possibilities and openings. This kind of person also decides which perspective and which aspects to consider.

According to the actors view, dialogue is essential for the creation of understanding and meaningful actions, in a world where knowledge is created through the interactive development of understanding.

#### F. THE ACTORS APPROACH AND LANGUAGE DEVELOPMENT

Arbnor & Bjerke (2009, p.141) define language as “*the processes and means that researchers develop and use understandingly, emancipatorily and creatively in order to express themselves*”. According to them, language is what makes us uniquely human, which is the basis of the actors view’s interest in language. According to the authors, language is used subconsciously, but can also be used consciously in order to create new thoughts, open up new perspectives, create involvement, etc. It is possible to describe something almost totally emotionlessly, but also, conversely, to use one’s creative thinking and imagination. The way in which we work with language is related to the knowledge-creating interests of the researchers and to their knowledge ambitions. As researchers in the actors view, we try to develop procreative concepts that shape and vivify the world for us, but also provide old concepts with new energy and innovative direction.

According to the actors view, language development must be based on a meaning created at the interface of the actors’ first hand expressions with the scientific concepts.

In order to make conscious language come alive, a researcher can use “procreative words”, defined by the authors as “*concepts in language development that are loaded with the right kind of fertilizing energy for the study area and for the knowledge creator’s own development of procreative understanding*” (p. 425). Here, a central element is the concept of “the creator of knowledge creating himself”. As the author state<sup>14</sup>, it refers to an actors researcher’s search for the inner quality of the study area he encounters; at the same time, he tries to re-create this quality in himself, so

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<sup>14</sup> Such concept has been proposed again on the basis of the discussion provided in chapter 6 of the book.

that he can understand and transfer these experiences through “the emancipatory interactive action” (p. 198). The authors elucidate further: it is through the use of concepts in concrete situations that the meaning and relevance are developed. It is therefore at the interface between the actor’s first hand expression and the scientific perspectives that procreative words bring meaning to the researcher.

The authors continue: *“operative and rational language needs a personal and emotional language as its opposite”* and *“it is at the interface [of the opposites] that interesting and challenging exists”* (p.198). In their view, it is possible to train oneself, as well as other actors, to use language more creatively. They provide six principles that aim at making language understood and developable. The goal is to initiate the critical reflective thought and broaden the perspective of the researcher, in order to give substance to his experiences. In addition to this, the researcher may use the language principles in interaction with the actors in the study area (p. 199).

1. Language cleaning. The creator of knowledge removes “masking words”, which would misguide him (and/or the actors involved); thus he better understands which are the concepts that shape our thoughts.
2. Language reduction. The researcher searches for the most common word used in everyday language by the actors in the study area as well as those used in his research. He then removes them in order to observe what happens to dialogues and descriptions.
3. Language polarization. The researcher sets one concept against its opposite to make a potentially creative interface become visible.
4. Language shift. The creator of knowledge consciously tries to describe phenomena using words and perspectives borrowed from a language field other than the one the phenomena belong to.
5. Language subjectification. The researcher includes feeling and subjects, thus increasing the ambiguity and richness of aspects.
6. Language poetring. The creator of knowledge gives rhythm and provides metaphors in order to create nearness and exactness between experience and transfer of meaning. Metaphors play a central role in describing and in clarifying “discoveries” and ideas.

The elements outlined in this section have helped me to conduct research following actors research reasoning. They have assisted me in the research as a guide, but have also enabled me to reflect on my way of operating. In the next section I will describe how I proceeded in developing my research.

## **2.3. METHODOLOGY IN PRACTICE**

In this section I will explain how the thesis was developed, following the theory put forward by Arbnor & Bjerke (2009) about how to create knowledge according the actors approach

principles. Figure 3 is a representation of the process in question, which can be divided into three main activities: understanding the situation; reviewing the literature; and formulating the innovation strategy. The first two phases, which can be seen as a preparation for the last one, were carried out in parallel; the formulation of the strategy took place once the first two were accomplished.

As just mentioned, my first task was to analyze and gain an in-depth appreciation of the context within which Cerbios operates. The aim was to achieve double-side understanding: one the one hand, gaining knowledge I would need and use; on the other, providing the key actors involved in this project with necessary, new information. I followed the suggestions of Arbnor & Bjerke (2009, p. 52), who argue that when actors researchers aim at acquiring understanding, the best course of action is cooperation and communication (rather than creating knowledge on their own, as it is often the case within a system view framework). They also argue that dialogue has a central role as an investigative and innovative instrument in the actor's approach, where a deeper understanding is thereby created (p.195-7). I thus decided to enter in a dialogue with Gabriel Haering, in order to understand how Cerbios' top management perceived the innovation strategy and which role it plays in the corporate strategy. As a result, we came to an agreement on how to proceed that was satisfactory to everyone. This knowledge generating dialogue consisted in three semi-structured interviews, carried out on three different occasions, which gave me some time for careful reflection. This fits well within the actors view model, since dialogue is not a phenomenon that is defined or limited by strict timeframes (p. 196), but it is something that requires space for growth and disciplined reflection. I carried out the three interviews face-to-face in Haering's office. We agreed to speak in Italian, as it is the language we use in everyday life and we wanted to avoid misunderstandings. All meetings were recorded, transcribed in Italian and, afterwards, translated into English. After the first interview I also entered into dialogue with Christian Suà, Cerbios' CFO, about corporate, customer-centric and innovation strategies. Because this particular discussion started spontaneously during a face-to-face meeting in his office about elements external to the thesis, and was therefore unplanned, I was unable to record the talk; I however took notes on it while we were speaking. I also drew some figures and schemes on a piece paper, which helped us both understand (and agree on) the topics we were discussing. Some of the elements that emerged from the discussion with Suà were included in the two following interviews I had with Haering, as it is also the case for the drawings, which I showed him and incorporated into our conversation. Using languages other than spoken and written, as it is the case for the drawings, and being creative in terms of communication and outside-the-box thinking, belong to the characteristics listed by the authors at page 196.

This activity proved to be critical: through these dialogues we understood that the concepts of customer centricity and innovation strategies had to be developed separately. This discovery had a major impact on the development of this thesis. In addition, the conversations proved very helpful in understanding the role of innovation strategy within Cerbios' corporate strategy.

At the same time, I carried out another task crucial for understanding: literature review. As mentioned in the previous section, actors researchers see taken-for-granted-concepts as obstacles rather than tools that make us make sense of our surrounding environment; thus theories previously created are not perceived as “the truth”, but must be objects of critical reflection, and must always be adapted to the specific context. Therefore, I analyzed the available literature viewing it as a source of inspiration for future actions. The theory fields that provided inspiration are innovation, innovation management, corporate strategy, innovation strategy and customer-centricity. This activity had not been carried out in isolation from the dialogues mentioned above. In fact, the two have been intertwined throughout, mutually affecting each other. For example, the literature on customer-centricity had been selected according to the way customer-centric strategy and innovation strategy related. The selected theory has been discussed first with Haering, and then with the Innovation Committee and the Innovation Management Team, in the meeting dedicated to the creation of the strategy. Discussing the literature is helpful for finding common definitions and agreement on how to proceed. Theoretical talk can also initiate discussions on what the characteristics of the topic under study – in our case, innovation strategy – are, and what should or should not be included within said strategy.

After having understood what innovation strategy is and what it involves, as well as having reviewed further literature, the strategy was formulated. To come to this result, I organized a meeting with the entire Innovation Committee and Innovation Management Team of Cerbios, so that managers from every area would be present. It was important to include people from all the different areas for several reasons. Firstly, in doing so it became possible to coordinate innovation efforts company-wide, thereby creating coherence within the actions taken by the different teams. Secondly, it enabled me to uncover the perceptions of people working in different areas, thus uncovering elements that may not have been considered from other members of the company. Thirdly, having the entire company represented increases acceptance of practices seen as potentially exclusionary and interfering, and enables improved cooperation from all parties. The strategy creation process was divided in two parts. I first prepared and delivered a Power Point presentation (see annex 2), during which I reiterated key points found in the literature on strategy (which I had sent everyone a week prior to the meeting), and, as a group, we discussed what innovation strategy is<sup>15</sup>. There, I asked the people attending the meeting to critically assess the theories presented: they all agreed to use them as inspiration. We also agreed on how to proceed during the second part: we would formulate the deliberate strategy and assign particular individuals with responsibilities for “scanning” for elements that may influence the strategy chosen (what Mintzberg call “emergent strategy”).

The second part consisted in the actual creation of the innovation strategy. We used the “Canvas” model on a white board and started the group discussion about which elements the innovation strategy should focus on. The Canvas model, created by Osterwalder &

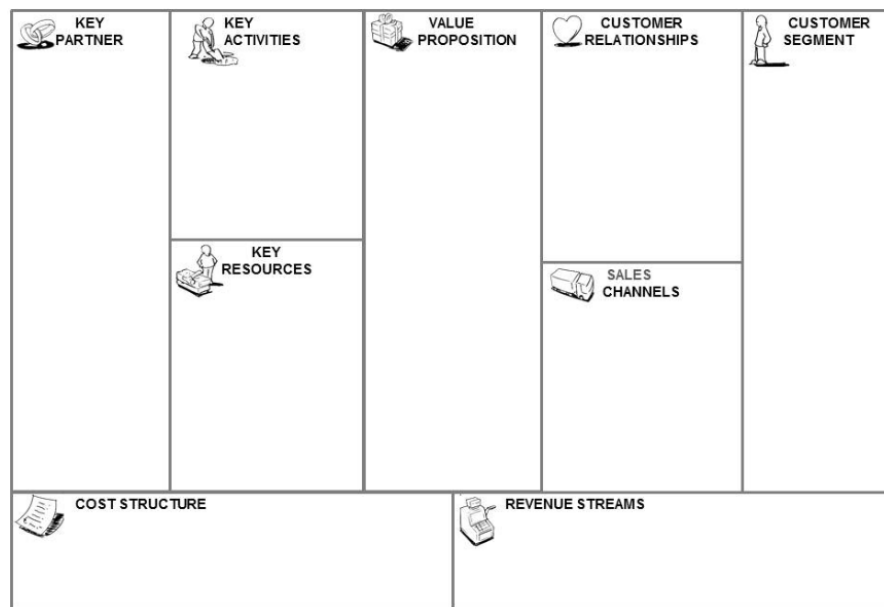
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<sup>15</sup> I sent to Cerbios’ management the theoretical part of the thesis I developed.



Pigneur (2010), is a representation of the company in 9 building blocks: Customer segments; Value propositions; Channels; Customer Relationships; Revenue Streams; Key Resources; Key activities; Key partnerships; Cost structure (see figure 2). According to its creators, the model works best when printed out on a large surface, so that groups of people can jointly start discussing elements of the firm. This is how we proceeded. According to its authors, this technique has several advantages that engender constructive dialogue: the Canvas model is a *“hands-on tool that fosters understanding, discussion, creativity and analysis”* (p. 42). Among other uses, the authors also suggest to use their model in the strategy creation process.

**Figure 2 The model canvas**



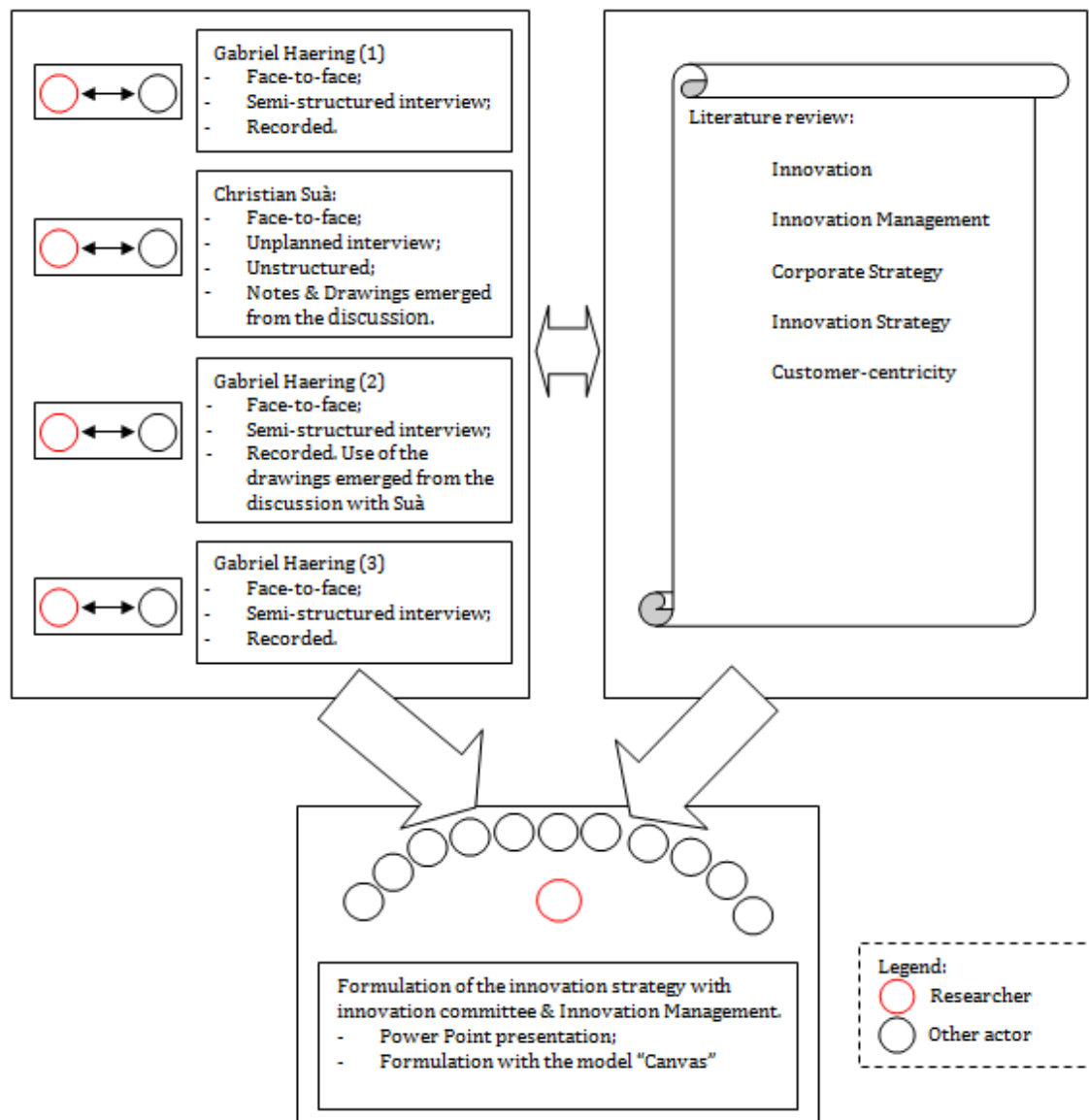
Source: Osterwalder & Pigneur (2010)

I chose this specific model because it provided visual help, facilitating understanding of the many elements that need to be considered when formulating an innovation strategy. It was crucial to find an instrument that allowed the integration of the various perspectives found in the literature, but which also allowed for a high degree of freedom and flexibility (thus enabling us to decide which perspectives to include and how to include them, and which we should discard). Such critical reflection is consistent with the actors approach.

During this creation process I took on the role of moderator. There, I asked to everybody to indicate the various elements that they felt were important to the innovation strategy, according to the literature discussed; as people spoke, I represented their views on the Canvas model. The only elements of the model we did not discuss were the cost structure and the revenue streams. Each element that emerged was discussed among everyone attending the meeting. In doing so, strategy emerged as a collaborative effort.

Next figure represents the methodological process in practice.

Figure 3 The research process in practice



Source: Own elaboration

### **3. THEORETICAL CONSIDERATIONS**

In this thesis we draw inspiration from different theories treating different topics. The main subject areas are innovation management and corporate strategy. There will be also a section dedicated to the innovation strategy, which combines elements of the two theories just mentioned because it does not exist as a stand-alone field. Such section was separated from the previous two as it contains concepts already specifically adapted to innovation strategy. At the end of the chapter the concept “customer-centric” will be discussed. The different theories will be described separately. We adopt such approach because we think it will be easier for a reader not already confident with such concepts to understand them. Furthermore, it also may help people already accustomed to such topics to consider some elements that might have not been considered before.

#### **3.1. INNOVATION**

Today, literature on innovation is very large and diverse. Innovation has been studied from many different angles and perspectives: even keeping up to date with the research can be a difficult enterprise (Fagerberg, 2006; Dodgson, Gann & Salter, 2005). Dodgson et al. (2005) help us in understanding the complexity of innovation literature, by defining innovation both as an outcome and a process, which cannot be treated synonymously (p.26). They also provide an overview of the major analytical approaches to innovation, highlighting the wide variety of fields (and perspectives within these fields) that address this topic. This exhaustive introduction to the existing literature stresses the need for a careful selection of the literature on which the thesis is to be developed.

##### **3.1.1. DEFINING INNOVATION**

Such variety of perspectives studying innovation has led to a wide range of definitions of the concept. In order to create knowledge about innovation, it is important to explain what we are referring to. I will therefore define innovation in an evolutionary manner: I will start with the definition created in the period of its conception and, later on, provide a definition suitable for our purpose. Some of the main types and characteristics of innovation will also be described.

One of the most significant figures of the field of innovation, often defined as the “Godfather” of innovation studies, was Joseph Schumpeter. In his view, economic development had to be seen as qualitative change, driven by innovation (Tidd & Bessant, 2009, p. 15; Fagerberg, 2006, p.6). The Austrian economist defined innovations as (Schumpeter, 1926 in Backhaus, 2003, p. 130):

*“New combinations of productive means. Innovations denote the introduction of a new good or of a new quality of a good, the introduction of a new method of production, the opening of a new market, the conquest of a new source of supply of raw materials or half-manufactured goods, as well as the carrying out of a new organization of an industry”.*

As already stated, after Schumpeter many other authors have defined innovation from different perspectives, with different purposes. According to Fagerberg (2006) and to Tidd & Bessant (2009) there is a general agreement that an innovation occurs when a new idea is put into widely used practice.

Although there are several definitions that might be useful for this thesis, it was decided to use the one provided by Tidd & Bessant (2009). The choice of using Tidd & Bessant's (2009) definition has been influenced by the work done during the past semester, where I identified their framework as the ideal one in terms of applicability and relevance. The reasoning and reasons that led to the choice of such method are highlighted in the section dedicated to the management of innovation

According to Tidd & Bessant (2009), innovation requires an analytical and proactive attitude: *"Innovation is driven by the ability to see connections, to spot opportunities and to take advantage of them"* (p.3). They also describe it as *"a process of turning opportunity into new ideas and putting these into widely used practice"* (p.16).

### 3.1.2. TYPES AND CHARACTERISTICS OF INNOVATION

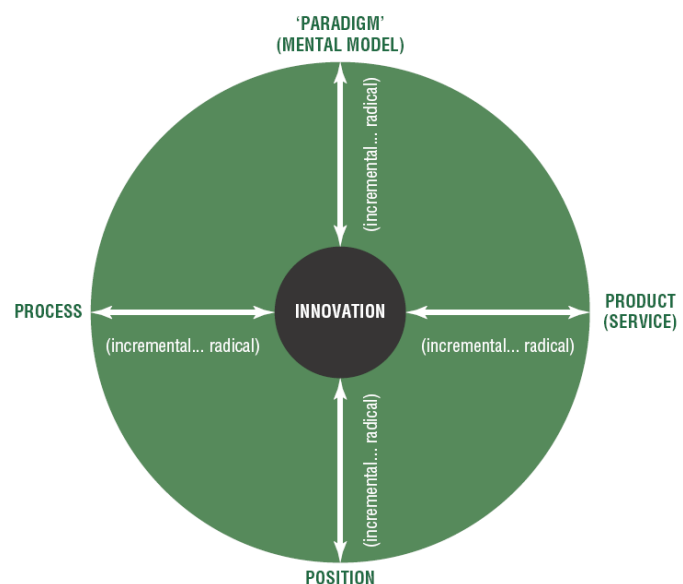
Innovations can take different forms and have different characteristics and, as anticipated previously, there are many different perspectives from which is possible to study innovation. Therefore in this section I will provide some categorizations and describe some characteristics that may help the reader to understand this highly complex phenomenon.

#### THE INNOVATION SPACE

According to Tidd & Bessant (2009, p. 21), innovation can take several forms. They distinguish among the following types:

- Product innovation – changes in the products (or services) that an organization offers;
- Process innovation – changes in the ways in which such products/services are created and delivered;
- Position innovation – changes in the context in which the products/services are introduced;
- Paradigm innovation – changes in the underlying mental models which frame what the organization does.

Figure 4 The "4Ps" of the innovation space



Source: Tidd & Bessant (2009, p. 22)

As the authors state, such categories are not unyieldingly set. In fact, sometimes, the dividing line is rather blurred. This is explained by the fact that the “4Ps” (Product, Process, Position and Paradigm, as just seen) are linked to one another (therefore, one type of innovation may affect another type); moreover, the concepts are not alternatives, but rather complements to the others: innovation in two or more areas can be pursued simultaneously. For example, when a company is innovating its position, it is likely that new products or services will follow. Similarly, after a new product is placed on the market, process innovation is likely to be implemented. The “4Ps” are included in figure 2, presented above. In the framework another dimension is apparent: this is the degree of novelty of innovation. In regard to this, Tidd & Bessant (2009) distinguish between incremental and radical innovation, referring to the former as “do what we do but better” (which displays a lower degree of newness) and to the latter as “do something different” (where the novelty degree is highest).

The area shown in the circle in figure 4 represents the potential innovation space within which an organization can operate. As the authors argue that “*whether [a company] actually explores and exploits all the space is a question for innovation strategy*” (p. 25). This map can be used in several ways. The authors suggest to use the model to look at where the organization currently has innovation projects, and where it might move in the future; or to compare maps for different organizations competing in the same market, to identify where there might be relatively unexplored space.

## CHARACTERISTICS OF INNOVATION THAT INFLUENCE THE STRATEGIC DECISIONS

According to Tidd & Bessant (2009, p. 26), the “4Ps” framework can be useful in defining where to concentrate the firm’s innovation efforts. However, before taking important decisions, it may be helpful to consider some of the other characteristics of innovation which may shape our strategic decisions about where and when to act. These key aspects include (p. 27):

- a) The degree of novelty – incremental or radical innovation?
- b) Platforms and families of innovations
- c) Discontinuous innovation – what happen when the rules of the game change?
- d) Level of innovation – component or architecture?
- e) Timing – the innovation life cycle

### **a) The degree of novelty**

According to Tidd & Bessant (2009, pp. 27-28), a key issue in managing innovation relates to the degree of novelty involved in different places across the innovation space. Innovation can run on a continuum from incremental improvements right through to radical changes which transform the way we think about and use them (sometimes these transformations are so radical that they even change the *raison d’être* of a company). So, what kind of innovation is better? Both! Appreciating that there are different degrees of novelty is important to understand the following: the way we implement incremental day-to-day

change differs from the application of innovation techniques that are used in response to sporadic, radical changes in products or processes. This idea enlightens some of the crucial issues pertaining to innovation, and aids reflective thinking when developing an innovation strategy.

### **b) Platforms and families of innovations**

Tidd & Bessant (2009, pp. 28-29), argue that the benefits of incremental innovation can be enhanced by innovation platforms. They define platforms and families of innovation as ways to create elasticity and space around an innovation; these can consist of products or practices, and serve to launch and promote related products. Innovation success depends on being able to establish a strong basic platform or develop strong innovation “family relations”(involving products that are similar or related), allowing an extension of the market. Again, it is important to stress that it is not only products that can be considered as platforms for innovations, but also process innovations (which may be useful in sectors different from the original), position innovations (such as the use of a brand in another area than the first one), and organizational innovations (such as total quality management, which diffused widely across sectors). The authors point to the original Walkman (created by Sony) as a notable innovation platform: its invention has led to an impressive increase and improvement in audio technology, having spurred the development and mass commercialisation of cassette, then minidisk, CD, DVD and now MP3 players, involving all major manufacturer in the industry (p.28). This shows that when an innovation emerges, verifying whether extending it or to making it more flexible is possible - potentially with the help of platforms or product family relations - can be crucial to its accomplishment.

### **c) Discontinuous innovation**

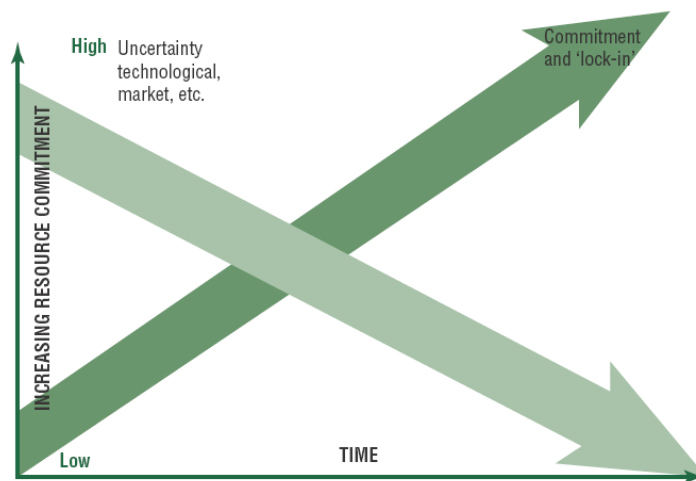
Most of the time, innovation takes place within a known context, with the rules of the game clearly defined, where the players try to innovate by doing what they have been doing but better. However, occasionally something happens which disrupts this framework and changes the rules (Tidd & Bessant, 2009, p. 29). Change of this kind can come through the emergence of new technology or through the emergence of a completely new market with new characteristics and expectations. It is central for a company to understand that discontinuous innovation may happen, and if it does, it poses major challenges for the existing players. Tidd & Bessant (2009, p. 31) provide an interesting metaphor, referring to some industries that were re-designed by discontinuous innovation: *“ice harvesters, mini-computer disk companies and established airlines all carried on their innovation on a stage covered with a relatively predictable carpet. The trouble was that shifts in technology, in new market emergence or in new business models pulled this carpet out from under the firms – and created a new set of conditions on which a new game would be played. Under such conditions, it is the new players who tend to do better because they don’t have to wrestle with learning new tricks and letting go the old ones”*. According to the authors, the firms faced lot of difficulties because they were blindsided by technological changes coming from a different field. Tidd & Bessant (2009, pp. 32-36) provide some good examples of triggers of discontinuities, the problems they pose and some examples of good and bad experiences. It

may be useful for the reader to look at such examples, in order to initiate a reflection of where discontinuous innovation may come from and which effects may have.

#### d) Level of innovation – component or architecture?

When approaching innovation it is important to consider that components within larger systems may represent innovation opportunities. There is scope for innovation at every level of the system (ranging from the tiny, simple component to the whole system), and therefore it is helpful, if not necessary, to be aware that changes in higher-level systems often have implications for those lower down the chain. Another aspect that should be considered is, as explained earlier, the degree of novelty. As Tidd & Bessant (2009, p. 37) argue, incremental innovation, although not risk-free, is potentially manageable because it starts from something already known. But as the innovation moves to more radical options, it involves higher uncertainty, and thus becomes harder to deal with. Such situation is illustrated in figure 5.

