UNIVERDADE DE LISBOA

Instituto Superior de Economia e Gestão

A Survey on Competitive Intelligence Practices for Strategic Decisions

Gonçalo da Costa Simões João

Orientadores: Prof. Doutor António Maria Palma dos Reis

Prof. Doutor Rui Brites Correia da Silva

Tese especialmente elaborada para a obtenção do grau de Doutor em Gestão

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Júri:

Presidente: Professor Doutor Manuel Fernando Cília de Mira Godinho, Professor Catedrático e Presidente do Conselho Científico do Instituto Superior de Economia e Gestão da Universidade de Lisboa

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Prof. Doutor Sandro Miguel Ferreira Mendonça, Professor Auxiliar do ISCTE – Instituto Universitário de Lisboa

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To my parents for life

To my brother for reason

To my friends for everything else

ABSTRACT

This thesis aims to measure the frequency use of competitive intelligence as a support tool to the strategic decision-making in Portuguese organizations. Likewise, the thesis aims to measure the satisfaction level of the decision-maker when making decisions based on competitive intelligence. Based on an extensive literature review, some hypotheses appear to support a survey addressing competitive intelligence issues. Considering a convenient sample, the conclusions drawn about the use and satisfaction level based on competitive intelligence are as expected, as what lies beneath strategic decisions is also answered.

Keywords: Competitive Intelligence, Intelligence Cycle, Strategic Decision

RESUMO

Esta tese tem o objectivo de medir a frequência do uso de *competitive intelligence* como ferramenta de suporte à tomada de decisão estratégica nas empresas Portuguesas. De igual modo, tem o objectivo de medir o grau de satisfação dos decisores quando tomam decisões baseadas em *competitive intelligence*. Com base numa extensa revisão de literatura, surgem algumas hipóteses que suportam um inquérito sobre *competitive intelligence*. Considerando uma amostra de conveniência, as conclusões tiradas são as esperadas, e obtém-se a resposta para o que está por detrás da decisão estratégica.

Palavras-chave: Competitive Intelligence, Ciclo de Intelligence, Decisão Estratégica.

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CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

CAE Rev. 3 – Portuguese Classification of Economic Activities, revision 3.

CIA – Central Intelligence Agency.

CIF – Competitive Intelligence Foundation.

CRM – Customer Relationship Management.

INPADOC – International Patent Documentation.

INPI – Instituto Nacional de Propriedade Industrial.

JAPIO – Japan Patent Information Organization.

KIT – Key Intelligence Topic.

KNN – k-Nearest Neighbors algorithm.

HTML – Hypertext Markup Language.

MDS – Multidimensional Scaling.

N – Number of observations (valid responses).

OCR – Optical Character recognition.

PHP – Hypertext Preprocessor (server-side HTML embedded scripting language).

RBV – Resource-based View.

RSS - Rich Site Summary.

SCIP – Strategy and Competitive Intelligence Professionals (former Society of Competitive Intelligence Professionals).

SME – Small and Medium-sized Organization.

STEEP – Social, Technological, Economic, Ecological and Political.

SWOT – Strengths, Weaknesses, Opportunities and Threats.

TOWS – Threats, Opportunities, Weaknesses and Strengths.

USPTO – United States Patent and Trademark Office.

XML - Extensible Markup Language.

NOTE

Organization in this thesis refers to the company, corporation, enterprise or any other designation for a group of people who work together in a structured way for a shared purpose, no manner its dimension, profitability, or physicality; and which is conducting competitive intelligence activities.

CHAPTER 1 – INTRODUCTION

"Did you ever wonder

Why we had to run for shelter

When the promise of a brave new world

Unfurled beneath a clear blue sky"

Waters, 1979a

The introduction chapter includes some basic notions about strategic decision-making and competitive intelligence with the purpose of kindly drive the reader to the universe of decision-making based on competitive intelligence. The first section, Expertise and Opinions of People, addresses the role of intelligence in the decision-making process, starting a small narrative from an article of McKinsey Quarterly. The second section, Uncertainty Times, alerts to the unawareness on Portuguese organizations for the future, and exemplifies how it is possible to have a glimpse of the future and act upon it. The third and final section of the introductory chapter, Research Questions, addresses the purposes of this thesis, establishing the research questions, its arguments and reasons.

1.1 EXPERTISE AND OPINIONS OF PEOPLE

"Is there anybody out there?"

Waters, 1979b

The third issue of McKinsey Quarterly of 2012 had an article called "Leading in the 21st century". The article interviewed six global leaders about challenges of the new era of uncertainty. One of the interviewees, Josef Ackermann, former CEO and chairman of the management board at Deutsche Bank, stated that "problems have become so complex today that you have to collect the expertise and opinions of a lot of people before you can make a sound decision" (Barton, Grant & Horn, 2012: p. 43). In fact, financial and services organizations face today an increased number of competitive threats, in such a highly complex and dynamic environment (Wright, Eid & Fleisher, 2009). However, strategic decisions in high velocity environments are not based on intelligence or explicit knowledge, rather than on personal agendas and guesses (Hall & Lundberg, 2010). Organizations and managers, even in rapid change

environments, have needs for competitive knowledge, but at a practical level, strategic decisions are based on foundations of quicksand (Hall & Lundberg, 2010). This irrational practice may be explained in part by some cultural factors: (1) ignorance of intelligence tools; (2) lack of trust and share of information; and (3) dissonance or hubris (Hall & Lundberg, 2010). On the other hand, when too many departments, functions, units or teams are working on the same issue, there is an increase conflict of information and of recommendations made to the decision-maker, which results in an unnecessary overload of some resources and the loss of opportunities of strategic importance (Fleisher, Wright & Allard, 2008). There is evidence that the integration of the several insights teams, such as competitive intelligence, customer relationship management, data mining and market research teams, can reduce these two problems and generated better market strategies (Fleisher, Wright & Allard, 2008). It is only logic to accept these conclusions for general strategic decisions for the same reasons.

The use of intelligence can lead to consistently better strategic decisions (Alden et al., 1959; Anonymous, 1960). The use of sophisticated information technologies from business intelligence or knowledge management increases the successful of organizations and provides scientific accuracy and some certainty to strategic decisions (Albescu, Pugna & Paraschiv, 2009). The integration of multicultural knowledge management in the strategic decision-making process will allow the organization achieve successful performance worldwide (Albescu, Pugna & Paraschiv, 2009). Managers have for some time now realized the need for producing and using competitive intelligence in their organizations (Bernhardt, 1994). Competitive intelligence increases market knowledge, internal relationships, and the quality of strategic plans (Bernhardt, 1994). Competitive intelligence implies the understanding of the organization itself, the competition, and the battlefield (Bensoussan & Densham, 2004). The true purpose of intelligence is to gain strategic competitive advantages, and so competitive intelligence includes the collection of information on competitors, customers, suppliers, technologies, environments and business relationships (Dishman & Calof, 2008; Erickson & Rothberg, 2005; Fuld, 2010; Porter, 1980, 1985). Managers need intelligence, meaning that they need the information about the battlefield and what to do with it (Calof, 1998).

In summary, strategic decision-makers need intelligence, but do not use it by norm because they ignore the existence of intelligence in their organizations, there is a lack of sharing or trust regarding information, they disagree or are too proud to recognize the importance of intelligence, or in contrast, there is too many information and too many intelligence, that they often ignore them all. Nevertheless, Josef Ackermann speaks of collecting expertise and opinion of people before decision-making. And he finishes with "I believe in personal leadership, but no [Chief Executive Officer] can do it all on his own. You need the expertise, judgment, and buy-in of your team" (Barton, Grant & Horn, 2012: p. 43). Competitive intelligence can provide the necessary expertise and opinions of people for the decision-making, as long as the judgment required, and it can all be done by "your" team. Competitive intelligence is necessary for short- and long-term planning (Alden et al., 1959) and has a role on the strategic decision-making process (Alden et al., 1959; Anonymous, 1960; Bensoussan & Densham, 2004). However, for that reason, and because it may serve as a catalyst for radical changes in the organization, competitive intelligence requires constant support from the top management, including the necessary resources (Bernhardt, 1994).

1.2 UNCERTAINTY TIMES

"The rain fell slow, down on all the roofs of uncertainty"
Gilmour, Samson & Laird-Clowes, 1994

In Portugal, the crisis of the financial markets originated in the United States of America in 2007 and followed by the constant downfall of national banks in the international ratings, along with the national crisis on the government budget and the rising of the unemployment, has originated uncertainty times for organizations operating in Portugal. However, a Memorandum of understanding on specific economic policy conditionality, also known as the Troika Memorandum, signed between the three major national political parties and the group of entities that include the European Union, the European Central Bank and the International Money Funding (Troika) provide organizations with a truly unique situation: uncertainty times were not so uncertain anymore. The Memorandum included objectives and goals about fiscal policy, financial sector regulation and supervision, fiscal-structural measures, labour market and education, goods and services markets, housing market, framework

conditions, and competition, public procurement and business environment. These objectives add specific goals and dates to achieve, as the Portuguese government would have to implement in order to maintain external financing. The Memorandum would allow national organizations to prepare themselves for the difficult times announced. Instead, as the data of the survey of this thesis reveal, the number of organizations that have analyzed the memorandum is 25,8%. In these difficult, but predictable times, organizations that lack the know-how to turn information into intelligence and using it in the decision-making process will fail (Kahaner, 1996).

1.3 RESEARCH QUESTIONS

"With, without.

And who'll deny it's what the fighting's all about?"

Waters & Wright, 1973

This thesis addresses two major research questions: (1) the use of competitive intelligence in the decision-making process on Portuguese organizations; and (2) the satisfaction level of decision-makers when making a decision based on intelligence.

We argue that the majority of the decision-makers do not use intelligence in the strategic decision-making process, because they ignore the existence of competitive intelligence as a support decision-maker tool. Nevertheless, we also argue that those few decision-makers that do use intelligence in the strategic decision-making process are more satisfied and confident with the decision made than those who do not use intelligence reports.

CHAPTER 2 – LITERATURE REVIEW

"And every day the paper boy brings more"

Waters, 1973

This chapter includes the literature review conducted on competitive intelligence. The literature review conducted lacked articles published on top scientific journals. Non-top scientific journals with peer review were considered, along with books and non-scientific articles from authors considered to be experts on competitive intelligence by the Strategic and Competitive Intelligence Professionals, the worldwide society of the competitive intelligence professionals.

The first section Definition of Competitive Intelligence includes a small History of Competitive Intelligence and a discussion on some selected definitions. The second section The Process of Competitive Intelligence includes the intelligence cycle adopted as the process and a large discussion on its four steps. The third section Law and Ethics of Competitive Intelligence includes the discussion of ethics in competitive intelligence and related legal issues. The last section Maturity and Best Practices includes preceding issues to the maturity of competitive intelligence function, such as implementing the competitive intelligence system, selecting the competitive intelligence team, and positioning the competitive intelligence function. The last section also includes several models and classification for the maturity of competitive intelligence function and a best practices model.

2.1 DEFINITION OF COMPETITIVE INTELLIGENCE

"Very hard to explain why you're mad,

Even if you're not mad"

Mason, 1973

For the purpose of this thesis, competitive intelligence is essentially a decision-making support tool (Taborda & Ferreira, 2002; João, 2015). Nevertheless, we felt that a discussion around a few selected definitions of competitive intelligence should take place. We have selected twenty six definitions between 1993 and 2010 from

scientific articles, books, magazines and internet resources. These definitions can be found in Appendix A. We also felt that a small review on the history of competitive intelligence could help the reader understand some issues that can be found on the definitions selected. Additional definitions about intelligence related issues are also discussed in this section.

2.1.1 History of Competitive Intelligence

"Then something happened which unleashed the power of our imagination
We learned to talk"
Gilmour, Wright & Samson, 1994a

Competitive intelligence can be track back to the "The Art of War" by Sun Tzu (Calof & Wright, 2008; Prescott, 1999) written over more than twenty four hundred years ago or even to the five thousand years of Chinese history (Calof & Wright, 2008; Qingjiu & Prescott, 2000). In fact, it is easy to find a rich heritage of competitive intelligence (Juhari & Stephens, 2006) or evidence about the usage of intelligence in every country history (Calof & Wright, 2008), from the Portuguese secrecy regarding the discovery of new lands in the fifteenth century to the intelligence of Frederick the Great in the eighteenth century when addressing to the unpardonable issue of being surprised in the battlefield but not to be defeated (Fuld, 1995). Competitive intelligence is not a new concept (Wright et al., 2004). Tracking back historical events where competitive intelligence is present seems like an easy task because of the human nature in making decisions. The logic decision lacks the gathering and analysis of information as the basis of the psychology of intelligence analysis (Heuer, 1999). However, the systematic usage of competitive intelligence in organizations is a recent phenomenon (Prescott, 1999).

In his article "the evolution of competitive intelligence – designing a process for action", John Prescott (1999) has identified four stages on the evolution of competitive intelligence: (1) competitive data gathering; (2) industry and competitor analysis; (3) competitive intelligence; and (4) competitive intelligence as a core capability (Figure 1). Prescott (1999) has also identified key defining events, attributes, and competitive intelligence personnel location. The first stage or time period ended in 1980 due to the publication of the book of Michael Porter,

"Competitive Strategy". This stage, the competitive data gathering stage, was mainly characterized by an informal attribute, tactical orientation, little or no analysis at all, low top management attention and little link to the decision-making process. The personnel where in the library or the marketing division and develop skills in information acquisition. Competitive intelligence as a business discipline had little academic literature to support it (Kalb, 2006). After 1980, a second time period started where the personnel moved to the marketing or the planning division, and develops analytical skills and care for the spy image of competitive intelligence (Prescott, 1999). Formal units started to appear in the organization and the limited quantitative analysis and top management attention emerge. Nevertheless the orientation remained tactical and the link to the decision-making process weak. In 1987, the founding of the Society of Competitive Intelligence Professionals, Strategic and Competitive Intelligence Professionals since 2011 has been identified as another breaking time period event, and a new stage started: the competitive intelligence stage. This stage was characterized by formal units, tactical and strategic orientation, quantitative and qualitative analysis, moderate top management attention and strong link to the decision-making process. The personnel were located in the marketing and planning divisions, and for the first time, in competitive intelligence units. Competitive intelligence technology, counterintelligence and international competitive intelligence skills were developed. The role of information technology arose and competitive intelligence was considered a bottom-line input. Around the end of the millennium, another important event occurred, the Competitive Intelligence Review, a peer review scientific journal was established. According to Prescott (1999) this event ended the third stage and started the future one, competitive intelligence as a core capability. Competitive intelligence on this stage were meant to be characterized by a formal and informal attribute, strategic orientation, qualitative emphasis in the analysis, high top management attention and considered a direct input to the decision-making process. Competitive intelligence courses taught in business school around the world, the existence of intelligence infrastructures for multinationals organizations and technology for network analysis were also issues in this stage. "The future rests on developing competitive intelligence as a source of competitive advantage" defends Prescott (1999: p. 38).
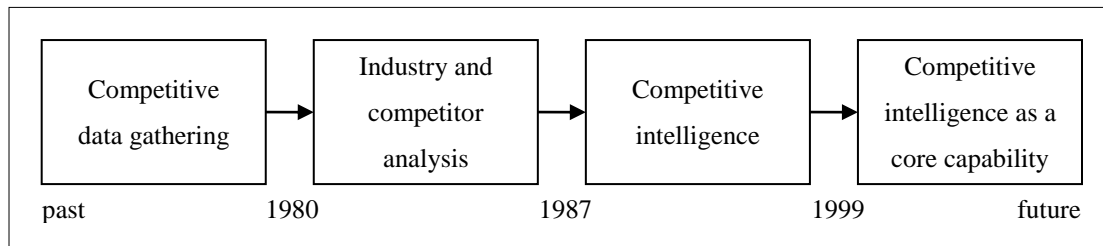
Figure 1 - The Evolution of Competitive Intelligence (Prescott, 1999)

However, the decline of the number of members of the Strategic and Competitive Intelligence Professionals early in the first decade of the new millennium (Kalb, 2006) along with the end of the Competitive Intelligence Review journal in 2001 (SCIP) may be enough evidence that the future as Prescott defined did not happen. The lack of standards to measure the impact of competitive intelligence on business revenue or profitability, the lack of global standards to certify the professionals in the field, little academic interest and no broad academic base in major universities are four weaknesses in the development of competitive intelligence (Kalb, 2006). The end of the Journal of Competitive Intelligence and Management in 2008, also published by SCIP, left the profession and the discipline without a specific peer review journal for competitive intelligence articles. Most academic authors continue to publish in other journals, mostly in marketing journals, instead of strategic journals. For instance, ten out of twenty seven scientific articles about competitive intelligence published in 2009 and 2010 can be found in scientific journals in the marketing area. Only one was published in the strategic area.