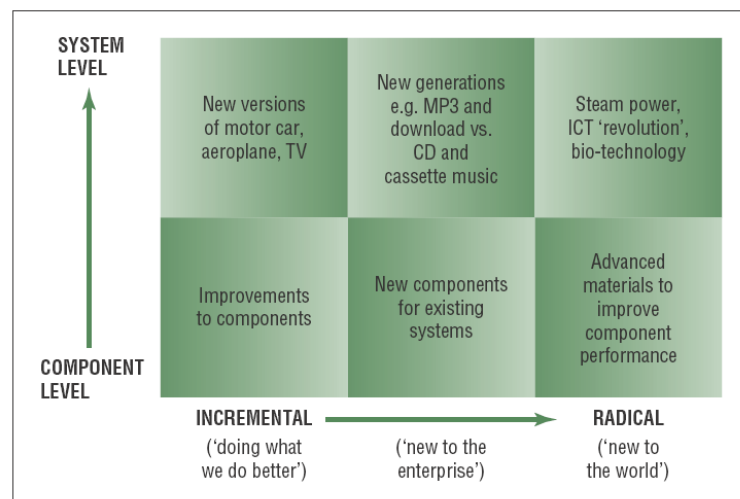
Figure 5 Innovation, uncertainty and resource commitment



Source: Tidd & Bessant (2009, p. 37)

A key contribution to the understanding of this aspect of innovation is brought by Henderson & Clark (1990). They argue that innovation rarely involves a single technology or market but rather a bundle of knowledge brought together into a configuration. Therefore, successful innovation management requires that we know both the components and how they can be put together. The authors termed this the “architecture” of innovation. Tidd & Bessant clarify an aspect introduced previously: *“So if [innovation] is at*

Figure 6 Dimensions of innovation



Source: Tidd & Bessant (2009, p. 38)

*component level then the relevant people with skills and knowledge around these components will talk to each other – and when change takes place they can integrate new knowledge. But when change takes place at the higher system level – “architectural innovation” in Henderson and Clark’s terms – then the existing channels and flows may not be appropriate or sufficient to support the innovation and the firm needs to develop new ones” (p. 38).* Figure 6 illustrates the range of choices, stressing the fact that such change can happen at component or sub-system level.

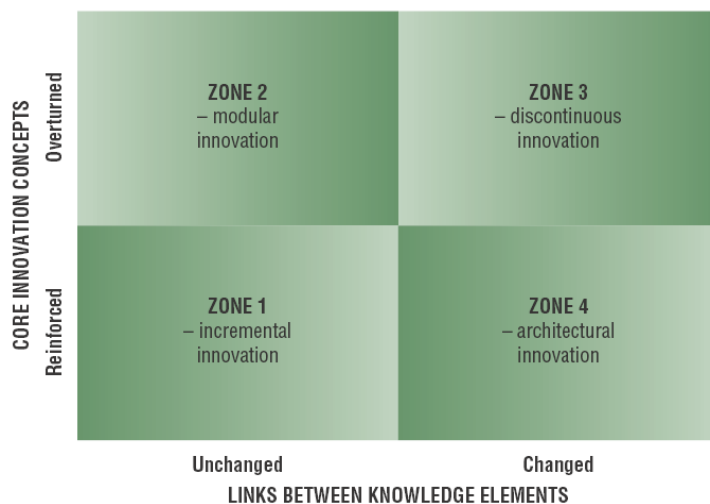
A variation on this theme is the concept of “technology fusion”. This takes place when different technological streams converge, so that products and technologies that did not use to be very prominent begin to merge into new, important architectures. Tidd & Bessant (2009, p. 39) provide a figure that highlights some issues for managing innovation.

Zone 1 refers to steady-state improvements to products or processes, using knowledge accumulated around core components. In Zone 2 there is significant change, but only in one

The overall architecture remains the same, and therefore it is necessary to acquire new knowledge, but within a known framework of sources and users. Zone 3 refers to discontinuous innovation. Everything is unknown and there is also scope for new entrants. In Zone 4 new combinations – architectures – emerge, possibly around the needs of different groups of users. Here the challenge lies in rearranging the knowledge sources and configurations.

Existing knowledge may be used and recombined in different ways, or it may be used in a combination of new and old.

**Figure 7 Component and architectural innovation**



Source: Abernathy & Utterback (1978) in Tidd & Bessant (2009, p. 39)

This sub-section may help the reader in reflecting on the fact that technologies are not stand-alone elements separated from everything else, thus opportunities and threats may emerge in the nearness of the technology on which a company is focusing. The reader, if involved in the management of innovation, may want to consider monitoring the environment in which the technology was created and operates, as well as considering other technological areas apparently not directly related to the technology he is focusing on

## e) The innovation life cycle

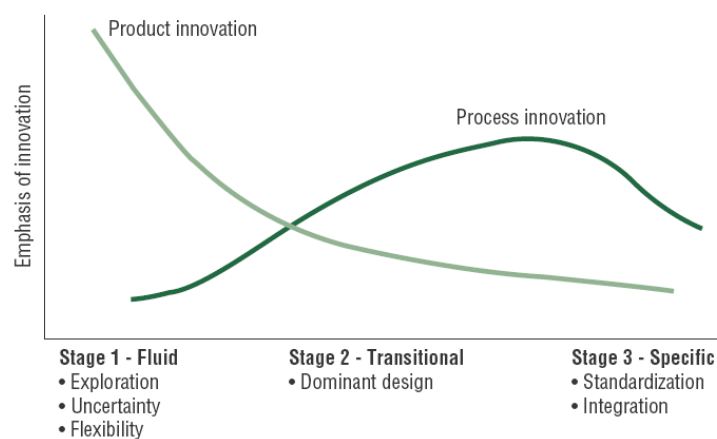


As discussed earlier, different types of innovation may happen at the same time. Tidd & Bessant (2009) present the model developed by Abernathy & Utterback (1978), which shows the emphasis on innovation according to the maturity of the technology. Such model describes the patterns in innovation in terms of three distinct phases (figure 6).

The first phase is called “**fluid phase**”: this is characterized by the emergence of completely new technologies or markets under discontinuous conditions. There is high uncertainty both on the target and on the technical features. Because no one knows the best configuration of the technology and the needs of the customer, in such phase there is extensive experimentation and fast learning.

Figure 8 Innovation life cycle

Gradually such experiments begin to converge to what Abernathy & Utterback (1978) call a “dominant design”. It represents a convergence around the most popular solution, thus the rules of the game begin to be set up. Innovation possibilities are reduced as the time goes by; Dosi (1982) refers to this as “technological trajectory”.



Source: Abernathy & Utterback (1978) in Tidd & Bessant (2009, p. 40)

The key characteristics of products and processes become stabilized and experimentation moves on to fixing existing bugs and refining the dominant design. The period in which the dominant design emerges and the emphasis shifts to imitation and development is called “**transitional phase**”. Activities move from being oriented towards radical concept development to efforts focused more on product differentiation, and to delivering this reliably, cheaply, with higher quality and extended functionality.

As the concept matures further still, so incremental innovation becomes more important, and the focus shifts to factors such as cost reduction. The efforts are therefore more oriented towards rationalization, scale economies and process innovation. Product innovation becomes increasingly about differentiation through customization to better meet particular needs of specific users. Such phase is called the “**specific phase**”.

At this point a new technology emerges and the game is disrupted. This can also be observed from a firm's

perspective, where mature businesses that have had leading positions in the three phases do not stay in the mature phases forever, but become vulnerable to the new wave of change as the cycle repeat itself.

The main characteristics of the three phases

**Table 2 Stages in the innovation life cycle**

Innovation characteristic	Fluid pattern	Transitional phase	Specific phase
Competitive emphasis placed on . . .	Functional product performance	Product variation	Cost reduction
Innovation stimulated by . . .	Information on user needs, technical inputs	Opportunities created by expanding internal technical capability	Pressure to reduce cost, improve quality, etc.
Predominant type of innovation	Frequent major changes in products	Major process innovations required by rising volume	Incremental product and process innovation
Product line	Diverse, often including custom designs	Includes at least one stable or dominant design	Mostly undifferentiated standard products
Production processes	Flexible and inefficient – aim is to experiment and make frequent changes	Becoming more rigid and defined	Efficient, often capital intensive and relatively rigid

Source: Tidd & Bessant (2009, p. 40)

are listed above in table 2. These patterns have important implications for the management of innovation. Some organizations build capabilities around a particular trajectory, and those who may be strong in the “specific phase” of such trajectory often find it hard to move into the new one. On the other hand, other existing players are able to quickly build on the new trajectory and to deploy/leverage their accumulated knowledge, networks, skills and financial assets to enhance their competence about such new opportunity. It is also important to remember that in the “fluid phase”, new and old technologies may coexist and improve rapidly.

It becomes therefore important for a company to reflect on (and then build) the kinds of organizational behaviour needed. According to Tidd & Bessant (2009, p. 43), a company necessitates agility, flexibility, and the ability to learn fast, and overcoming preconceptions about how things may evolve. Such conditions may conflict with normal ways of thinking and working. As already commented, it is also important to remember that some sources of discontinuity come from outside the industry in question.

### 3.1.3. THE MANAGEMENT OF INNOVATION

The fact that literature on innovation is very large and diverse translates into a wide variety of models that can be used to manage innovation. This evolution of the interest in innovation ought to be seen as a positive development: it engenders better understanding and explanations of this phenomenon, although in the necessary awareness that a careful selection of the literature to base one's work on is required. In the next paragraphs I will explain which model I chose for inspiration and why. It should be noted that the choice of

the model has been influenced by the work carried out within Cerbios last semester, which has many common features with this thesis.

The theory I were looking for needed to have several attributes: firstly, to see innovation as a process, and not as a random phenomenon. As such, the theory also needed to assume that successful innovation requires both understanding and management. Furthermore, according to Pavitt (in Fagerberg, Mowers & Nelson, 2005), there are several innovation processes that are dependent on the systems in which they occur. Therefore, I chose a theory that approaches innovation at a firm level, from a managerial perspective. The last requirement I had, for the choice of the relevant theory, was to find some literature that would include the innovation strategy in its model.

Because of such requisites, I chose to adopt the Tidd & Bessant (2009) framework. The fit of their model to our needs becomes clear when the authors state that *“innovation is a process, not a single event, and needs to be managed as such”* and *“the influences on the process can be manipulated to affect the outcome – that is, the process can be managed”* (p. 76). Even if I am interested only in a small part of the model, I will give a brief overview of the entire process, so as to improve understanding of the context in which the innovation strategy is created.

## THE TIDD & BESSANT (2009) FRAMEWORK

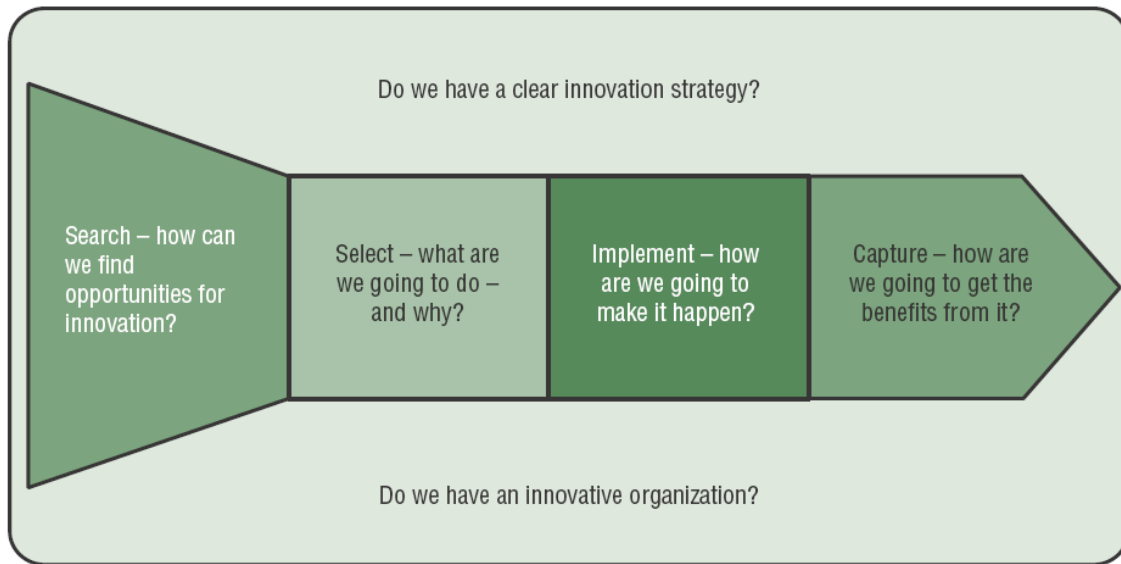
The model Tidd & Bessant (2009) created consists of several differentiated but equally important stages, or as they put it, *“four key phases, each of which requires dealing with particular challenges – and only if we can manage the whole process is innovation likely to be successful”* (p.19).

They argue that innovation is essential, and is so to any type of firm: *“innovation is a generic activity associated with survival and growth and at this level of abstraction we can see the underlying process as common to all firms”* (p.54). The theorists developed their framework to facilitate exploring the ways in which innovation can be managed. This is represented in the figure 9. The authors also stress the fact that, although the general model can be applied to all firms, every firm operates in its own context, and therefore it is necessary to adapt the model to the firm. This aspect is also important for the methodological approach adopted here, which requires inspiration, reflection and flexibility, rather than strict, fixed rules (as ascribed by other models). It is also important to underline that the activities described in the model should not be adopted in a casual, sporadic manner, but should become actions that are integral to the everyday running of the company, essential routines<sup>16</sup> that are learned over time and improved through experience.

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<sup>16</sup> The authors define routines, based on Arrow (1962), as *“the way we do things here”*, as a result of repetition and reinforcement (p. 70). This also involves a learning process. Read chapter two of Tidd & Bessant (2009) for further discussions on routines.

**Figure 9 The innovation process according to Tidd & Bessant (2009)**



Source: Tidd & Bessant (2009, p. 44)

The model consists of four key phases, which are search; select; implement; capture, and of two contextual issues affecting innovation, the innovation strategy and the organisation of innovation. Below I will briefly present each element of the model. It is important to stress that the elements are shown separately for a better understanding of the model, but in reality, innovation has to be managed in an integrated way. To manage or develop abilities only in parts of the innovation process will unlikely lead to successful innovation. It should also be noted that, although presented in a linear manner, such phases usually occur simultaneously within the firm.

### **Search**

The first phase in the innovation process involves detecting signals that indicate possible change. According to Tidd & Bessant (2009), there is a wide range of such signals, and therefore it is central for successful innovation management to have well-developed mechanisms for identifying, processing, and selecting information from the turbulent environment in which the company operates (p.79). The model also provides helpful insights on delimitating the search space to where one should expect to find something helpful. However, the authors also advise the reader that the company should avoid being completely confined to the selected space, and that understanding the factors that shape the “selection environment” is necessary (p.80).

### **Select**

Innovation is inherently risky, and it is therefore essential to identify and select the right opportunities (p.80). Aside from stemming from the inherent value of a particular innovative aspect, choices on innovation need to be made bearing in mind their fit with the overall business strategy, as well as their links with established technical and marketing competences. Although some links to the existing business framework are usually

necessary, the entire knowledge base does not need exist entirely within the firm: knowledge and competence can also originate outside the immediate context of the company. The selection of ideas identified in the search phase is a continuous process along the entire innovation process. Obtaining a close alignment between corporate and innovation strategies is of great importance at this stage (p. 81).

### **Implement**

The implementation phase refers to turning potential ideas (searched and selected previously) into something real, which can be, according to the authors, a new product or service, a change in process, or a shift in the business model. Tidd & Bessant (2009) argue that over the implementation phase, uncertainty is gradually replaced by the knowledge acquired during the process (p. 81). They explain: *“In some ways this implementation phase can be seen as one which gradually pulls together different pieces of knowledge and weaves them into an innovation”* (p. 81). The authors divide this phase in three core elements: acquiring knowledge, executing the project, and launching and sustaining the innovation (p.82).

### **Capture**

The purpose of innovation is usually to capture some kind of value from it, which can take the form of commercial success, market share, cost reduction, and so on (p. 85). However, capturing value from innovation does not limit itself to exploiting value in terms of profits. According to Tidd & Bessant (2009), capturing value also refers to creating new stimuli for restarting the innovation cycle<sup>17</sup> and to learn from previous experiences, regardless of whether these were regarded as successes or failures. Moreover, there are not only several kinds of value that can be captured, but also several methods that can be used for capturing it (p. 86).

### **Key contextual issues around the innovation process**

As anticipated before, the innovation process described above (search; select; implement; capture) is not isolated from the rest of the world. According to Tidd & Bessant (2009), there is a range of internal and external factors that influence the innovation process. The authors identify two sets of contextual factors internal to the organization (p.86): the strategic context for innovation, and the innovativeness of the organisation.

These factors are present in the two elements that affect the innovation process throughout, and are represented in figure 9:

- **Innovation strategy.** A company needs to develop a strategy that aligns various innovation efforts across the organization. Such innovation strategy should be developed according to the corporate strategy, and needs to be shared and understood within the entire organization.

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<sup>17</sup> They refer to it as “reinovation”, based on Rothwell & Gardiner (1985)

Because the innovation strategy is the central element of the thesis, such concept will be developed separately in detail in the next sections.

- **Innovative organization.** A company benefits, in terms of innovation, depending on how it is organized and on the shared culture. This involves considering key elements such as leadership, structure, communication and motivation. Although such concept is strictly related to the innovation strategy, it will not be further developed in the thesis because not central to the research question. However, in practice Cerbios is also organizing for innovation.

During my internship I have used the Tidd & Bessant (2009) approach, which has helped me create a coherent innovation process. Even if in the next sections I will focus only on the innovation strategy, I developed this part of the process including the others phases presented above<sup>18</sup>. I did not highlight them in the report, as they do not belong to the specific project presented here. The selection phase is described in a semester project I wrote last semester.

## EVOLVING MODELS OF THE INNOVATION PROCESS

According to Tidd & Bessant (2009, p. 66), it is important to see innovation as a process because the way we perceive such phenomenon will influence the way we manage it. It is thus important to have a clear and shared understanding of what the process involves and how it operates. The understanding of innovation process and the models to manage it has changed a great deal over time (Tidd & Bessant, 2009). The pioneering work of Rothwell (1992), which has been completed by Dodgson et al. (2005), provides a useful historical perspective on this evolution. Table 3 summarizes the main findings put forward by the authors mentioned above.

Tidd & Bessant (2009) offer some reflections, starting from the contribution of Rothwell (1992). According to the authors, one of the key problems in managing innovation is that it involves making sense of a complex, uncertain and highly risky set of phenomena, which we simplify through mental models. There are several prescriptions for structuring the innovation process, some in a linear manner, other including more complexity and interaction. The key issue of how models are to be utilised is presented through an interesting metaphor: *“just as the map is not the same as the territory it represents so [representations] need to be seen as frameworks for thinking, not as descriptions of the way the process actually operates”* (Tidd & Bessant, 2009, p. 66).

Tidd & Bessant (2009, p. 68) recognize the importance of mental models in helping us framing the issues that need managing, but also highlight one of the main risks involved here: partial thinking. It is argued that if our mental models are limited, it follows that our

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<sup>18</sup> Although for the reader it may seem that the phases are rather static, after being implemented, it should be considered that they affect each other, and because it is a learning process, such phases are ever-changing.

approach to managing the process is likely to be limited. They give some examples of “partial thinking”, which may help us reflecting about the models we develop and use (p. 68):

- Seeing innovation as a linear process – either “technology push” or “market pull”;
- Seeing innovation simply in terms of major “breakthroughs”, thus ignoring the potential that resides in incremental innovation;
- Seeing innovation as a single isolated change, rather than as part of a system (which offers potential not only for innovation at a component level, but also for architectural changes);
- Seeing innovation as products or processes, without recognizing their interrelationships.

**Table 3 Different generations of innovation processes**

Date	Generation	Name	Key attributes	Management & Policy issues
1950's	First	Science-push	Simple linear sequence: research investments filter down into industrial application	Simple: maintain and increase substantial budgets for R&D
1960's	Second	Market-pull	Simple linear sequence: R&D is presumed to be responsive to customer demand, thus marketing has a central role.	Relatively simple: predict market demands, plan, and allocate innovation investments accordingly
1980's	Third	Coupling model	Interaction among activities within the firm. Focus on information flow and feedback mechanisms between research and the market.	Need for good internal and external communications around technological and market knowledge.
1980's /90's	Fourth	Integrated model	Close integration of the different activities within the firm (research, engineering, production, marketing, ...), with parallel information processing; and external integration of	Management challenge becomes much more complex. It involves much more complicated information flows that need to be coordinated and managed, with multiple

			customers and suppliers.	sources of innovation. It requires reorganization around business processes (rather than around functions).
<b>2000s – now</b>	Fifth	System integration & networking model	Still emergent: Knowledge, creativity and learning are both sources and outcomes of innovation. Innovation strategies are better formulated and implemented. Ever-changing firms operate in dynamic environments.	Strategic integration of activities and networking. Learning and creativity also need to be managed.

Source: Own elaboration based on Dodgson et al. (2005) & Rothwell (1992)

This chapter included some of the relevant literature regarding innovation. The purpose of such contributions is to gain a common understanding among the different parts interested in this thesis. It also aims at raising awareness of the fact that innovation is very complex and that reflective thinking is necessary whenever approaching innovation. Although some specific elements have been highlighted at the expense of others, these should not be perceived as the only aspects that should be considered when approaching the innovation process. Rather, they should be viewed as examples and as a source for reflection.

## 3.2. STRATEGY

As commented previously, this section is dedicated to the concept of strategy, from a firm perspective. It is divided into three main sub-sections: the first one includes the definition of “strategy”; in the second, a model for strategy management is presented; the third one discusses various perspectives on the process of strategy creation.

This section also contains elements that have already been adapted for the development of an innovation strategy. The distinction between this section and the next one resides in the fact that the recommendations in this one apply to “all” kinds of strategic decisions, and therefore they may be useful when developing a innovation strategy. The sections “innovation strategy”, instead, includes elements specifically adapted to strategic decisions in relation to innovation.

### 3.2.1. DEFINING STRATEGY

According to Johnson, Scholes & Whittington (2008), Strategy is “*the **direction** and **scope** of an organization over the **long term**, which achieves **advantage** in a changing **environment** through its configuration of **resources** and **competences** with the aim of fulfilling **stakeholder** expectations. (p.3)*”



Mintzberg (1978) includes in his definition another very interesting dimension, and one that can successfully initiate the reflective process: intentionality. The author criticizes the assumption that every development is intentional, in its very existence and shape: *“the usual definition of “strategy” encourages the notion that strategies, as we recognize them ex post facto, are deliberate plans conceived in advance of the making of specific decisions”* (p. 934). He specifies that there are strategies that were intended and other that were realized despite intentions, thus, in his definition, *“strategy can then be viewed as the set of consistent behaviors by which the organization establishes for a time its place in its environment”* (p. 941).

While the concept of “long term” expressed by Johnson et al. (2008) is arguable<sup>19</sup>, the definitions provided above help us in appreciating the complexity involved in the development of strategy, and hopefully in overcoming the some of the difficulties present in the process.

Johnson et al. (2008) state that strategic decisions have several characteristics, which should be considered when approaching strategy (pp. 3-6). These decisions are likely to:

- Be **complex** in nature
- Be made in situations of **uncertainty**
- Affect **operational** decisions
- Require an **integrated** approach (both inside and outside an organization)
- Involve considerable **change**

Considering these features of strategic decisions is important, as it may help the reader to reflect upon elements that may emerge, in the awareness that bettering one’s knowledge of particular aspects will be pivotal.

The authors further state that there are three levels of strategy (p. 7):

- **Corporate-level strategy**, which is concerned with the overall purpose and scope of an organization and how value will be added to the different business units of the organization;
- **Business-level strategy**, which is about how to compete successfully in particular markets. A strategic business unit is defined as the part of an organization for which there is a distinct external market that is different from another SBU.

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<sup>19</sup> The meaning of “long term” and whether strategy should focus on the long term are subjects of debate. These issues are not discussed here, because they are not directly relevant to this work: what is important, however, is an awareness that strategy implies more than a single decision at a particular point in time. The idea here is that the most appropriate time frame for deliberate strategy is assessed through its implementation and, and the monitoring of its evolution.

- **Operational strategies**, which are concerned with how the parts of an organization deliver the corporate- and business-level strategies effectively in terms of resources, processes and people.

This three-level distinction may or may not be applied to innovation strategy. However, in the context of this thesis, it is useful to think about how innovation strategy fits into corporate strategy.

### 3.2.2. A MODEL TO MANAGE STRATEGIC ISSUES

According to Johnson et al. (2008), “strategic management includes understanding the strategic position of an organization, strategic choices for the future and managing strategy in action.” (p. 12). Such elements create the “Exploring Corporate Strategy” model, described in chapter 1 of the book. The elements described above are represented in figure 8. It should here be noted that the three elements could have been presented in a linear sequence – first understanding the strategic position, then strategic choices and finally turning into action – but as the authors state, in practice this is not the case. The interconnected circles are designed to emphasize the non-linear nature of strategy and the linkages and feedback existing among the different elements.

Figure 10 The “exploring corporate strategy” model



Source: Johnson et al. (2008, p. 12)

As stated above, the “Exploring Corporate Strategy” model is a model presented by the authors to describe the different elements that compose and influence corporate strategy. Although we have not used this particular framework for the creation of the innovation strategy within Cerbios, nor was it used by Cerbios’ top management for the creation of the corporate strategy, I have decided to include it here because it is quite exhaustive about the elements that should be considered when approaching strategy, no matter at which level (and thus it can help us reflect on the elements forming and relating to the innovation strategy). It should be remembered that using such model just as inspiration (and not as a guide, as proposed by its authors), does fit the actors approach.

Although in practice strategic management is not a linear process, in the next paragraphs the model will be divided into sections and presented in a sequence: this is to help the reader understand the single elements that compose such framework.

### The strategic position

According to the authors, understanding the strategic position is concerned with identifying:

- The impact of the external environment on strategy;
- The strategic capability (resources and competences) of an organization;
- The expectations and influence of stakeholders.

There are four main elements constituting and affecting the strategic position of a firm:

- The **environment**. The organization operates in the context of a complex political, economic, social, technological, environmental and legal world. This environment is ever changing and affects the company at any time. Some of the changes represent opportunities, other threats to the organization. Because of this complexity, it is unrealistic to identify and understand each single change, thus it is important for a company to detect and analyze the key elements that impact the organization.
- The strategic **capability** of the organization, which is composed by its resources and competences. A firm’s strengths and weaknesses (for example where it has a competitive advantage or disadvantage) will influence – and possibly constrain – its strategic choices for the future. Advantages that are usually difficult for competitors to imitate usually derive from a combination of resources and high levels of competence in particular activities (defined in the book as core competences).
- The **purpose** of a company, which is influenced by its stakeholders. This aspect is called corporate governance and refers to the question “*who should the organization primarily serve and how should managers be held responsible for this?*” (pp. 13-14). The question raises several other issues, all interrelated: corporate social responsibility, ethics and power.
- **Cultural** and historical influences, which can also affect strategy. Cultural influences can be organizational, sectoral or spatial (national or regional). Historical influences

can lock a company into a particular strategic trajectory or lead to a strategic drift, defined by the authors as the failure to create necessary change. Such cultural and historical influences ought to be considered, and sometimes challenged.

### Strategic choices

Strategic choices involve the options for strategy both in terms of direction and methods by which strategy is to be pursued. This involves understanding the underlying bases for future strategy at both corporate and business unit levels. Typical options and methods include:

- **Business-level.** Strategic choices about how the organization seeks to compete at business level. These usually involve pricing and differentiation strategies, and decisions about how to compete or collaborate with competitors.
- **Corporate-level.** Corporate-level strategy is concerned with the scope, or breadth, of an organization. The issues at this level include diversification decisions about the portfolio of products and the spread of markets. Another concern is the relationship between the separate parts of the business and how the corporate “parent” adds value to these various parts.
- **Internationalization.** International strategy is a form of diversification, into new geographical markets. There are several choices an organization has to make about which geographical markets to enter and how.
- **Innovation.** According to the authors, “*most organizations have to innovate constantly simply to survive*” (p. 15). There are several innovation choices, such as being first-mover into a market, or simply a follower, and how much to listen to customers in developing new products or services. Entrepreneurship issues include choices of funding, building key external relationships and timing of exit.
- **Evaluation.** Organizations have to decide the methods by which they pursue their strategies. Many organizations prefer to grow organically, thus using their own resources; others prefer to grow by mergers/acquisitions and/or strategic alliances with other organization. Such alternative methods need to be evaluated.