2.1.2 Definitions of Competitive Intelligence

"Wandering and dreaming
The words have different meaning.
Yes they did."
Barrett, 1967

During the literature review twenty six definitions of competitive intelligence have been identified and selected from scientific journals, books, magazines, and internet sources. The definitions can be found in the Appendix A – Twenty Six Selected Definitions of Competitive Intelligence in the end of this thesis. After the identification and selection of the definitions, we proceeded to the identification of specific words and different characteristics within each definition. Five groups of

8

characteristics were identified and explicit characteristics were founded in the definitions analyzed, actually using the same word. Implicit characteristics were also identified, which despite the lack of the word itself, the meaning of the sentence defined or described the missing word or the characteristic. The five groups are typology, issues, intelligence, focus and goal.

The first group of characteristics identified was the typology of competitive intelligence with three different characteristics: (1) product, where competitive intelligence is a product, often result of a process; (2) program, where competitive intelligence is a program; and (3) process, where competitive intelligence is a process.

The second group identified was some of the issues of competitive intelligence discussed through the years and carefully included in the definitions: (1) ethical and legal issues; (2) the systematic characteristic of the process of competitive intelligence; and (3) the intelligence cycle use issue or the discussion of its phases.

The third group was identified as the need felt by some authors in using the word intelligence in the definition of competitive intelligence, as the final output of the process or the actionable aspect of itself: (1) information into intelligence, where competitive intelligence turns data or information into intelligence or knowledge; (2) actionable intelligence, where competitive intelligence produces actionable intelligence or intelligence that organizations can act upon. The focus of competitive intelligence was identified as the fourth group.

Many authors included the focus of the analysis in the competitive intelligence process. These are the most common: (1) industry focus, where competitive intelligence focus on the industry as the force to analyze; (2) market focus, where competitive intelligence focus on markets as the force to analyze; (3) five forces focus, where competitive intelligence focus on all the forces of the Five Forces model (Porter, 1980) as the forces to analyze; (4) competitor focus, where competitive intelligence focus on competitors as the force to analyze; (5) environment focus, where competitive intelligence focus on all the forces that can affect the organization and its operation scenarios, usually denominated as environment or competitive environment, and that includes all other types of focus defined here. Finally, the last

group, the goal of competitive intelligence, has been identified. The characteristics on this group are quite similar but nevertheless their differences are important enough to distinguish them from each other: (1) opportunities and threats, where competitive intelligence identifies opportunities and threats by predicting moves and blind spots, or anticipating events or moves that can have an impact on the organization; (2) competitive advantage, where competitive intelligence provides the means for the organization to create competitive advantage or become a dominant player in its environment; (3) decision-making, where competitive intelligence has the decision-making or strategic management has its ultimate goal.

We then build up a matrix (Table 1) that could easily show us the evolution of the competitive intelligence definition, along with the most important characteristics found and their evolution through time. As showed in Table 1, the large majority of the authors of the selected definitions of competitive intelligence refer to it as a process explicitly (Bernhardt, 1994; Calof, 1998; Calof & Skinner, 1998; Carvalho & Ferreira, 2001; Ettore, 1995; Fleisher & Bensoussan, 2007; Heppes & du Toit, 2009; Miller, 2001; Prescott, 1999; SCIP, 2003; Tyson, 2010; Whitehead, 2002; Wright, Eid & Fleisher, 2009) or implicitly (Bernhardt, 1993; Kahaner, 1996; Johnson, 2004; Millán & Comai, 2001; Rich, 2002; Richardson & Luchsinger, 2007; Rouach & Santi, 2001; Taborda & Ferreira, 2002; Trim, 2001). Larry Kahaner (1996) in his book starts to deny competitive intelligence as a business function of the organization, in order to emphases its presence in all aspects of the organization and not relegate it to one area, division or unit; and to conclude that competitive intelligence is a process. Nevertheless, some authors refer to the competitive intelligence function when addressing its maturity (Heppes & du Toit, 2009; Herring & Leavitt, 2011; Lackman, Saban & Lanasa, 2000; Singh & Beurschgens, 2006). In all the cases, the definition of competitive intelligence is not the issue at hand. The subject is the maturity of the competitive intelligence process in the organizations, as a comparative function between them in their organizational structure. Competitive intelligence can also be seen both as a process and a product (Bernhardt, 1996; Sharp, 2009). Sheena Sharp (2009) does not includes this duality in her definition, but when redefining competitive intelligence in her book, she clearly states that competitive intelligence is an activity, the process, with resulting reports, the product, also referred to as

competitive intelligence. Douglas Bernhardt (1994) goes further and includes that statement into his definition.

Regarding the issues addressed in the definitions selected, many authors do not include the systematic characteristic in their definitions. Nevertheless, they do stand for it in their articles and books, as a continuous process (Sharp, 2009). However, at least half of them do include the intelligence cycle in their definitions. Also about the issues in the twenty six definitions of competitive intelligence, before 2001 the authors did not address ethical and legal issues. It was only after the scandals about industrial espionage in the late 1980s, where reporters misunderstood the difference between espionage and competitive intelligence, and which resulted in the fear of managers to be a target of the reporters in years to come (Prescott, 1999), that authors started to include the ethical and legal issues in their definitions. Although most authors do address these issues in their articles or dedicate entire chapters in their books (Kahaner, 1996; Sharp, 2009, Taborda & Ferreira, 2002, Tyson, 2010) a concern to include in the definition of competitive intelligence the ethical and legal aspects exists only after the millennium.

There is no conclusion to take about the references of intelligence in the twenty six definitions of competitive intelligence. References to the transformation of information into intelligence and actionable intelligence can be found in most of the definitions. However is not clear if the majority of the authors prefer either of them. Nonetheless, this issue will discuss further ahead.

The competitive intelligence focus found on the twenty six definitions in mostly the environment focus, meaning that it is the environment is the ultimate focus of the competitive intelligence process, either using a specific model, such as the Five Forces model (Porter, 1980), or following several complementary models and cover all the environment. Once again definitions before 2001 do not mention the environment as the ultimate focus of competitive intelligence. They fall into the Five Forces model (Calof, 1998; Prescott, 1999) and into the competitor analysis (Bernhardt, 1994; Kahaner, 1996). The most recent definitions include the environment as a global focus instead of a specific model or analysis, allowing the competitive intelligence practitioner to choose its own model or analysis.

Table 1 - The Competitive Intelligence Definition Matrix

	Product	Program	Process	Systematic	Intelligence cycle	Ethical and legal	Information into intelligence	Actionable intelligence	Industry focus	Market focus	Five forces focus	Competitor focus	Environment focus	Opportunities and threats	Competitive Advantage	Decision-making
Bernhardt, 1993	-	-	○	-	-	-	-	-	-	-	-	-	-	-	-	●
Bernhardt, 1994	●	-	●	-	-	-	●	●	●	●	-	●	-	-	-	●
Ettore, 1995	-	-	●	-	○	-	○	-	-	-	○	-	-	-	-	●
Kahaner, 1996	-	●	○	●	●	-	○	-	-	-	-	●	-	●	-	-
Calof, 1998	-	-	●	-	-	-	-	-	-	-	●	-	-	●	-	-
Calof & Skinner, 1998	-	-	●	●	●	-	●	●	-	-	-	-	-	-	-	●
Prescott, 1999	-	-	●	-	-	-	-	●	-	-	●	-	○	-	●	-
Carvalho & Ferreira, 2001	-	-	●	●	-	-	●	●	-	-	-	-	●	○	-	●
Millán & Comai, 2001	-	●	○	○	●	●	-	-	-	-	-	-	●	-	●	-
Miller, 2001	-	-	●	●	●	●	-	●	-	-	-	-	●	-	-	●
Rouach & Santi, 2001	-	-	○	-	●	●	-	-	-	-	-	-	○	●	-	-
Trim, 2001	-	-	○	-	○	-	●	-	-	-	-	-	●	-	●	○
Rich, 2002	-	-	○	-	-	-	○	-	-	-	○	●	-	●	-	●
Taborda & Ferreira, 2002	-	-	○	●	-	-	○	○	-	-	●	-	○	-	-	●
Whitehead, 2002	-	-	●	●	●	●	-	●	-	-	●	●	●	●	-	●
SCIP, 2003	-	-	●	-	●	●	○	-	-	-	-	-	●	●	-	-
Hirvensalo, 2004	-	-	-	●	●	-	○	●	-	-	-	-	●	-	-	○
Johnson, 2004	-	-	○	-	●	●	-	●	-	●	-	-	○	-	-	●
Fleisher & Bensoussan, 2007	-	-	●	-	-	-	-	●	-	-	-	●	●	-	-	●
Richardson & Luchsinger, 2007	-	-	○	-	-	●	-	-	-	-	-	-	●	-	-	●
SCIP, 2007	-	-	-	-	●	●	-	-	-	-	-	●	●	-	-	●
Heppes & du Toit, 2009	-	-	●	-	-	●	-	-	-	-	-	-	●	-	●	-
Sharp, 2009	○	-	-	-	-	-	-	●	-	-	-	-	●	-	-	●
Wright, Eid & Fleisher, 2009	-	-	●	-	○	-	-	-	-	-	-	●	●	-	-	●
Prior, 2010	-	●	-	●	●	●	-	●	-	-	-	-	●	-	●	●
Tyson, 2010	-	-	●	●	-	-	●	-	-	●	●	●	●	-	-	●

● explicit characteristic found in the definition;

○ implicit characteristic found in the definition;

- characteristic not found in the definition.

Finally since 1993, the goal of competitive intelligence in these twenty six definitions has been the decision-making, as for competitive intelligence is a management tool for the decision-maker. Opportunities and threats and competitive advantages are also important goals of competitive intelligence, but there somehow included in the decision-making goal.

In summary, a complete definition of competitive intelligence would include a systematic, ethical and legal process, using the intelligence cycle, focus on the competitive environment and to the decision-making process. Therefore, and for this thesis purposes only, competitive intelligence is a systematic, ethical and legal process that analyses the competitive environment of the organization, using the intelligence cycle to deliver intelligence to the decision-making process.

2.1.3 Understanding Competitive Intelligence

> *"And if the band you're in starts playing different tunes*
> *I'll see you on the dark side of the moon"*
> *Waters, 1973a*

The theory of intelligence process has also known many different names proposed by different authors, such as business intelligence, competitive technical intelligence, competitor analysis, environmental scanning, market intelligence, and strategic intelligence (Dishman & Calof, 2008). As a consequence, and due to the lack of consensus amongst the scientific community (Santos & Correia, 2010), to fully understand the definition of competitive intelligence of this thesis, some definitions of intelligence and their types must be discussed.

2.1.3.1 Intelligence

Intelligence is actionable recommendations (Calof & Skinner, 1998; Dishman & Calof, 2008) or actionable insights (Calof, 2008) produced by the competitive intelligence process. The actionable aspect of the intelligence is the ability to assess the facts in the way of guiding the decision-maker into an action to fulfill a specific goal or purpose (Luhn, 1958). However, intelligence is not without risk, and decision-makers judgment and subjectivity are also involved, as intelligence is a product of a perceptive mind (Fuld, 2010). Intelligence is only intelligence as long as it is new and

secret, or others are unable to produce it, afterwards is just fresh information (Fuld, 2010). Knowing the difference between information and intelligence is a basis of competitive intelligence (Kahaner, 1996). Information is facts, numbers, statistics or bits of data about people and organizations. In the intelligence pyramid of Sheena Sharp (2009) (Figure 2), which illustrates the general flow from data to intelligence, data is the most available, easy to gather, with less value by itself, and can be found in the bottom of the pyramid. Information, in the middle, provides more value than data, more difficult to uncover, but does not provide actions to the decision-maker. In the top of the pyramid is intelligence, which reveals patterns, leads to insights and results in decisions or actions (Sharp, 2009). Intelligence, which has a military origin (Fehringer, 2008), is information previously filtered, distilled, and analyzed that can be acted upon, "another term for intelligence is knowledge" (Kahaner, 1996: p. 21). Intelligence is produced, created; and cannot be collect (Fehringer, 2008, Sawka, 2004a). Intelligence is high-level information that has been processed and can be exploited. (Prior, 2010) Applying intelligence, knowledge with a degree of risk or imperfect knowledge is an art (Fuld, 2010). When the competitive intelligence work is aligned with the decisions that have to be made in the organization, by default, the intelligence deliver is actionable (Tuller, 2005). Nevertheless, the gap between the intelligence delivered and the intelligence expected can exist. As a result, decision-makers should understand that actionable intelligence is created, not collected, and competitive intelligence practitioners should understand their organization and its decision-making process (Sawka, 2004a).

A best practices model of intelligence valuable to decision-makers is the main components of intelligence (Swanson, 2005): (1) accuracy of the intelligence or the evaluation of technical errors, misperception or misleading bias; (2) objectivity on the hypotheses and conclusions; (3) usability of the intelligence deliver regarding comprehension and immediate application; (4) relevance to the decision-maker; (5) readiness of the intelligence to all levels within the organization; and (6) timeless of the intelligence, it should be deliver while still actionable.
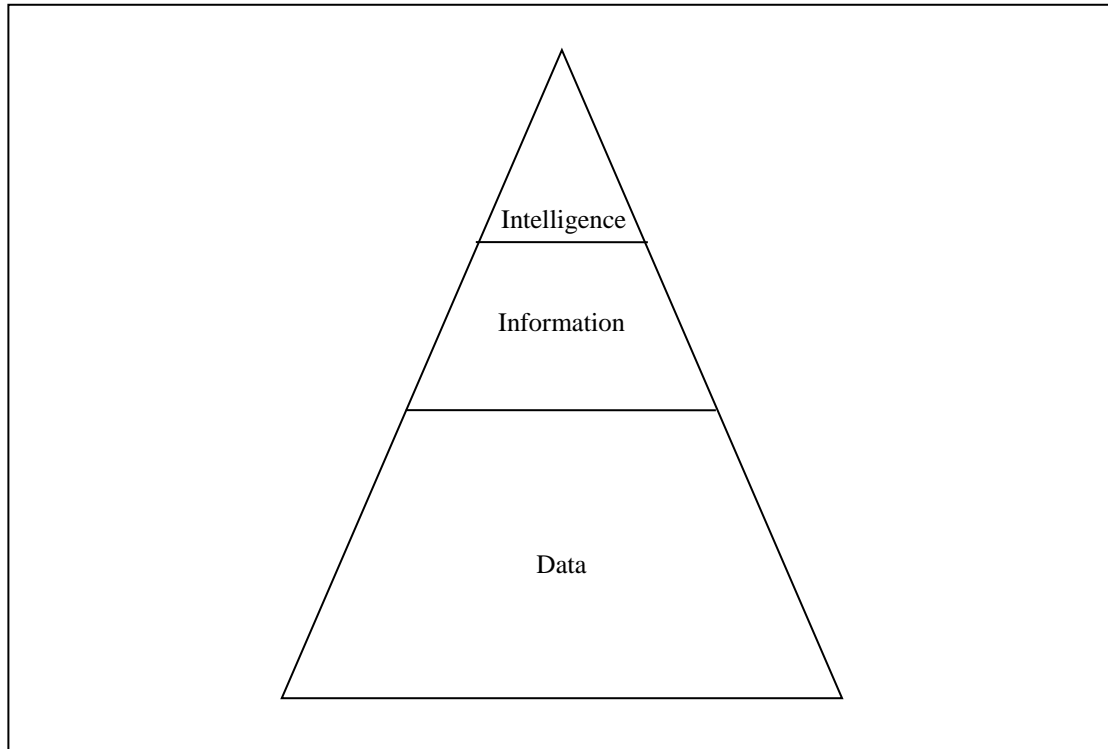
Figure 2 - The Intelligence Pyramid (Sharp, 2009)

2.1.3.2 Business Intelligence

The term business intelligence is commonly used on scientific articles, books and magazines, often referring to different things, and creating confusion with the term competitive intelligence (Hirvensalo, 2004, Weiss, 2003). There are three different views for business intelligence. In the first, business intelligence is the use of information technology systems to store, process and analyze data (van Roosmalen, 2009), where data mining techniques are involved (Prior, 2010; Weiss, 2003). In this view business intelligence can be seen as an analytic tool used in competitive intelligence, defined in this view as the main intelligence discipline (Fleisher & Blenkhorn, 2001; Kahaner, 1996; Sharp, 2009; Tyson, 2010). The second view is to consider that business intelligence is the same as competitive intelligence (Vedder et al., 1999) either by historic reasons (Hirvensalo, 2004) or commonly used as synonym of competitive intelligence until the new millennium (Rustmann, 1997), when data mining activities started to use business intelligence (Sharp, 2009). In the third view, some authors prefer to use the term business intelligence than competitive intelligence when addressing the intelligence process (Frates & Sharp, 2005; Wright, 2005). The reasons for this preference is the broader strategic orientation of the term business over competitive, and the often mislead confusion with competitor intelligence or

competitor analysis (Frates & Sharp, 2005). In fact, business intelligence is the widest term (Weiss, 2003) and probably a better description for the process (Wright, 2005). However, since the beginning of the millennium business intelligence has been used for data mining activities (Sharp, 2009), and as a result frequently confused with the intelligence process (Weiss, 2003). Besides, is rather to confused the intelligence process with competitor intelligence than with data mining, at least part of the focus of competitive intelligence is consider and intelligence about the competitor is produced, as for data mining for itself, does not provide any intelligence at all.

In summary, controversies apart and for the purpose of this thesis, business intelligence refers primarily to data mining, an information technology practice, to produce historical and current views of internal business operations (Sharp, 2009).

2.1.3.3 Other Intelligence

The lack of a unique definition of competitive intelligence and terminology is the cause for the variety of different intelligence and subsets of competitive intelligence. One of them, and often confuse with competitive intelligence is competitor intelligence (Brody, 2008; Weiss, 2003). Competitor intelligence concerns the current and future activities of competitors (Prior, 2010) and is the process by which an organization understands its industry, its competitors, their strengths and weaknesses to anticipate their moves (Wright et al., 2002). Competitor intelligence is a part of competitive intelligence (Prior, 2010; Weiss, 2003; Wright et al, 2002), but with the focus only on the competitors. A competitor intelligence system is defined as a need for the framework for competitor analysis by Michael Porter (1980). According with Jean-Philippe Deschamps and Ranganath Nayak (1995), competitor intelligence is also one of the four types of competitive intelligence, being market intelligence, technological intelligence, and strategic and social intelligence the other three, and is required to evaluate changes in the structure of competitors, their new product substitutes and new industry entrants over time.

The focus of market intelligence, also confused with competitive intelligence recently, is the market, consumer products and services (Sharp, 2009). As a type of competitive intelligence, market intelligence is required to understand current and future trends in the needs and preferences of the customers, to identify new markets and segmentation

opportunities, and major shifts in marketing and distribution (Deschamps & Nayak, 1995). The term is also used to emphasize market research in market research organizations (Sharp, 2009).

Commonly confused with market intelligence, is marketing intelligence, also frequently confused with competitive intelligence. However competitive intelligence covers marketing intelligence by definition. The scope of marketing intelligence is narrower and its intelligence is delivered to the marketing decision-maker only (Liu & Wang, 2008). Nevertheless, marketing intelligence is in all aspects similar to competitive intelligence, but with the main purpose of improving marketing planning, implementation and control in marketing decision (Tan & Ahmed, 1999). Marketing intelligence even uses a marketing intelligence cycle just like competitive intelligence: planning; collection; analysis; and dissemination (Huster, 2005). The focus is on products, prices, places, and promotions (Prior, 2010). The difference between marketing intelligence and market intelligence is the focus, marketing in the first and market in the second. Marketing intelligence is part of the market intelligence (Laviret & Brouard, 2010).

The third type of competitive intelligence is the technological intelligence (Deschamps & Nayak, 1995). Technological intelligence, also named competitive technical intelligence, covers technical activities and technological advances that translated into changes in devices materials, products, processes, and services (Prior, 2010). The purpose is to assess the cost or benefit of current and new technologies and predict future technological discontinuities (Deschamps & Nayak, 1995). Technological intelligence focus is primarily technical, is the knowledge of a scientific, technological and engineering nature, and is often related with the research and development department of the organization either as an intelligence customer or as a source of information (Aston, 2007).

The last type of competitive intelligence according with Deschamps and Nayak (1995) is strategic and social intelligence, and typically covers all other subjects that are not included in the previous three types. Strategic and social intelligence focus on regulations, financial, taxes and political issues, in addition to social and human resources matters, it monitors and analyses trends in social behavior (Deschamps &

Nayak, 1995). On the other hand, and in an analogous way, Laviret and Brouard (2010) also divided the intelligence process into four types slight differently. Competitor intelligence became competitive intelligence, market intelligence became commercial intelligence, including marketing intelligence, strategic and social intelligence became societal intelligence and finally competitive intelligence became strategic intelligence. Technological intelligence remains with the same name. After comparing both definitions of the intelligence process and their four types, one can concluded that Laviret and Brouard is addressing the same themes as Deschamps and Nayak in 1995. Nevertheless, Laviret and Brouard are not the only ones to address strategic intelligence as the all intelligence process. Also Gilad (2011) and Prior (2010) defined strategic intelligence as the intelligence process. Strategic intelligence is a perspective, the intelligence perspective, and looks to uncover early signs of risks and opportunities on the balance of power in the industry (Gilad, 2011). Strategic intelligence is the knowledge of the business environment of the organization and its implications for the long term viability and success (Prior, 2010). Once more, controversies apart, and for the purposes of this thesis, the intelligence process will be addressed as competitive intelligence and its focus the entire competitive environment of the organization.

Environment scanning is one more term sometimes also confused with competitive intelligence. Environment scanning involves gathering and monitoring the business environment that have an impact direct or indirectly on your business (Prior, 2010; Sharp, 2009). The main goal is to identify and keep aware of opportunities and threats resulting from change or useful for the industry and the organization. When this activity is performed coordinated throughout the entire organization over the entire environment on the organization is called organized intelligence (Gilad, 1989). Nevertheless, considering the definition of competitive intelligence in this thesis, organized intelligence is competitive intelligence as long as the competitive intelligence focus remains the entire competitive environment. The entire competitive environment comprehends customers, suppliers, distributors, substitute products, government or industry regulations, technology, the economy, other industries, demographics, prospects, culture and societal issues and competitors, either being direct, indirect or substitute competitors (Sharp, 2009).

Another term recently used is corporate intelligence, which denotes concern about globalization, and that includes both competitive intelligence and business intelligence, along with the protection cycle or counterintelligence (Prior, 2010; Swanson, 2004). The term of business intelligence is used here as defined in this thesis. The protection cycle appears in the strategic intelligence of Laviret and Brouard (2010) along with the gathering cycle, also known as the intelligence cycle, and has four stages: planning; vulnerabilities analysis; risk and threat assessments; and protection measures. Although the main purpose is to protect intelligence and sensitive information, the resemblances are extraordinarily related to the intelligence cycle, with the purpose of creating intelligence. Counterintelligence is, by definition, activities of the organization with the purpose of identify and counteract the threat posed by competitors or other intelligence actions and illegal actions of espionage and sabotage (Prior, 2010). The term corporate intelligence will be consider competitive intelligence, because the global attribute of corporate intelligence is already included in competitive intelligence definition, as the competitive environment encloses the globe, when the organization set basis nowadays on any national market with or without the use of the internet channel. Counterintelligence and globalization concerns are part of competitive intelligence focus and will be further discussed ahead within the intelligence cycle section.

Two other recent terms about intelligence is cooperative intelligence and collaborative intelligence. Cooperative intelligence is the act of building business relationships (Butterfield, 2006; Naylor, 2006). Cooperative intelligence relates with competitive intelligence by recalling the importance of human relations in the intelligence process. Cooperative intelligence is an attitude to make competitive intelligence process more effective in its interaction with intelligence users and information sources (Naylor, 2006). Collaborative intelligence is another way to enhance the potential of competitive intelligence in the organization by involving collaborators in the process (da Ros, 2011).

The term business intelligence has also been used in knowledge management when some competitive intelligence professionals use this term instead of competitive intelligence to describe their occupation (McGonagle, 2006). Nevertheless, both terms stand for different processes in the organization but share the final purpose in the

decision-making process: to provide background for good decisions (Prior, 2010; Weiss, 2003). Knowledge management, as the process of creation and share of knowledge (Albescu et al., 2009; Carvalho & Ferreira, 2001; Liebowitz, 2004), is both an input and an output for competitive intelligence. The model of Knowledge Company Creating (Nonaka, 1991; Nonaka & Takeuchi, 1995) (Appendix B) with its cyclical steps of socialization, externalization, combination, and internalization, allows the creation of knowledge that is an input for the production of intelligence. On the other hand, after the intelligence is delivered to the decision-maker, it is also incorporated in the knowledge repository of the organization.

Other intelligence terms are used by different authors for specific purposes, but do not alter significantly the theory discussed so far. Tactical intelligence is intelligence produced about the business environment that have impact in the immediate future, and often concerns issues such as marketing, promotion, pricing, and positioning (Prior, 2010). Trade show intelligence is the process of producing intelligence based almost on sources of information from trade shows, industry conferences and sales meetings (Prior, 2010). Humint, or human intelligence, is information gathered directly from people, face-to-face, by telephone or internet (Prior, 2010) and has obviously been wrongly labeled intelligence. Also currently used is financial intelligence that means intelligence produced about sales, profits, return on investment, cash flow, liabilities, market risks, cost goods, inventory turnover of any player in the industry, including the organization itself. The purpose is to provide intelligence about decisions regarding mergers and acquisitions, loaning funds, or investing in other organizations (Sharp, 2009).

There are other intelligence that are not related to competitive intelligence at all. Artificial intelligence, that refers to the ability of a computer to operate in the same manner as human intelligence (Prior, 2010), is one of them. Another is collective intelligence, groups of individuals doing things collectively that seem intelligent (Malone, 2008).

Finally, one last overview about competitive intelligence is to present some of its products, distinct here in terms of audience, processes, sources, analytical tools, modes of dissemination and costs (Dugal, 1998). Current intelligence provides

decision-makers with first exposure to new developments. Basic intelligence helps them to make informed decisions. Technical intelligence, here also as a product, has engineers and scientists as final users. Early warning intelligence provides emerging opportunities and threats. Estimated intelligence offers scenarios based on quantitative and qualitative analysis. Work group intelligence where the competitive intelligence practitioner is part of the group while understanding their requirements providing the right intelligence. Targeted intelligence provides intelligence with narrow and specific requirements of internal users. Crisis intelligence is created and delivered by teams formed specifically to analyze a crisis. Foreign intelligence is filtered by foreign cultures. Counterintelligence maintains the organization secure and its secrets well kept (Dugal, 1998).

2.2 THE PROCESS OF COMPETITIVE INTELLIGENCE

"I've got electric light.
And I've got second sight.
And amazing powers of observation.
And that is how I know"
Waters, 1979c

This section includes a larger discussion on the process of competitive intelligence adopted in this thesis, the intelligence cycle in its four-step version (Kahaner, 1996). Each step is careful discussed and some analytical tools were relegated to the Appendix E due to its less importance to the authors or lack of usability evidence.

2.2.1 Introduction

"Don't be surprised when a crack in the ice
Appears under your feet"
Waters, 1979d

The process of competitive intelligence is the intelligence production process (Prescott, 1999). This intelligence process, also refer to as the intelligence cycle (Bernhardt, 1994; Prescott, 1999), has its origin in the United States government intelligence process and its military experience (Bernhardt, 1994; Fehringer, 2008; McGonagle, 2007). In the sixties, the United States government intelligence process

had three phases: (1) collection of information; (2) analysis of data, also known as evaluation and production; and (3) dissemination of the conclusions (McGonagle, 2007; Ransom, 1959; Zlotnick, 1964). However the same model at a national intelligence strategic level had five phases or steps and approaches to the intelligence cycle: (1) requirements; (2) collection; (3) information processing; (4) analysis; and (5) dissemination (Zlotnick, 1964). By the eighties, the model was virtually described by the same terms as the classic intelligence cycle: (1) requirements; (2) collection; (3) production; and (4) dissemination; where requirement was the recognition and the validation of a need for intelligence and production was the transformation of collected information into intelligence (Schroeder, 1983).

On the other hand, in 1980, Michael Porter established the functions of a competitor intelligence system: (1) collecting field and published data; (2) compiling the data; (3) cataloging the data; (4) digestive analysis; (5) communication to strategist; and (6) competitor analysis for strategy formulation. Porter (1980) makes no mention to how the information needed is determined or established (McGonagle, 2007). Later, John Prescott (1989) defined the phases of a competitive intelligence assignment as being: (1) establishment of the objectives; (2) collection data; (3) data interpretation; (4) implementation by communicating and linking the analyses and their implications to managers; and (5) updating. Although is not clear who sets the objectives, the assignments tended to came from outside the competitive intelligence personnel (McGonagle, 2007). In 1999, Jan Herring proposed the key intelligence topics that allowed the competitive intelligence director to identify and prioritize managers and organizational needs, also designated key intelligence needs (McGonagle, 2007).

Once more, there is not a unique intelligence cycle as their phases or steps concerning. Even when addressing to the classic or traditional intelligence cycle, authors refer to different intelligence cycles. Kahaner (1996) defines the intelligence cycle as a four-step cyclic process: (1) planning and direction; (2) collection; (3) analysis; and (4) dissemination. Another intelligence cycle is the following five-step process: (1) planning and direction; (2) collection of data and/or information; (3) processing and/or storage; (4) analysis and production; and (5) dissemination (Bernhardt, 1994; Herring, 1999). Some authors included the intelligence cycle management in the cycle itself: (1) obtaining competitive intelligence requests; (2)

collecting information; (3) analysis and synthesis of information; (4) communicating intelligence; (5) contextual and management (Calof, 1998). To best understand and establish the most possible consensual intelligence cycle in this thesis, the names and description of the several phases or steps of the intelligence cycle are discussed, analyzed and compared (Table 2).

Table 2 - The Intelligence Cycle Matrix

	Requirements	Planning	Direction	Search	Collection	Processing	Storage	Analysis	Synthesis	Production	Dissemination	Communicating	Contextual	Management	Feedback
Bernhardt, 1994	-	○	○	-	●	●	-	○	-	○	●	-	-	-	-
Kahaner, 1996	-	○	○	-	●	-	-	●	-	-	●	-	-	-	-
Calof, 1998	●	-	-	-	●	-	-	○	○	-	-	●	○	○	-
Herring, 1999	-	○	○	-	●	○	○	○	-	○	●	-	-	-	-
Taborda & Ferreira, 2002	●	-	-	-	●	-	-	●	-	-	●	-	-	-	-
Clark, 2003	●	○	○	-	●	●	-	○	-	○	●	-	-	-	-
Kindler, 2003	●	-	-	-	●	-	-	○	-	○	●	-	-	-	-
Herring, 2005	-	○	○	-	●	●	-	○	-	○	●	-	-	●	-
Wergeles, 2005a	-	●	-	-	●	-	-	●	-	-	●	-	-	-	-
Prescott, 2006	-	●	-	-	●	-	-	●	-	-	●	-	○	○	-
Wright & Calof, 2006	-	●	-	-	●	-	-	●	-	-	-	●	-	-	-
Comai, 2007	●	-	-	-	●	-	-	●	-	-	●	-	-	-	-
Hohhof, 2007	●	-	-	-	●	-	-	●	-	-	-	●	-	-	-
McGonagle, 2007	-	○	○	-	●	-	-	●	-	-	●	-	-	-	●

● single term on the name of step; ○ term on partial name of the step; - no term on any step.

The majority of the authors selected use the term planning for the first step of the intelligence cycle, some along with the term direction and some use only the term request, requirements or needs. The planning and direction step includes the identification of the requirements or the intelligence needs (Bernhardt, 1994; Herring, 1999; Kahaner, 1996; McGonagle, 2007; Taborda & Ferreira, 2002). All the fourteen authors use the term collection and analysis in their intelligence cycle steps. The collection step also includes processing the information collected and storing electronically so it can be manipulated into a form for analysis (Kahaner, 1996). Therefore, the step collection can include the steps processing and storage. Five of the

authors use the term production for the analysis step, when referring to the production of intelligence. The analysis step includes synthesis of information and the production or creation of intelligence, as collected information is turned into intelligence through analysis (Prescott, 1999). Regarding the step of delivering the intelligence, a large percentage uses the dissemination term although communication is also used by a few. However communication can be considered just a way to disseminate the intelligence to the decision-makers (Bernhardt, 1994). A few authors also use more steps than the normal, which is four or five, to enhance the intelligence cycle management or the decision-makers feedback. Nevertheless, the contextual and management step of the intelligence cycle is more related to the implementation of a competitive intelligence system or team in the organization (Calof, 1998), than with the intelligence process itself. Therefore that step should not be included in the intelligence cycle. On the other hand, the feedback and the interactivity with the decision-maker occur on the planning and direction step and on the dissemination step when delivering intelligence that may origin a new cycle through new requirements or needs (Kahaner, 1996; Taborda & Ferreira, 2002).