### Strategy in action

Strategy in action refers to ensuring that strategies are applied in practice. Some of the issues in the application of strategy are:

- **Processes.** It is important to consider the strategy development process. According to the authors, the strategies that an organization actually pursues are typically a mixture of the intended and the emergent. This issue, which has been discussed by Mintzberg (1978), will also be described in a following section, in relation to the innovation strategy.

- **Organizing.** This refers to structuring an organization to support successful performance. This includes organizational structures, processes and relationships, as well as the interaction between these elements.
- **Resourcing.** Resourcing strategies in the separate resource areas (people, information, finance and technology) of an organization should be developed so as to support overall strategies. The reverse is also important, that is, new strategies should be built upon the particular resource and competence strengths of an organization.
- **Changing.** Managing strategy very often involves strategic change. There are various issues in managing change, such as the need to understand how the context of an organization influences its approach to change, and the different roles of people in managing change. There are also different styles and different levels that can be adopted for managing change.
- **Practice.** The practice of strategy is made of several aspects, such as the people included in strategy, the activities they have to carry out, and the kinds of methodologies they use to achieve their goals.

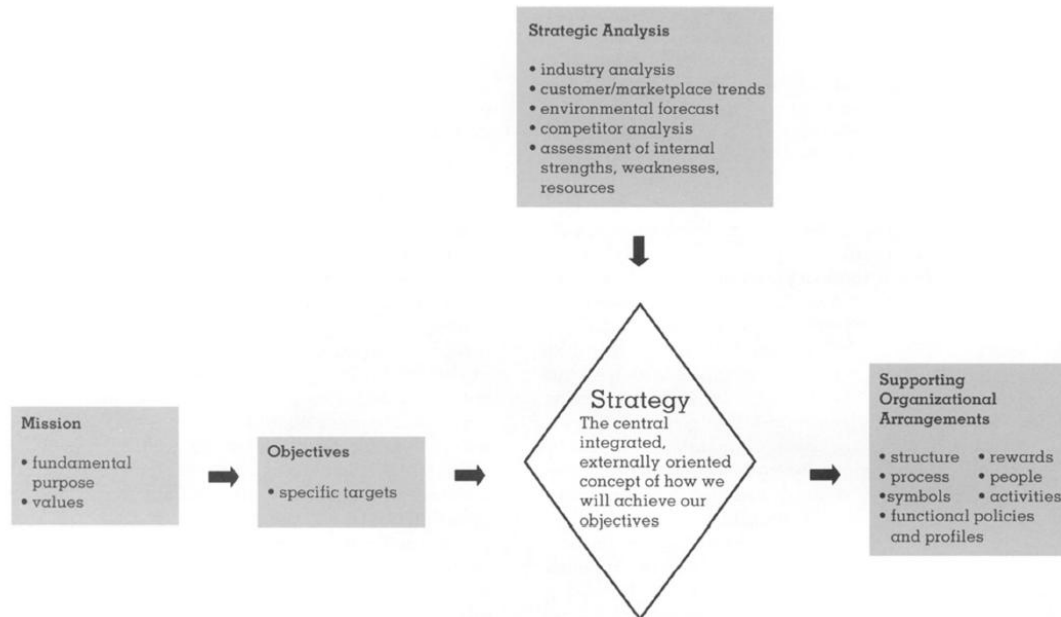
### 3.2.3. ELEMENTS CONSTITUTING A STRATEGY

According to Hambrick & Fredrickson (2005), there is an increasingly common “syndrome” affecting business strategy: the “catchall” use of fragmented strategy. The authors argue that executives have been provided with an abundance of frameworks for analyzing strategic situations, such as the five forces analysis, core competencies, resource-based view, value chains, and other analytical tools. However, what is missing is a guidance about what the product of these tools should be. In other words, simply grouping the available information does not in itself explain what actually constitutes a strategy. Indeed, these specific strategic tools have too often led strategists toward narrow, piecemeal conceptions of strategy that only fit the narrow scope of the tools themselves.

Hambrick & Fredrickson (2005, p. 52) also state that the problem of strategic fragmentation has worsened recently: “*Strategy has become a catchall term used to mean whatever one wants to mean*”. Firms now deal with distinct issues, referring to them as a single part of the strategy; this can easily lead to some negative effects: “*when executives call everything strategy, and end up with a collection of strategies, they create confusion and undermine their own credibility*” (p 52). As the authors note, strategy does have pieces, or elements, but these form a coherent whole.

The authors explain what constitutes and what does not constitutes a strategy with the help of figures 11 and 12.

Figure 11 Putting strategy in its place



Source: Hambrick & Fredrickson (2005, p. 53)

As the authors note, “a strategy consists of an integrated set of choices, but it isn’t a catchall for every important choice an executive faces” (p. 52). As figure 11 shows, a company’s mission and objectives, for example, stand apart from, but also guide, strategy. Similarly, choices about internal organizational issues are not part of strategy. Nonetheless, these are critically important choices that should reinforce and support strategy, although they do not make up the strategy itself. The risk of considering every important decisional aspect as part of the strategy lies in the common faux pas of “watering down” the strategy, until it loses all effect. The authors warn about misunderstanding the meaning of strategy, and advice to apply it carefully, lest *“this essential concept quickly comes to mean nothing”* (p.52).

The authors also argue that they do not mean to portray strategy development as a simple, linear process to be followed in a set, sequential process, but, that rather, the key is to achieve a robust, reinforced consistency among the elements of the strategy itself, intervening at the stages where it is possible, constructive and necessary.

Figure 12 shows the five elements constituting strategy. According to the authors these elements answer five questions:

- Arenas: where will we be active?
- Vehicles: how will we get there?
- Differentiators: how will we win in the marketplace?

- Staging: what will be our speed and sequence of moves?
- Economic logic: how will we obtain our returns?

Figure 12 The five major elements of strategy



Source: Hambrick & Fredrickson (2005, p. 54)

The authors underscore that it is essential that these elements form a unified whole. They also argue that their focus is on the output, thus on the composition and design of the strategy itself, whereas others focus on the inputs of strategic thinking, which is represented by the box on top of figure 11.

### The five elements

The most fundamental choices a strategist faces are those of where, or in what **arenas**, the business will be active. According to the authors the answer to this questions should not be found in broad generalizations. In fact, they argue that when identifying the so-called arenas it is important to be as specific as possible about product categories; market segments; geographic areas; core technologies; and value-adding stages the business intends to execute (e.g., product design or manufacturing or distribution). The authors stress that in all cases the challenge resides in being as specific as possible. Strategists also need to indicate how much emphasis will be placed on every arena identified.

Beyond choosing the relevant arenas, the strategist also needs to decide how to get there. Specifically, he needs to articulate the means to achieve the presence in the areas identified previously; moreover, such means should be the result of deliberate strategic choices. The means by which arenas are entered matter greatly; therefore, the selection of **vehicles** should not be seen as a simple implementation detail. According to Hambrick & Fredrickson

(2005, p. 54) *“failure to explicitly consider and articulate the intended expansion vehicles can result in the hoped-for entry’s being seriously delayed, unnecessarily costly, or totally stalled”*.

After having defined where the firm will be active (arenas) and how to get there (vehicles), strategists should also define how the firm will win the marketplace, its **differentiators**. The authors argue that, because we live in a competitive world, winning is the result of differentiators. Such differentiators *“require executives to make upfront, conscious choices about which weapons will be assembled, honed and deployed to beat competitors in the fight for customers, revenues, and profits”* (Hambrick & Fredrickson, 2005, p. 55).

The authors specify that to have a marketplace advantage does not necessarily require to be at the extreme of one differentiating dimension; rather, sometimes it is better to have a combination of differentiators. A critical issue about such differentiators is that they have to be the result of planned, deliberate choices in order to avoid the risk of having no differentiators or of pursuing too many inconsistent and demanding differentiators simultaneously. Strategists, to achieve an advantage, should therefore select mutually reinforcing differentiators that are consistent with the firm’s resources and capabilities; finally, these need to be highly valued in the targeted arenas.

According to the authors, the choices presented above (arenas, vehicles and differentiators) constitute the substance of a strategy. But this substance, also defined as “what executives plan to do”, requires decisions about the speed and sequence of major moves, **staging**. This concept is based on the assumption that most strategies do not pursue all initiatives simultaneously; rather some come before others. The authors argue that decisions about staging can be driven by different factors. One is resources. Firms have limited resources and also those available cannot be deployed all at the same time. A second factor is urgency. Some elements of a strategy can be pursued only in a specific moment, thus requiring to be pursued first and aggressively. Third, it may be required to achieve credibility before focusing on another initiative. A fourth factor is the pursuit of early wins. Firms may focus on parts of the strategy that are relatively doable before pursuing the most challenging parts.

Hambrick & Fredrickson (2005) argue that at the heart of a business strategy must be a clear idea of how profits will be generated, the so-called **“economic logic”**. They claim that *“the most successful strategies have a central economic logic that serves as the fulcrum for profit creation”* (p. 56). The economic key may be to obtain premium prices because of the exceptional quality offered or because of the level of customized service. In these cases premium prices are paid because customers recognize and value the superiority of the offer, which cannot be imitated by competitors. In other instances, the economic logic might reside on the cost side of the profit equation. Firms can reach lower costs than their competitors because of systemic advantages of scale, experience, and know-how sharing.

As commented previously, it is critical for a strategy to encompass all five elements. According to the authors there are four requirements behind this imperative: First, all five elements are important enough to require intentionality; Second, the five elements do not



call only for choice, but also require preparation and investment. Thus there is the need to develop certain capabilities; Third, all five must align and support each other; And finally, only after a specification of all five strategic elements it is possible to design all the other supporting activities that are needed to reinforce the strategy.

The authors conclude their article addressing the quality of strategy. According to them it is not sufficient to simply make the set of five choices mentioned above, but it is necessary to develop a sound strategy. They argue that the analytical tools discussed earlier (e.g., five forces analysis, core competencies, resource-based view, value chains, and others) can be very helpful for improving the soundness of strategies. They also discuss whether it still makes any sense to have strategy nowadays, with an ever-changing, extreme dynamic environment. They argue that those who are skeptical about the usefulness of strategy base their ideas on some basic misconceptions. First, strategy needs not to be static; rather it can evolve and be adjusted continuously. Second, strategy does not require a firm to become inflexible; rather, there are strategies that keep multiple options open and develop a firm's flexibility. Third, a strategy does not deal with a distant, unpredictable future: "*strategy does not deal as much with preordaining the future as it does with assessing current conditions and future likelihoods, then making the best decision possible today*" (pp. 61-62). They also argue that strategy is not primarily about planning; rather it is about intentional, informed, and integrated choices. Thus, they argue they offer the "strategy diamond" as a way to craft and articulate a business aspiration.

In my point of view, the reasoning provided by Hambrick & Fredrickson (2005) has both strengths and weaknesses. One of the main positive aspects is that their framework is very comprehensive and that the elements included fit well with each other. Thus it can be a useful model to identify the elements that necessitate being reflected upon. One of the negative features is that their reasoning over-emphasizes the role of executives and strategists, leaving aside learning and involvement of employees or managers "on the field". Furthermore, in using such framework, a strategist should be careful not to treat strategy only as a deliberate choice, ignoring elements of the strategy that may have neglected or discarded previously. Because I will use their model as inspiration and not alone, but with other frameworks developed by other authors, we think we will be able to address the problems and risks mentioned above.

#### **3.2.4.   COMPETING (OR COMPLEMENTARY?) STRATEGY THEORIES**

*"Strategy theory is a diverse multidisciplinary academic field with competing schools of thought"; there is also "disagreement about what strategy theory should seek to explain".*

Such introduction provided by Haugstad (1999, p. 1) underscores the complexity that one faces when approaching the field of corporate strategy. In order to better understand this complex field, in the next sub-sections there will be the contribution by Mintzberg (1978), Mintzberg & Lampel (1999), Haugstad (1999) and Tidd & Bessant (2009). In their work, the authors develop different perspectives to look at (and to arrange) the complex field of

corporate strategy. All the authors give their own point of view on how the different theories relate to each other and which are their most important characteristics.

After such categorization, some theories<sup>20</sup> will be discussed separately. Particularly, I will focus on the concepts of “Resource-based view”, “Dynamic capabilities” and “Core competencies”.

Here, I am not interested in evaluating the different categorizations provided by the authors mentioned above, or in arranging the field under study. In fact, I use their perspectives to improve awareness of the elements that may be important to consider when using strategy theory as inspiration. I will also avoid discussing the relation (and value) of the different theories, because, again, to me they are simply a source of inspiration. This reasoning is reflected in the actors approach: none of the existing theories represent “the truth”, nor are they accurate representations of reality. Thus, there are not better theories than others. My actions will not be guided by any of these theoretical guidelines, but each one of them can be a source of inspiration, if applicable to the specific, chosen context.

This last sentence is a good introduction on a reflection made previously, which will be very important because affecting all our actions in relation to strategy development: although many authors see the development of different strategy theories as competing, in my point of view they can *all* be a source of inspiration, thus they can be seen as complementary. Such reflection has also been a central role in Mintzberg & Lampel (1999)<sup>21</sup>.

## PATTERNS IN STRATEGY FORMATION

In his influential paper “Patterns in Strategy Formation”, Mintzberg (1978) provides some interesting arguments about strategy formation. The three main themes in his contribution are: 1) strategy formation can be viewed as the interplay between a dynamic environment and bureaucratic momentum, with leadership mediating between the two; 2) strategy formation appears to follow distinct regularities; 3) the interplay between intended and realized strategies may be central to the strategy formation process. In the next paragraphs each theme will be developed separately. At the end of the section will be some discussion about the application of such concepts in practice.

### **1) Strategy formation as the interplay of environment, leadership and bureaucracy**

According to Mintzberg (1978, p. 941), strategy formation in most organization can be thought as revolving around the interplay of three basic forces: a) a dynamic environment characterized by uncertainty; b) an organizational operating system, called by the author “bureaucracy”, that seek to stabilize its actions, despite the environment in which it operates; c) a leadership whose role is to mediate between these two forces, to maintain the

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<sup>20</sup> To use Mintzberg & Lampel’s (1999) terminology they can also be termed “approaches”.

<sup>21</sup> Such question was also raised by professor René N. Nielsen during a lecture of innovation management at Aalborg University.

organization's operating system stable while at the same time insuring adaptation to the change in the environment. From this point of departure, the author provides a definition of strategy and of strategic change: *"Strategy can then be viewed as the set of consistent behaviours by which the organization establishes for a time its place in its environment, and strategic change can be viewed as the organization's response to environmental change, constrained by the momentum of the bureaucracy and accelerated or dampened by leadership"* (Mintzberg, 1978, p. 941). The author challenges the three most common views (or modes, to use Mintzberg's words) at that time about strategy formation: The planning mode, which sees strategy formation as a highly ordered, neatly integrated process, with strategies explicated on schedule. The adaptive mode, which contrasts the planning mode by seeing the process of strategy formation as a bargaining among managers that lead to a stream of incremental, disjointed decisions. The entrepreneurial mode, where a powerful leader takes bold, risky decisions based on his vision of the organizations' future.

## **2) Patterns of strategic change**

According to Mintzberg (1978, p. 943), patterns of strategic change are never steady, but rather irregular and ad hoc. Nonetheless, he identifies some common patterns in strategy formation that may help organization to understand better their strategic situation. The first pattern is that there are four phases in the life cycle of an overall strategy: conception, elaboration, decay and death. The second pattern is the presence of periodic waves of change and continuity within the life cycle. This second pattern suggests that strategies do not commonly change incrementally. Rather, change takes place in spurts, each followed by a period of stability. The reason of this, according to the author, is that humans do not react to phenomena continuously, but rather in discreet steps, once a change is large enough to be perceived. Likewise, decision processes in organizations are not continuous, but irregular. Furthermore, leaders usually focus either on internal issues or on external ones, and in a second time on the other aspect left aside in the first moment.

As noted by Mintzberg (1978, p. 945) there are dangers in incremental changes. In fact, he argues that strategy-makers seem prepared to assume positions in incremental steps that they would never begin to entertain in global ones. On the other hand, global change is very difficult to conceive and execute successfully. This, according to the author, is perhaps the strategy-maker's greatest dilemma – the danger of incremental change versus the difficulty of global change.

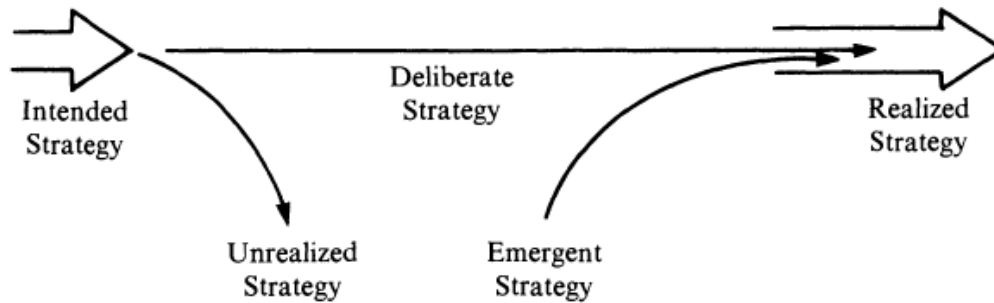
## **3) Deliberate versus emergent strategies**

Mintzberg (1978) identifies two kinds of strategies: intended and realized. According to the author, the two can be combined, at least in theory, in three ways. Such possibilities are the following (see also figure 11):

- Intended strategies that get realized, which are called deliberate strategies;
- Intended strategies that do not get realized, which are called unrealized strategies. The reason why they are not realized may be unrealistic expectations, misjudgements about the environment or changes during the implementation;

- Realized strategies that were never intended, which are called emergent strategies. This may happen because no strategy was intended at the outset or because the intended were displaced along the way.

Figure 13 Types of strategies



Source: Mintzberg (1978, p. 945)

Though, Mintzberg (1978) recognize that practice is more complicated than the framework he created. He argues that it is possible to find a number of other relationships between intended and realized strategies, such as intended strategies that, as they get realized, change their form and become emergent; or emergent strategies that get formalized as deliberate ones; or intended strategies that get overrealized.

As noted before, this view challenges the one of planning theory, which postulates that the strategy-maker formulates the strategy and the subordinates implement it. Mintzberg (1978, p. 946) argue that this dichotomy is based on two assumptions which often prove false: that the formulator is fully informed; and that the environment is sufficiently stable, or at least predictable. He further argues that the absence of either condition should lead to a collapse of the formulation-implementation dichotomy, thus the adaptive mode should be used instead of the planning one. "Strategy formation then becomes a learning process, whereby so-called implementation feeds back to formulation and intentions get modified en route, resulting in an emergent strategy" (p. 946).

According to Mintzberg (1978, p. 947), another important element is the communication of the intended strategy. In fact, the author states that *"the very act of explicating an implicit strategy – of stating clearly and officially that it is to be the intended strategy – changes profoundly the attitude of the bureaucracy and of the environment to it"*. He further specifies that *"the very fact of making a strategy explicit – even an implicit one that is evident to all – provides clear and formal invitation to the bureaucracy to run with it"* (p. 947). But the author also recognize a risk in the explication of the intended strategy that should also be considered. He warns, that *"the strategy-maker may awake one day to find out that his intended strategy has somehow been implemented beyond his wildest intensions. It has been overrealized"* (p. 947).

## REFLECTING ON THE STRATEGY PROCESS

According to Mintzberg & Lampel (1999), the field of corporate strategy has evolved remarkably in the lately. The authors review such evolution in terms of ten “schools” and argue that perspectives can be thought as both representing fundamentally different processes of strategy making and different parts of the same process.

Mintzberg & Lampel (1999) summarize the main characteristics of the different school in table 4.

**Table 4 Comparison of the different schools – Part A**

	<b>Design</b>	<b>Planning</b>	<b>Positioning</b>	<b>Entrepreneurial</b>	<b>Cognitive</b>
<b>Root dimensions of the schools</b>					
<b>Key author(s)</b>	Andrews, 1965	Ansoff, 1965	Porter, 1980	Schumpeter, 1934	Simon, 1976
<b>Base discipline</b>	None	Systems theory and cybernetics	Economics and military history	None	Psychology (cognitive)
<b>Champions</b>	Case study teachers, leadership aficionados	Professional managers, MBA's staff experts(finance), consultants and government controllers	As in planning, consulting “boutiques” and military writers	Popular business press, romantic individualists, small business people everywhere	Apostles of information systems, philosophical purists, those with a psychological bent
<b>Intended message</b>	Fit	Formalise	Analyse	Envision	Cope or create
<b>Realized message</b>	Think (strategy as a case study)	Program (rather than formulate)	Calculate (rather than create or commit)	Centralize (then hope)	Worry (being unable to cope in either case)
<b>School category</b>	Prescriptive	Prescriptive	Prescriptive	Descriptive (some prescriptive)	Descriptive
<b>Associated Homily</b>	"Look before you leap"	"A stitch in time save nine"	"Nothin' but the facts, ma'am"	"Take us to your leader"	"I'll see it when I'll believe it"

Table 5 Comparison of the different schools – Part B

	Learning	Power	Cultural	Environmental	Configuration
<b>Root dimensions of the schools</b>					
<b>Key author(s)</b>	Lindblom, 1959; Quinn, 1980	Allison, 1971; Perrow, 1970	Normann, 1977	Hannan and Freeman, 1977	Chandler 1962, Mintzberg 1970
<b>Base discipline</b>	None (links to psychology and education)	Political science	Anthropology	Biology	History
<b>Champions</b>	People inclined to experimentation, ambiguity, adaptability, especially in Japan and Scandinavia	People who like power, politics, and conspiracy	People inclined to the social, the spiritual, the collective; especially in Japan and Scandinavia	Population ecologists, some organisation theorists, splitters and positivists in general	Lumpers and integrators in general, as well as change agents, configuration perhaps most popular in Holland, maybe Germany, transformation in the USA
<b>Intended message</b>	Learn	Promote	Coalesce	React	Integrate, transform
<b>Realized message</b>	Play (rather than pursue)	Hoard (rather than share)	Perpetuate (rather than change)	Capitulate (rather than confront)	Lump (rather than split, adapt)
<b>School category</b>	Descriptive	Descriptive	Descriptive	Descriptive	Descriptive and prescriptive
<b>Associated Homily</b>	"If at first you don't succeed, try, try again"	"Look out for number one"	"An apple never falls far from the tree"	"It all depends"	"To everything there is a season..."

Source: Mintzberg & Lampel (1999, pp. 23-24)

The authors discuss the evolution in the research about corporate strategy, arguing that some researchers have found “first principles” that explain the nature of the process, such as economics, sociology, or biology; Other researchers have identified a central concept to explain why some strategies succeed and others do not, an example of a concept described in literature is organization culture. The consequence, according to the authors, is that authors ignore discoveries of their colleagues; or when recognizing that the discoveries of authors exist, they dismiss them as irrelevant. Mintzberg & Lampel (1999) ascribe part of the problem to the willingness of writers and consultant to defend their positions, erecting borders around their views while dismissing and denying others. The authors stress the fact that such behavior does not serve the practicing manager, who has to deal with the entire process of strategy formation. They warn the practicing manager by arguing that “*the greatest failing of strategic management have occurred when managers took one point of view too seriously. This field had its obsession with planning, then generic positions based on careful calculations, and now learning*” (p. 26).

Although the criticism presented above, the authors also notice that some of the more recent approaches to strategy formation cut across these ten schools, thus representing a

broadening of the literature. The authors indicate in table 5 the different approaches and the different schools that are linked in each approach.

**Table 6 Blending of the strategy formation schools**

<b>Approach</b>	<b>Schools</b>
Dynamic capabilities	Design, Learning
Resource-based theory	Cultural, Learning
Soft techniques (e.g., scenario analysis and stakeholder analysis)	Planning, Learning or Power
Constructionism	Cognitive, Cultural
Chaos and evolutionary theory	Learning, Environmental
Institutional theory	Environmental, Power of Cognitive
Intrapreneurship (venturing)	Environmental, Entrepreneurial
Revolutionary change	Configuration, Entrepreneurial
Negotiated strategy	Power, Positioning
Strategic manoeuvring	Positioning, Power

Source: Mintzberg & Lampel (1999, p. 26)

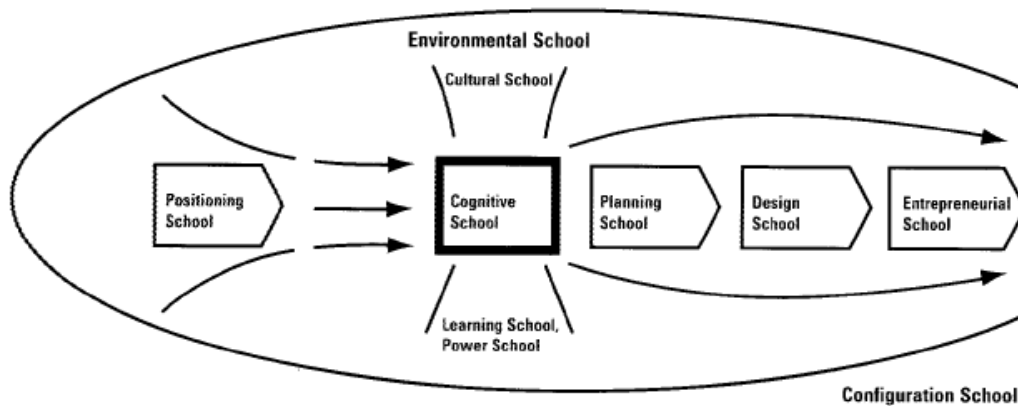
The authors then focus on “dynamic capabilities” and on “Resource based view”. According to the authors such approaches are similar and differ in orientation, rather in content: the former is more prescriptive and practitioner-focused; the latter is more descriptive and research focused.

In this thesis it is not our purpose to discuss whether Mintzberg & Lampel’s categorization is correct or not. It also does not fit the methodological approach on which this thesis is based. Rather their article is a source of inspiration, helping us not to be stuck in single, narrow strategy theories.

The authors also argue that the different schools can be interpreted as either representing different processes (that is different approaches to strategy formation) and as different parts of the same (big) process.

They present a model that includes all schools in a single, big strategy formation process (figure 14). They find for each school a specific place in the framework.

Figure 14 Strategy formation as a single process



Source: Mintzberg & Lampel (1999, p. 27)

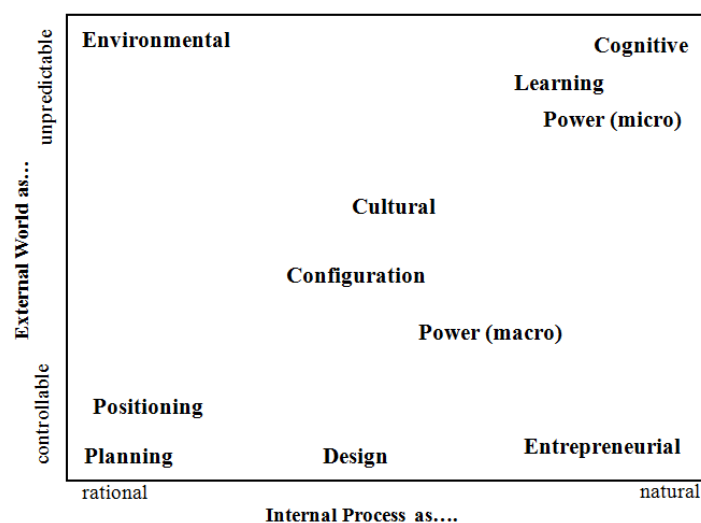
Based on this assumption, Mintzberg & Lampel (1999, p. 27) argue that “*Strategy formation is judgmental designing, intuitive visioning, and emergent learning; it is about transformation as well as perpetuation; it must involve individual cognition and social interaction, cooperative as well as conflictive; it has to include analyzing before and programming after as well as negotiating during; and all this must be in response to what may be a demanding environment*”.