In summary, and for the purpose of this thesis, the intelligence process is defined through the classic intelligence cycle of Larry Kahaner (1996) as shown in the Figure 3. Planning and direction is the first step of the intelligence cycle where the decision-makers get involve and identify their needs for intelligence and the competitive intelligence practitioners plan a direction to fulfill the request. The collection step includes the gathering, processing, transmission and storage of the planned and necessary information to fulfill the request. In the analysis step the information is filtered, distilled, and analyzed by looking for patterns and establishing different scenarios to the patterns identified and actions for the scenarios created. The final step is the dissemination of the intelligence produced to the decision-makers, with courses of action and recommendations, which may origin more intelligence needs and requests (Kahaner, 1996). Sometimes when analyzing, there is the need to go back to collecting more information (Taborda & Ferreira, 2002).
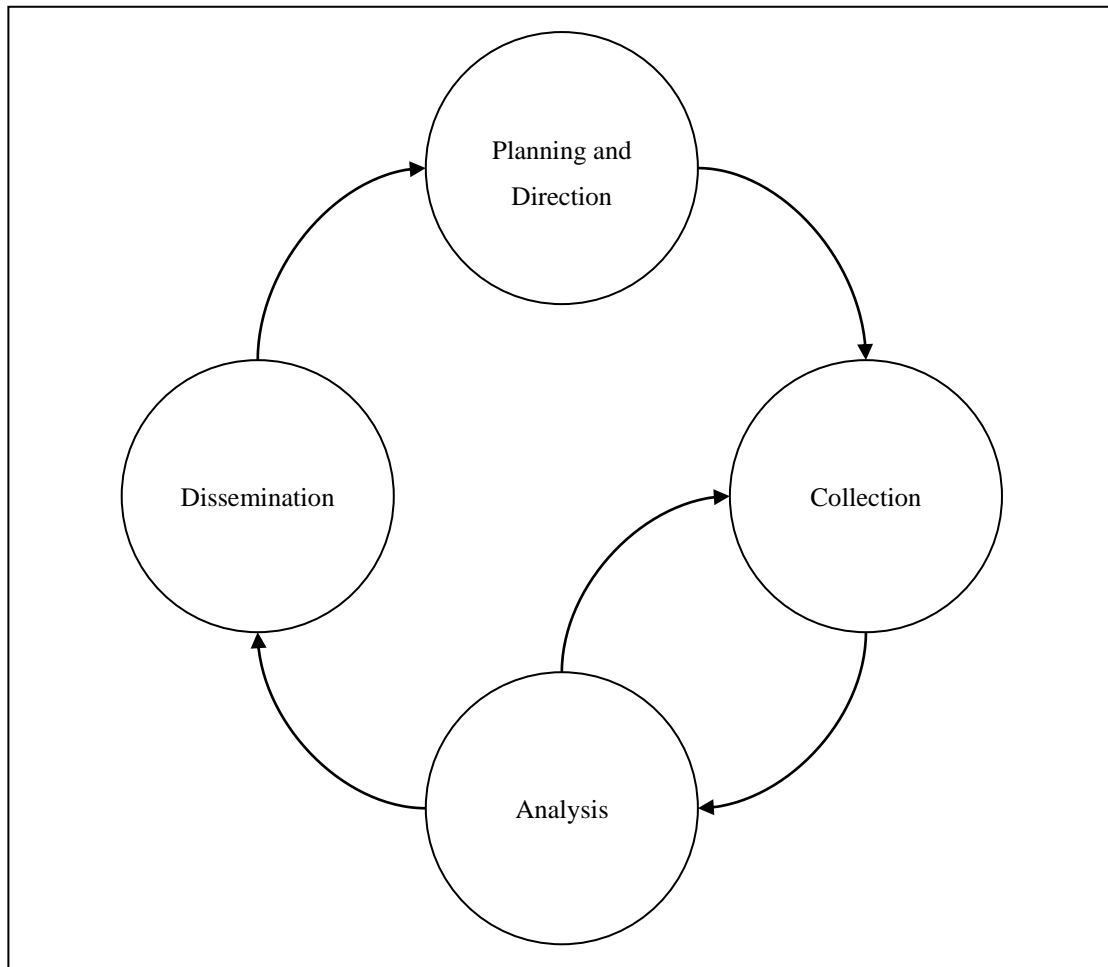
Figure 3 - The Intelligence Cycle (adapted from Kahaner, 1996)

A simple analogy can be established by comparing the competitive intelligence process with common sense, where the right questions are made to the right sources (planning and direction), exclamations arise from analysis (collection and analysis) and the final recommendations are based on factual statements (dissemination) (Ward, 2001). However, not all authors defend the classic intelligence cycle as the intelligence model to follow. For once, John McGonagle (2007) exposes three reasons for the failure of the classic intelligence cycle as defined by Kahaner (1996): (1) the original intelligence cycle is now consider a dysfunctional and a bureaucratic model; (2) the inadequacy of the intelligence cycle to tactical intelligence, such as market intelligence and competitive technical intelligence; (3) the inoperability of the intelligence cycle face of the unclearly careers paths and three-year growing cycle (McGonagle, 2007). These issues will be further addressed in the summary section of this chapter.

2.2.2 Planning and Direction

"I'll need some information first.

Just the basic facts.

Can you show me where it hurts?"

Gilmour & Waters, 1979

The first step of the intelligence cycle adopted in this thesis is planning and direction, which have three goals: (1) a clear understanding of the decision-maker intelligence needs; (2) a plan of collection and analysis to fulfill those needs; and (3) an informed decision-maker (Kahaner, 1996). Before the new millennium, understanding the decision-maker intelligence needs differ from author to author, as each one proposed a different method to achieve the first goal of planning and direction step. Kahaner (1996) stated that it was the decision-maker that got involved in the process and decides what intelligence was necessary. Occasionally, intelligence needs were also understood when delivering previous intelligence and further intelligence needs emerged. Bernhardt (1994: p. 7) defended the articulation of intelligence needs by the decision-maker answering three basic questions: "What do we need to know? Why do we need to know it? What decision is to be made or action taken, once we know it?" The intelligence needs had to be clear and explicit to decision-makers, researchers and analysts. Calof (1998), on the other hand, has a more broad view of the process of understanding the decision-maker intelligence needs. Understanding how to identify the intelligence needs, the basic psychology of each decision-maker, the structure, culture and environment of the organization, or its internal and external capabilities, were among some of the objectives in this goal. Only after Herring (1999) proposition of the key intelligence topics, authors of competitive intelligence subjects started to talk the same language when addressing the planning and direction step of the intelligence cycle (Antunes, 2004; Barnea, 2005; Herring, 2002, 2006a; Kinsinger, 2003; Marling, 2003; Nolan, 2005; Potter & Potter, 2004; Taborda & Ferreira, 2002).

Once again, the key intelligence topics had its origin in the government model of National Intelligence Topics, as Jan Herring (1999) left the government in mid-1980s to join the private sector, bringing along and adapting the process of organizing, prioritizing, and focusing the limited intelligence resources to the critical needs of

national security. The process has been used since then to identify and prioritize decision-maker intelligence needs in several companies and is basically an interactive dialog with the decision-maker (Herring, 1999). The intelligence needs of the organization can be incorporated into one of these four types: (1) strategic decisions and actions; (2) early-warning topics; (3) descriptions of the key players (Herring, 1999, 2005; Johnson, 2004); and (4) counterintelligence (Bernhardt, 1999). Strategic decisions and actions include the development of strategic plans and strategies and its key intelligence topics vary from the specific question to the more broad topic that later must be clarify interactively with the decision-maker (Herring, 1999). Early-warning topics include competitor initiatives, technological surprises, and government actions, which are mainly focus on threats, but can also identify opportunities for the organization (Herring, 1999). Descriptions of the key players reflect the need to understand a player in a specific marketplace concerning competitors, customers, suppliers, regulators, and potential partners (Herring, 1999).

There are two ways to identify the intelligence needs of the organization: (1) the responsive mode and (2) the proactive mode (Herring, 1999). In the first, competitive intelligence practitioner receives the decision-maker intelligence needs and gets to the second and third goal of understanding the intelligence needs. In this mode, there are two criteria to reject the request: when the request can be satisfied by other departments or of a non-intelligence nature and when the request is for information instead of intelligence. In both cases the client should be directed to the appropriate department or information sources (Herring, 1999). In the proactive mode the competitive intelligence manager, director or practitioner takes the initiative and interviews the decision-maker in order to help identify and define their intelligence needs. This process is called key intelligence topics and usually involves meeting with the decision-makers, which is also a way to get feedback on past and ongoing work (Herring, 1999). The main advantages of the proactive mode, or key intelligence topics, are the efficiency on planning and directing intelligence operations, the management involvement and the interest on the intelligence produced (Herring, 1999). The interviews conducted in the key intelligence topics process are based on key intelligence questions (Barnea, 2005; Herring, 2002, 2006a; Kinsinger, 2003; Marling, 2003; Nolan, 2005) that once answered will provide the intelligence needs of the organization. Every key intelligence topic must have a decision or a future action

associated, along with a deadline (Taborda & Ferreira, 2002). The key intelligence topics vary with the type of intelligence needs (Herring, 1999) allowing competitive intelligence activities to identify and collect information for different purposes.

The two previous ways to identify the intelligence needs of the organization, the responsive and the proactive mode, can also be interpret as a classification of the frequency of the required information to collect on the next step of the intelligence cycle: ad-hoc or continuous (Taborda & Ferreira, 2002). The responsive mode originates the ad-hoc frequency of the information, as for the proactive mode, using the key intelligence topics, originates a continuous search and collection of information, thus, becoming the truly and desirable mode of work of the competitive intelligence activities in the organization (Taborda & Ferreira, 2002). Another classification of the frequency of the required information adds a middle term to the previous ad-hoc/continuous duality, stating that the frequency of the information creates three types of competitive intelligence processes: (1) irregular, where ad-hoc studies are included; (2) regular, where periodically updating studies are conducted; and (3) continuous (Fahey & King, 1977). These three types of competitive intelligence processes have three basic sources of intelligence needs: (1) senior managers and key decision-makers; (2) management processes and procedures, including strategic plans or budget reviews; and (3) the competitive intelligence function itself (Herring, 2005, 2006b). This chain of thoughts allows the continuous type of competitive intelligence processes to be considered exclusively created from the competitive intelligence function, which would sustain the idea of a decision-maker independent function. This is only possible in a large or mature competitive intelligence team. On the other hand, a different way to classify the information to collect is by its familiarity: known or unknown; which when combining with the classification by its frequency of João Taborda and Miguel Ferreira (2002), we obtain a two-by-two matrix (Table 3) that provides four different types of information with specific issues (Taborda & Ferreira, 2002): Opportunities; Generic; Surveillance; and Tendencies.

Table 3 - Classification of Information

	Known information	Unknown information
Ad-hoc frequency	Opportunities	Surveillance
Continuous frequency	Generic	Tendencies

Adapted from Taborda & Ferreira, 2002.

Opportunities are information that creates an event or opportunity to organizational change, such as a new law or regulation on the economic sector or market where the organization operates. Generic information is information about clients, finance, and technical features of the productive process, which can be found in organizational knowledge repository. A major concern here is the tacit knowledge and non-published information. Surveillance is the most important type of information to competitive intelligence. The surveillance information is where the real value of intelligence lays, which includes decision-maker profiling either through interviews or by speech analyses, sources of primary information and prospects of counterintelligence issues. Tendencies are the type of information about new technologies and substitute products. Once analyzed it becomes generic information (Taborda & Ferreira, 2002).

Although the two modes to identify the intelligence needs of the organization, the responsive and the proactive mode, originates an ad-hoc and a continuous classification of information, and consequently two types of work in competitive intelligence, the ad-hoc requests from the responsive mode are not exclusive of the decision-maker. The competitive intelligence personnel themselves can identify an intelligence need based on an opportunities or a surveillance type of information (Taborda & Ferreira, 2002). Nevertheless, the key intelligence topics are not without some major concerns. Herring (1999) identify three classic problems when using the key intelligence topics to identify the intelligence needs of the organization. Most decision-makers use intelligence when available in the decision making process, but are reticent in asking for it. The way to resolve this is to educate the decision-maker through seminars, interviews using an experienced manager or examples of successful intelligence operations based on key intelligence topics (Herring, 1999). The second

problem is the incapacity of the decision-maker to express the intelligence needs in a form of a future decision or action to take. One way to resolve this problem is to help the decision-maker to understand its needs before the collection and analysis, or, as a last resource, to show preliminary results to narrow down the key intelligence topic and to establish its decision or action (Herring, 1999). The last problem is when the decision-maker does not know what intelligence is needed for the decision-making process. In this case, a list of emerging competitive situations or new key players can help the decision-maker understand the organization position and future decisions or actions that have to be considered (Herring, 1999).

In 2006, while revisiting the key intelligence topics, Jan Herring identified additional problems when using the process. Some competitive intelligence personnel are unable to follow the proactive mode in interviewing decision-makers or do not have the experience to manage the intelligence program (Herring, 2006a). To solve these problems the right people with the right skills should be hired or trained. As previous discussed, a key intelligence topic is not a question with a simple answer, nor is a key intelligence question. A key intelligence topic is a matter that reflects an intelligence need, which has an intelligence plan concerning those needs, information collection and analysis options, and eventually notes about the application of the intelligence produced (Herring, 2006a). One last problem identified is the number of key intelligence topics that the competitive intelligence personnel can manage. The number depends on the size and capacity of the team, especially to manage the decision-maker expectations and the variety of the key intelligence topics themselves (Herring, 2006a). The maturity of the competitive intelligence function may be a solution for this last problem and will be discussed further ahead.

In summary, the key intelligence topic process is a tool to identify, plan and implement intelligence activities in a professional and rigorous way (Herring, 2006a). A key intelligence topic has several components, such as a statement defining the intelligence need, key elements and trends describing the current and future situation, key intelligence questions, preliminary hypotheses (Rothwell, 2007) and a time limit (Taborda & Ferreira, 2002). When addressing the key intelligence questions, some issues are mandatory, such as the decision associated and its implications on the organization and potential opportunities emerged, the sources of information and

30

analysis tools (Rothwell, 2007). Additionally, collection challenges, expertise of the collector and the analyst, and timeframes are also issues to take under advice (Rothwell, 2007). Key intelligence topics are not key intelligence questions (Herring, 2002; Lewis, 2003). The questions help building up the topic (Lewis, 2003), but a topic cannot be form only based on key intelligence questions.

At last, regarding intelligence needs, some sort of parallelism between the intelligence needs of Jan Herring (1999) and Douglas Bernhardt (1999), and the types of intelligence defined by Jean-Philippe Deschamps and Ranganath Nayak (1995) can be established. The intelligence needs of strategic decisions and actions (Herring, 1999) are related with the type of competitive intelligence of strategic and social intelligence (Deschamps & Nayak, 1995), as the need for strategic plan and their associated actions can be answered by intelligence about strategic options along with their social impact. In the same way, early-warning topics (Herring, 1999), as intelligence needs originate the technological type of intelligence (Deschamps & Nayak, 1995) as the need for new materials, products, processes and services is answered by this type of competitive intelligence to avoid technological surprise (Herring, 1999). The intelligence need of the description of key players (Herring, 1999, 2005; Johnson, 2004), defined as competitors, customers, suppliers, regulators and potential partners, as parts of the market (Herring, 1999), is related to the market intelligence (Deschamps & Nayak, 1995). And finally, the counterintelligence needs (Bernhardt, 1999) is related with the competitor type of intelligence (Deschamps & Nayak, 1995), as its nature is to counteract and prevent the competitor actions which are harmful to the organization (Prior, 2010).

Jan Herring (1999) also identifies detailed examples of each type of competitive intelligence referred above. Early warnings of developments that presents a threat to the organization, such as key markets, products and technologies is an example of the technological type of intelligence derived from early-warning topics as intelligence needs (Herring, 1999). An example of market intelligence is intelligence about the intentions, plans and performance of rivals, alliance partners, major customers, regulatory authorities and other key players as a way to fulfill intelligence needs type of description of key players (Herring, 1999). The support for critical negotiations involving mergers and acquisitions or investments in less-developed and unstable

regions is an example of strategic and social intelligence (Herring, 1999). An example of counterintelligence needs, fulfilled by competitor type of intelligence, is intelligence to understand and protect against hostile intelligence attacks (Herring, 1999). Jan Herring (1999) provides another example, that most of all is the ultimate goal of the competitive intelligence process, to assess emerging threats and opportunities.

As stated before, the planning and direction step of the intelligence cycle has three goals. The first one, the clear understanding of the decision-maker intelligence needs, has been extensively discussed above and after its achievement, a plan of collection and analysis is elaborated, as the second goal, in order to fulfill the intelligence needs identified, (Kahaner, 1996). A list of sources of information and of analysis tools is created. This subject will be further detailed and discussed in the forthcoming sections of collection and analysis. Finally, the third goal of this first step of the intelligence cycle is to keep the decision-maker informed about the progress of the competitive intelligence work and of the intelligence needs identified either by the responsive or by the proactive mode (Herring, 1999). Regular meetings, newsletters, emails or informal chats can be used (Taborda & Ferreira, 2002). This subject will also be detailed and discussed in the dissemination section of this thesis, further ahead.

Nevertheless, there are other authors that define the planning and direction step slightly different but with the same purpose in the end. Jonathan Calof (1998) presents four actions in obtaining the competitive intelligence requests from the decision-maker: (1) development of effective communication, interviewing, and presentation skills; (2) remaining objective in the previous actions; (3) articulation of the intelligence needs into the intelligence cycle, and (4) conduction of the information resource gap-analysis. Similarly, Douglas Bernhardt (1994) also defines a few actions to perform in the planning and direction step of the intelligence cycle: (1) clear and explicit definition of the intelligence needs to the mutual satisfaction of decision-makers, researchers and analysts; (2) delegation of the various responsibilities of collection and analysis to the proper executives, researchers and analysts; (3) allocation of financial and other resources; (4) briefing of the consultants, if involved; (5) agreement on time scales; and (6) identification of the preliminary sources of information. Bernhardt (1994) also states that, as a focused, intellectual exhausting

and user driven activity, the competitive intelligence process must be managed accordingly. Relating the key intelligence topics issue to the planning and direction step of the intelligence cycle, Jan Herring (1999) states that, they reflect the intelligence needs of the organization and establish an operational framework for the focus in the information collection and analysis. This framework seeks to identify the following matters: (1) key decisions of the decision-maker; (2) intelligence required, through the key intelligence topics, and their impact of the organization; (3) decision-maker abilities, its biases, assumptions, interests and objectives; and (4) the decision-maker involvement in the competitive intelligence process. Intelligence output causes decision-makers to change, improve implementation or enhances the effects of strategies or courses of action, forces rivals to change or modify their strategies or plans, diminishing their adverse effects on the organization, and therefore, plays a central role in the decision-making process (Herring, 1999).

No matter what framework, mode or type of competitive intelligence is in use; intelligence needs are always identified or confirmed through an interview with the decision-maker. One essential tool for personal interviews is the interviewer skills in reading non-verbal messages (Potter & Potter, 2004). Basically these skills resume in performing a vertical physical scan and a communication scan. In the physical scan, a baseline is first established and then changes in posture are observed. The scan regards body position, clothes and colors, eyes, face and voice tone, and hands, arms, feet and legs. The communication scan regards words and word pattern, and psychological typing (Potter & Potter, 2004). This does not means that the interviewer, either a competitive intelligence personnel or an experienced manager, must have criminal detective skills or be a psychiatric specialist, but it helps. Another important skill for interviews is the detecting of deception (Potter, 2004). The human body reacts to lies and that can be read by a vital skilled interviewer, providing validated insights and early warnings (Potter, 2004). Once again the eye contact, specifically the eye movement can denounce a deception. For instance, a person will tend to avoid eye contact when lying; a right-handed person will tend to look left when remembering something; and to look right when getting creative (Potter, 2004). Although these skills are important when interviewing decision-makers, they are fundamental when interviewing primary source of information, as it will be discussed in the next section.

2.2.3 Collection

The second step of the intelligence cycle defined by Larry Kahaner is collection, which includes the actual gathering of information, in a creative, legal and ethical fashion, and the processing of the gathered information so it can be transmitted and stored electronically if necessary (Kahaner, 1996; Marling, 2003). This collection step, although often synonymous with public perceptions of competitive intelligence, is necessary but not sufficient to the creation of intelligence successfully (Kindler, 2003). From a competitive intelligence perspective, information can have primary and secondary sources of information. The secondary sources of information are mainly published (Bernhardt, 1994) and include newspapers, magazines, books, taped and edited television and radio programs, reports of experts, databases and online databases services (Bernhardt, 1994; Kahaner, 1996). These sources will provide for eighty percent of the required information (Bernhardt, 1994) but usually represents only ten percent of the value added to the intelligence produced (Taborda & Ferreira, 2002). On the other hand, the primary sources of information are mainly human and provide the actionable feature of the intelligence produced (Bernhardt, 1994). These primary sources can be reached through human contact and observation and should represent ninety percent of the competitive intelligence activities of information collection (Taborda & Ferreira, 2002). Most of the required information already exist inside the organization, but often the lack of a formal mechanism to leverage internal information, like the model of Knowledge Company Creating (Nonaka, 1991; Nonaka & Takeuchi, 1995) (Appendix B) for instance, complicates the information gathering for the competitive intelligence activities (Bernhardt, 1994). Managers and staff from engineering, finance, human resources, manufacturing, marketing, research and development, and sales departments, functions or units have valuable information to the competitive intelligence process, and can also later benefit with the intelligence produced as decision-makers (Bernhardt, 1994). In the end, the information gathered and processed, once in an electronic form, can be shaped into a manner that it can be analyzed (Kahaner, 1996).

Another way to view information is to classify by its publication status (Medeiros, 2007; Tyson, 1998, 2010). Examples of sources of published information are articles, books, theses, congresses presentations, periodicals, government documents, speeches, analytical reports, government and regulators archives, patents registers; and of sources of unpublished information are sales people, engineering personnel, distribution channels, suppliers, advertising agencies, professional meetings, competitive intelligence companies and reverse engineering (Tyson, 1998, 2010). Although some parallelism can be establish between secondary and published information, and between primary and unpublished information, there are not the same, nor can they be confused with public information. A competitor sales report is published information, but not public information, and should not be even considered a source of secondary information due to legal and ethical issues. However, this kind of information can be deducted through salespeople, suppliers, customers, and observation (Taborda & Ferreira, 2002). Furthermore, any information available to the public in the media, free or for a fee is open source information, meaning that it is public information with different degrees of accessibility (Marling, 2003). For instance, gray literature in the United Kingdom, is public information, often limited scientific publications with confined distribution and rarely indexed, which turns its search and access rather difficult (Marling, 2003). Yet another classification of information is the hard and soft information; where hard information is facts, statistics, raw data, financial information and news, as quantitative information; and soft information is rumors, opinions, anecdotes, op-ed pieces and customer feedback, as qualitative information (Kahaner, 1996).

Nevertheless, without disregarding the previous classifications, and for the purpose of this thesis, information can be divided into primary and secondary information (Calof, 1998; Kahaner, 1996; Taborda & Ferreira, 2002). Primary sources of information are unadulterated facts, raw, unchanged, and usually whole information, gathered directly from its origin, consider the ultimate goal of competitive intelligence collection activities, but can be sometimes impossible to obtain (Kahaner, 1996). Examples of primary sources of information are annual reports, government documents, speeches, live television and radio interviews, organizational financial reports and personal observations (Kahaner, 1996). For instance, regarding market intelligence, specifically competitors, the three most valuable primary sources of information are

the competitor organization itself, the competitor customers, agents and suppliers, and the organization customers, agents and suppliers (Bernhardt, 1994). An informal network of market contacts includes sources of information such as salespeople or marketing staff, competitors, customers or clients, others competitive intelligence practitioners, and monitoring newsgroups and chat rooms. This monitoring allows expanding the knowledge about the perception of the organization by the external world and the creation of an early warning system to detect potential opportunities and threats (Pasemko, 2000). Primary sources of information imply the primary research, which is the collection of information by finding the people who have it and gathering it from (Potter & Potter, 2007). Secondary sources of information present changed information often filtered from larger information sources or altered by opinion (Kahaner, 1996). Often information collected from secondary sources allows the identification of additional primary sources of information (Kahaner, 1996; Taborda & Ferreira, 2002). Complementarily, it also narrows the subjects to collect before contacting primary sources, helps refine hypothesis and reduce costs. The more secondary information collected before addressing the primary sources the better (Elizondo & Glitman, 2004). An intelligence collection plan has three basic steps: where we stand; what is missing; map and prioritize sources (Leder, 2010). When prioritizing the sources of information, and for each key intelligence topic, the secondary sources are search first; the internal primary sources in second, and then the external primary sources of information are identified and contacted (Leder, 2010). Also secondary sources of information imply the secondary research that for Kent Potter and Nancy Potter (2007) is a published research, often web-based.

The collected information can be classified by the reliable level as unquestionable facts and unconfirmed rumors (Taborda & Ferreira, 2002). Unconfirmed rumors can be confirmed or validated by other sources or analysis. The process of information collection should consider three steps: (1) the intelligence needs, already discussed in the first step of the intelligence cycle, plan and direction; (2) the information available in the organization, understanding current and future decision-makers and the information creation process in the organization; and (3) the intelligence or analyzed information produced by others departments, functions or units, to avoid information and intelligence duplication and conflict of interests (Taborda & Ferreira, 2002). On the other hand, the information technologies available that can be selected properly to

each key intelligence topic or kind of information to collect. Regarding the internet, official websites and social network profiles of competitors and sector associations, news websites and market, employment and stock exchange databases are all valid sources of information. However, some risks to the competitive intelligence process must be taken under consideration: (1) volume of information, where is easy to fill several dossiers of printed pages form the internet; (2) validation of information, where the collected information form the internet can be validated through person contact by telephone or email. Most of the primary sources of information, such as customers, suppliers, specialists, teachers, journalists, former employees, are one phone call or email away (Taborda & Ferreira, 2002). The information collected must be available to the competitive intelligence personnel no manner who collected it or who is require it (Kahaner, 1996). When addressing the urge of a competitive intelligence system in the software sense, some criteria should be taken under advice: easy to input or retrieve data; able to hold all types of information or media collected; able to grow with the intelligence activities; differ information from rumors, guesses and estimates by rating information by its validity; be central enough to easy to access and sufficient local to encourage local databases and information to be shared back; filter large pieces of information searching within or organizing by organization names, technology, prices or by other categories that users need or identified in questionnaires and surveys; deny access to unauthorized and undesired users (Kahaner, 1996). The information processing when addressing information technologies, is to process the raw data turning it useful by translating from foreigner languages, sorting, grouping and organizing the data (Marling, 2003). Technologies in this phase are tools with the capacity of extraction, text-mining, labeling, foreign language translators and interpreters and the integration of all those capacities, also to fuse the new information with the existing. Only then, can the data and information be turning into useful information for the analysis step (Marling, 2003). Technologies in the actual collection phase are tools that allow the capacity of searching, indexing, speech recognition, working with foreigner languages and natural understanding, dealing with news feeds and using multiple sources (Marling, 2003).

When validating the information, especially the one collected from human sources, several issues come up, such as the validity of the information shared, the background and position of the human source regarding its own interests and the truth of their

communication (Naylor, 2011). Typically on a source of information network, past and present shared or collected information from the same source that has been validated and the source has a history of complete reliability, is valid information. Nevertheless, evaluating the source for its reliability can be done through a scale from reliable to unreliable regarding its information authenticity, trustworthiness, competency and reliability history, and as unevaluated for a new source which there is no basis for evaluation (Naylor, 2011). The information validity, on the other hand, depends on the validity of the source and of the information itself which in turn have its validity depending on the accuracy, the authority, the coverage, the currency and the objectivity of the information (Naylor, 2011).

Apart from the Larry Kahaner (1996), João Pedro Taborda and Miguel Duarte Ferreira (2002) descriptions and methodologies to collect information, is always important to understand the Calof (1998) view of this step of the intelligence cycle. Jonathan Calof describe the competencies necessary for the collection of information as obtaining knowledge of primary and secondary sources, of the various methods for accessing them internal and externally, and of managing them, know-how of information triangulation, multi-method and multi-source approach, ensuring reliability and validity of the sources developing a confidence level system, recognizing anomalies in the information, knowing the difference and reasons between hypothesized and open assumptions, developing research skills, identifying organizational information gathering patterns to collect according to it, and knowing the ethical code associated with data collection (Calof, 1998).

Still regarding the collection of information, other related matters must be discussed. First, public-domain information is available for everybody and can be found in public and government institutes and reports, such as industrial reports, city halls or local representatives, the media in general, trade associations, databases and on the internet (Kahaner, 1996). Databases can be divided in two categories: those with stories and those with data. The first ones contain articles from the media, press releases and government reports and are usually sources of secondary information. Those with data carry patents, financial information, advertising, stock exchange information, statistics and sales information, mostly unfiltered and raw data, and considered primary information (Kahaner, 1996). On the other hand, unpublished

information does not mean that it is private or confidential. For non-public-domain information a little persistence and creativity can be necessary to gather the required information (Kahaner, 1996). Second, the short time in the life of an organization in which a massive change or upheaval is taking place, the moment of change (Fuld, 1995; Fuld & Company, 2014; Kahaner, 1996), can be detected by an increase on media articles and stories about that organization. There is also an increase on their paperwork and press releases (Kahaner, 1996). Third, human intelligence, or just humint, is insight information gathered mostly without seeking for it, and often starts as a rumor or hearsay, but after validated or proper analyzed, it can turn into valuable intelligence. Human intelligence is free primary information that needs validation (Kahaner, 1996). Even in an organization with highly efficient electronic information monitor program, often the best information comes from human sources (Brenner, 2005). Another source of human information is the organization salespeople. They have regular contact with customers and competitors (Kahaner, 1996). Fourth, one direct form to collect information about a competitor is to ask. Asking a competitor for brochures, rates and catalogues to is not illegal nor unethical, as long as the identification of who ask is not forgery. In the same way, subscribing to a mailing list is also acceptable (Kahaner, 1996). The counterintelligence services or activities of the competitor should detect the situation. Fifth, the opportunity of information collection in trade shows, conferences and industry meetings is one more matter related to the collection of information. In some forums is even possible to talk directly to a competitor. The game is to conduct competitive intelligence activities better than the competitor (Kahaner, 1996). Competitive intelligence savvy collectors in trade shows do not ask direct questions; are flatter and do not misrepresent themselves; avoid words related to intelligence; keep themselves calm using pauses and repeated words in their conversations; pay attention to nonverbal messages; are prepared and know their key intelligence topics; and will report back every single subject mentioned in the conversation (Ratajczak, 2007). Finally, observation is the most powerful tool for collecting information from their sources. That is why the salespeople are important in the competitive intelligence process (Kahaner, 1996). For years, aerial observation was illegal, but nowadays with aerial and satellite images offered by commercial organizations it is possible to acquire satellite images of the competitor facilities for example. For non-real-time aerial and street images, is possible to access to Google Maps (Google Maps, 2014) for free. Legally there are no

limits in international laws to the collection of sensitive commercial data by means of satellite remoter sensing (Ehrlich, 1999; Wergeles, 1998). On the other hand, regarding the United States Economic Espionage Act, the information gathered is no longer a secret and cannot be a trade secret once accessible to the public as a commercial service (Horowitz, 1999). In 2003 there were several commercial imaging satellites services such as Space Imaging, Digital Globe, Orb Image, Teraserver, Spot Image and Land Sat 7 (Gilmore, 2003). Information on facility changes, on vehicle and pedestrian traffic patterns changes, on material flows, trucking, shipping and railroad activities, on facility energy consumption and damage assessment or installation activity can be monitored using satellite imagery (Gilmore, 2003). Competitive intelligence activities can also benefit with the use of satellite imagery by providing timely and cost-effective access to information about facilities of competitors around the world, multiple sites monitoring due to the existence of several satellites in orbit, security for employees in foreign countries while monitoring changes on legal conditions and governments, and evaluation of urban sprawl in identifying potential new locations or commercial opportunities for the organization or the competitors (Gilmore, 2003).

Some myths about the location of information and its value to competitive intelligence process has been stated by several authors as golden rules, however they lack the empirical support or the identification of the source studies that supports those statements. Nevertheless, the numbers are commonly accepted by the competitive intelligence community and SCIP and report back to the two last decades of last century and the United States social and economic reality. Ninety five percent of the necessary information for the competitive intelligence process is public domain (Tyson, 1998). Ninety percent of the intelligence produced value is associated with primary sources of information and ten percent to secondary sources of information (Taborda & Ferreira, 2002). Eighty percent of the necessary information about competitors is already available inside the organization as internal knowledge (Tyson, 1998). Eighty percent of the necessary information about competitors is available in a legal and ethical way. The other twenty percent may not be necessary, can be deduced or can be available in professional information services (Taborda & Ferreira, 2002). Ninety percent of the necessary information about the capabilities, vulnerabilities and intentions of competitors is available as a public record or through ethical inquiry.

The other ten percent can be deduced through good analysis (SCIP, 1998). Obviously, these numbers are not as accurate as desire, however, and more important they to tend to represent the competitive intelligence effort and their time work units, along with some best practices conducted through the years.