However, the authors recognize that the process can tilt toward the attributes of one school or another: sometimes the process is more individual, other times it is more socially interactive; it can be more rationally deliberate or more adaptively emergent; it can emerge because the environment is very demanding or because there are entrepreneurial leader that maneuver it. This explanation underscore a central element of the actors approach: that context matters, thus when using contribution provided by literature, in such case about strategy, it has to be adapted to the situation in which it could be used as inspiration.

Mintzberg & Lampel (1999) argue that there is an inclination to favor the interpretation that the schools represent fundamentally different processes, thus in contrast from the interpretation provided in the previous paragraphs (figure 15).

According to the authors it is not bad to think in this way, where practitioners can choose among (and eventually combine) different processes,

Figure 15 Strategy formation as many processes



Source: Mintzberg & Lampel (1999, p. 28)



as long as any one is not pushed to its illogical extreme (table 6 provide some examples of illogical extremes).

**Table 7 Illogical extremes of the different schools**

<b>School</b>	<b>Illogical extreme</b>
Design	Fixation
Planning	Ritual
Positioning	Fortification
Entrepreneurial	Idolatry
Cognitive	Fantasy
Learning	Drift
Power	Intrigue
Cultural	Eccentricity
Environmental	Conformity
Configuration	Degeneration

Source: Mintzberg & Lampel (1999, p. 28)

The authors conclude their article by reflecting how the field of strategy may will evolve. There are some central elements that researchers should consider when involved in research about strategy management: it should be considered that other schools may emerge, but they should be seen as complementary to, rather replacing, the existing ones; Scholars and consultants may also continue to probe the important element of each school, but one might go beyond the narrowness of each school, thus understanding how strategy formation, which combines all these schools and more, really works.

## STRATEGY THEORY: CLASSICAL VS. DESCRIPTIVE PERSPECTIVES

In his paper, it is clear that Haugstad (1999) has been heavily influenced by the categorization provided in Mintzberg & Lampel (1999). Though, his contribution is interesting because in some cases he extends his reflections to what the authors just mentioned call “approaches”, rather than focusing mainly on the “schools”.

### **The classical approaches to business strategy theory**

For these approaches, Haugstad (1999) base his reflections on Mintzberg & Lampel’s (1999) taxonomy. In fact, he argues that the classical strategy theory is composed by the design school, the planning school and the position school. He argues that such schools have had considerable impact on businesses and have some important common underlying presuppositions, such as: a positivistic views of knowledge; the CEO is seen as the sole responsible for strategy formation; explicit and comprehensive strategies are planned centrally; little is known of the complex inside of organizations.

The author identifies the main differences in the three schools as following: the design school emphasizes a centralized, but informal process; the planning schools have a formal process that lead to a detailed programming of the organization. Thus, they both assume that each organization has its unique strategy. Such assumption is denied by Porter’s

position school, which recognize only three generic strategies (cost leadership, differentiation and focusing). *"To this school, strategy is the choice of an attractive industry (Porter, 1980) and good positioning within this industry (Porter, 1985)"* (Haugstad, 1999, p. 1).

Among the criticisms raised against classical strategy theory we find the missing comprehension of the inside of organization, which leads to a simplified approach to the process of strategy formulation; and that it focuses on value appropriation rather than value creation. Such criticisms are of no particular interest for us because of the role of theory in our methodological approach, but were included so that the reader interesting in the field of strategy may further investigate such aspects.

### **Defining strategy**

Haugstad (1999, p.2) argue that *"even in the prevailing orthodoxy of strategy theory is there a striking lack of agreement of an operational definition of what makes a strategy become a strategy"*.

Although we are not particularly interested in the definitions provided by the author, we think he provides a very useful reflection: when approaching the field of strategy a danger is to embrace in the concept of strategy everything that is important, thus making distinguishing strategic issues from other important elements of the firm meaningless.

He also argues that it is possible to distinguish among the different definitions between those that focus on the content of strategy (thus on which issues are recognized as strategic) and those that focus on the process of strategy formation (thus on how the content of strategy evolves).

### **Alternative strategy theory emphasizing learning processes**

According to Haugstad (1999, p. 3), there are some scholars that have contested the classical tradition in terms of the process of strategy formation: Mintzberg (in Mintzberg & Water, 1995; and in Mintzberg, 1987) has described strategy formation as a process of emergent nature; Quinn & Voyer (1998) as an incremental process; and Starkey (1996) as strategic learning.

He also argues that there is other literature that, although not focusing on strategy as such, may be relevant for understanding strategic learning and the importance of learning as a strategic asset. He suggests literature on organizational learning, proposed by Argyris & Schön (1996); on learning organizations, developed by Senge (1990); and on knowledge creating companies (Nonaka & Takeuchi, 1995).

### **Resource-based theory**

Haugstad (1999) argues that while the authors mentioned above contested the classic strategy theory mainly in relation to the strategy formation process, another field of scholars contested orthodox strategy theories in terms of the content. The resource-based theory of the firm especially contests the industrial analysis approach proposed by Porter (1980), where profit depends on the choice of the industry and on the level of market power.

These scholars argue that superior performance is due to the firm's resources and the ability to utilize these. They claim they were inspired by Penrose (1959), Nelson & Winter (1982) and to some degree by Schumpeter (1934). According to the author, these are important to see the firm as a value creator, rather than as "value appropriator", as proposed by traditional theories.

Haugstad (1999) also argues that the field of resource-based theories, which was named after Wernerfelt (1984) article "A resource-based view of the firm", consists of a number of related, but distinct branches: resource-based theory (Grant, 1991; Mahoney & Pandian, 1992; Peteraf, 1993), dynamic capabilities (Teece, Pisano et al., 1997) and the core competencies approach (Prahalad & Hamel, 1990; Hamel, 1994; Markides and Williamson, 1994).

### **Concluding reflection on strategy theory**

The author, in his conclusions, argue that *"Probably, traditional theories fail both on the process, where strategizing is better explained as a learning process, and content, where the resource-based view provides better understanding of the multifaceted inside of organizations and their complex interaction with their surroundings"* (p.4). Again, in our point of view it has no sense to attribute a ranking to the different theories on strategy. However, the contribution provided by Haugstad (1999) might be very helpful in initiating a reflective process on several issues presented above.

## **RATIONALIST VS. INCREMENTALIST STRATEGIES FOR INNOVATION**

Also Tidd & Bessant (2009) provide a categorization of the literature about corporate strategy, though they have a different approach compared to the authors presented above. According to Tidd & Bessant (2009), there has been a long-standing debate between "rational" and "incremental" strategies, which has central importance for the development of a corporate strategy. Two of the most influential scholars in such discussion are Ansoff, who belong to the rationalist, and Mintzberg, one of the leading authors among the incrementalists. Such authors play a central role in the discussion provided by Tidd & Bessant (2009), which is the base for the next section.

### **Rationalist strategy**

"Rationalist strategy" has been heavily influenced by military experience, where strategy consists of three main steps:

- a. describe, understand and analyze the environment;
- b. determine a course of action in the light of the analysis;
- c. carry out the decided course of action.

Such rational action is a linear model consisting in three phases: appraise, determine and act.

The corporate equivalent of such way of acting is SWOT: the analysis of corporate strengths and weaknesses in the light of external opportunities and threats. By adopting such analysis, the company could:

- Be conscious of trends in the competitive environment;
- Prepare for a changing future;
- Ensure that sufficient attention is focused also on the longer term, not only on the day to day;
- Ensure coherence in objectives and actions in large companies, with functionally specialized and geographically dispersed organizations.

However, Tidd & Bessant (2009) quotes John Kay, who states that the military metaphor can be misleading. According to him, in fact, the corporate objective is to establish a distinctive competence enabling the organization to satisfy customers better than the competition, whereas the military objective is to mobilize sufficient resources to destroy the enemy. Excessive concentration on the “enemy” (i.e. corporate competitors) can lead to strategies aiming at establishing monopoly power (with large commitments of resources), at the expenses of profitable niche markets and of a commitment to satisfying customer needs.

More important, professional experts, including managers, have difficulties in judging accurately the situation to which they are confronted, essentially for two reasons. First, the external environment is both complex and fast-changing, making difficult enough to understand the essential features of the present, let alone to predict the future. Second, managers in large firms disagree on their firm’s strengths and weaknesses in part because of the limited knowledge of what happens inside the firm.

### **Incrementalist strategy**

“Incrementalists” argue that the complete understanding of complexity and change is impossible, because of our limited ability to comprehend the present and to predict the future. As a consequence, successful practitioners do not follow rational strategies, but incremental strategies that recognize that firms have an imperfect knowledge of the environment, of their own strengths and weaknesses and of the changes that will happen. According to this vision, firms must therefore be ready to adapt their strategies in light of new information and understanding, which they must consciously seek to obtain. Thus, the most efficient procedure is to:

- a. Make deliberate steps (or changes) towards the stated objective;
- b. Measure and evaluate the effects of the steps (changes);
- c. Adjust (if necessary) the objective and decide on the next step (change).

According to Tidd & Bessant (2009), this sequence of behavior goes by many names, such as “incrementalism”, “trial and error”, “suck it and see”, “muddling through” and learning.

The authors also state that corporate strategies that do not recognize the complexities and uncertainties will certainly be rigid, will probably be wrong, and will potentially be disastrous if they are fully implemented. But analysis and rationality in innovation management should not be rejected. They also argue that *“under conditions of complexity and continuous change, it can be argued that “incrementalist” strategies are more rational (that is, more efficient) than rationalist strategies”* (p.169). They conclude by saying that the original objectives of the “rationalists” for strategic planning remain entirely valid and that corporations without any strategies will be ill-equipped to deal with emerging opportunities and threats.

### **Implications for management**

According to the authors, the discussion presented above has two sets of implications for managers. The first implication is about the practice of corporate strategy, which should be seen as a form of corporate learning, from analysis and experience, how to cope more effectively with complexity and change. For the process of strategy formation there are several implications:

- Given uncertainty, explore a range of future possible trends and their implications.
- Ensure broad participation and informal channels of communications.
- Encourage the use of multiple sources of information and debate.
- Expect to change strategies in light of new, unexpected evidence.

The second implication is that successful management practice is never fully reproducible. In a complex world nobody can be sure of identifying all the necessary ingredients for successful management practice. In addition, every firm is unique, with its own conditions (country, sector, technical knowledge, cultural norms, ...), thus different from the original one. In this complex and ever-changing world, the absence of easily applicable recipes for successful management practice is one of the reasons why there are continuous swings in management fashion.

According to the authors, the management techniques and tools they describe in the book are only very imperfectly representations of the complexities and changes of the real world. As such they can be seen as no more than aids to systematic thinking, and to collective learning based on analysis and experience. They further argue that in conditions of complexity and change, tacit knowledge of individuals and groups is of central importance. As already mentioned in the section dedicated to methodology, this way of perceiving tools as just initiators of reflective thought fit perfectly our perception of reality and the methodological approach chosen.

### **Innovation “leadership” versus “followership”**

According to Porter, a firm must also decide between two market strategies:

1. Innovation “leadership”, which means that firms aim at being first to the market, based on technological leadership. Such strategy requires a strong commitment to

creativity and risk taking, with close interaction both with major sources of new knowledge and with customers.

2. Innovation “followership”, where firms aim at being late to the market, based on imitating (learning) from the experience of technological leaders. This requires a strong commitment to competitor analysis and intelligence, to reverse engineering and to cost cutting and learning in manufacturing.

However, according to Tidd & Bessant (2009), in practice the distinction between “innovator” and “follower” is much less clear. The authors discuss a study<sup>22</sup> about product strategies, which found that market pioneers continue to have high expenditures on R&D, but that the efforts are aimed at minor, incremental innovations. They state that “*a pattern emerges where pioneer firms do not maintain their historical strategy of innovation leadership, but instead focus on leveraging their competencies in minor incremental innovations*” (p.172). On the contrary, late entrants appear to pursue one of two very different strategies. The first is based on competencies other than R&D and new product development (such as superior distribution or greater promotion). The second is to focus on major new product development projects in an effort to compete with the pioneer firm. This example reveals the essential weaknesses of Porter’s framework for analysis and action: like many mainstream industrial economics, it underestimates the power of technological change and overestimates the power of managers to decide and implement innovation strategies. Using other words, it underestimates the importance of technological trajectories, and of the firm-specific technological and organizational competencies to exploit them.

There are several constraints of individual firms that were not considered in Porter’s framework, which has been identified by Tidd & Bessant (2008), in particular:

- Firm size influence the choice between “broad front” and “focused” technological strategies. Usually large firms pursue “broad front” strategies whereas small firms are more focused.
- The firm’s established product base and related technological competencies will determine the technological field and industrial sector in which the firm will compete.
- The nature of its products and customers will strongly influence its degree of choice between quality and cost.

Furthermore, technological opportunities emerges from advances in knowledge, so that:

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<sup>22</sup> See Robinson & Chiang (2002) for further details.

- Firms and technologies do not fit tidily into predetermined and static industrial structures. This is particular true for firms active in a number of product markets and innovations that evolve into new businesses.
- Technological advances can increase opportunities for profitable innovation in so-called mature sectors. An example is the technology-based innovation in traditional service activities like banking.
- Firms do not become “stuck in the middle”, as Porter states<sup>23</sup>. Instead it is possible to find successful companies with medium costs and medium quality, or even high quality and low costs.

Moreover, there are also problems that emerge when implementing a strategy that were not considered in Porter’s framework:

- Organizations must be capable of learning and changing in response to opportunities and threats. Though, this does not happen automatically, but must be consciously managed and require an adequate structure.
- Element’s of Porter’s framework has been contradicted as a result of organizational and technological changes. For example the cooperative links with customer and suppliers can increase competitiveness.

To conclude, Tidd & Bessant (2009) introduce Christensen & Raynor (2003), who state: *“emergent processes should dominate in circumstances in which the future is hard to read and it is not clear what the right strategy should be... the deliberate strategy process should dominate once a winning strategy has become clear, because in those circumstances effective execution often spells the difference between success and failure* (Christensen & Raynor, 2003 in Tidd & Bessant, 2009, p.174).

## THE RESOURCE-BASED VIEW OF THE FIRM

Although Wernerfelt (1984, 1995) later admit that his *“original paper is very terse and abstract, hiding both the practicality and the generality of ideas”* (1995, p. 171), this section will contain some insight about his original proposition. It has been decided so because of the influence the first article had in the field of strategy management. As mentioned before, referring to Haugstad (1999, p. 4), some of the theories presented below are distinct but relates branches of the resource-based theory. Furthermore, even if of difficult practicality, the article “A Resource-based View of the Firm” may provide inspiration and some insights that other authors do not.

According to Wernerfelt (1984), *“for the firm, resources and products are two sides of the same coin. Most product require the services of several resources and most resources can be used in several products”* (p. 171). Based on this assumption, the author develop some tools

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<sup>23</sup> See Kay (1994); and Cronshaw, Davis & Kay (1994) for a deeper discussion.

for analyzing a firm's resource position and to look at some strategic options suggested by this analysis. The author argue that Penrose (1959) had the idea of looking at firms as a broader set of resources, but such way of thinking has received little formal attention.

The resource perspective, according to the author, provides a basis for addressing the following key issues that emerges in the formulation of strategy for diversified firms (p. 172):

- On which of the firm's current resources should diversification be based?
- Which resources should be developed through diversification?
- In what sequence and into what markets should diversification take place?
- What types of firms will it be desirable for this particular firm to acquire?

Specifically, Wernerfelt (1984, p. 172) claims that in his paper the following propositions will be argued:

1. Looking at firms in terms of their resources leads to different immediate insight that the traditional product perspective<sup>24</sup>.
2. One can identify types of resources which can lead to high profits. Also resource position barriers, analogous to entry barriers, can be raised.
3. Strategy for a bigger firm involves balancing exploitation of existing resources and development of new ones.
4. An acquisition can be seen as a purchase of a bundle of resources in a highly imperfect market.

### **Resources and profitability**

The author define a resource as *"anything which could be thought of as a strength or weakness of a given firm. More formally, a firm's resources at a given time could be defined as those (tangible & intangible) assets which are tied semipermanently to the firm"* (p. 172). Wernerfelt (1984), by using Porter's five competitive forces (1980), shows situations in which individual resources lead to high profits, eventually by raising resource position barriers. Specifically, the author ask the question *"Under which circumstances will a resource lead to high returns over longer periods of time?"*. He identifies the following:

**General effects:** resources controlled by monopolistic groups can affect bargaining power of suppliers and buyers. Threats may emerges because of substitute resources.

**First mover advantages – resource position barriers:** to control a resource may permit to raise a resource position barrier for later entrants.

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<sup>24</sup> The author with "product perspective" refers to what we described as theories based on the position of the firm within an industry, thus mainly to Porter (1980) and to the growth-share matrix. This was the dominant way of thinking at that time.



**Attractive resources:** if a resource does not represent a barrier against competitors, it may be possible to make it unattractive.

**Mergers and acquisitions:** through mergers and acquisition it may be possible to access supplementary or complementary resources that provide high profits, which are not tradable through other methods.

### Dynamic resource management

The author also provide some example on how to use the growth-share matrix, in order to understand how to balance exploitation of existing resources and the development of new ones. He suggests to adapt the following tools:

#### a) The resource-product matrix

The authors advises to enter in a resource-product matrix the importance of a resource in a product and vice versa, eventually indicating the relative importance (figure 16).

Figure 16 Resource-product matrix

Resource Market	I	II	III	IV	V
A	x				x
B	x	x			
C		x		x	
D			x		x

Source: Wernerfelt (1984, p. 176)

#### b) Sequential entry

Although to expand the position in a single resource may be an effective strategy, it is not always optimal to go full force in several market simultaneously, even if they are characterized by experience curve effects. Often, it is better to develop the resource in one market and, only after having developed a position of strength, enter other markets. Figure 17 helps in identifying which resources can be used in which markets.

Figure 18 Sequential entry

Resource Market	Production Skills	International Contacts	III	IV	Domestic Contacts
Domestic	x				x
International	x	x			
C		x		x	
D			x		x

Source: Wernerfelt (1984, p. 177)

#### c) Exploit and develop

Firms are related in more ways than financially. One way of looking at diversified firms is to consider them as portfolios

Figure 17 Exploit and develop

Resource Market	Production Skills	International Contacts	III	Project Management	Domestic Contacts
Domestic	x ←				→ x
International	x →	x			
Turn Key		x →		x	
D			x		x

Source: Wernerfelt (1984, p. 179)

of resources. Similarly to products that support other (less successful) products, there are some resources that support other resources. It is possible to map these relations with the help of figure 18.

#### d) Stepping stones

When dealing with a resource portfolio, the management of a company may evaluate resources in terms of their short-term balance effects as well as in terms of their long-term capacity to function as stepping stones for further expansion. An useful tool for such approach is presented in figure 19.

Figure 19 Stepping stones

Resource Market	Mass Assembly	Consumer Marketing	III	IV	Electronics Technology
Chips	X				X
Stereosets	X	X			
C		X		X	
Computers			X		X

Source: Wernerfelt (1984, p. 179)

Even if not complete<sup>25</sup>, the contribution of Wernerfelt (1984) may provide us with some inspiration, as it has been for many other authors. Even if not providing direct inspiration, it might be helpful in the interpretation of theories based on it.

### THE DYNAMIC CAPABILITIES OF FIRMS

Teece & Pisano (1994) created a framework they call “dynamic capabilities” to approach corporate strategy, which underlines the importance of dynamic change and corporate learning. As stated in the introduction of the chapter, Tidd & Bessant (2009) consider it the most useful framework for defining and implementing innovation strategy.

According to Teece & Pisano (1994), dynamic capabilities are the source of competitive advantage and emphasize two aspects. *“First, it refers to the shifting character of the environment; second, it emphasizes the key role of strategic management in appropriately adapting, integrating, and re-configuring internal and external organizational skills, resources, and functional competences toward changing environment”* (p.537).

In order to have distinctive and difficult-to-replicate advantages it is important to identify the foundations upon which the advantages are built. The author state that *“to be strategic, a capability must be honed to a user need (so that there are customers), unique (so that*

<sup>25</sup> The author argues that “the paper is meant only as a first cut at a huge can of worms” (p. 180)

*products/services produced can be priced without too much regard to competition), and difficult to replicate (so that profits will not be competed away)” (p.539).*

The authors argue that there are many characteristics of the firm that must be understood to understand firm-level distinctive competences/capabilities. They provide several classes of factors that help determine a firm’s dynamic capabilities, which are organized in three categories: processes, positions and paths.

### **Processes, Positions and Paths**

According to Teece & Pisano (1994), the strategic dimensions of the firm are: A) its managerial and organizational processes, which is the way things are done in the firm (also called routines) or patterns of current practice and learning; B) its present position, the authors refer to it as the firm’s current endowment of the technology and intellectual property, customer base and upstream relations with suppliers and C) the paths available to it.

#### **A) Organizational and managerial processes**

- a. Integration. Strategic advantage requires an efficient and effective coordination and integration of activities, both internal and external.
- b. Learning. It is very important to learn, which enable tasks to be performed better and more quickly as well as to identify new production opportunities. Learning involves both organizational and individual skills.
- c. Reconfiguration and transformation. Because of the rapidly changing environment, the ability to sense the need to reconfigure the firm’s structure and to accomplish the necessary transformation are valuable capabilities.

#### **B) Positions**

The strategic position of a firm is determined not only by the coherence of its processes and the learning capabilities, but also by its location with respect to its business assets. The authors define business assets not as plant and equipment (unless specialized), but as difficult-to-trade knowledge assets, assets complementary to them and reputational and relational assets. These, according to Teece & Pisano (1994) will determine its market share and profitability at any point in time.

- a. Technological assets. Technology and know-how, when not traded to others, are key differentiators among firms.
- b. Complementary assets. Technological innovations require related assets to produce and deliver new product and services, which are thus important in determining a firm’s position.
- c. Financial assets. Cash position and the degree of leverage may have strategic implications for the firm.
- d. Locational assets. In some cases uniqueness can derive from locational assets which are non-tradable.

### **C) Paths**

- a. Paths dependencies. Where a firm can go depends on its current position and the paths ahead, but it is also shaped by the path behind. In standard economics textbooks path dependencies are not recognized. As Leonard-Barton (1992) notes, core capabilities can create core rigidities. One implication is that many investments are much longer term than is commonly thought.
- b. Technological opportunities. The concept of path dependencies can be given forward meaning if considering the technological opportunities in an industry. How far and fast can technology advance is partly exogenous to the industry (thus not under control of the firm). But some firm can influence it, for example by supporting basic science, or by continuously monitoring the advances outside the firm and creating linkages to basic science institutions.

The above presented elements determine a firm's strategic capability. What a firm can do and where it can go is thus heavily influenced by the typography of its processes, positions and paths, thus they should be analyzed in a strategic audit. The authors argue that if one can identify each of the components of the framework and understand their interrelationships, one can at least predict the performance of the firm under various assumptions about changes in the external environment and evaluate the richness of the menu of new opportunities available.

#### **Replicability and imitability of organizational processes and positions**

Distinctive organizational capabilities can provide competitive advantage and generate revenues if based on routines, skills and complementary assets that are difficult to imitate. In fact, routines can lose their value if related to competences that no longer matters in the marketplace or if they can be easily replicated or emulated by competitors. Teece & Pisano (1994, p. 549) define imitation as when firms discover and simply copy a firm's organizational routines and procedures; emulation, instead, occurs when firms discover alternative ways of achieving the same functionality.

Self-replication, on the contrary of imitation from competitors, can have two types of strategic value: to support geographic and product line expansion; and to indicate that the firm has the foundations for learning and improvements. Though, as the authors note, it should be considered that routines are context dependent and often tacit, thus difficult to replicate.

Teece & Pisano (1994) use the term "appropriability regimes" to describe the ease of imitation. They argue appropriability is a function both of the ease of replication and the efficacy of intellectual property rights as a barrier to imitation. They refer to strong appropriability regime when there is strong intellectual property protection and it is inherently difficult to replicate the technology. On the contrary, when it is inherently easy to replicate the technology and intellectual property protection is either unavailable or

ineffectual, then appropriability is weak. As figure 20 shows, intermediate conditions also exist.

**Figure 20 Appropriability regimes**

Intellectual Property Rights		Inherent Replicability	
		Easy	Hard
	Loose	<b>WEAK</b>	<b>MODERATE</b>
	Tight	<b>MODERATE</b>	<b>STRONG</b>

Source: Teece & Pisano (1994, p. 552)

### **Strategic issues from a dynamic capabilities perspective**

The approach proposed by Teece & Pisano (1994) views competition in Schumpeterian terms, where firms' capabilities to improve their distinctive competencies play a determine long-term competitiveness. Thus it is central to a firm's strategy to decide on which of the different possible areas to invest. However, choices about domains of competence are influenced by past choices. The path chosen by the company will not only define what choices are open in that moment, but also will limit future possibilities. From this reflections, the authors conclude by saying that *"firms, at various points in time, make long-term, quasi-irreversible commitments to certain domains of competence. Deciding, under significant uncertainty about future states of the world, which long-term paths to commit to and when to change paths is the central strategic problem confronting the firm"* (p.553).

### **EXPLICATING THE DYNAMIC CAPABILITIES**

Teece (2007) provide a clarification of the concept "dynamic capabilities". In particular, he specifies the nature and the microfoundations of such capabilities. The definition given by the author (Teece, 2007, pp. 1319-20) is complementary to the one presented in Teece & Pisano (1994): *"sustainable advantage requires more than the ownership of difficult-to-replicate (knowledge) assets. It also requires unique and difficult-to-replicate dynamic capabilities"*, which can be used *"to continuously create, extend, upgrade, protect and keep relevant the enterprise's unique asset base."* Such capabilities, *"for analytical purposes, can be disaggregated into the capacity*

1. *to sense and shape opportunities and threats,*
2. *to seize opportunities, and*
3. *to maintain competitiveness through enhancing, combining, protecting, and when necessary, reconfiguring the business enterprise's intangible and tangible assets."*

Furthermore, dynamic capabilities

- include the capacity *“required to adapt to changing customer and technological opportunities”*;
- *“Embrace the firm’s capacity to “shape the ecosystem it occupies, develop new products and processes, and design and implement viable business models”.*

The author hypothesizes that excellence in these orchestration capacities support the capacity of the firm to *“successfully innovate and capture sufficient value to deliver superior long-term financial performance”*. Such reasoning is based on the assumption that *“while the long-run performance of the enterprise is determined in some measure by how the (external) business environment rewards its heritage, the development and exercise of (internal) dynamic capabilities lies at the core of enterprise success (and failure)”*.

The author, in his article, identifies the nature of various classes of dynamic capabilities; and separate the microfoundations from the capability itself. Teece (2007, p. 1321) defines such microfoundations as *“the organizational and managerial processes, procedures, systems and structure that undergird each class of capabilities”*. He also recognizes that *“their identification is incomplete, inchoate, and somewhat opaque and/or their implementation must be rather difficult”*, though, he states it must necessarily be like this, otherwise the competitive advantage could be communicated and copied. The author argues that his effort is not designed to be comprehensive; rather to integrate the strategy and innovation literature to provide an umbrella framework that highlights the most critical capabilities needed to sustain the evolutionary and entrepreneurial fitness of the business enterprise.