When addressing to the specific sources and tools of competitive intelligence collection step, almost every author has its own source and tool to its specific issue on information collection or based on their specific background. The Five W and One H model is based on the six basic journalists and questions of reporters when preparing to research and write a story: Who? What? When? Where? Why? How? (Badertscher, 2008; Stovall, 2005) When transporting those to the competitive intelligence process, the questions became: Who should the primary sources be? What will be done with the primary data? Where does your client want you to find primary data? Why does the client want the data? How will the sources be contacted, and how will the data be collected? (Badertscher, 2008) One could even add the question: When will the information collection end? The answer has already been given by several authors. Collection and competitive intelligence activities should have a time limit (Rothwell, 2007; Swanson, 2005; Taborda & Ferreira, 2002).

The collection tool of the telephone call has also some rules to achieve best results. Debbie Bardon (2004) has established some basic rules in two provocative articles about confessions of a call girl. Telephone calls for primary information collection are not easy (Bardon, 2004). The Ten Lessons proposed are: (1) be nice to everyone you speak on the telephone; (2) establish the final goal for the telephone call; (3) have a smile on your face and make it sound in your voice; (4) compliment the gatekeeper to get through to the source; (5) flatter the source to have them open up; (6) persistence pays when calling potential sources; (7) do not take rejection personally; (8) script your self-introduction and your key interviews questions; (9) respect your source time and reschedule a telephone appointment; and (10) end each call with the perspective of a new contact for additional information (Bardon, 2004, 2008).

When conducting decision-makers, employees or former employees profiling, either of the organization or of a competitor, online social networking websites are important sources containing biographical, current activities and contacts of the

person (Carpe, 2005b). On the other hand, internet as a source has topping other potential sources of information such as internal organizational information and people; this conclusion appears in an American Productivity and Quality Center benchmarking study conducted under the supervision of John Prescott and SCIP. This reliance on the internet ranked by business professionals is motivated by five advantages: cost-effectiveness, accessibility, convenience, anonymity, and global reach (APQC, 2000). Fee-based internet information has also two additional advantages: it is based on primary research conducted by a professional team and usually reliable and verifiable (Charles, 2007); and is secure distributed confidentially (Fleisher & Blenkhorn, 2003). However all these advantages are general counterbalanced with common pitfall of three categories: quality and accessibility of information; human intelligence neglect; and questionable level of analytical robustness (Charles, 2007). Nevertheless, fee-based services, or value-added services, have evolved to the point of sophisticated interfaces with analytical tools, mostly due to the influence of the internet (Sewell, 2008), thus counterbalanced the previous disadvantages. In fact, fee-based services offer by news and database aggregators such as Thomson Reuters or Factiva continue to be important pillars on the information industry.

Competitor information can be collected accessing to news and business contents, legal and government information, intellectual property information and public records, all of those available through fee-based services (Wilson & Wunderlin, 2006). These aggregators often provide high-quality information gathered from several world-wide sources and powerful search tools that allow quick results on current and archival data (Sewell, 2008). Still regarding the internet as a source of information, Merrill Brenner (2005), a manager of technology intelligence in the chemical industry, refers to an internet technique when conducting information collection: monitoring websites. Specific software such as Website Watcher (Aignesberger Software, 2014) allows monitoring websites of specialized technology and business news in various industries, especially press releases and research and develop departments, along with government and university technology pages (Brenner, 2005). Additionally to the previous internet tools for information sources identification and collection discussed, news alerts can also provide the necessary tip to the right information; services such as MarketWatch, GoogleAlert, NewsIsFree,

and Website RSS are to be considered (Wergeles, 2006). Finally, although the internet and their search engines help identify information sources and collect most on the necessary information, it also provide for local information sources, that once located, should be investigated. Local newspapers, business journals and magazines, local libraries and business groups allow gathering information more efficiently and productively taking advantage of relevant information that might be available (Wilson, 2008). As always, good sense and a good planning and direction will allow determining whether the internet is the proper source or tool for a specific situation. The use of both the internet and human information sources is recommended to produce robust competitive intelligence that leads to competitive advantages (Charles, 2007).

According to Christine Wunderlin (2007), most successful competitive intelligence programs began with an internal audit of the organization and the first decision made was regarding whether the information collection would be conducted in-house or outsourced. However, and consider that most of the information needed is within the organization, outsourcing might be only consider to the rest of the information needed to produced good and actionable intelligence.

Cultural and linguistic fluency is often disregarded when addressing an international data collection; however every language has its own idioms and phraseology and competitive intelligence researchers and collectors need to look for tools to overtake these cultural and language barriers (Elizondo, 2003). In fact, an international data collection has some particularly challenges: (1) the interpretation of the collection project needs by the researcher or collector; (2) the task complexity; (3) the communication barriers, due to either the familiarity of the issue at hand or the lack of human information processing; (4) the ethical, social and cultural differences that influences the way the information is collected and are often not understood by the decision-maker; (5) knowledge areas related to the researcher or collector, to the task or the issue of the data collection (Elizondo & Glitman, 2002). For instance, when collecting information from secondary sources in Latin America the availability, reliability, comparability and validity of the data are aspects to consider (Elizondo & Glitman, 2004).

Original equipment manufacturers are authorized and licensed factories in charge of manufacturing branded products in behalf of trademark owners. On the other hand, parallel import refers to diverted products manufactured to be sold in specific territories, but end it up being sold outside those territories (Kennedy, 2000). The salespeople are the first to suffer with parallel imports in their daily sales routines. Salespeople are the primary and first source of information to contact when addressing these issues in a key intelligence topic. A solution is to control the original equipment manufacturer by setting quality standards, buying the products for tests, identifying distribution channels and visiting the facilities. Set the standards to the competition (Kennedy, 2000).

In Portugal, tracking government websites, their news and statements, press conferences and official documents must be essential (Government of Portugal, 2014). For instance, in 2011 when the Memorandum of Understanding on Specific Economic Policy Conditionality has published, a glimpse of the social and economic future environment became available. Also laws, regulations, and projects that might one day turn into law can be found in the Portuguese parliament website (Assembeia da República, 2014). Apart from the official public financial annual reports of stocked organizations, reports of small and medium organizations can be accessed through the internet or sector reports available in databases services, such as Thomson Reuters Eikon (Thomson Reuters Eikon, 2014), BvD Amadeus (Amadeus, 2014), Racius (Nexperience, 2014) or Informa DB (Informa BD, 2014). The patent and registered trademarks database can be found in the website of INPI.

2.2.4 Analysis

"And exposing every weakness
However carefully hidden by the kids"
Waters, 1979e

The third step of the intelligence cycle adopted in this thesis is analysis, and basically is the step where the collected and processed information is analyzed in order to identify patterns or trends and to establish scenarios (Taborda & Ferreira, 2002). Analysis is turning information into intelligence and the job of the intelligence analyst is to weigh the information, look for patterns and create several scenarios, through

specific skills, often filling in the blanks with educated guesses about possible outcomes (Kahaner, 1996). Analysis is the exploitation of the information collected (Marling, 2003). Analysis is the value added element of intelligence, where raw information is transformed into intelligence, through good analysis (Bernhardt, 1994; Prescott, 1999). However, it might not be enough; decision-makers must be receptive to the intelligence produced, especially if not expectable (Bernhardt, 1994). There is no perfect intelligence toolbox, thus Douglas Bernhardt (1994) proposes an analytical approach by setting an analytical perspective acceptable by the decision-maker and that allows producing actionable intelligence. Analysis is the most difficult part of the intelligence process (Kahaner, 1996). Often, during analysis, additional sources of information or specific details are identified, and additional collection is performed (Kahaner, 1996; Taborda & Ferreira, 2002), therefore in process terms; it is possible to go back to the second step of the intelligence cycle, like an iterative step, until the information is collected or the time limits for the task are achieved. Analysis is an art that takes personal courage, intellectual fortitude and conviction when taking a stand (Kahaner, 1996).

Ultimately, a good and experienced analyst guesses the likely scenarios and most of the time makes the right assessment; but often fails when it comes to timing (Kahaner, 1996). Analysis failure does exist, even when the best practices on analysis are applied. Craig Fleisher and Sheila Wright (2010) have identified some major failure in analysis on four different levels. On the individual analyst level the failures are different natural analytical abilities, limited mental capacities, motivation, cognitive biases and perceptual distortion, insufficient knowledge of analytical tools and techniques, and poor level of higher education (Fleisher & Wright, 2010). Preconceived notions drive even good analysts to show weakness in their behavior when the analysis is conducted to confirm assertions or theorems (Kahaner, 1996). A cognitive bias is the distortion of the view of reality that our minds commonly and defensively do (Rothwell, 2007c). Two common analytical tools where those biases are present are the group-think and the blind spots analysis. The causes of biases in group-think are the desire to avoid seen foolish, the desire to avoid embarrassing or angering senior staff, and the organizational culture that mutes risk-taking (Rothwell, 2007c). The causes of biases in blind spots analysis are unchallenged assumptions, organizational myths and taboos (Rothwell, 2007c). These cognitive biases can be

eased through external experts or an external trust person that is not exposed to the same biases to review the work; an open, objective and questionable mind; encouragement of a healthy debate; the creation of two competing teams or rotation of roles within the competitive intelligence team. On the analysis task level the failures are the discontinuity of the task, being part of a larger task, data inputs inadequate, disconnection from decision-making and the lack of balance between key task components (Fleisher & Wright, 2010). The failures on the internal organizational level identified are misunderstand and non-appreciation of analysis by decision-makers, and the lack of articulation of their intelligence needs, lack of specific information technology support, lack of thinking time, lack of resources in the analysis, invisibility and mystery of the competitive intelligence staff inside the organization, organizational culture and politics, time and trust, and the wrong idea that everyone is able to do analysis (Fleisher & Wright, 2010). Finally, on the external environment level the failures are the growing number of competitive factors, the external complexity and turbulence, globalization, data overload and educational deficiencies (Fleisher & Wright, 2010). To respond to these failures identified, Craig Fleisher and Sheila Wright (2010) also recommend several principles to the organization: (1) provide empowerment by disseminating intelligence to decision-makers, taking responsibility for their decisions; (2) realize the value of analysis which cannot be achieved by new software or hardware; (3) ask the right questions regarding intelligence needs and expectations; (4) position the analyst correctly where it can make a difference; (5) provide access to the analyst to the right tools; and (6) differentiate the task of intelligence analysis from other analysis currently ongoing inside the organization. There are also some urban legends that can affect the analysis, like incorrect beliefs of decision-makers or managers that can blind an entire organization and cloud the intelligence analysis or lose objectivity (Sawka, 2007). To solve this matter, competitive intelligence activities should identify the wrong belief, treat it as a hypothesis, assess its inaccuracy, and carefully confront the source of the belief providing evidence-based analysis to point out their flaws and inconsistencies or referring to as an urban myth, no longer valid (Sawka, 2007). With this solution, is possible to turn decision-makers and management more receptive to future intelligence on controversial or complex topics, develop an enhanced early warning system, and establish new lines of reasoning, new competitive hypotheses or more creative analysis (Sawka, 2007). The work of the competitive intelligence analyst is a

persistence, depth and rigorous work, without forgetting common sense, and limited by time or the moment of change (Taborda & Ferreira, 2002). When addressing technology specifically in the analyst work, there are several functions that can be supported by technology such as summaries, visualization, pattern recognition, interpreting information, answering questions and drawing conclusions (Marling, 2003). Technology supported analytical tools are also text mining, patent analysis and text analysis (Brenner, 2005).

As stated before, there is no one intelligence toolbox for analysis, it depends on the key intelligence topic at hand or on the decision-maker analytical perspective expected (Bernhardt, 1994). In essence, every single management analytical tool is a valid tool for analysis, which can be used depending on both criteria above. Nevertheless, several authors have established toolboxes or groups of analysis tools for the analytical step of the intelligence cycle. Larry Kahaner (1996) states that, the toolbox for analysis should allow producing intelligence where organizations compete. Although not all organizations compete in all areas, typically organizations compete with products, marketing, advertising, reputations, their structures and skilled people in the financial, technology and manufacturing areas, and by establishing strategic alliances with other organizations (Kahaner, 1996). José Pedro Taborda and Miguel Duarte Ferreira (2002) establish their toolbox as a three step framework where the analysis starts by the identification of the current and future markets, following by the identification of all forces operating in those markets, and finalizing by the collection and analysis of information about technology, products and competitors aligned with the strategy of the organization. The focus of the analysis is the value chain and decision-makers profiles of competitors, mergers and acquisitions, and market evolution analysis through scenario analysis, where the first objective is to know the industry and then their players (Taborda & Ferreira, 2002). For instance, Andrew Beurschgens (2010b) presents the Nine Forces Model (Fleisher & Bensoussan, 2007) to help the analyst identify anomalies in those forces that might have an impact in the organization performance. Kenneth Sawka (2002) states that the five stages of analysis (Figure 4) are (1) data, where something has happening, (2) trends or insights, when the analyst add judgment and interpretative capability to the basic information, (3) explanation, where the analyst relates several other data and information to provide a grounded explanation, (4) implications, where the analyst

first establishes future implications and what it means to the organization, and finally (5) action, where action recommendations and strategic options are produced.
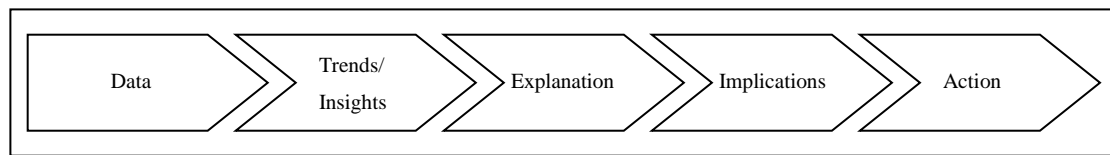
Figure 4 - The Five Stages of Analysis (adapted from Sawka, 2002)

Eric Glitman (2008) states that analytical tools fall into two categories, the basic tools used by every domestic analyst and the international tools for the global focused analyst. Apart from the core business and financial tools where the analyst know how the business operates, generates profits and creates employment, its basic skills include analytical tools such as BCG matrix, SWOT analysis, STEEP analysis, trending, clustering and benchmarking. As for the second category, the analyst must have skills or analytical tools to understand cultural differences, languages issues, foreign collection methods and presentation (Glitman, 2008).

An approach to choose the right analysis tools is the FAROUT approach that indicates which tools are more appropriate, depending on the purpose of your analysis, and the time and resources available (Fehringer, 2007). This approach developed by Craig Fleisher and Babette Bensoussan, allows the analyst to rate each available tool according to six output needs: future-oriented; accurate; resource-efficient; objective; useful; and timely (Fleisher & Bensoussan, 2000, 2003). Apart from being descriptive and explanatory, intelligence is also predictive, prospective and future-oriented (Fleisher & Bensoussan, 2000). Accuracy might often be less important than understanding or perspective, nevertheless its difficulty are related to the numbers of sources, their biases, cross-validation, and the processing of the information (Fleisher & Bensoussan, 2000). Sources of information need to cost less than their potential output, and although primary sources of information lower the analytical accuracy in comparison with secondary sources of information, such as databases with high levels of accuracy and timeless, they tend to be more future-oriented (Fleisher & Bensoussan, 2000). From prior-hypothesis bias to groupthink, cognitive or social biases of the analyst cloud good analyses; and a rational and systematic approach might minimize the potential destructive nature of the analyst biases (Fleisher &

Bensoussan, 2000). Intelligence produced as an output of analysis, should meet the decision-maker intelligence needs, and should be communicated in a clearly understandable manner (Fleisher & Bensoussan, 2000). A balance between the right intelligence too late and the lack of objectivity, accuracy, utility and resource efficiency on time has to be achieved (Fleisher & Bensoussan, 2000). Setting values from one to five corresponding to lower levels to higher levels of each of the six dimensions described, it is possible to rate almost every analytical tool or technique (Fehringer, 2007) (see Appendix C for an example of the application of the FAROUT approach).

Similarly to the FAROUT approach, William Brei (1996) had established earlier the six fundamental principles of intelligence which reads that intelligence ought to be readiness, accurate, relevant, objective, useful and timely. Combining these two approaches Dan Mulligan and Melissa Napolitano (2011) presents the GREAT approach where in order to turn intelligence products great, they must include good analysis, be relevant, include estimative words, be accurate and be timely. Good analysis represents a combination of readiness and future-oriented intelligence and estimate words or words of estimated probability, are related to useful of the intelligence produced, however with a proper scale for decision-makers: remote; very unlikely; unlikely; even chance; probably or likely; very likely; and almost certainly (Mulligan & Napolitano, 2011). Another view regarding analytical tools to use when analyzing in competitive intelligence is the four analytical techniques every analyst must know: analysis of competing hypothesis; five forces model; scenario analysis; and win/loss analysis (Sawka, 2003a, 2003b, 2003c; Sawka & Fiora, 2003; Sawka, 2010). Karen Rothwell (2007b) on the other hand establishes a similarity between the core tools that an intelligence analyst requires and those of a handyman have in the toolkit: a hammer, a screwdriver, and a measuring tape. The tape measure is the four corners model, the screwdriver is the five forces model, and the hammer is the thin slicing (Rothwell, 2007b). When the key intelligence topic is related to technology, the following analytical tools might be used: signals analysis; directed brainstorming; force field or driving forces analysis; SWOT analysis; literature and patent analysis; technology characterization or attribute analysis; technology forecasts; alliance diagrams; blind spot analysis; experience curve or S-curve technology lifecycle analysis; scenario analysis, roadmaps, benchmarking and six thinking hats (Brenner,

2005). In addition, when profiling the decision-maker and its personality, one tool often used in psychology is the Meyer-Briggs type indicator (Wells, 2001).

The preferred techniques or analytical tools used by competitive intelligence analysts have not changed much over the years (Fehringer, 2007). According to a study conducted by SCIP in 1998 to its members, competitor profiling was the most frequently used tool in the analysis step of the intelligence cycle, followed by financial analysis, SWOT analysis, scenario analysis, win/loss analysis, war games and simulation (Powell & Allgaier, 1998). Another survey conducted by the Competitive Intelligence Foundation (CIF) in 2005 indicates that competitor analysis and SWOT analysis stood out, following by industry analysis, customer segmenting and financial ratio analysis (Fehringer, Hohhof & Johnson, 2006). Even so, competitive intelligence analysis, cannot prevent from being characterized by five recent trends: (1) intelligence products contains less analytical insights and conclusions; (2) decision-makers do not know what to do when presented with insights about strategies or intentions of key market players; (3) intelligence analysis is not a well-supported organizational function; (4) analysis only accomplish something when both the analyst and the decision-maker strike a partnership, debate and discuss findings and judgments or collaborate on a plan of action, much due to the lack of development and promotion of intelligence analysis by management; (5) when lower quality intelligence on external issues exist in the organization, the tendency is to solve it with new or different information sources and technology (Sawka, 2006). These trends are solved by producing intelligence with unique insights directly related to decisions and actions; by using competitive intelligence in the decision-making process as an important decision-support tool to set strategies and make effective decisions; and by creating conditions to analysts to network and learn through training programs, discussion groups or professionals meetings (Sawka, 2006).

Another view of the analysis step of the intelligence cycle is to perform the analysis and the synthesis of the collected information regarding the following issues: the interaction between the collection and analysis steps; creative analysis; inductive and deductive reasoning; alternative thinking and network analysis; basic analytical models; exciting and attractive models of analysis; the right analytical tool for the right topic at hand; the existence of gaps and blind spots; analysis paralysis (Calof,

1998). One final way to get the ultimate toolbox for the intelligence analysis is to classify analysis models and techniques according to its main objective, time frame, use and purpose, and use less sophisticated analytical tools as starting points to more sophisticated ones (Comai & Millan, 2006). This form to map and anticipate the competitive landscape, by interconnecting several analytical tools, allows the analyst to use sophisticated tools such as scenario planning, war gaming and competitor response modeling (Comai & Millan, 2006; McGonagle, 2007) (for an example of this technique see Appendix D in the end of this thesis). Another view of interconnect analytical tools is presented by Andrew Beurschgens (2010a) by distinguishing between war gaming and scenario analysis. War game is part of a strategy workshop, in turn part of scenario analysis (Beurschgens, 2010a).

In the next pages, several analytical tools are discussed, however is not possible to fit all of them in here with the same notability due to the lack of academic literature or lack of relevancy to the research questions of this thesis. Nevertheless, all remain analytical tools not addressed here can be found in the Appendix E in the end of this thesis.

2.2.4.1 Analysis of Competing Hypotheses

One of Kenneth Sawka (2003a, 2010) four analytical techniques that every analyst must know is the analysis of competing hypotheses. This technique is part of the core techniques that allows analysis from large apparently disconnected information gathered about the industry, competitors and external factors (Sawka, 2003a, 2010). Analysis of competing hypotheses was developed by Richards Heuer, Jr. of the CIA for intelligence analysts dealing with difficult problems and published by the Center for the Study of Intelligence in 1999. Analysis of competing hypotheses is an eight-step procedure (see Figure 5) based on cognitive psychology, decision analysis and the scientific method (Heuer, 1999; Wheaton & Chido, 2006). Through the identification of all or almost all competing hypotheses, this analytical tool minimizes the cognitive limitations of analysis and helps prevent common analytic pitfalls (Heuer, 1999). The analysis of competing hypotheses helps analysts to overcome cognitive biases forcing them to put aside preconceptions and look for inconsistencies to disprove hypotheses (Wheaton & Chido, 2006). First step is the identification of possible hypotheses, which should be made using a group of analyst with different

perspectives to reach the large number of hypotheses as possible. Improbable hypotheses have to be distinguished between disapproved and unproven (Heuer, 1999). The second step is to provide a list of evidence or arguments from the collected information that support or invalid each hypothesis (Heuer, 1999). The third step is the creation of a matrix to cross the hypotheses and evidence identified to be filled with specific notation classifying evidence accordingly to its consistency, inconsistency or irrelevancy to each hypothesis. The notation can be C, I and N/A for consistent, inconsistent and not applicable; pluses, minuses and question marks; or simple textual notation (Heuer, 1999). Hypotheses with large number of C or pluses prove to be more credible; also evidence that tend to support all hypotheses or are consider inconsistent with all hypotheses are low quality evidence (Sawka, 2003a, 2010). Additional notations can also add scales to show the importance of evidence or which evidence can be concealed, manipulated or faked (Heuer, 1999). The fourth step is the refinement of the matrix, where hypotheses can be reconsider and evidence or arguments with no diagnostic value can be deleted (Heuer, 1999). On the fifth step, provisional conclusions about the likelihood of each hypothesis are drawn and then attempt to disprove the hypothesis in order to establish their inconsistency. Often the most difficult task is the most significant; to found hard evidence that clearly turns a hypothesis inconsistent (Heuer, 1999). In the sixth step, the analyst establishes the sensitivity of the conclusions in the light of a few pieces of evidence, by considering the consequences of the analysis if the evidence that support the conclusions is wrong, misleading or subject of misinterpretation (Heuer, 1999). In the seventh step conclusions are reported to decision-makers discussing the likelihood of all the remains hypotheses occur (Heuer, 1999). Finally, in the last step of the analysis of competing hypotheses, some milestones are identified for future observation in order to monitor future events and confirm that those are aligned with the decisions made and not taking a different course than estimated (Heuer, 1999).

There are three elements the distinguish analysis of competing hypotheses from other intuitive analysis: it starts with a full set of alternative possibilities, ensuring that alternative hypotheses receive equal treatment; the evidence with greater diagnostic value judge the likelihood of alternative hypotheses; and involves seeking evidence to refute hypotheses, the most probable hypothesis is often the one with least evidence against it (Heuer, 1999). On the other hand, the three benefits from the use of analysis

of competing hypotheses is the evaluation of all hypotheses, the plausible explanations in the matrix for the intelligence produced, and the veracity check of the collected information (Sawka, 2003a, 2010). From a competitive intelligence perspective, and in the eventuality of the misuse or lack of the use of the intelligence cycle, a possible analysis of competing hypotheses process is the definition of the intelligence problem, the generation of the hypotheses, the collection of data and information, the evaluation of the hypotheses generated and ending by draw final judgments and conclusions (Sawka, 2003a, 2010).
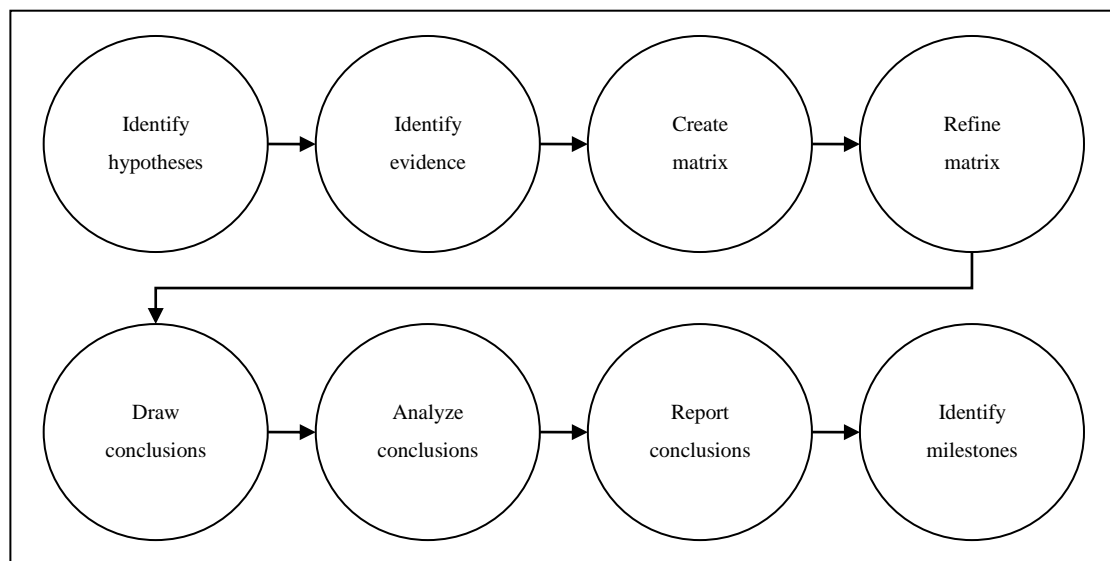
Figure 5 - Analysis of Competing Hypotheses (adapted from Heuer, 1999)

The analysis of competing hypotheses has two major strengths; audit trail and overcoming of cognitive bias, as the list of consistent and inconsistent evidence becomes a clear evidence trail for decision-makers and disproving hypotheses avoid the establishment of mental roadblocks and biases (Wheaton & Chido, 2006). However, there are also some weaknesses of the analysis of competing hypotheses, such as the dependency on the validity of the evidence and time consuming (Wheaton & Chido, 2006). Although Kristan Wheaton and Diane Chido (2006) provide for a solution for these two weaknesses with the structured analysis of competing hypotheses, it lacks an effective solution. The method based on the original analysis of competing hypotheses, starts with a simple hypothesis and a test on its clear estimation, leading to the data collection or complexity increase depending on the result of the test. This iterative test on simple hypotheses turns to be more time consuming than the original method. As for the validity of the information collected,

here addressed as evidence, it is a problem of collection and processing information, rather than a problem of analysis. Nevertheless, some software regarding the analysis of competing hypotheses, either original or structured, can be found, some even for free (ACH 2.0.5, Decide, DecisionBreakthrough). Analysis of competing hypotheses is not a well-known or largely used analytical tool in the intelligence community, however, few rivals to its power and analytic precision (Wheaton & Chido, 2006).

2.2.4.2 Blind Spots Analysis

Blind spot analysis is an analytical tool to fight against common cognitive bias that taints competitive intelligence staff and decision-makers (Rothwell, 2007c). Blind spot is, by definition, an area that you are not able to see or a subject that you find very difficult to understand at all. In the blind spot analysis, first the causes of this cognitive bias are identified, and then avoided. The common analytical blind spots are unchallenged assumptions, organizational myths and taboos (Rothwell, 2007c). The competitive intelligence staff also commonly shields their decision-makers from embarrassment and lack updating past assumptions there were true then (Rothwell, 2007c). Example of an unchallenged assumption is that the current customers will remain loyal no matter how low are the prices of the competition. A common organizational myth is to wrongly believe that no one can technologically outsmart the organization. The organizational taboo where the president refuses to address to a high customer problem concerning better service or prices can cost the organization that customer (Rothwell, 2007c). Intelligence needs of decision-makers can be often under or overestimated by their own demands (Comai & Millan, 2006).

2.2.4.3 Competitor Analysis

Competitor analysis, also commonly known as competitor profiling, is a future-oriented, accurate, objective and useful analytical tool for the intelligence process (Fehringer, 2007). However, due to the time and resources involved, this analysis should be used periodically when a major competitor goes through a significant change, but updated frequently (Fehringer, 2007). Competitor analysis is about identifying a change in the competition and assessing the implications to the competition, the market and the organization (Fahey, 2006). A possible process to perform a competitor analysis is to first identify relevant indicators from competitors like behaviors, actions and words and then draw inferences on possible changes on those indicators and what implications would have on the competitor, the organization

and the market (Fahey, 2006). Analyzing the competition is about seeing, assessing and understanding the details, and eventually admitting the lapses or gaps about it; the essential is to identify the details that allow the organization to see clearly the competition (Fuld, 2010).

Competitor profiling is the systematic analysis of the competition in order to identify their strengths and exploit their weaknesses. In an extended list, it includes a background analysis about structure, ownership, subsidiaries and alliances. It also includes profiles of key decision-makers, critical success factors, management style, organizational culture, financial analysis, assets and resources, organizational and market strategy, and business environment by identifying its major markets, competitors, suppliers and distributors (Prior, 2010).

A competitor profile vary slightly from analyst to analyst or from organization to organization, however a basic profile contains financial highlights and ratios, decision-makers bios or profiles, competitor products and services, targeted customers, distribution model, current business strategy and recent competitor events, like acquisitions for example (Rothwell, 2010). For Leonard Fuld (2010) is the competitor production process details that allows to truly understand the competitor. Knowing the production process of a competitor helps to understand the way its management thinks and which strategic direction is adopted; knowing how, where and why a competitor spends money in a particular area or function is the mother pearl of competitive knowledge (Fuld, 2010). Similarly, competitor activity tracking is a form of proactive competitive intelligence (McGonagle,& Vella, 2006) and provides the basis for an early warning system (Herring, 2006c). Competitive activity tracking involves identifying, monitoring and analyzing tactical and strategic developments of the competitor, and distributing throughout the organization as alerts (Fehringer & Wilson, 2007). This competitive intelligence tool requires consistency in the way competitor activity tracking is conducted, commitment as the first and last activity of a daily task list, and control to limit the number of alerts distributed (Fehringer & Wilson, 2007). The preparation and sending of the alerts include five steps: (1) summary of the development as a high-level synopsis; (2) analysis of the development and its implications to the organization avoiding long explanations, cuts and pastes from the original document, and including it as an attachment or as a link; (3)

substantiation of the development by revealing its source and its credibility; (4) reviewing of content, grammar and spelling of the alert; and (5) dissemination of the alert in a disciplined manner by starting with a handful of receptive people and adjusting to the specific users that need it (McGonagle & Vella, 2003). The analysis should be conducted in light of previous trends, relevance and urgency (Fehringer & Wilson, 2007). The early dissemination of the alert of the competitor activity tracking helps the organization avoid surprises and also allows an early reaction to the competitor development (Fehringer & Wilson, 2007).

Nevertheless, competitor analysis or profiling is not without some pitfalls identified by Karen Rothwell (2010). As stated previously, competitor profiles can be very lengthy (McGonagle & Vella, 2003), rarely actionable, and often far from being a decision-maker support resource (Rothwell, 2010). Competitor profiles are often without proper organization lacking sections with the most important information and links when available (Rothwell, 2010). Competitor profiles lack focus on a key intelligence topic, instead, often includes everything about a competitor (Rothwell, 2010). Decision-makers often confused the competitor profile with other competitive intelligence analytical tools that can provide future insights (Rothwell, 2010). Competitor profile is often misuse when used to refer to a competitor analysis. Competitor profile is information about a competitor, and competitor analysis is an analytical tool used in the analysis step of the production of intelligence about a competitor (Rothwell, 2010).

On the other hand, the tendency to label competitors as aggressive, mature, dominant, emerging, direct or indirect, domestic or international, new or old, small or large, and strong or weak is too simplistic, as competition can be more challenging and complex (Fox, 2006). Competition is not invisible, but when two apparently different organizations representing different products or services form an alliance or join venture to create a new and different product or service, that is invisible competition (Fox, 2006). Invisible competition may be difficult to identify in an early stage, or in time to take action, but it has the potential to reduce new product development costs, to reduce new product failure rates, to make a quicken market entry, to increase the value proposition to customers, to facilitate global expansion and to identify new business opportunities (Fox, 2006). Invisible competitor analysis can be performed by

actively monitor joint ventures, alliances and product launches beyond your direct competition, emerging organizations and new technologies (Fox, 2006).