### **Sensing (and shaping) opportunities and threats**

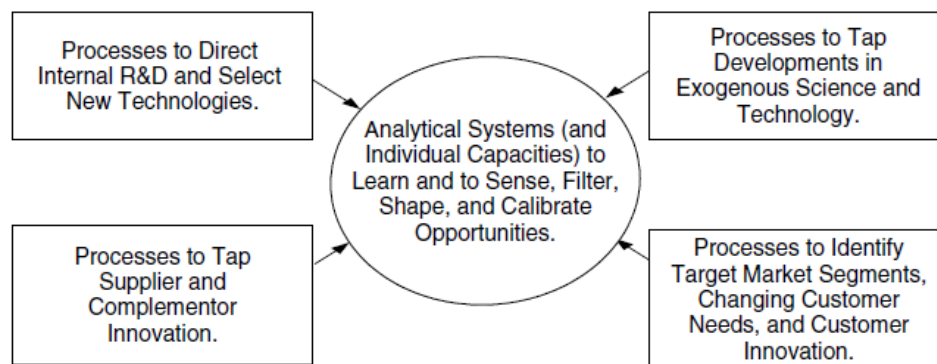
According to Teece (2007), most emerging marketplace trajectories are hard to discern. Sensing and shaping new opportunities involves constantly scan, search and explore across technologies and markets, both local and distant. But it also requires creativity, learning and interpretative activities. It is important not only to understand customer needs and technological possibilities, but also understanding latent demand and the structural evolution of industries. This amount of information will create conjectures about the path ahead, which require quick actions when identified.

Teece (2007) argues that opportunity discovery and creation can originate from capacities of individuals, but can also be grounded in organizational processes, such as research and development activity. It is more desirable to embed scanning, interpretative and creative processes inside the firm itself, not to be vulnerable. Such organizational processes involve several activities such as garner new technical information, tap developments in exogenous science, monitor customer needs and competitors activity and shape new products and processes opportunities. Enterprises must search not only at the core of their business ecosystem, but also at the periphery of their business ecosystem. Search activity must embrace potential collaborators, such as customers, suppliers and complementors, that are

active in innovative activity. The technological, market, and competitive information gathered both from inside and outside the enterprise requires to be analyzed and used to figure out the implications for action. As Teece (2007, p. 1326) point out, *“however, because attention is a scarce resource inside the enterprise (Cyert and March, 1963), management must carefully allocate resources to search and discovery”*. The author also underscore the importance of strategy for avoiding waste of resources by claiming that *“the enterprise’s articulate strategy can become a filter so that attention is not diverted to every opportunity and threat that “successful” search reveals”*.

Figure 21 summarizes the traits, both individual and at firm level, that undergird sensing capabilities.

**Figure 21 Elements for “sensing” market and technological opportunities**



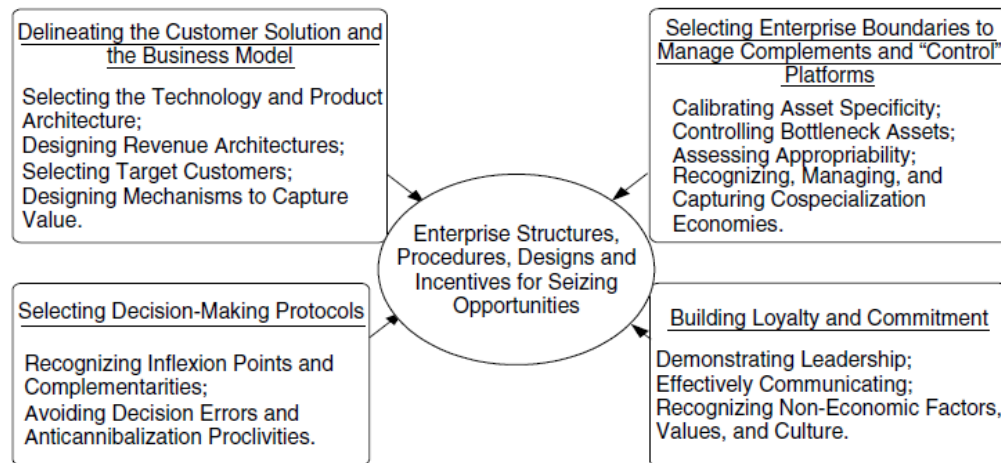
Source: Teece (2007, p. 1326)

### Seizing opportunities

Once a new opportunity is sensed, it must be addressed through new products, processes, or services, which requires investments in development and commercialization activity. Addressing opportunities involves maintaining and improving technological competences and complementary assets. Once an opportunity is mature a firm can invest heavily on the technologies and designs most likely to be successful on the marketplace. Therefore, according to Teece (2007, p. 1326), *“one needs to strategize around investments decision, getting the timing right, building on increasing returns advantages, and leveraging products and services from one application to another”*. However, as the author point out, the firm has not only to decide when, where and how much to invest. It also have to select or create a business model that defines its commercialization strategy and investment priorities. Managers are also required to develop the ability to override certain “dysfunctional” features of established decision rules and resource allocation processes.

Figure 22 provides an overview of the microfoundations identified by the author, which are at the base of seizing opportunities.

Figure 22 Skills enabling strategic decisions and execution



Source: Teece (2007, p. 1334)

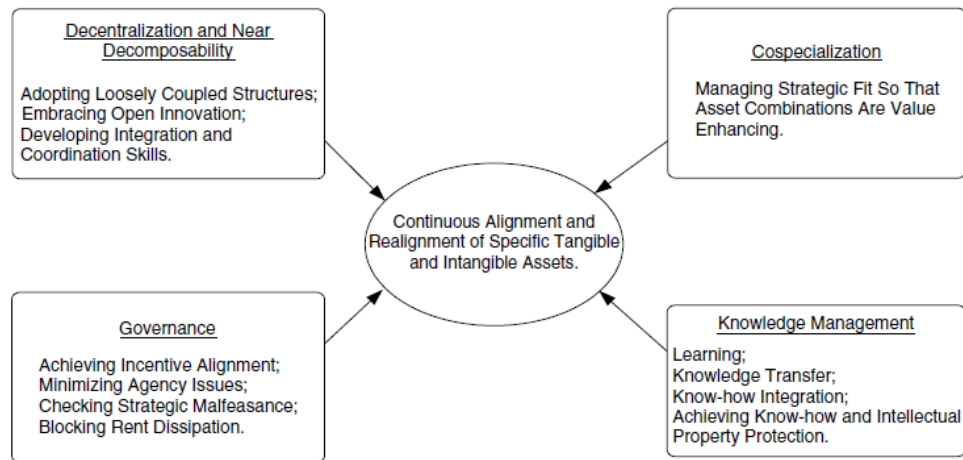
### Managing threats and reconfiguration

The successful identification and calibration of opportunities; and the selection of technologies, the design of business model, and the commitment of resources to investment opportunities can lead to enterprise growth and profitability. This growth will lead to the increase of enterprise's resources and assets. According to Teece (2007, p. 1335), *"a key aspect to sustained profitable growth is the ability to recombine and reconfigure assets and organizational structures as the firm grows and as markets and technologies change"*. Reconfiguration may also necessary to escape unfavorable path dependencies. As enterprise grows, it has more assets, which need to be protected against malfeasance and mismanagement. Redeployment and reconfiguration can take several forms: it may involves business model redesign and/or asset-realignment activities and/or revamping of routines. Redeployment, according to the author, may even involves mergers, acquisitions and divestments.

Figure 23 shows the microfoundations that are at the base of managing threats and transforming the organization.



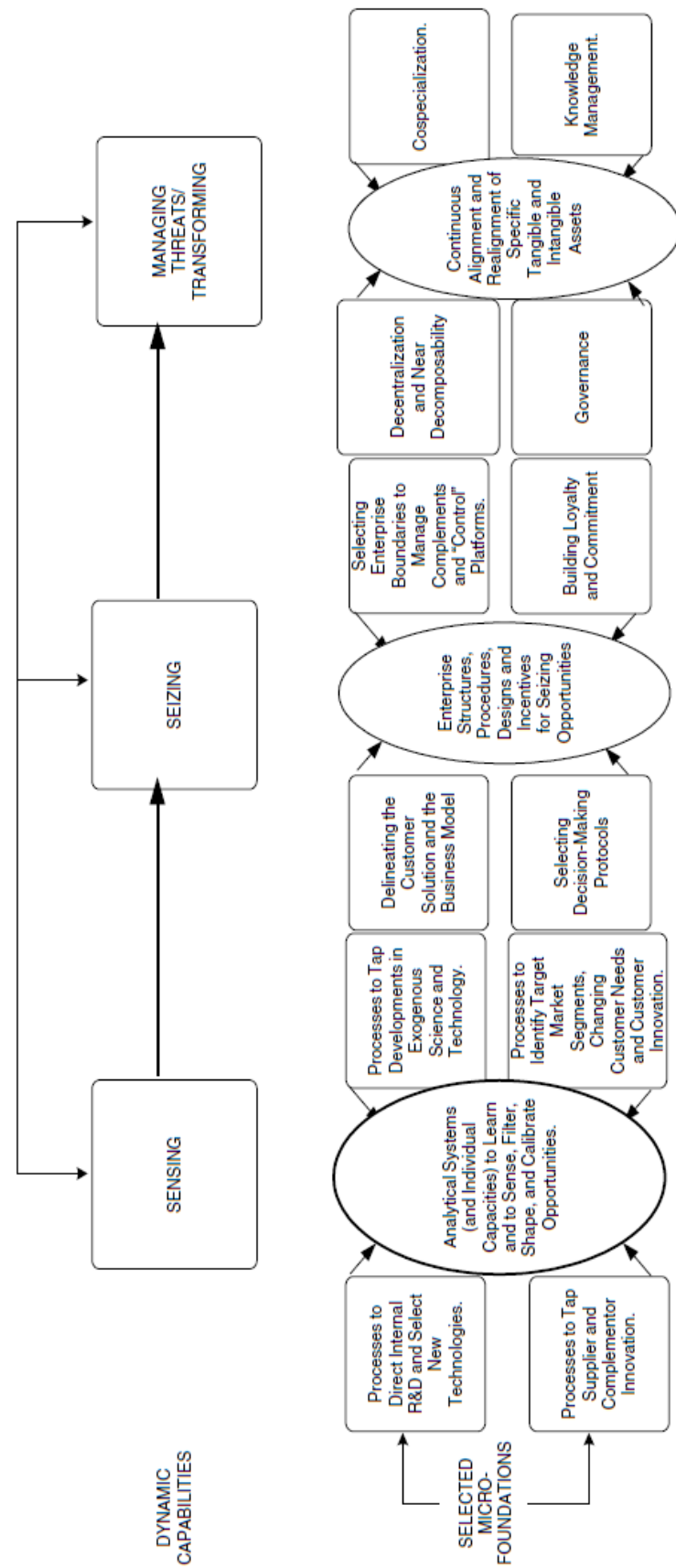
Figure 23 Skills necessary for reconfiguring the firm's activities



Source: Teece (2007, p. 1340)

In the next figure, the different elements described above are combined, so that it provides an overview of the dynamic capabilities and their microfoundations identified.

Figure 24 Foundations of dynamic capabilities and business performance



Source: Teece (2007, p. 1342)

### Concluding reflections on dynamic capabilities

Teece (2007) integrate the concepts just exposed with those included in Teece & Pisano (1994), which were presented above in this thesis. According to the authors, in their original contributions they proposed three organizational and managerial processes (coordination/integration, learning, and reconfiguring) as core elements of dynamic capabilities. He argues that these processes are a sub-set of the processes that support sensing, seizing and managing threats. If taken all together, these processes might be thought of as asset “orchestration” processes.

Teece (2007, p. 1346) argues that *“the dynamic capabilities framework underscore the organizational and (strategic) managerial competencies that can enable an enterprise to achieve competitive advantage, and then semi-continuously morph so as to maintain it”*. Though, he stress again that dynamic capability is meta-competence that transcends operational competence.

The last statement of Teece is a good source for initiating a reflection about the fit between dynamic capabilities and strategy. In my opinion dynamic capabilities approach is more suitable for a corporate strategy than for an innovation strategy. This mainly because dynamic capabilities is a very wide concept, whereas innovation strategy is rather limited in scope. Nonetheless, the framework created by Teece & Pisano (1994) has several strategic implication, thus may be used as inspiration and as a source of reflection.

### DEVELOPING FIRM-SPECIFIC COMPETENCIES

*“The ability of firms to track and exploit the technological trajectories described above depend on their specific technological and organizational competencies, and on the difficulties that competitors have in imitating them”* (Tidd & Bessant, 2009, p. 196). According to the authors there have been growing interest among scholars and business people toward firm-specific competencies as a source of competitive success.

Hamel & Prahalad (1990) are recognized by the authors as *“the most influential business analyst promoting and developing the notion of “core competencies””* (p. 196). Their basic idea can be summarized as follows:

- 1) The sustainable competitive advantage of firms resides in their core competencies, rather than in their products. *“The real sources of advantage are to be found in management’s ability to consolidate corporate-wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities”* (Hamel & Prahalad, 1990, p. 81).
- 2) Core competencies feed into more than one core product, which in turn feed into more than one business unit. Tidd & Bessant (2009, p.196) explain such concept using the tree metaphor originally used by Hamel & Prahalad (1990):
  - End products = Leaves, flowers and fruits
  - Business unit = Smaller branches

Core products = Trunk and major limbs

Core competencies = Root systems

Examples of core competencies include Sony in miniaturization. Examples of core products include Honda in lightweight, high-compression engines.

- 3) According to Hamel & Prahalad (1990, p. 82), core competencies also require organizational competencies: *“Core competence is communication, involvement and a deep commitment to working across organizational boundaries”*.
- 4) Another important element required is focus. As the authors state *“Few companies are likely to build world leadership in more than five or six fundamental competencies. A company that compiles a list of 20 to 30 capabilities has probably not produced a list of core competencies”* (p. 84).
- 5) Core competencies suggests that large and multidivisional firms should be viewed not only as being composed by several strategic business units (SBUs), but also as bundles of competencies that do not necessarily fit tidily in one business unit. This does not mean that corporations should be based on core competencies and forgetting the concept of traditional corporation, but a commitment to core competencies *“will inevitably influence patterns of diversification, skill deployment, resource allocation priorities and approaches to alliances and outsourcing”* (Hamel & Prahalad, 1990, p. 86). Too deep such concept it may be helpful to consider that conventional multidivisional structure facilitate innovation within specific areas, but may limit the scope for learning new competencies.
- 6) According to Hamel & Prahalad (1990, p. 89) the identification and development of a firm's core competencies depend on its strategic architecture, defined by the authors as *“a road map of the future that identifies which core competencies to build and their constituent technologies... should make resource allocation priorities transparent to the whole organization... Top management must add value by enunciating the strategic architecture that guide the competence acquisition process”* (p. 89).

According to Tidd & Bessant (2009, p. 199), the approach developed by Hamel & Prahalad (1990) has several implication for the management of the organization, but also some unanswered questions that should be considered before discussing the managerial implications.

The three main questions identified by the authors are the following (Tidd & Bessant, 2009, pp. 199-202):

**a. Differing potentials for technology-based diversification?**

It is not clear whether the corporate core competencies in all industries offer a basis for product diversification.

**b. Multi-technology firms?**

Concentrating on a few fundamental world-beating technological competencies may be misleading for some firms. This for several reasons: companies may develop background technological competencies that may be important for coordinating and benefiting from outside linkages. Moreover, such background competencies might account for a sizable proportion of corporate innovative activities (and can even be the sources of revolutionary and disruptive change). However, as the authors state, in terms of innovation strategy it is important to distinguish when a technology play a central role in the firm and can be source of distinctive competitive advantage from when it is a background technology that may also require major changes, but available to all competitors from specialized suppliers, and therefore unlikely to be a source of distinctive and sustainable competitive advantage. Tidd & Bessant (2009, p. 200) describe a third category of technology, defined as emerging or key. Such technologies are defined by the authors as rapidly developing fields that, when combined with existing core and background technologies, present potential opportunities and threats. They can have pervasive and major impacts on firms' strategies and operations, thus they should also be considered into strategic decisions.

**c. Core rigidities?**

Tidd & Bessant (2009) present the point of view of Leonard-Barton (1995), who point out that core competencies can become "core rigidities", when established competencies become too dominant. This situation can lead to two negative outcomes: emerging new competencies may be neglected or underestimated; or innovation efforts overshoot the target (for example unnecessary features are added to a product).

The unanswered questions presented above should not be intended as discrediting Hamel & Prahalad (1990) contribution, rather it should initiate a reflective process when approaching the core competencies concept. The reflection provided above should also be kept in mind in relation to the managerial implications that will be presented below.

The introductory analysis of core competencies presented above lead us to the final –very practical – question: how can management identify and develop them?

According to the Tidd & Bessant (2009) there is no widely accepted definition or way of identifying core competencies. One possibility suggested is to analyze the functional performance, but, as the authors argue, this way bypasses two central tasks of corporate technology strategy: to identify and develop the range of disciplines that should lead to a functioning technology; and to identify the new competencies that must be added for the functional capability not to become obsolete.

Tidd & Bessant (2009, p. 203) also discuss the approach suggested by Hall (2006), who distinguishes between intangible assets (which include intellectual property rights and

reputation) and intangible competencies (which include skills and know-how of employees, suppliers and distributors as well as collective attributes constituting organizational culture). In his work he identifies organizational culture, defined as the shared values and beliefs of members of an organization, and the associated artefacts, as the most important capabilities an organization should develop.

A third point of view is provided by Winter (2003), who links the idea of competencies with his own notion of organizational routines, defined as *“an organizational behaviour that is highly patterned, is learned, derived in part from tacit knowledge and with specific goals and repetitious”* (Tidd & Bessant, 2009, 203). In his attempt to linking the concept of Hamel & Prahalad (1990) with his own, he also provide a hierarchy of capabilities. By doing so he discusses also the concept of “dynamic capabilities”, already discussed in this thesis. In fact, he also argues that a “true” dynamic capability, to be called as such, should lead to change in the product, process, scale or market. Dynamic capabilities involve both leveraging existing competencies and developing new ones, thus the trick is to get the right balance between the two.

According to Tidd & Bessant (2009, pp. 203-4), research has suggested that some firms are better than other at balancing exploitation of existing capabilities and exploitation and development of new ones. The variation in performance resides in the difference of the ability of managers to build, integrate and reconfigure organizational competencies resources. These managerial capabilities are influenced by managerial cognition, human capital and social capital. Cognition refers to the beliefs and mental models that managers hold, and thus influence decision making by affecting knowledge assumptions about future events, available alternatives and association between cause and effect. Human capital refers to the learned skills, which can be generic, industry- or firm-specific, that require some investment in education, training experience and socialization. Social capital refers to the internal and external relationships that influence managers’ access to information, their influence, control and power.

The importance given by Hamel & Prahalad (1990) to top management in defining the strategic architecture and in developing technological competencies is debatable. Tidd & Bessant (2009) provide some elements for discussing their point of view. According to them, in fact, successful development and exploitation of core competences is likely to develop gradually through an incremental corporate-wide process of learning rather than through a “flash of genius” from senior management. New competencies do require a trial and error approach to be identified and developed.

The authors provide an interesting perspective, initially developed by O’Connor & Veryzer (2001), of how managers can influence the development or acquisition of competencies in relation to radical technological innovation. There are three related mechanisms through which firms can relate emerging technologies to markets that do not yet exist: motivation, insight and elaboration. Motivation serves to focus attention and to direct energy. Senior management is expected to communicate the importance of radical innovation and to set up

the goals that will influence the direction of innovative efforts. Insights connect technology and potential application. In the case of radical technological innovations people with extensive technical knowledge and expertise, but also with sense of market needs and opportunities, are more likely to be helpful than customers. Elaboration refers to demonstrating the technical feasibility, validating the idea within the organization, prototyping and building and testing different business models.

The sub-section dedicated to the firm-specific competencies do not have only provided another perspective on what constitute a sustainable competitive advantage, but also integrated several point of view of how these should be approached and managed. If one would try to apply all these concepts within a firm, he would probably struggle to find a practical application of the suggestions. However, it does not mean that the elements presented above should be ignored. Similarly the other theories included in this thesis, they are to be intended as a source of inspiration and reflection.

### **3.3. INNOVATION STRATEGY**

Tidd & Bessant (2009, p.164) have some central propositions that should be considered when developing an innovation strategy:

1. Firm-specific knowledge – including the capacity of exploiting it – is an essential feature of competitive success.
2. An innovation strategy should therefore be an essential feature of the corporate strategy, with the purpose of accumulating such firm-specific knowledge.
3. An innovation strategy must cope with a complex, ever-changing external environment, which presents considerable uncertainties about present and future developments in technology, competitive threats and market (and non-market) demands.
4. Internal structures and processes must continuously balance potentially conflicting requirements:
  - a. to identify and develop specialized knowledge within technological fields, business functions and product divisions;
  - b. to exploit this knowledge thorough integration across technological fields, business functions and product divisions.

According to the authors, given complexity, continuous change and consequent uncertainty, the so-called rational approach to innovation strategy, is less likely to be effective than an incremental approach that stresses continuous adjustment in light of new knowledge and learning.

They also state that the approach pioneered by Michael Porter (1980) has both strengths and weaknesses. In fact, according to them, Porter correctly identifies the nature of the

competitive threats and opportunities deriving from advances in technology, and rightly stresses the importance of developing and protecting firm-specific technology to reach a competitive advantage. But it underestimates the power of technology in changing the rules of the competitive game (by modifying industry boundaries, developing new products and shifting barriers to entry). It also overestimates the capacity of senior management to identify and predict the important changes outside the firm, and to implement radical changes in competencies and organizational practices within the firm.

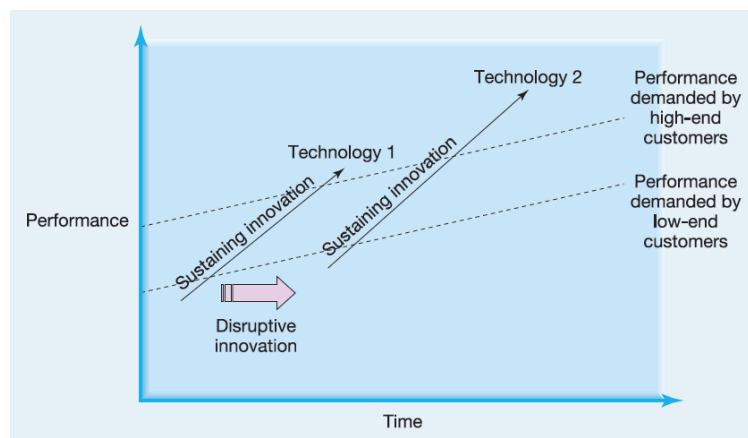
## JOHNSON ET AL. (2008) ON INNOVATION AND ENTREPRENEURSHIP

According to Johnson et al. (2008), *“innovation is a key aspect of business-level strategy”* (p. 324). Therefore, they include in their model a portion dedicated to innovation and entrepreneurship. The authors argue that managers face three dilemmas when considering innovation in relation to corporate strategy: if they should focus on technology push or on market pull; if they should concentrate on product innovation or on process innovation; and if they should aim at technological innovation or on changing the entire business model. Although Johnson et al. (2008) recognize that these are not absolute “either-or” dilemmas, this approach does not fit the way we perceive the world. In fact, we see innovation as a much more complex phenomenon that cannot be addressed just by answering three questions. Nonetheless, the contribution of the authors provide some useful hint that can be helpful for reflecting about the innovation strategy, therefore their perspective will be included in the next paragraphs.

The last section in Johnson et al. (2008) is dedicated to an issue originally proposed by Bower & Christensen (1995) and by Christensen & Raynor (2003). These authors see innovation not so much as an opportunity as a threat for established companies. In fact, according to them, incumbents usually improve their existing technology along an existent trajectory, with so-called

sustaining innovations. This phenomenon is represented by Technology 1 in figure 25. The challenge for incumbents, however, is switching from sustaining innovations to the trajectory offered by a disruptive innovation. A disruptive innovation, represented in figure 25 by technology 2, according to Johnson et al (2008, p. 338), *“creates substantial growth by offering a new performance*

Figure 25 Disruptive innovation



Source: Adapted from Christensen & Raynor (2003) Johnson et al (2008, p. 339)



*trajectory that, even if initially inferior to the performance of existing technologies, has the potential to become markedly superior”.*

According to Johnson et al. (2008), disruptive innovations are hard for incumbents to respond to for two main reasons: existing companies already have a customer base, which is likely to become upset because of the initial poor performance of the new technology; and because such kind of innovation typically involves changing their whole business model. Therefore Johnson et al. (2008, pp. 339-40) suggest two policies incumbents can follow to remain responsive to potentially disruptive innovations:

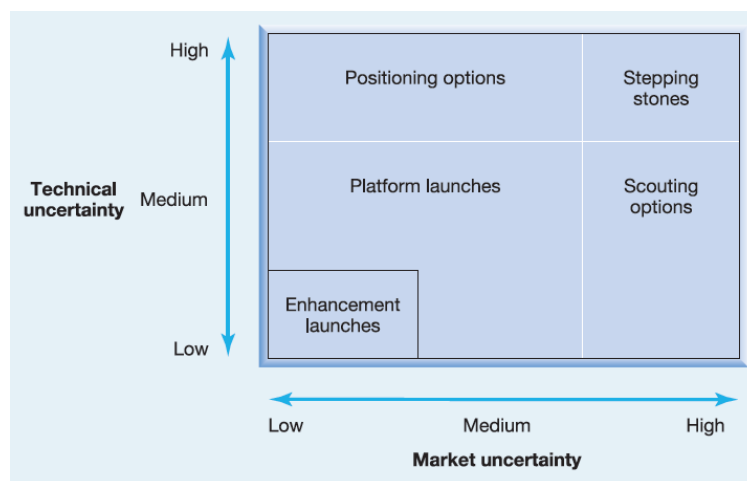
- **Develop a portfolio of real options.** According to the authors, companies with a single business model and with one main product or service are those most challenged by disruptive innovations. The authors, who were inspired by McGrath & MacMillan (2000), suggest to build portfolios of real options in order to maintain organizational dynamism. Real options are defined as limited investments that keep opportunities open for the future. They can take several forms, such as establishing an R&D team in a speculative new technology or acquiring a small start-up in a nascent market. Both examples of real options give the potential to scale up fast if the opportunity turn out to be interesting.

There are three different kinds of options in the portfolio created by McGrath & Macmillan (2000), which are represented in figure 26. **Positioning options** refers to options in a known market, but with uncertain technologies.

According to the authors a company might want several of these, to ensure some position in an important market, no matter with which technology. On the contrary, **scouting options** are characterized by a strong technology, but very uncertain about appropriate

markets. A company would want to bet on several of these options in order to explore which markets are actually best. Finally, there are stepping stone options, which are very unlikely in themselves to work, but possibly leading to something more promising in the future. Such options are also valuable because, even if not

Figure 26 Portfolio of innovation options



Source: From MacMillan & McGrath (2000) in Johnson et al (2008, p. 339)

profitable, they should provide valuable learning opportunities. An important principle for options is “fail fast, fail cheap, try again” (Johnson et al., 2008, p. 341).

- **Develop independent business units.** According to Johnson et al. (2008, p. 341), new ventures, especially those born from real options, may need protection from the usual systems and disciplines existing in the core business. Because the primary objective of such new ventures is preparation and learning, it would be nonsense to evaluate them on growth and profitability. For this reason, large incumbent organization often set up innovative businesses as independent business units, sometimes called new venture divisions, run by managers hired from outside. However, the risks of having ventures separated by the parent company are twofold: First, the new unit may be denied resources that the core business could easily supply, such as branding or management information systems. Second, innovation becomes isolated from the core organisation, thus it is seen as something developed outside. Firms may respond to the second risk by reabsorbing the new venture into its main operations.

## TIDD & BESSANT ON STRATEGY MAKING

Scanning and searching the environment identifies several potential targets for innovation. Although it is necessary, answering the question “what could we do?” is not enough, in fact companies should also determine which options to explore and which not. According to Tidd & Bessant (2009, p. 214), this process should not be just matter of responding to competitors or to customer requirements. Nor should it be only about following the latest technological fashion. *“Successful innovation strategy requires understanding of the key parameters of the competitive game (markets, competitors, external forces, etc.) and also the role which technological knowledge can play as a resource in this game”* (p. 214). According to the authors it involves a learning process critical to success.

The authors further argue that building a strategic framework to guide selection of possible innovation projects is not easy and that it is a nonsense to think about creating detailed plans and following them in systematic fashion, because of the complexity and uncertainty that characterize the world. At the same time, organizations cannot afford to innovate at random, they do need some kind of framework that indicate where they think innovation is more likely to lead to success. The framework should therefore be flexible enough to help monitor and adapt projects toward concrete innovations, and rigid enough to justify continuation or termination of such projects as uncertainties are replaced by actual knowledge.

*“Research has repeatedly shown that organization which simply innovate on impulse are poor performers. By contrast, those which understand the overall business, including their technological competence and their desired development trajectory are more likely to succeed”* (Tidd & Bessant, 2009, p. 215). Other studies has highlighted the lack of strategic underpinning as a key problem. This is why many organization take time to reflect and

develop a shared strategic framework for innovation. According to Tidd & Bessant (2009), this framework's task is to fit innovation with business strategy. A typical approach is to carry out some form of competitive analysis which looks at the positioning of the organization in terms of its environment and the forces that influence competition. Thus it can be asked how a proposed innovation might help shift the competitive position favourably. According to the authors, it is important to include multiple perspectives in such a systematic analysis. Reviews can take several forms such as "outside-in" approaches, using tools for competitor and market analysis; or "inside-out" models, looking for ways of deploying competencies. They can also use scenarios and "technology road-mapping" for exploring how the future might be. *"But in the process of carrying out such reviews it is critical to remember that strategy is not an exact science so much as a process of building shared perspectives and developing a framework within which risky decisions can be located"* (Tidd & Bessant, 2009, p. 215).

Another important element when creating an innovation strategy is to communicate and share the strategic analysis. In order to use the analysis to frame their actions, people should understand and commit to such analysis. According to the authors the issue of strategy deployment, defined as communicating and enabling people to use the framework, is essential in the innovation process. They also argue that it comes to the fore in the case of incremental improvement activities. A key issue is the presence of strategic focus that help guiding the innovation activities, which requires two key enablers: to have a clear and coherent strategy for the business; and the deployment of it thorough a cascade process. In doing so it increases the level of understanding and ownership of the goals and sub-goals.

Tidd & Bessant (2009, p. 216) also provide a discussion of portfolio management. They argue that, although there is a wide variety of portfolio management methods, the underlying purpose is the same: *"to provide a coherent basis on which to judge which project should be undertaken, and to ensure good balance across the portfolio of risk and potential reward"* (p. 216). They distinguish among three approaches for building a strategic portfolio: benefit measurement techniques, economic models and potential reward. Benefit measurement approaches refer to simple subjective judgments. They can take various forms, ranging from the simple checklists to more advanced scoring and weighting tools. The main weakness here is that they consider each project in relative isolation. Economic models include financial (or other quantitative data) into an equation. Such approaches also consider the projects in isolation and are also dependent on the availability of data. Portfolio methods try to judge a set of projects and to look for a balance of economic and non-financial risk/reward factors.

### **3.4. CUSTOMER CENTRICITY**

Cerbios' top management expressed the wish to create an innovative customer-centric organization. Although this thesis will focus specifically on the innovation strategy, such strategy will be strongly linked to the concept of "customer-centricity". In the next sections I will therefore explain what the concept of "customer-centricity" means and which elements

encompass. I will focus mainly on the theory expressed by Galbraith (2005) as it has been chosen by Gabriel Haering as referring text, but I will also include other perspectives. Including the thoughts of other authors has two main reasons: to better understand the concept of customer-centricity; and to be able to challenge the view of the author mentioned above. This last point is especially important because such theory has not been selected as other theories presented in the thesis; rather it has been “imposed” by the Gabriel Haering.

### ***THE NEED OF BECOMING A CUSTOMER-CENTRIC FIRM***

Galbraith (2005, p. 1) describe his theory starting from the assumptions that stand-alone products and services commoditize rapidly and collapse profit margins; and that sales to existing customers are more profitable than sales to new customers. He also argue that new customer acquisition is costly, thus it is most desirable to have a loyal, long-term customer who has a relationship with the company. *“But to be effective, customer loyalty and relationships have to be managed; companies need to organize around these loyal customers”* (p. 1).

It may be important to discuss the three elements included in the paragraph above separately. In our point of view it is not important whether *in general* products and services are not as profitable as having customer relationship. This for two main reasons. First, Cerbios management identified the need to orient more toward customer, thus there is such necessity for our firm. Second, a generalization like that is of no interest for us because it has not been verified if that aspect exists also in our context. This is also reflected in the methodological approach we chose. We do agree with the second argument. Loyal, long-term customers are more desirable. In addition to providing profits, these customers can also be a source of information about the trends in the environment (thus also a possible source of innovation). The relationship may even evolve to become business partners with common investments, thus become strategic partners. We also do completely agree with the third argument, customer relationships need to be managed and that this require some organizational efforts. Thus, in order not to make efforts at random, with the risk of wasting resources, we decided to develop a customer-centric strategy.

The author also provide two main reasons why firms hesitate to become customer-centric. According to him one reason is the underestimation of the changes needed to implement customer-centric systems. Many firms think, and thus implement, that it is sufficient to have customer relationship management (CRM) software. This also represent a big danger for companies, in fact, the author (citing the article written by Kehoe, 2002) states that half of the CRM implementations fail to achieve the expected results and that one in five even damages relationships with partners. The second reason why firms do not invest enough time and energy resides in the fact they believe they are already customer-centric, when in fact they are not.

Before proceeding to the description of the meaning, the components and the features of customer-centricity I will provide a brief reflection of the book written by Galbraith (2005).

In my point of view, the quality of the book, from a scientific perspective, is questionable; in fact, it seems to be based on the author's perceptions and ideas, rather than being based on data collected scientifically. Because our methodological approach sees theoretical contributions as a source of inspiration (not as a guide) and theories previously created must be objects of critical reflection and must be adapted to the specific context, this does not constitute a big problem. Furthermore, the fact that it seem to be based on personal ideas of the writer, it does not mean that such ideas are wrong.

Another element that should be considered when reading his book, is that his simplified perception of reality is in contrast with our, which is seen as a social construction. Again, this is not necessarily a negative thing, as these simplified concept are easily understood. But it means that such concepts have to be necessarily object of reflection.

Some questions can be raised from the fact that Galbraith (2005) cites the examples of 3M, P&G & IBM, arguing that their success comes from their customer-centric approach. It may be important for the reader to consider that these firms are used from all disciplines (even in innovation management literature) as good advocates of their theories. Thus, it may be helpful for the reader to think carefully about to what degree a company could benefit from a customer-centric approach.

The last critique is that the author do not consider enough the risks of becoming too customer-centric. As Tidd & Bessant (2009) note, to become too inward focused represent a big risk. This becomes apparent not only in a sentence accredited to Henry Ford, who said *"If I had asked people what they wanted, they would have said faster horses."*, but it is even more evident if we look at Nokia. Such company, which is described by the author as an excellent example of customer-centric firm, is in facing several difficulties, partly because it ignored the emergence of smart phones (and related technologies).

The critiques presented above should not be perceived as attempt of discrediting the author; and, at the same time, they do not mean that his contribution is not valuable or interesting. They are just meant to help the reader to carefully think about what the author suggest in his contribution.

### WHAT DOES IT MEAN TO BECOME CUSTOMER-CENTRIC?

According to Galbraith (2005), the product-centric mind-set is so entrenched within organizations that some mangers may event believe they are leaving it behind in favour of a customer-centric approach, *"when in fact product-centricity continues running the show with merely a cosmetic gloss of customer focus sprinkled around the edges"* (p. 6). The author underscores that the ideas presented in his book are demanding in terms of reorganization. He warns mangers that applying "fingertip" version of the capability is detrimental, rather than prudent. *"To go halfway will almost certainly be funds wasted in their entirety"* (p. 6). The author later on explains that there are different levels of customer-centricity a firm require. Once that level is determined managers should commit to that level and no less. In our point of view, this statement of Galbraith (2005) has some weaknesses. In fact, in our (socially-constructed and context-dependent) reality it does not fit to have standardized,

pre-ordained organizational settings. Though, we will consider the warning provided by the authors, and thus reflect carefully on the implication and consequences of implementing only part of the suggestions provided by the author.

In order to explain what customer-centricity is, Galbraith (2005, pp. 9-10) discuss the characteristics of customer-centric organizations in contrast to the traditional product-centric approach. The main differences are shown in table 8 and described in the next paragraphs.

According to the author, the basic difference between a product-centric firm and a customer-centric one lies in the fact the former tries to find as many uses and customers as possible for its products, whereas the latter tries to find as many products as possible for its customer, and it has to integrate those products. This basic difference has several implications on some organizational features. Product-centric companies are structured around products profit centres; and information and discussions are related to products. On the contrary, customer-centric companies are structured around customer segments, which thus influence information gathering and discussions. The author claims the most striking difference is perhaps that a customer-centric unit is on the side of the customer in a transactions, rather than being on the side of its firm.

**Table 8 Product-centric versus customer-centric**

		Products-Centric Company	Customer-Centric Company
Strategy	Goal	Goal Best product for customer	Best solution for customer
	Main offering	New products	Personalized packages of products, service, support, education, consulting Customizing for best total solution
	Value creation route	Cutting-edge products, useful features, new applications	
	Most important customer	Most advanced customer	Most profitable, loyal customer
	Priority setting basis	Portfolio of products	Portfolio of customers – customer profitability
	Pricing	Price to market	Price for value, risk
Structure	Organizational concept	Product profit centers, product reviews, product teams	Customer segments, customer teams, customer P&Ls
Processes	Most important process	New product development	Customer relationship management and solutions development
Rewards	Measures	<ul style="list-style-type: none"> <li>•Number of new products</li> <li>•Percent of revenue from products less than two years old</li> <li>•Market share</li> </ul>	<ul style="list-style-type: none"> <li>•Customer share of most valuable customers</li> <li>•Customer satisfaction</li> <li>•Lifetime value of a customer</li> <li>•Customer retention</li> </ul>
People	Approach to personnel	Power to people who develop products •Highest reward is working on next most challenging product •Manage creative people through challenges with a deadline	Power to people with in-depth knowledge of customer's business • Highest rewards to relationship managers who save the customer's business
	Mental process	Divergent thinking: How many possible uses of this product?	Convergent thinking: What combination of products is best for this customer?
	Sales Bias Culture	On the side of the seller in a transaction New product culture: open to new ideas, experimentation	On the side of the buyer in a transaction Relationship management culture: searching for more customer needs to satisfy

Source: Galbraith (2005, p. 10)

Galbraith (2005), specify that not every company will require the extreme end of this organizational capability; the application can take many forms.

In our point of view, such dichotomy does not exist; rather the elements described by the author can coexist (for example a team can aim at improving and existing product and, at the same time, develop solutions for customers). However, such table is helpful in understanding some of the features that a customer-centric approach may require; and it initiates a reflection about some of the consequences it has.

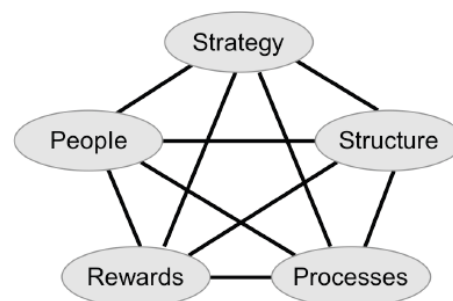
### Strategy and organization model

As anticipated previously, Galbraith (2005, p. 14) argues that “one of the primary barriers to converting to customer-centric organization is the belief that a company is already customer centric when it is not.” According to the author it is not sufficient to start focusing on customers to become customer-centric; rather, the transition requires to literally organize around the customers. Therefore, in the next sections will describes what Galbraith (2005) means by organization and what he means by a customer-centric organization.

The author provides a model (see figure 24) that depicts an organization as consisting of five dimensions:

- **Strategy**, which determines direction.
- **Structure**, which determines where power is located in the firm.
- **Processes**, which involve the flow of information.
- **Reward** systems, which influence the motivation of people to achieve organizational goals.
- **People** (human resource) policies, which influence employee’s mind-sets and skills.

Figure 27 The star model



Source: Galbraith (2005, p. 15)

According to the author, the message of the star model is that all five dimensions must be consistent among themselves; and the four below must be aligned to the top one: strategy. Because this thesis is about developing an innovation and a customer-centric strategy, we will focus on such part. However, for a better comprehension of elements related to it, we will also describe the other four dimensions of the star model.

It may important to underscore that the descriptions of Galbraith (2005) are extreme cases, which should therefore considered as such. Nonetheless, his contribution may be very helpful for reflection.

### Strategy

According to Galbraith (2005) the product centric company strives to have the best or leading product and remains at the cutting edge by adding new features that allow to reach new markets or customers. In contrast, the customer-centric company aim at providing the



best solutions for the customer's needs. The solution may or may not include the best products, but the central element is to provide a customized and personalized package of reliable products, services, support, education, and consulting. The most important customer for a product-centric company is the highly advanced customer, whereas for the customer-centric the most loyal and profitable customer is the most important. Therefore, the valued asset is the customer relationship, on which the offering is priced. This means that a solution is priced on the savings and improvements that the customer experiences, rather than on the sum of its components (products and services). According to the author, value pricing has the characteristic of sharing risks as well as rewards and aligns the interest of customer and supplier. Table 9 summarizes the main differences in terms of strategy between product-centric and customer-centric firms.

**Table 9 Strategy: product-centric versus customer-centric**

Strategy	Goal	Goal Best product for customer	Best solution for customer
	Main offering	New products	Personalized packages of products, service, support, education, consulting Customizing for best total solution
	Value creation route	Cutting-edge products, useful features, new applications	
	Most important customer	Most advanced customer	Most profitable, loyal customer
	Priority setting basis	Portfolio of products	Portfolio of customers – customer profitability
	Pricing	Price to market	Price for value, risk

Source: Galbraith (2005, p. 16)

### Structures and processes

The author argues that in product-centric firms organizational structures are based on product line and profit centres. Also business plans, reviews and discussions are focused on products. On the contrary, in customer-centric companies the entire orientation is different. Leaders manage customer profit centres; and also plans, information systems and business review are focused on customers. The key business processes and measures of performance are different between the two organizations, which also influence planning and budgeting. The most important process in a product-centric company is the new-product-development process. The customer centric company also develops products, but the most important processes are customer relationship management and solutions development and product portfolio processes.

### Rewards and people

Product-centric companies differ from customer-centric companies in terms of rewarding employees. In fact, according to the author, product-centric companies reward salespeople and managers on the basis of the market share; technical people are rewarded by being assigned to the most challenging product. In contrast, a customer-centric company should reward its employees on the customers' satisfaction. The author also argue that the locus of power is different between companies adopting different approaches. The most powerful people at a product-centric firm are those who develop products. Such companies select and develop innovative types with in-depth product knowledge. The most powerful people at a customer-centric firm are the relationship managers serving the most important customers.



Such companies develop general managers for an account, rather than salespeople for products. Galbraith (2005) also notices that product-centric salespeople are transaction oriented, whereas those who are customer-centric focus more on relationship skills.

### **Culture**

The elements presented above, according to Galbraith (2005, p. 22), create either a “new-product culture” or a “customer-relationship culture”. The author include in the culture two elements anticipated previously. While the mind-sets at product-centric companies are focused on creating as many as possible uses of the product, customer-centric mind-sets search for the best combination for customer and ways to expand the portion of the customer needs they can serve. The greatest difference between the two cultures is their allegiance in a transaction: while a product-centric company is on the side of the seller; the customer-centric firm is on the side of the buyer. Though, as the author notices, in one corporation subsidiaries on opposite side may coexist.

### **Some concluding reflection about becoming customer-centric**

According to Galbraith (2005), there is the danger of being customer-centric to a fault. He explains that addressing all customer requirements of all customers is not a viable option. This issue, in our point of view, should initiate a reflection when starting the transformation toward a customer-centric orientation. Another issue he discusses is that it can be harmful to become too focused on one's own existing customers. This because disruptive technologies may emerge, which may attract our customers. The authors argue that to avoid such problem, originally raised by Christensen (1997), a company should have a unit prospecting for new customers and new technologies. Although we completely agree that being too focused on the existing customers could be very dangerous, we do not agree with the way the author exposed the issue. In our opinion, the problem requires careful analysis and reflection, not just setting up a separate unit to address such problem. To conclude, the author claims that among the challenges a firm faces during implementation there are: determining the appropriate level of customer-centricity; taking the steps necessary for successful structural reorganization, and reorienting the mind-set of personnel. Shah, Rust, Parasuraman, Staelin & Day (2006) analyzes more in depth the major issues and challenges that a firm faces when attempting to become customer-centric. We therefore suggest the reader interested in such topic to consider reading their article.

### **CUSTOMER RELATIONSHIP STRATEGIES**

Galbraith (2005, p. 25) argues that “*because no two companies are the same, a one-size-fits-all application is not the answer*”. According to him, a company should determine the level of customer-centricity necessary. But before deciding the level, the author argue that companies need to decide whether becoming customer-centric will be an advantage for it.

Although several solutions strategies can be pursued, there are some common elements at the base of a customer relationship strategy (Galbraith, 2005, p. 26):

- First, many customers prefer to have a few long-term relationships with key suppliers for their unique requirements. On the contrary for commodities use auctions and reverse auctions.
- Second, customers want close relationships to dialogue with suppliers in order to detailing their customization desires.
- Third, these dialogues create opportunities for discovering unmet customer needs, and thus expand one's own offering. Moreover, firms can create packages of products and services that create value for customers.

As mentioned above, the author argue there are different types of solutions. The solution strategy chosen, according to Galbraith (2002, 2005), will determine how customer-centric a firm need to become. There are four dimensions of solution strategy –two major and two minor – that influence the organization of the firm. The major dimensions are scale and scope of the solutions and the degree of integration of products and services in the offerings. The minor dimensions are the types of solutions offered and the percentage of revenues deriving from solutions.

**Scale and scope.** The first major strategic factor that have a great impact on the way a firm is organized is the scale and scope of the solution. It refers to the number of products and to the number of different kinds of products that are combined into a solution. The higher the number of products and services offered, the higher the number of organizational units that need to be integrated quickly.

**Integration.** The other major dimension is the degree of integration between the components constituting a solution. Integration can take various forms, varying from a loose assortment of products to a highly integrated combination. In between there are modular architectures. Integration, combined to scale and scope, will determine the coordination requirements.

**Types of solution.** There are two main types of solutions: horizontal and vertical. The former are generic and apply across customer categories; whereas the latter are industry-specific. Vertical solutions require more insights from customers.

**Revenues.** The percentage of total revenues that come from solutions determines how many resources can be dedicated to specialized solution units.

In summary, the degree of customer-centricity required (and thus the organizational challenges involved) increases as scale and scope and integration increase. Also the having vertical solutions and a high percentage of revenues that come from solutions will increase the customer-centricity required.

### **The strategy locator**

According to Galbraith (2005), after having defined the customer relationship strategies, a company should identify the specific requirements in these areas. As the author state, *“too little of too much could prove significantly counterproductive, so ascertaining the proper level*

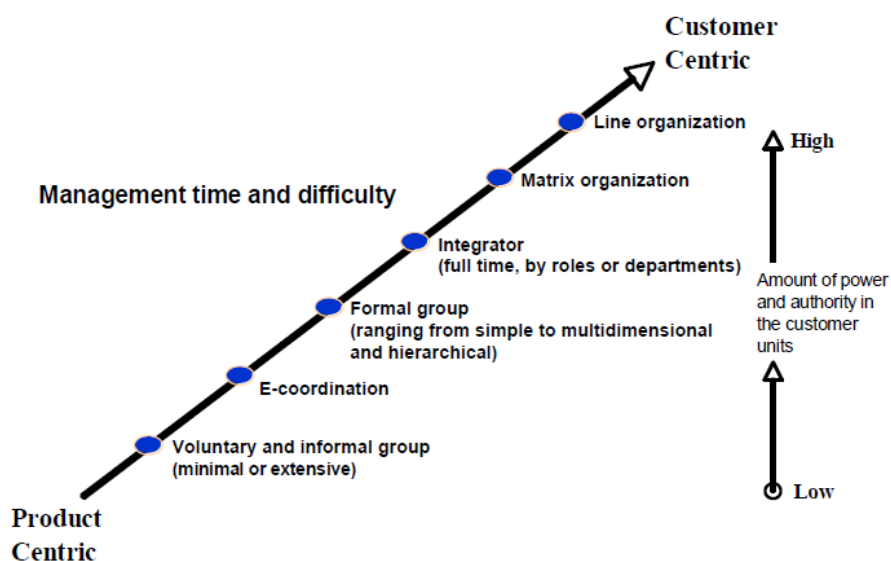
*is the key*" (p. 32). The author presents a list that, in his view, allows to determine the level – low, medium or high – of customer-centricity a firm needs. In our point of view, the author's view is too simplistic. It is difficult to imagine that a few questions can drive such an important choice. It is also difficult to think that the choice of a firm is limited just on three levels. Nonetheless, Galbraith's warning is important to start reflecting on the fact that both too little and too much efforts can be harmful for the company.

### Creating a lateral networking capability

Galbraith (2005), claims that to develop responsiveness to customers companies need a lateral networking capability. He starts from the assumption that they have been organized by business units, countries and functions, thus, in order to organize around the customer they need to create networks across these dimensions. He also argues that as business complexity increases (for example in terms of products, customers, geographical areas, ...) also this necessity increases.

There are different networks, some informal, other formal, with varying degrees of strength. The authors list these different types of networks in figure 28, and provide a brief description of these. It is possible to notice that at the lowest place are the simplest, cheapest and easiest to use. The further up, the more powerful, costly and difficult is a network. Many of the following teams require resources that only huge companies have (and thus are not suitable for Cerbios). However, describing such teams may be helpful in providing insights about measures that can help in dealing with customers, or issues that the firm may face. Moreover, it is not excluded that such concept can be down-scaled to fit Cerbios' reality.

Figure 28 Types of networks for customer-facing units



Source: Galbraith (2005, p. 36)

**Informal networks and e-coordination.** Informal networks form naturally in all organization, however, management can initiate them. When the communication becomes more formal (while still maintaining informal coordination), for example through databases, it is called e-coordination. But it is still a form of informal network as the different units use information as an input and act on their own interests. This kind of networks can be taken further by making e-coordination more intensive and more formal (e.g. every contact with each customer has to be recorded in a database so that everyone in the firm is informed).

**Formal teams.** Formal teams are the next level of strength that can be applied to networks of customer-facing units. They are usually formed when a customer express the desire of accessing a coordinated cross-border service. Formal teams may include representatives from all product lines and all countries, which do not only exchange information, but also meet regularly, prepare an account plan and agree on customer-specific goals. The customer teams can be strengthened and widen the activities when customers desire partnerships along the supply chain.

**Integrator.** The key (or global) account coordinator is a useful role for coordinating several informal networks or formal customer teams previously created. Such figure provides two new factors. First, he becomes a voice for the customer on the management team. He can also serve in resolving conflicts among the different teams. The second task is building and managing the infrastructure that supports customer teams.

**Matrix organization.** The next step is to create units within countries and product lines that are dedicated to customers (or customer segments, or industries) and report to the network coordinator.

**Separate customer line organization.** The most powerful and customer-centric form of organization is to create a separate customer-facing structure. Such units gather all dedicated customer-specific resources from product-lines, countries and functions.

The author conclude the section dedicated to lateral networks by arguing that the level of power and authority vested in the customer-centric organizational units should match the level of solution strategy identified previously. Again, in our point of view his decision process is rather simplistic, but it is important to consider that greater efforts and coordination are required as power and authority increases.

#### COUPLING CUSTOMER CENTRICITY AND INNOVATION

According to Selden & MacMillan (2006) argue that firms are not profiting as expected from their efforts in innovation. They claims that one of the main reasons of such failure derives from the fact that *"companies are pouring money into their insular R&D labs instead of working to understand what the customer wants and then using that understanding to drive innovation"* (p. 1). They therefore developed a process, called customer-centric innovation (CCI), for making innovation profitable. At the hearth of such process there is customer R&D, which focuses on better serving customers; rather than on traditional R&D, which is

separated from the customer. For this reason, it is essential to have frontline employees at the centre of the CCI process. The authors identify three linked strategic benefits in such approach. First, firms gain knowledge that is often opaque to competitors, thus making difficult for them to benefit from such knowledge. Second, employees closest to the customer become engaged through their central role in CCI; this is translated in loyalty from employees and in an increased satisfaction of customers. Third, learning about and then addressing customer needs leads to more profitable innovation. According to the authors CCI require to redirect funds from traditional product R&D into customer R&D as well as sustained and focused effort. They further argue that willingness to break through existing mindsets is also necessary.

Before explaining the concept of CCI, it may be helpful to reflect on the arguments proposed by Selden & MacMillan (2006). We completely agree that it is necessary to have R&D aligned, at least to some degree, to customer needs. Cerbios has experienced – and learned from – having projects carried out by the R&D department without considering the market. It is a good example of wasted R&D resources the “G-CSF”, a drug substance developed by Cerbios some years ago. Such product was born from a project carried out internally by the R&D department, but it was only after the marketing and sales department was mandated to sell that product, that the firm discovered the market was not interested in it. However, we do not think that just by aligning R&D activities with market needs that innovation efforts will deliver outstanding results. In addition, as already explained in the section dedicated to the contribution of Galbraith (2005), also too much focus on customers can be dangerous. This issue has been partially addressed by Selden & MacMillan (2006), when they suggest to adopt both an offensive and a defensive strategy, which will be described later on. Another element that should not be taken-for-granted is that employees will become engaged “by such a thrilling opportunity”. Not everybody is eager of working close with customer, thus such a change (as any other important change within a firm) should be managed carefully, after having reflected on possible implications that may arise.

### **Customer R&D strategy**

According to Selden & MacMillan (2006) customer R&D must take both an offensive and a defensive approach. The offensive strategy has three phases: establish a deep relationship with existing customers; then extend the customer base beyond the core, and, finally, stretch to expand further the customers served. The defensive strategy focuses on continually scanning for potential disruptions. The different phases will be explicated separately in the next paragraphs.

**Phase 1: establish and develop the core.** The first step of customer R&D consists of identifying the customer segments and develop value propositions beneficial for both that exceed the buyer’s expectations. Such proposition includes all elements constituting the complete customer experience, such as products, services and any interaction with the company. If it is the case, by subsequent sub-segmenting it may be possible to better serve existing customers. At the same time, the firm need to develop the capabilities needed to create, communicate and deliver the new value proposition.

**Phase 2: Extend.** The second phase aim at enlarging the business beyond the core segment in two ways: extending capabilities or extending segments. **Phase 2a**, termed “**extending capabilities**” aims at identifying additional needs of the segment identified. **Phase 2b**, named “**extending segments**”, refers at extending the customer base by discovering potential customer segments that have similar needs to those of existing customers. In this case the goal is to understand the nuances and differences in their need, so that the value proposition can be adapted to target these groups.

**Phase 3: Stretch.** Firms can search ways for extending further its business in two directions: stretch capabilities and stretch opportunities. **Phase 3a**, called “**stretch capabilities**” try to address the existing customer base, but with different needs. Thus a company need to identify necessary new capabilities (and new offerings and delivery mechanisms) to fulfil the needs of his customers. **Phase 3b**, “**stretching opportunities**”, aim at identifying completely new segments unrelated to the core, but that can be served by deploying current capabilities.

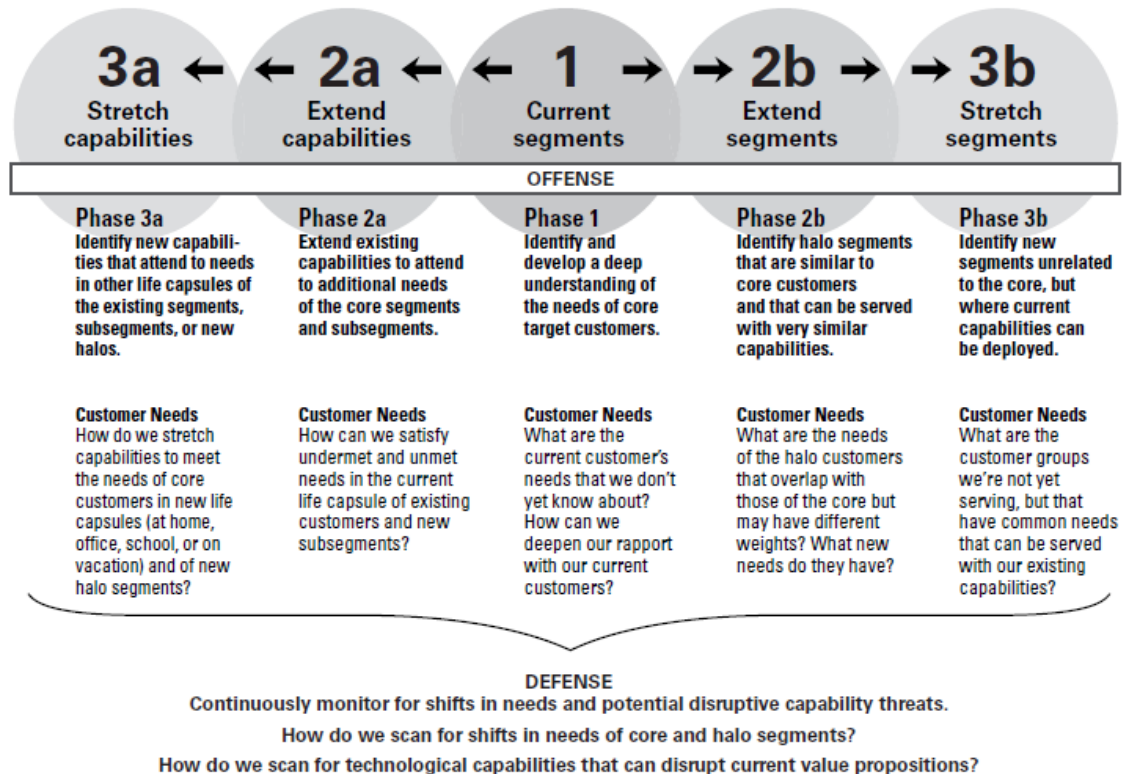
**Defensive strategy.** During the phases described above, firms have to monitor disruption threats that may emerge from competitors. Thus customer R&D team should therefore scans for signals of shifts in customers’ needs of growing dissatisfaction. Moreover, the company must scans for shifts in technology, which may represent threats or opportunities.

The concept expressed in the paragraphs above are shown in figure 29.

Figure 29 Customer R&D strategy

## Customer R&D Strategy

A successful customer R&D strategy requires that companies play both offense and defense. The offensive strategy is to establish a deep relationship with core customers, then extend the number of customers beyond the core, and finally stretch into new customer realms. The defensive strategy focuses on continually scanning for potential competitive disruptions.



Source: Selden & MacMillan (2006, p. 5)

Selden & MacMillan (2006) conclude the article with some suggestions for implementing a customer centric R&D. According to them *"the only way to sustain customer R&D is by putting customer-facing employees behind the wheel"* (p. 6). This led to two distinct benefits: knowledge about customers is expanded within the company; and employees become engaged as they contribute to a common goal. The authors also note the importance of training employees close to customers. Moreover, to become customer centric two additional efforts that both frame and go beyond the customer R&D are required: to measure and manage customer profitability, so that a firm knows who its customers really are and where and why they make a profit or do not; and to institutionalize customer centricity, which means organizing by customer segments.

## 4. HOW TO DEVELOP AN INNOVATION STRATEGY

The following chapter is dedicated to the formulation of the innovation strategy within Cerbios. It is divided in two parts. The first part is dedicated to understanding the role of the

innovation strategy within Cerbios. The concept “understanding” play a central role in the actors approach, as discussed in the methodology section, because of the context-dependent reality that is created by its actors. The second part discusses the innovation strategy that was formulated. It is important to underline that it is central to this thesis not only the output, that is the formulated strategy, but also how it was created. Thus it involves understanding the creation process and how the theories presented above fit in the formulation process.

## **4.1 THE ROLE OF INNOVATION STRATEGY WITHIN CERBIOS**

Cerbios started managing innovation in 2010, with the help of Ticinotransfer (the knowledge transfer office of the Ticino region). During the past one and a half years the company has made several efforts for improving the innovation capability. Last year I carried out a semester project within the firm in order to develop a selection and implementation process for the new ideas that emerged. Such process was developed according to the advices of Tidd & Bessant (2009), whose contribution had been selected as a reference framework.

Although the selection and implementation process was improved, Cerbios’ management noticed that the ideas proposed to the innovation committee, whose task is to evaluate and attribute resources to the innovation projects, were very varied (some were even defined during innovation committee meetings as non-innovations). Furthermore, many of the ideas focused on areas of minor interest for the company. In the meanwhile, Cerbios’ executives were introducing the concept of customer-centricity within the firm, but there was still not a clear idea what the concept meant. Therefore they proposed, as master thesis, to propose how to become a customer-centric innovative organization. Cerbios’ top management and I soon discovered that such work was too demanding for a master’s thesis. We therefore decided to formulate a customer-centric innovation strategy, which should have been based on the corporate strategy, which had already been formulated and shared within the firm.

### **4.1.1 CERBIOS’ STRATEGY**

In the following section I will explain Cerbios’ corporate strategy, as it was stated in the business plan prepared by the top management. Although Cerbios formulated (and then communicated) it without a particular structure, in the following paragraphs I will explain it following Hambrick & Fredrickson’s (2001) framework, which I described in the section dedicated to the theoretical contributions. I think that using such model, it will be easier for an unfamiliar reader to understand Cerbios corporate strategy.

#### **Arenas and vehicles**

Cerbios distinguish between products and services as well as between chemical and biological ingredients. Because of such complexity, it has been decided to couple the elements “arenas” and “vehicles”.



**Existing products – Bio & Chem.** The firm can spread geographically all over the world with the existing products, which will still be produced in Switzerland. Though, the company do not excludes to acquire a Chinese company, already producing for local markets. In that case the new company may produce overseas. It is also possible for existing products to outsource parts of the activities (such as logistics, ...) to local partners.

**Existing products – Chemical.** The firm may expand the products range. The range of “Vitamine D” derivatives may be widened, but also other niche (a few kg/year) generic HPAI might be interesting.

**Existing products – Bio.** The firm should keep selling existing products. New products may be developed only if a customer require it (which means that it will become a service). Eventually, the pipeline of probiotics may be widened. Although not interesting in this moment, the generic drug industry may also be monitored.

**Services – Bio & Chem.** The firm may offer services about “recombinant proteins” and “vitamin D” derivatives to firms in the USA, EU and JPN. It also may offer development of New Biological or Chemical Entities (NBE, NCE) for third parties, from phase 0 to phase 3. Although less likely, the company do not excludes services for countries outside those mentioned above. All kinds of organization are potential customers, from “virtual Pharma<sup>26</sup>” to big Pharma companies. Cerbios may expand its offerings of services by acquiring other firms or in developing alliances with other organizations.

### **Differentiators**

Cerbios produce and offer services with outstanding quality, due to the expertise developed over time and world-level machineries, in niche markets. Focusing on markets it already have expertise (at least to some degree), allows the firm to have higher quality compared to competitors. It also allow the firm to make variations of the product when required. Operating in niche markets allow the firm not to compete against big Pharma companies. Cerbios is also one of the few producers of a specific range of generic API capable to scale-up from phase 0 to final production.

### **Staging**

According to Cerbios there are no priorities (or urgency) now. The first step required by the company before expanding was to have a marketing strategy. As described in the next paragraph, this is the first thing that had been accomplished. The management will now emphasizes to sell services, but at the same time, if opportunities emerges, other paths may be followed.

### **The economic logic**

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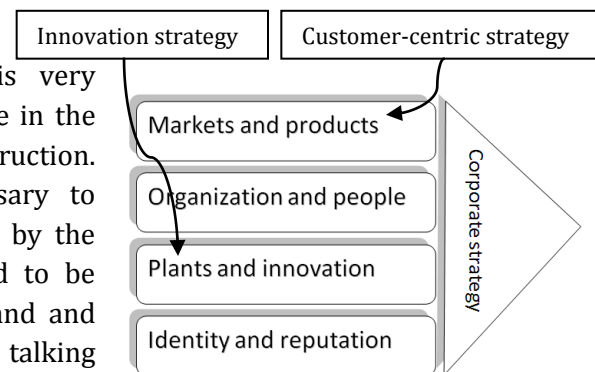
<sup>26</sup> Also defined as “cash burns”, which are Pharma companies at a very early stage of their life, which do not have profits yet.

Cerbios have its own R&D department, which is focused on applied science (thus improving the existing processes and improving the existing products) and also allow to have an absorptive capability. The company is organized for providing the best quality: it has world-level machineries and it develops the most critical activities for quality (such as quality assurance processes, quality control processes, ...) in-house. Cerbios rely on qualified personnel. Long-term suppliers provide high quality resources (ranging from disposable material to big machineries). Offering world-class API also requires a good marketing strategy, therefore the management has already improved the company's logo, communication strategy and advertisement campaign.

#### 4.1.2 INNOVATION STRATEGY ALIGNED TO THE CORPORATE STRATEGY

As mentioned in the section dedicated to the methodology, the first activity in developing an innovation strategy was to understand how it fit to the context, that is to the corporate strategy and to the customer-centric strategy.

**Figure 30 The initial perception of the relationship among different strategies**



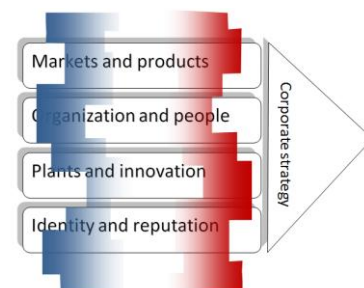
Source: Own elaboration

According to Arbnor & Bjerke (2009) it is very important the process of understanding because in the actors approach reality is seen as a social construction. Therefore to understand reality it is necessary to understand how the phenomenon is perceived by the actors of the study area. Such activity proved to be crucial for the thesis as it allowed to understand and have a common agreement on what were we talking about and how to proceed.

At the beginning of the thesis I was told by Cerbios' executives to develop an innovation customer-centric strategy. We soon understood that they were not part of the same element, but we still did not know what their relation was.

At that time I thought that innovation and customer-centric strategies were part of two pillars of corporate strategy, namely innovation belonged to "Plants and innovation" and customer-centricity to "Markets and products". I represented corporate strategy as I interpreted it was expressed by Gabriel Haering in the official business plan of Cerbios (figure 30). It was only when I discussed with Christian Suà that I understood such strategies had to be interpreted as a "philosophy", or to use Haering's words (interview 3): a mind-set, thus as elements that cut across the four pillars of strategy.

**Figure 31 Different emphasis on the different pillars**

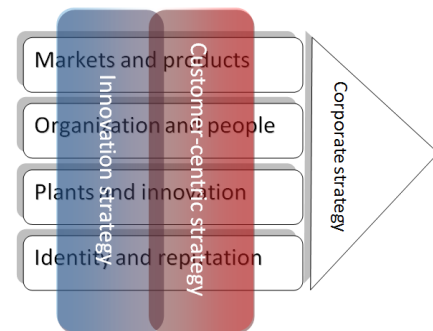


Source: Own elaboration

Such idea of having innovation and customer-centric strategies across corporate strategy had been refined twice in the dialogue with Suà and Haering. In fact, Suà, right after having agreed that they had to be interpreted as philosophies, argued that they should not be drawn as two regular pillars perpendicular to the four existing, rather as irregular, with different emphasis on the

different elements constituting corporate strategy. Figure 31 illustrate the two strategies (the blue and the red elements) that have different emphasis on the four pillars constituting corporate strategy. During the interview with Haering we finally understood that they should also not be considered as separate elements, rather as influencing each other. We therefore came up with the figure 32, which clearly shows the interdependency of the two strategies. The two strategies has been drawn with regular shapes to make it easier to understand such concept. This understanding led to another reflection, which had been later accepted by all members involved in the formulation of the innovation strategy. In fact, we agreed in defining customer-centricity both as a position innovation, according to Tidd & Bessant (2009) “4P’s” framework, and as directing innovation activities toward customer needs, in a similar way as exposed by Selden & MacMillan (2006). Paradigm innovation is defined by Tidd & Bessant (2009) as the way we (as a firm) structure what we do. Thus it involves a change in the mental model that define the structure of the organization. Selden & MacMillan, as discussed above, argue that customer should influence the direction of our innovation efforts.

**Figure 32 Mutual influence of the two strategies**



Source: Own elaboration

## 4.2 INNOVATION STRATEGY FORMULATION

As explained in the methodological part, the innovation strategy has been created as a collaborative effort made by managers across the entire organization. Before beginning to define it, I presented the different theories on innovation strategy, which were then discussed. I first remembered<sup>27</sup> the elements that made necessary the creation of an innovation strategy. In fact, I argued that: there is the necessity to improve the quality of innovation proposals; innovate randomly is a waste of resources; there is the necessity to align innovation efforts across the organization. We also agreed that that first meeting should have been followed by another one some months later to evaluate the innovation strategy formulated. Thus, around six months after the first meeting there will be another one to evaluate and eventually correct the first formulation of the innovation strategy. I also explained that, in case new elements emerge in the meanwhile, it is possible to change the strategy at every innovation committee, which takes place every month. This allows a great flexibility to the company. It was also argued that after being defined, the innovation strategy must be shared in the entire organization<sup>28</sup>.

<sup>27</sup> I use the term remembered because such elements already emerged during the past innovation committees.

<sup>28</sup> It has been decided to communicate the innovation strategy to the entire organization at the end of June during a meeting with the entire organization already planned.

We discussed the definition of strategy provided by Johnson et al. (2008), which was integrated with Mintzberg's (1978) argument that realized strategy is the result of deliberate strategy and emergent strategies. Therefore we agreed on proceeding as following: to formulate together the intended strategy; and to decide how to monitor the environment for elements that may constitute the emergent strategy, as it cannot be predicted in advance. To decide how to monitor the environment has two advantages: all elements that may influence innovation strategy are considered. Everyone knows what to monitor and eventually who is in charge for monitoring a determinate element.

This way of proceeding fit very well with the characteristics of incremental strategies presented by Tidd & Bessant (2009), already presented in the section dedicated to theoretical contributions on strategy, as we explore a range of future possible trends; we ensure broad participation; we encourage multiple sources of information and debate; we expect to change innovation strategy as unexpected evidence emerges.

#### **4.2.1 INTENDED STRATEGY**

For the formulation of the intended part of the innovation strategy we integrated several theories on corporate strategy. We filled in the model canvas by exploring the main elements that the different authors presented in the theoretical part describe as the most important. In doing so we follow the actors approach reasoning that theory may provide inspiration, rather than guidance, to the actors involved in the phenomenon under study.

The first theory that inspired us was the resource-based view, developed originally by Wenerfelt (1984). To follow his reasoning we asked ourselves: What are the resources that may be an important source of innovation? Which resources we already possess should be exploited and which we do not possess we should develop, in order to increase our innovativeness? Which resources are not necessarily important for the innovation capability of the firm but do require to be considered in the innovation process?

We then integrated the elements proposed by Hamel & Prahalad (1990), Teece & Pisano (1994) and Teece (2007), which formed the basis for a discussion. We therefore asked ourselves the following questions: What are our competencies that allow us to innovate? Are there competencies that may direct our innovation efforts? Do we have routines that proved to be a source of innovation? What are the path ahead available in terms of innovation?

Furthermore, we included the view of Porter (1980, 1985), who sees the firm as a part of a competitive arena. We therefore asked ourselves: are there other actors we should interact with for increasing our innovativeness? What are our competitors doing in terms of innovation? Are we well positioned or do we need to change our position?

There were several elements that emerged and were discussed, which constituted the intended part of the innovation strategy, which were divided in two parts: a general

strategy that apply to all departments and the direction and scope that apply only to some specific departments. The former can be expressed as following:

- All departments are required to innovate in terms of production process. The aim of such innovation efforts is to reduce costs and/or improve productivity.
- All departments are also required to make some efforts in order to find new ways of relating to the other departments of Cerbios. This is especially crucial for orienting toward customers. In particular the company identified the need to speed up the process of addressing customer needs.
- Another priority of innovation strategy is to make some efforts to modify existent technologies (plants) in order to reduce costs and/or productivity.

The intended innovation strategy for specific departments has been expressed as following:

- Marketing and sales (M&S) and Business development (BD) should widen the integration of activities (up to pre- or formulation stage). This may be done with the help of other firms or with universities<sup>29</sup>.
- Research and development (R&D) efforts are required on different areas. It is necessary to improve stability of the SF68, which also allow to enter unexplored markets. Micro-encapsulation process can also be improved in terms of precision of number of bacteria for each micro-capsule. Research to find other vitamin D derivates products has also to be carried out. Speed in the development of products and technology transfer process should also increased; this may be done in collaboration with the Italian partner Chimica<sup>30</sup>.
- Human resources (HR) department innovation efforts have to be conveyed to accelerate the search and hire process for new employees.
- Supply chain management (SCM) should develop strategic alliances with starting materials suppliers that can help Cerbios to provide integrated activities.
- Information technology (IT) department has to focus on adapting information system to customer management and to monitoring the existing plants.

The elements described above forms Cerbios' intended innovation strategy. Because the scope of the innovation strategy is limited, it has been decided that no priorities among such elements are required. In the next sub-section I will describe the relation between intended strategy and the concept of customer-centricity. Later on I will describe how we decided to

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<sup>29</sup> Although it has been used the term university, this refers to potentially all research-based organizations. It has been agreed that for the entire innovation strategy the term university has such a wide meaning.

<sup>30</sup> Chimica is the Italian word for "chemistry". It is not the real name of the partner as it is under secrecy. Cerbios' management, of course, knows to whom we are referring.

monitor the elements we identified as may influencing Cerbios' innovation strategy, the so-called emergent strategy.

#### **4.2.2 CUSTOMER-CENTRICITY AND INTENDED INNOVATION STRATEGY**

As already discussed in the previous sections, innovation and customer-centricity affect each other. In fact, to become customer-centric require organizational innovations. But customer-centricity is also a paradigm innovation itself. Moreover, when becoming customer-centric, a company's innovation strategy is also influenced by its customer, as exposed by Selden & MacMillan (2006).

When reading the intended strategy the reader may notice that, in practice, the last argument has been ignored. In reality, such concept has been discussed during the meeting, but there was an agreement that to apply the concepts of Selden & MacMillan (2006) a company need to organize, at least partially, for customer-centricity. Therefore such concept has been postponed to a later moment, when the company will have some expertise about customer relationship (and thus customer-related information) management.

#### **4.2.3 EMERGENT STRATEGY**

As mentioned above, we decided to monitor the environment in order to discover early threats or opportunities for the firm. It has been decided to monitor the environment as we agree with Mintzberg's (1978) argument that a corporate strategy encompass an intended strategy, an unrealized and an emergent. We identified some possible sources of discontinuity; and for each elements it were attributed one or more departments that are in charge for monitoring it. This way of operating, as already mentioned, allow to not forget important elements that may otherwise not be considered. Furthermore it allows people not in charge for that element to know who to speak with (e.g. If I notice a new technology that belong to those monitored by engineering, than I know I need to speak with them. Moreover if I need to know something about the latest technology and its implication I expect such department to be well informed).

- Universities and technological poles may be an important source of innovation. However, such institutions carry out a huge variety of activities that are potentially important for Cerbios' innovation strategy. Thus R&D is expected to monitor universities for vitamin D derivates and probiotics already produced by Cerbios. M&S and BD are in charge for monitoring developments in fields different from those in which Cerbios operates, but that may be interesting for the future.
- Complementary producers. Complementary producers can help Cerbios in extending its services and in integrating activities not already performed within the company. The company may enter in strategic alliances with complementary producers. BD is in charge for such category of stakeholder.
- Competitors may represent a threat for Cerbios. M&S and BD are in charge for monitoring them.

- New plants and machinery can also be a source of competitive advantage if combined with intangible assets (such as know-how and the ability to integrate several activities). Though, there are very diverse technologies within the firm. Engineering is expected to monitor plants that can be used for the current production. R&D is in charge for monitoring plants used in R&D department and for plants that may be interested in case of new products. QC is expected to monitor technologies related to chemical and biological analyses. BD is expected to monitor technologies that may be used for widening the offering of Cerbios. BD, because of its attendance to fairs, is also expected to monitor such events and eventually communicate them to the assigned department.
- M&S and BD are also expected to monitor customer requirements, which may lead to new technologies or other kinds of innovation, and to cooperate for such requirements with R&D department.
- IT is required to monitor information technologies, with focus on those that allow to better manage customers and those used to monitor existing plants.
- Quality Assurance (QA) is expected to monitor technologies that allow to better manage existing documents. This may be done in collaboration with the IT department.
- Engineering should also monitor construction techniques that may be useful for the construction of new buildings.

### 4.3 SOME CRITICAL REFLECTIONS

The innovation strategy has been formulated as a necessity to improve the quality of the innovation proposals. At the same time it is meant to coordinate company-wide innovation efforts. This is also connected to the assumption that innovate randomly may be too inefficient (or even worse, to have contrasting activities within the firm), causing a great waste of resources. We think that with the innovation strategy we have addressed such issues. We also think that it is helpful to have formulated an intended strategy and to have defined which elements to monitor that may constitute an emergent strategy. However, there are several elements that should be considered.

There are several question marks about the author of the thesis. In fact, although I was very committed and I did the best I could, I have no prior experience about corporate strategy nor about innovation strategy. Also the experience about innovation-related issues is limited to the four months I spent within Cerbios last semester. Some of such inexperience can be identified in the emphasis I placed on theory. I tried analyzing several contributions from several authors to compensate the lack of experience; and thus to be able to critically analyze that theories before applying the concepts to Cerbios' reality. I have also no prior experience in management or consulting, thus I may not considered elements that should have been taken into account. This lead to the last consideration about myself. In fact, although I received all the support I needed from Cerbios' executives, I am "just a student". Thus commitment from other managers involved in the innovation committee may be limited.

The literature review, even if quite extensive, may be carried out differently by someone already confident with the topics. One could have chosen different authors or have placed emphasis on other contributions than those I selected. Also the way I integrated the different theories (i.e. innovation; innovation management; corporate strategy; innovation strategy; customer-centricity).

In addition, such exercise should be considered as the first attempt. In fact we assume that for successful innovating it is necessary a trial and error approach. We therefore do not expect to have created a perfect innovation strategy, rather one that seems to fit with Cerbios necessities. We expect not only to re-define such strategy an infinite number of times, but also to improve the strategy making process.

In fact, the strategy process is another element that should be considered when critically reflecting on this thesis. There were infinite things that could have been developed in other ways. We developed a process that fit our context and that address our necessities. Though, as already mentioned, in the future we will may discover better ways of formulating an innovation strategy.

The degree of details expressed in the innovation strategy may also be different. It could be argued that a strategy should be more or less focused than the one we developed. In our opinion, the innovation strategy provide a guidance on the direction and scope of innovation activities, but still allow a high degree of freedom.

Furthermore, because it is a master's thesis, time and other resources were limited. With more time or resources available the result could have been different.

## **5. DISCUSSION AND CONCLUSIONS**

Through the practical master's thesis illustrated here, I formulated an innovation strategy for Cerbios-Pharma SA, with the collaboration of the CEO and the Innovation Team.

This strategy has been created to address the issues that were identified at the start of this venture: the quality of innovation proposals was not sufficient for Cerbios' management, and there was no clear direction toward which to focus existent and potential innovation efforts. It was our goal to therefore implement a strategy that would be appropriate to and effective in the unpredictable, dynamic environment Cerbios operates in. To achieve this, we decided on a mix of practical and theoretical instruments. These different devices have allowed us to create a strategy that, according to literature and after careful reflection, is set to both improve the quality of innovation proposals and bettering the coordination and integration of current and future innovation activities throughout the organisation.

Our innovation strategy has been formulated according to the existing corporate strategy, and we have drawn inspiration from several different authors on innovation, innovation management, corporate strategy and innovation strategy. We have followed the advice of



Mintzberg (1978), who argues that a strategy is composed not only of an intended strategy, but also of emergent strategy; thus, our innovation strategy has been divided accordingly. In order to develop it at the best of our abilities, we took inspiration from several other authors: Tidd & Bessant (2009), Wernerfelt (1984), Hamel & Prahalad (1990), and Teece & Pisano (1994). The concept of Customer Centricity, developed by Galbraith (2005), has also been included, as it is an important, highly influential element within the innovation strategy. The wide variety of research fields used as loose guidance underscore the lack of literature specific to the newly emerging area of innovation strategy. Indeed, many of the contributions on this field are adaptations of concepts on corporate strategy. We therefore suggest that future research focus specifically on innovation strategy. This field is very young, and there is a wide scope for future contributions. It could be interesting, from a company's perspective, to have some practical insights on how to formulate successful innovation strategy.

Although the strategy appears to fit Cerbios' necessities and to have solved the issues described above, we do not naively expect to have finished the innovation project. In fact, at Cerbios we agree with Tidd & Bessant (2009), who argue that every innovation process is a learning experience. We therefore expect to keep on improving upon not only the innovation strategy itself, but also upon the process that led to its formulation.

Although this thesis was developed with great commitment and effort, it is not free of limitations. Not least, my own lack of experience on innovation strategy and in managerial issues, and the general lack of knowledge of this new concept (within and outside Cerbios) need to be acknowledged. Nonetheless, we believe that firms willing to embrace innovation strategy can use this thesis as valid and valuable information and inspiration.

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## **ANNEXES:**

### **ANNEX 1: INTERVIEWS**

#### First interview with Gabriel Haering:

**Q: What made you want a “customer centric” organisation? What were the demands behind wanting this?**

A: Well, historical, personal motivation – having had a commercial history, therefore always with clients, and the notion that in any reality, also past, the customer is often, always seen as an interfering element, “oh, the client again, they want this or that”. This is certainly a point.

Then the specific experience of Cerbios, where again the impression is that it is not very clear who the customer is – internal, external...

And the third [point], well, it's trend, which, in the end, is the direction one must take, where it is increasingly necessary to pamper and spoil the customer, do something different from everyone else, and it's not simply “ok, I deliver a product, invoice you, and you buy from me”. Yes, it's about quality and all, but there's something more to it, right?

These three factors.

**Q: Is there anything or anyone in particular that inspired you about this customer centric approach, or did it rather come from within yourself?**

A: As I said, certainly my history, and yes, from literature, magazines. Inspiration from the Harvard Business Review, articles on trends... an article on “customer experience”, it is ever more commonly said that they need to have an experience – with the product, with the firm, rather than...

A bit like with innovation.

Something historical... has spurred the project, the idea to motivate everyone, to go in this direction.

**Q: What do you mean with the concept “customer centric”, in two words?**

A: Well, physically, as an image, the customer in the middle and us, all the company's components, that always see him/her, because at the centre they always see him/her, they know the customer is the heart, the core, like the earth's hot core, right? So they know it, they see him/her, and think about him/her.

I mean, paradoxically, even in management meetings there's an empty chair and there's a discussion: "ok, the client is sitting in that chair, what do you tell him/her now?" right?... we should perhaps put a statuette there, "there, that's the customer, report to him/her."

**Q: And what do you expect from this customer centric approach, what are your expectations?**

A: Well, an evolution...obviously ameliorative...where, in the end, it isn't necessary to...

Often a lot of time is lost, so to say, explaining "why", right? Internal sale, why is it necessary to do something? So if the objective is already clear to everyone, that the client is behind it all, if everyone is aligned behind the same concept, in the end we save time and everyone is on the same wavelength; I don't have to explain why anymore, because they already know it.

**Q: So as well as profits, the approach also delivers improvements within the company, in terms of structure and processes?**

A: In terms of everything, exactly! And so, integrated with lean, with innovation...

**Q: And how do you think these concepts – "customer centric" and "innovation" – combine? What do you see as their strongest similarities?**

A: Well, since we are talking about change...so Cerbios is made up in a certain way today, and Cerbios in five years' time will be a firm... a lot of things will certainly remain the same, but many others will be different, they'll have to be, it is necessary to innovate.

**Q: You mentioned earlier that you were also inspired by the Harvard Business Review, for example. What is the role of theory in your managerial decisions?**

**For example the role of articles, books, et cetera...**

A: Well, I mean, it need to be said that those articles are always very grounded, with examples based in reality, society, and thus not abstract theories, but applied theories. So looking at them from that perspective, and looking as Cerbios as a firm, the thought..."does it make sense? Is it applicable? Can we do something similar too?" So not as an abstract idea. They are not academics without experience in the industry field, they are studies...

**Max: Then as inspiration, and you see whether the model is applicable or not.**

GH: Then obviously, to be adapted to the reality of Cerbios, right? To the reality of the kind of industry we serve, right? The pharmaceutical industry where we know we can innovate, but not...

A medium to long term innovation, right? It is not possible to bring immediate, radical changes because there are the rules of the game, made by the authorities and that we have to follow, obey, and therefore we need to adapt. So what, say, Lego or Ferrari, can innovate quickly – in a year the product is already on the market, we have long time spans. But it doesn't mean that we don't have to do it.

**Q: So you find empirical evidence useful because they are derived from practice? Is this the added value of these theories?**

A: Yes.

**Q: So, I'm going to leave the theory aside and come back to our practical work at Cerbios. We have designed this questionnaire for department managers in Zoomerang. What do you expect from the questionnaire?**

A: I'll let it surprise me. There will be positive surprises, and negative ones, probably. But given even recent events pertaining the concept of internal and external clients, it's something that even for department managers is still abstract, it is still not very clear why they do a certain thing.

**Q: So to you it is useful to understand their mentality, what the department heads think?**

A: Yes! Yes, confirm it... or confirm that they haven't understood.

**Q: I have one last question, which is again a little bit abstract. In relation to a firm, how do you define the term "strategy", what does strategy mean to you?**

A: Well, there's a definition that I find very interesting, which has nothing to do with business, but explains things. So, "strategy" is to define the objective, so for example, to take a woman out for dinner, this can be the objective. Then the "tactics" is how you achieve the objective, how you take the lady out for dinner. So, the tactics can be adapted according to the situation, while the strategy is what you need to reach the goal you have set yourself.

When you talk of a "strategic partner", it is a long-term partner, therefore time-wise it can refer to several years. A "tactical partner" is, ok, I have a problem now and I tactically use plan

B to reach the target, and then I'll go back to plan C or plan A with another company. Tactics are adaptable, to be adjusted quickly and depending on the situation in a particular moment, while strategy yes, it can be modified in case of dramatic occurrences - the lady gets married to someone else, so ok, it didn't work with that woman, it's alright, let's change objective... [laughing].

Second interview with Gabriel Haering:

**Q: Today I have a few questions that pertain specifically to the innovation strategy and the customer centric strategy. In relation to these, do you concur with using different theories as sources of inspiration, rather than follow a single text, a single model to carry out this project?**

A: Yes, absolutely.

Max: Ok, so you are happy not to take one text and follow that, but...

GH: No, take the best of various models, right?

Max: Perfect. Indeed I was thinking to integrate different concepts found in the literature, in order to create a group of tools to be used to develop the strategy at Cerbios. Do you agree with this way to go about it? I mean, to take from here and there, put together and create the strategy, adapted to the context of Cerbios.

GH: It's something that we'll work on together, I suppose?

Max: Exactly, that is the next step.

GH: Look at various models and see what is best, it needs to be decided.

Max: Exactly, very well. Now, the other day, by chance, arose a discussion with Christian Suà, and we talked about customer centric innovation strategy in relation to the corporate strategy. At the beginning, I saw innovation and the concept "customer centric" as part of four pillars that from the corporate strategy as described in the business plan. Later, however, I spoke to Christian and we started seeing the concepts of strategy, innovation and customer centric strategy as two transversal elements to the business strategy as built upon the four pillars.

GH: To be applied to the pillars.

Max: Exactly, so as in figure 2. You can see then that here, in figure 1, they enter the pillars: the customer centric strategy in pillar 1, the innovation strategy into pillar 2. In figure 2, meanwhile, we have the customer centric strategy that is something separated from the pillars, but that influences and is influenced in its turn.



GH: Rather than influenced, it is an integral part of the market area – products, the field of organisation, in the field of customer centric what I should change in terms of organisation or people's trend, right, so it's an integral part, not separated. It is part of the pillars: what I need to do within the pillars to be more customer centric. So as it is drawn it is integral.

Max: Yes, not something completely set apart, the difference was that here it belonged to the individual pillars, while here it is something that cuts across them.

GH: Correct

Max: ... so you too see it that way.

GH: I agree too. So it's a 360 degree discourse.

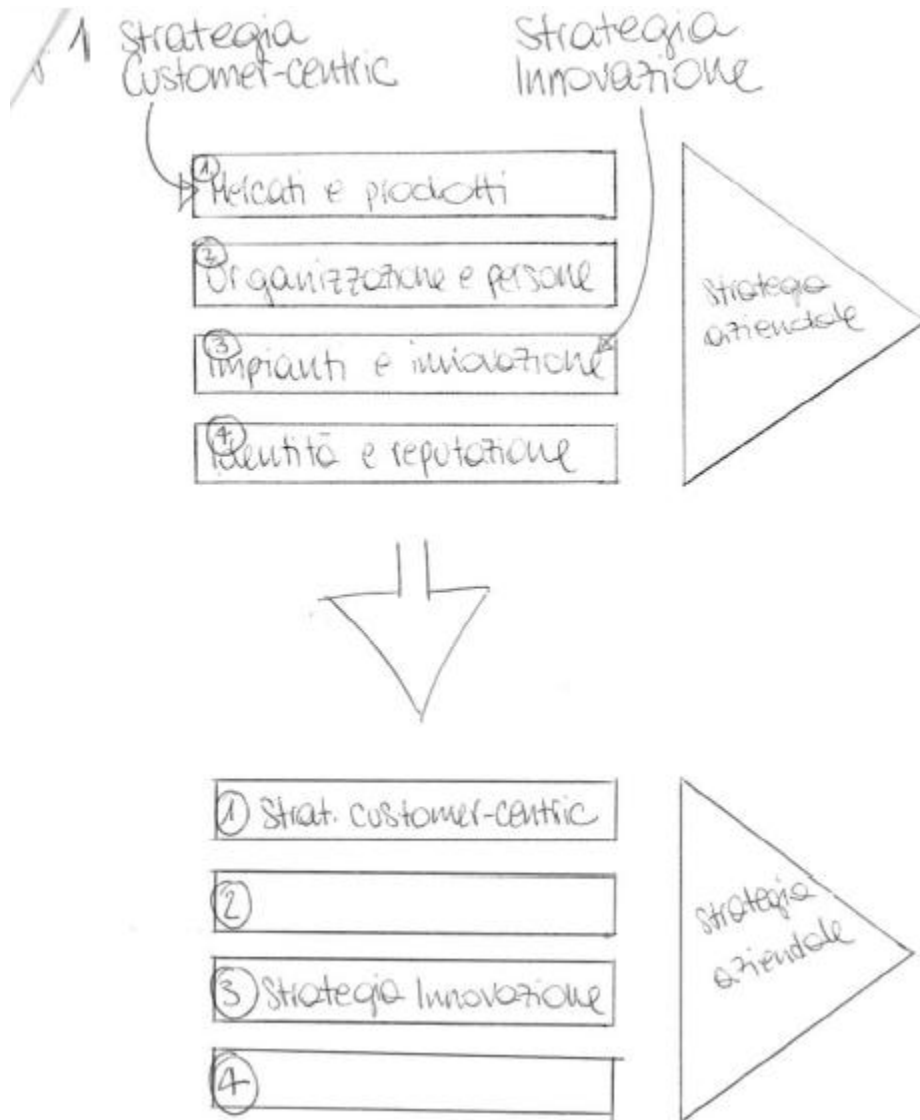
**Q: Do you also view the customer centric strategy and the innovation strategy as separate elements, that even though mutually influential are distinct?**

A: Here I'd rather put a middle, common area. In reality this looks like this, and this vice versa. Innovation can follow certain tracks on its own, but in the context of "customer centric" we will need to innovate, therefore it is an area white-black-grey where they clearly overlap. Where some things cannot be touched: on the whole customer centric infrastructure there is little to do, in the engineering field for example plant design, there I can bring innovation. Whilst the operators, with the people who operate the facilities, there I can do something so that they become more customer oriented.

**Q: Very well. Then I have one last question. During our conversation, Christian later described innovation, the centrality of the customer, as approaches, rather than actual components of the strategy. Do you agree with this definition?**

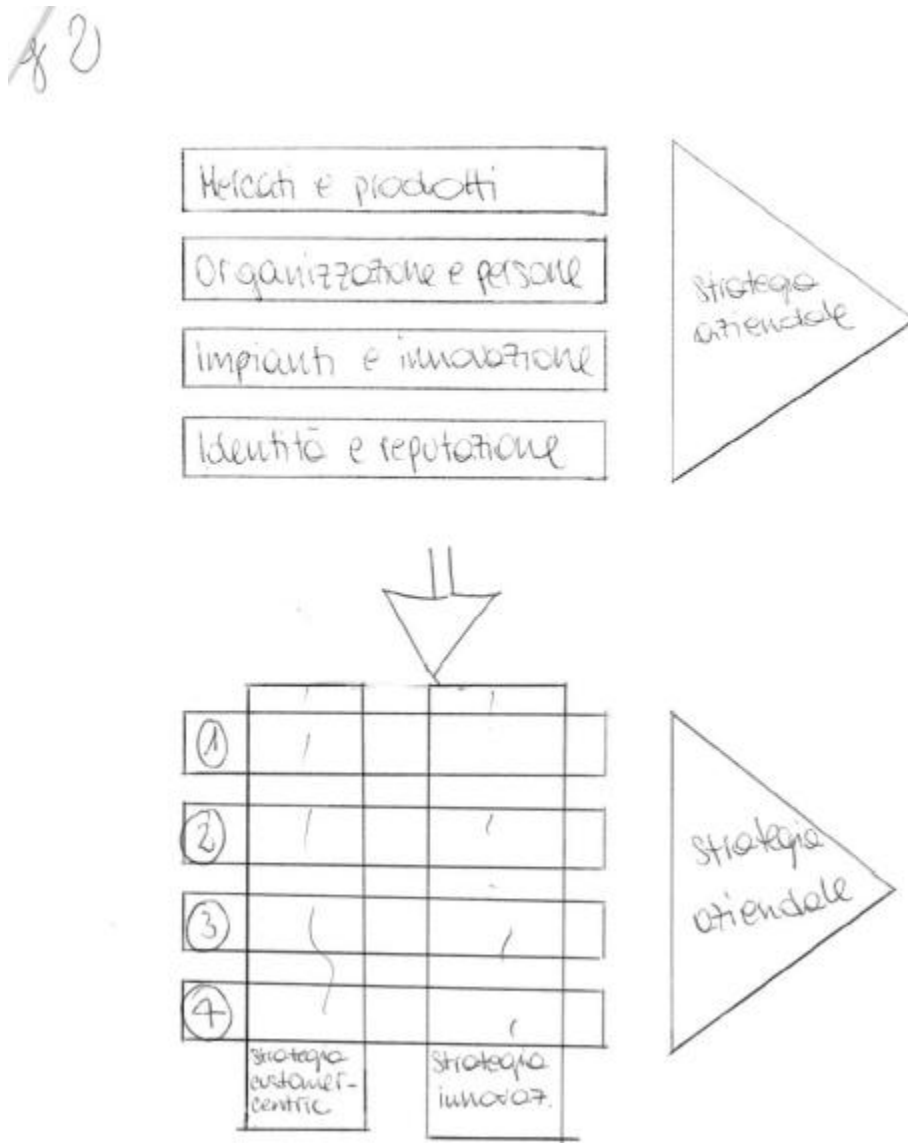
A: Rather than approach, yes, a philosophy, a mindset, to have something in mind that then becomes automatic, like when you drive a car, right, you learnt to drive and certain things, certain actions come automatically, you don't even need to think anymore. So this, a way of being, of thinking that becomes an integral aspect. So not to see as ourselves as individual people, self standing, but as an integral part.

Figure\_1 as shown to Gabriel Haering in interview 2



Source: own elaboration

Figure\_2 as shown to Gabriel Haering in interview 2



Source: own elaboration

### Third interview with Gabriel Haering:

Max: Today we are discussing innovation strategy. I was thinking to run a workshop with the Innovation Team in the following way: starting with explaining why it is necessary to define a strategy for innovation; explaining what innovation strategy is, using different definitions that then converge to come to a common starting point; and then the elements that form a strategy. I was thinking to adopt several aspects found in the literature, so starting with Mintzberg who said that strategy is made of deliberate strategy and emergent

strategy, and therefore one cannot plan everything perfectly, but rather one says, ok, we have one part that we are going to plan and another that is going to come from the outside. So it also means that we should now formulate how to proceed, monitor the outside environment continuously, and in six months review the strategy we have defined, so see how it has been going. So I was thinking to introduce to the co-workers the concepts of Porter and others, who say it needs to be planned. I feel that having something planned and written down can help the workers understand where we are and where we want to go. But also to integrate the viewpoint of the company's Resource-Based View, that then starts from the assumption that the firm is made of resources, and identifying our own resources helps us finding direction, what we need to go towards, where we are strong, where we can beat the competition; the Dynamic Capabilities theory, which is also a theory borne out of the Resource-Based View, says that a business needs to have dynamic capacities, and therefore it also needs capabilities that allow it to receive inputs coming from outside it; and lastly the Firm Specific Competencies, here too, this is similar to the other two, but the authors, Hamel and Prahalad in particular, say that it is my distinctive competencies that allow me to succeed.

GH: So specialties and experiences...

Max: Exactly, so I was thinking to integrate it all, also presenting the globalisation of innovation, to make it clear that we are not an isolated entity but that innovation activities can be initiated even with distant communities, in different ways. It can be simply through keeping in contact with an ex colleague who is in a particular location, but briefly explain that there are several possibilities, and that you can integrate all these points of view on how innovation should be created, to define how we want to innovate, what direction one needs to take, and who is responsible for the monitoring of different areas. So I was thinking to use the Business Model Canvas, which is the model I am going to show you now, which basically represents the company in its whole (...). Here, you can see it simply, formed by these blocks, and represented in its entirety. So you have Key Partners, Key Activities, Key Resources, Value Proposition, Customer Relationship, the Channels through which the clients are provided with the service, the Customer Base, the structure of the Costs and the structure of the Revenues. [I showed GH the same model canvas as shown in the section dedicated to methodology].

I was then thinking to map a little, with the Team Leaders' help, to work out where they are, where we are really strong, what we have to develop and where efforts in the various departments are necessary. I have already singled out some: I think it's about improving the existing production processes, improving the internal services processes, so precisely how I act with the other departments, how I offer them, and so here too towards optimisation, but still continuing to improve within the competencies where I am already strong – for

example, if I have a strong R&D capabilities in a specific area, keeping on cultivating my strengths.

GH: Of course.

Max: On the other hand, though, there is a series of possibilities coming from the external environment, so defining who is in charge of monitoring what, without exceptional efforts in the sense that I concentrate, search, do but still having specific individual responsible for specific areas because 1) if I am not the appointed person and I see something, I know it's the other person who is in charge and I pass on the issue, and 2) so as to cut the risk of having external factors that then upset the whole company's balance.

GH: Yes, everyone who does everything.

Max: Exactly. I don't know if you agree with this method, integrating all the different theories?

GH: So the Innovation Team... it's about understanding the context for me. The Innovation Team who is following a course with innovative ideas, a definite process... so we explain again, we ask them to define something new?

Max: Exactly, we ask them to steer their own co-workers' efforts too, in the sense not to come to all sorts of ideas, but rather focalising on really improving the existing processes (GH: Yes!), on improving how I serve other departments, because now time is wasted because I'm not good enough or something like that, and defining what to monitor.

GH: Yes. Although ultimately what comes out of this should be presented to the whole firm.

Max: Yes, we can do that.

GH: So that it is clear what it all means...

Max: We can decide to do it through a trickle-down effect, through the different area managers, or to do the presentation in front of everyone. We can choose either, however you prefer it.

GH: there are a lot of topics. What do we have in terms of time, a couple of hours?

Max: Yes, we should make it because...

GH: So an hour for theory and one for brainstorming?

Max: Yes. Not longer than an hour for the theory. Maybe I can do it in less time, explaining the really crucial concepts and what to consider.

GH: So coming to a definition of deliberate strategy?

Max: Exactly. And monitoring the possible emerging strategies, and so knowing who has to monitor them

GH: In theory everyone, right?

Max: Yes, but still having someone in particular who is responsible...

GH: It's that... some people, obviously myself, who check. Then there are the various specialties, so not everyone can see something in someone else's field that could...

Max: Precisely, but for example we can decide that the engineer has the task of checking with the suppliers if new machinery comes out, when R&D sells something new, they already know that they will need to be in touch with the engineer, and so it will be these two

parties who will be able to initiate a dialogue. So by doing this presentation everyone will know who is responsible for what, and on the other hand, if we don't say it, perhaps someone is going to think that something is in someone else's remit. So maybe R&D says, no, I'm not going to look at new machinery because it is the engineering department who thinks about it, and the engineering department says, no, I'm not going to look at machinery because it is new stuff and therefore Rendy will think about it. So to avoid these two situations.

GH: Yes, yes. Ok, we'll see.

Max: Perfect. Other comments, suggestions?

GH: No, it looks like we're on track with the Customer Centric, and it is something new anyway; regarding innovation, the question is if it's a bit like going back to the beginning, isn't it?

Max: Yes, but in my opinion it can help improving quality.

GH: Yes, quality, of course. But then it will really be important to educate, explain what about innovation and what about strategy well to all employees...

Max: Exactly. Very well, thank you.

## ANNEX 2: POWER POINT PRESENTATION ON STRATEGY



### Innovation strategy



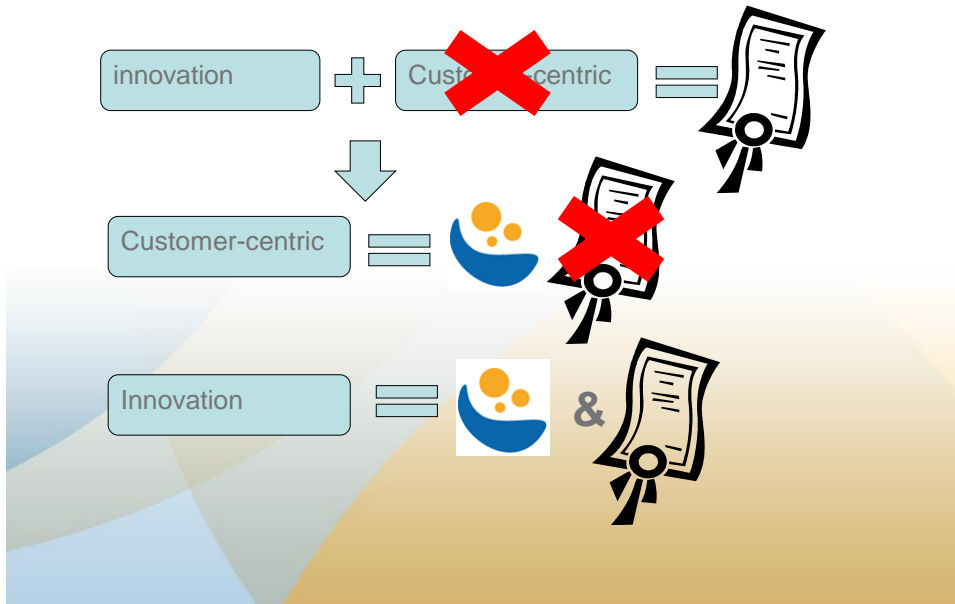
### Today's activity (1)

- ❖ **Develop an innovation strategy.**
- ❖ **Why?**
  - Need to improve the quality of innovation proposals;
  - Innovate randomly is a waste of resources;
  - Alignment of the different innovation activities;





### Today's activity (2)



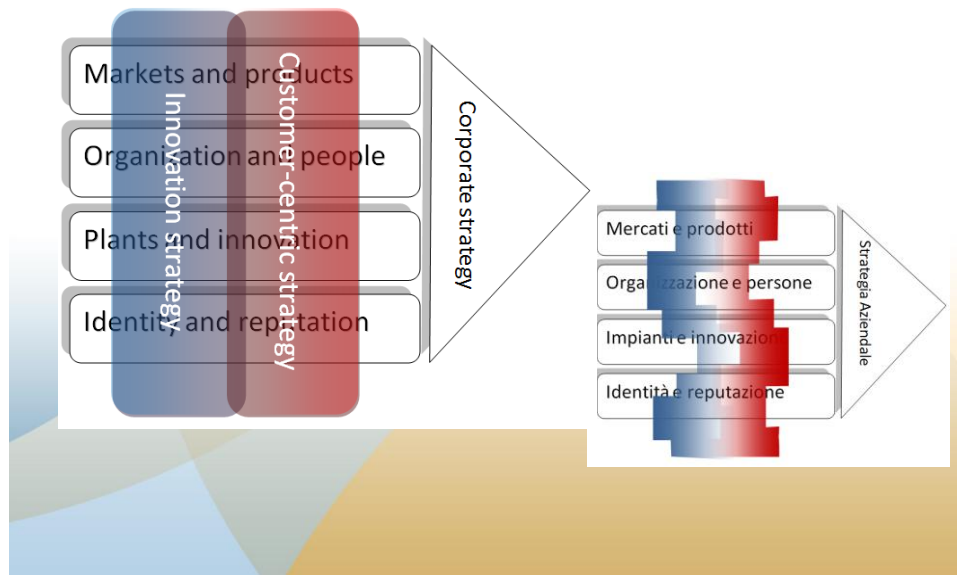
### Today's activity (3)

#### ❖ How to proceed:

- My presentation:
  - ↳ Several perspectives of several authors;
  - ↳ Be critical;
- Co-creation
- Part of the thesis+ communicated inside (ev. outside) the company
- In 6 months → first review (in case of necessity it can be modified every month during innovation committee meetings)



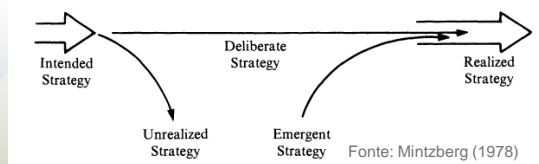
## Innovation strategy and corporate strategy



## What is innovation strategy (1)

### ❖ But what is it an innovation strategy?

- ❖ Johnson et al. (2008): “the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competences with the aim of fulfilling stakeholder expectations”



- ❖ Mintzberg (1978): “strategy can then be viewed as the set of consistent behaviors by which the organization establishes for a time its place in its environment”

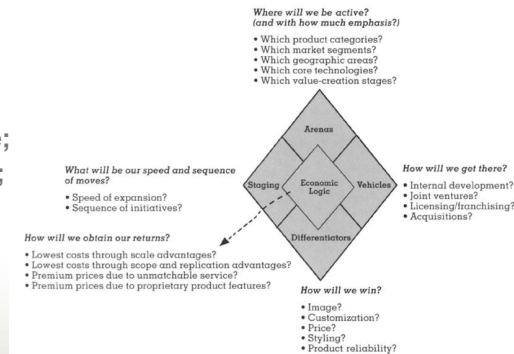


## What is innovation strategy (2)

Thus:

**Deliberate strategy:**

**Arenas – where;  
Vehicles – how;  
Differentiators;  
Speed;  
Logic;**



**Emergent strategy**

**Monitoring (who observes what)** Fonte: Hambrick & Fredrickson (2005)



**I know to whom address if I am not responsible;  
Reduce the risk of “I did not even see it coming”**



## Different approaches to corporate strategy

Several approaches – contrasting or complementary?

❖ Porter (1980, 1985) & others

❖ Wernerfelt (1984) – Resource-based view

❖ Teece & Pisano (1994) – Dynamic capabilities

➤ Teece (2007) – Explicating Dynamic capabilities

❖ Hamel & Prahalad (1990) – firm specific competencies



## Approccio razionalista

### ❖ Porter (1980, 1985)

- Three different strategies: cost leadership, differentiation, focus;
- 5 Forces
- Applied to INNOVATION → innovation leadership or followership (or fast second)
- ↳ What does it teach us?

- Be conscious of the competitive trend;
- Prepare for a changing environment;
- Be sure there is enough focus on the long term;
- Be sure there is coherence among objectives and actions (especially valid for MNE with widespread functions and geographical areas)



## Wernerfelt (1984) – Resource-based view

### ❖ Wernerfelt (1984)

- ❖ The author define a resource as *“anything which could be thought of as a strength or weakness of a given firm. More formally, a firm’s resources at a given time could be defined as those (tangible & intangible) assets which are tied semipermanently to the firm”*

### ❖ INNOVATION

- ❖ General Effects – monopoly power;
- ❖ “first mover” advantage – block competitors;
- ❖ Resource attractivity – my actions make resource unattractive;
- ❖ Merger and acquisition – as a possible tool;
- ❖ In which order?
- ❖ Stepping-stones – resources necessary in the future.



## Hamel & Prahalad (1990), Teece & Pisano (1994) e Teece (2007) – core competencies & the dynamic capabilities of firms

### ❖ Hamel & Prahalad (1990)

- Which are the competencies that allow us to be innovative?
- Competencies are more difficult to be copied from competitors and are not limited to a single product.

### ❖ Teece & Pisano (1994)

- Managerial and organizational processes (routines)
- Actual position (technology, customers, suppliers)
- Path available

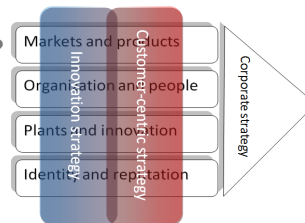
### ❖ Teece (2007)



- Sense
- Seize
- Manage change



## Customer-centric e innovation, two connected concepts

### ❖ How do they relate with each other ?



Typology of innovation	Incremental innovation – “do what we do, but better”	Radical innovation – “do something different”
Paradigm innovation – how we structure what we do  (change in the mental model that define the organizational structure of the firm)	  - Cerbios from API producer to provider of pharmaceutical solutions.	



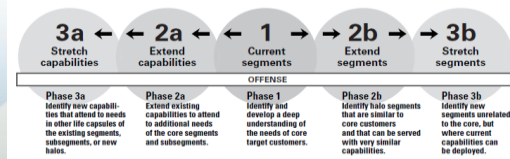
## Customer-centric e innovation, two connected concepts

### ❖ Closeness to the customer allow to orient innovation efforts toward customer requirements

- G-CSF
- Be careful too much → Nokia

#### Customer R&D Strategy

A successful customer R&D strategy requires that companies play both offense and defense. The offensive strategy is to establish a deep relationship with core customers, then extend the number of customers beyond the core, and finally stretch into new customer realms. The defensive strategy focuses on continually scanning for potential competitive disruptions.



Fonte: Selden & MacMillan (2006)



## Thank you for your attention!



**Questions / comments ? Let's start working...** 



#### **Bibliography:**

**All documents are cited in the master's thesis**