Advertising and marketing data is also an important source of information for competitor analysis or any other competitor analytical tool, as the purpose of advertising can reveal the true intention of a competitor (Britton, 2002). For Cherry Britton (2002) when the purpose of advertising is to retain or increase market share, the focus of the analysis should be on the comparative ad spend. Similarity, when the purpose of advertising is to speak to a unique consumer base, the focus of the analysis is the target audience. The advertising-based competitor analysis is a three step analytical tool where the necessary information can be categorized into clipping services, industry studies, customized services and media services (Britton, 2002). The second step, the analysis, can focus on the advertising category, ad spend, product, target and message, where the reason for the advertising can reveal the strategy of the competitor (Britton, 2002). Finally, making the connection, allows to understand the competitor advertising and produce insights regarding the role of the advertising itself on the competitor strategy, the target and who is not being target, the claims and support of the product or service advertised, the tone of voice and chosen medium, and how all of this may impact or can be compared with the organization (Britton, 2002).

Another specific competitor analytical tool is the mock competition, which in some ways is a smaller war game focus on a specific competitor. Mock competition includes four steps, a customer analysis workshop, a competitor analysis workshop, a win strategy workshop and a mock competition workshop; and three teams, the capture team, playing the organization, the mock competition team, playing the competitor and the mock customers team, playing the customers (Mathews, 2007). In the first three workshops, all three teams collected and prepare the necessary information to best interpret and act on behalf of each group that they represent. For instance in the win strategy workshop, the capture team set the best strategy to confront the mock competition team representing the competitor (Mathews, 2007). In the final workshop, the mock customer opts for the best product or service presented, justifying their choice and reasons for it. If the capture team won, the conclusion to draw is that the strategy of the capture team may refine the position of the organization and address any weaknesses identified by the mock customers or the

mock competitor; if the capture team lost, working closely with the mock competition on the best strategy for the organization and address the strengths that allow the mock competitor to win (Mathews, 2007).

In summary, competitor analysis is based on available information on the competition gathered in an ethical and legal manner, with the purpose of identify, understand and forecast their future actions. Nevertheless, another guidelines for competitor analysis as part of an imaginary crystal ball is (1) the competitor public forecast, (2) the industry forecast, (3) the past and present competitor actions, and (4) the competitive environment forecast (Kahaner, 1996). The competitor public forecast is based on public information produced by the competitor, such as mission statements, advertising, financial reports, products and services. The industry forecast includes industry reports of experts, news reporters, trade associates and unions. The competitor past and present actions include mergers and acquisitions, licensing rights and patents, technology and real estate actions. Also chronological analysis, or chronologies, reveal patterns and help gain clues behind the intentions, not only of a competitor, but also of any market or competitive environment player. Chronologies can provide a cause and an effect by relating two chronological behaviors (Sawka, 2004b). Finally, the competitive environment forecast includes macro indicators on the environment of the organization such as market demands, environmental regulations, demographics, or any other factor that may have an impact on the organization. No crystal ball prediction would be completed without the human factor, and so the behavior of the decision-makers, also known as the decision-makers profiling, can be added as a fifth guideline for the competitor analysis (Kahaner, 1996).

2.2.4.4 Decision-Maker Profiling

Decision-maker profiling is an analytical tool that help predict future actions of the competition (Kahaner, 1996). To Larry Kahaner (1996) there are three elements to analyze in setting a profile for a decision-maker: (1) personal history and background knowing that people tend to repeat successful behaviors and to learn from past mistakes; (2) personal overall behavior as character or personality; and (3) personal environment that might influence their decisions. This analytical tool, also known as personality profiling (Bernhardt, 1994; Calof, 1998), management profiling

(Fehringer, 2009) or individual profiling (Prior, 2010), is not restricted to decision-makers of the competition, as it can be used to profile executives, senior managers and specialists (Prior, 2010), both from the competition or the organization from a recruitment and internal analysis approach (Bernhardt, 1994; Calof, 1998; Kahaner, 1996; Taborda & Ferreira, 2002). The more significant elements to include in the profiling is past and present responsibilities, significant projects or activities involved, family or personal problems, perception from others and membership of influential groups, committees and networks (Prior, 2010). Specifically, management profiling considers two elements, a comprehensive and professional-focused biography of the analysis subject, and a psychological personality assessment (Fehringer, 2009; Weber, 2004). The profiling process has three steps: (1) identification of the analysis target or targets; (2) conducting a secondary source research for the big picture; and (3) conducting a primary source research for a more in-depth profiling (Weber, 2004). One tool that might be used in the decision-maker profiling is the Meyer-Briggs Type Indicator (Fehringer, 2009). On a larger vision, an organizational profiling integrates the analysis of several decision-makers and key elements to produce a multi-axial perspective (Weber, 2004). Any decision-maker profiling must be originated in the key intelligence topic (Weber, 2004). The benefits of the decision-maker profiling are the background of decision-makers and decision-making styles, the comparison tool across multiple decision-makers, the human dimension on the decision-making, and the complementary analysis for other competitive intelligence analytical tools (Fehringer, 2009)

2.2.4.5 Early Warning

Early warning is a concept about the ability to see into the future (Fuld, 2010). The ability to plan or take action on an inexistent market or just recently begin to emerge is the valuable contribution of an early warning system to competitive intelligence and the organization (Fuld, 2010). There are two types of early warning system, the proactive and the reactive (Comai & Tena, 2007). The proactive type is when the organization identifies and makes choices about the relevant issues that are turned into the base of the early warning system (Comai & Tena, 2007). The reactive type is the monitoring of the competitive environment in order to identify unexpected changes that generate a surprise, which is then introduced into the early warning system (Comai & Tena, 2007). This reactive type of early warning system based on

monitoring, does not provide any true early warning at all, as it is about the here and now, instead of the future (Fuld, 2010).

One perspective of an early warning system is the continuum aspect the system can earn, where the goal changes to the search of anomalies, irregularities, surprises, and the unusual (Hoyt, 2002). This early indicators of change may be identified in the external environment by the use of the STEEP analysis or five forces model (Hoyt, 2002) and are often of the following categories: (1) superlatives like fastest, biggest, lowest, highest, greatest; (2) shortages like a lean on the chain of supply; (3) any growth above twenty per cent is suspicious; (4) all trends starts with a first, particularly in disruption or crisis times; (5) deceptions like lies and denials strengthen significance; and (6) unintended messages like the evolution of a parking lot (Hoyt, 2002). On the other hand, opinions, future intends, projections and intended messages like advertising and promotion tend to be false anomalies (Hoyt, 2002). As a result of turning changes into opportunities, an early warning system warrants the continuous review and modification of the strategy adopted, avoiding radical reactions that may destabilizes the organization (Hoyt, 2002).

Another perspective is to see the early warning system as part of a larger system, the industry risk management, where the organization performs the risk identification and the risk minimization (Gilad, 2001). This strategic early warning system is part of the risk identification where the organization maps high-risk areas with war gaming or scenario analysis, builds quantitative and qualitative indicators, monitors them through sources that provide input on the indicators, and issues alerts when indicators crosses pre-determined values (Gilad, 2001). The risk minimization is defined as the revision of marketing and operational strategies, reaction to business developments and acceleration or deceleration on research and development projects (Gilad, 2001). Competitive intelligence has truly taken an evolutionary (Figure 6) step with its new role in the industry risk management (Gilad, 2001).
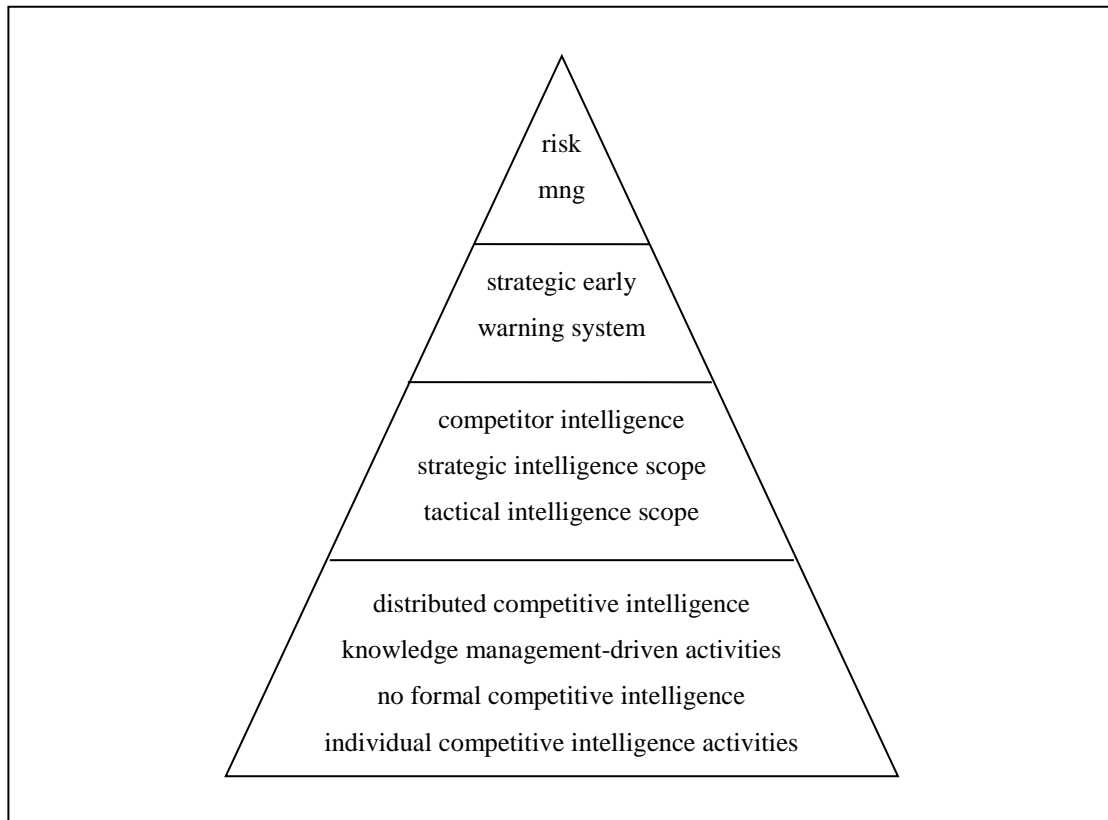
Figure 6 - Stages of the evolution of Competitive Intelligence (adapted from Gilad, 2001)

The process of an early warning system is quite simple, as the organization defines a roadmap of possible futures, identifies the signals to watch each of those futures, finds the people who watch those signals in their daily work, and prepares a quick response for each of the future if emerged (Fuld, 2010). A more detailed process for an early warning system is (1) the detection of key players of the competitive environment, (2) the assessment of critical issues, (3) the measurement of changes, (4) the evaluation of potential opportunities and threats, (5) the building of indicators of changes, (6) the identification of signs of change, (7) the linking of sources, (8) the development of plan and actions, (9) the communication of the intelligence produced, and (10) the implementation of the strategies (Comai & Tena, 2007). Some sources of environmental changes are competitors, employees, customers, opinion of leaders, suppliers, substitute providers, complementary products, media, organizational allies, universities, foundations, standardization issues, science, research and technological centers, banks, political groups and parties, labor and trade associations, international institutions, special interest groups and lobbyists, and local communities (Comai & Tena, 2007). Another process to perform an early warning system is to define the

competitive issues, key players, signals and indicators, conduct a back casting and a scenario forecasting, and organize the analytical efforts in a matrix adding the sources and the immediacy of threat for each issue (Wergeles, 2005b).

2.2.4.6 Financial Analysis

Financial analysis, also known as financial ratio analysis, is a quick and objective analytical tool that provides moderate results with few resources, and can be used to point out a competitor financial performance (Fehringer, 2007) and forecast financial actions (Kahaner, 1996). Financial analysis is essential to understand the financial reality of a competitor that might influence future decisions (Rogers & Hohhof, 2002).

One guideline to perform a financial analysis is to (1) select competitors, (2) choose the financial measures to compare them, (3) rank the competitors according to it, (4) develop a score table, (5) consider the appropriate strategies for the financial status of each one, and (6) known thyself (Fehringer, 2007; Johnson, 2002).When selecting competitors, include the organization itself to identify its position throughout the competition and areas of success or failure (Johnson, 2002). The financial measures can be categorized by liquidity, debt load and debt coverage, tangible net worth[1], bankruptcy risk and efficiency (Johnson, 2002). Some of the financial ratio to consider are the efficiency analysis to evaluate the competitor ability to repay debt, debt management analysis to identify the competitor structure and ability to meet claims in case of liquidation, profitability to evaluate the competitor ability to generate, sustain and increase profits, and market value to measure shareholders returns (Kerwin, 2003). After ranking all the competitors and the organization itself on the chosen financial ratios, and drawing a score table using any valid measuring or ranking methods, some competitors should carry simple strategic messages (Johnson, 2002). A low liquidity competitor strategy can be easily identified, as a cash flow requirement has emerged, however, some competitors can always surprise the market and its players with their strategic moves (Johnson, 2002), therefore a single financial analysis is never enough when conducting a competitor analysis or addressing a key intelligence topic related to the competition.

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[1] In terms of a consumer, tangible net worth is the sum of all your tangible assets (cash, home, cars, etc) less any liabilities you have.

Apart from being an important piece of the competitor analysis, financial analysis is also the starting point of three opportunities in the current organizational environment as it can (1) restore the trust in financials for the organizational investors, partners, suppliers, customers and employees as part as a better corporate governance; (2) provide new ways to read financial ratios, and (3) develop financial competitive intelligence by changing its value to decision-makers and ultimately to customers; and finally, to profit from profits (Palka, 2003).

2.2.4.7 Four Corners Model

The four corners model (Figure 7) is another analytical tool regarding competitor analysis, where through four key components of the competitor the model tends to predict the competitor behavior (Rothwell, 2007b). When identifying the competitor drives their goals and drivers are established at all levels of the competitor management and their assumptions on the industry, remaining competition and itself. On the other hand, identifying what the competitor can do, their current strategy and capabilities are established. Afterwards, is possible to predict the competitor behavior through a competitor response profile using the competitor response modeling tool (Rothwell, 2007b). The competitor response modeling is an analytical tool where the organization develops contingency plans when planning new products or other moves in the market to probable or excepted reaction moves from competition (Sawka, 2001). A competitor response profile often includes the level of satisfaction of the competitor with its current strategy, a list of likely moves and strategies shifts that its capable to make, its vulnerabilities and a list of actions that could provoke the greatest and most effective retaliation performed by the competitor towards the organization (Rothwell, 2007b). This four corners model and its competitor response profile have its origin in the framework for competitor analysis of Michael Porter (1980) also known as the components of a competitor analysis.
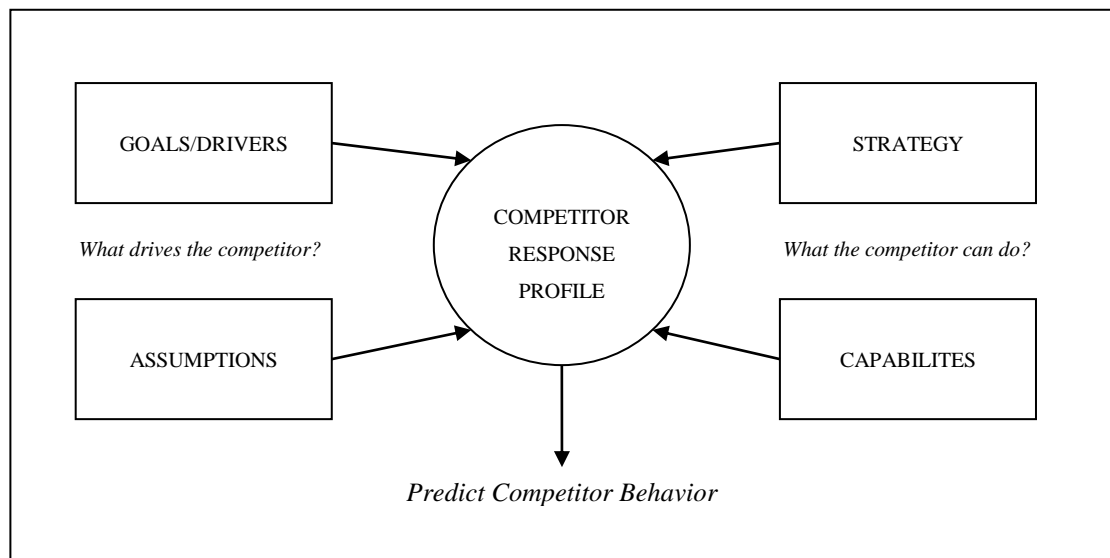
Figure 7 - The Four Corner Model (adapted from Rothwell, 2007b)

2.2.4.8 Five Forces Model

The five forces model (Figure 8) presented in 1980 to identify the state of competition in an industry, is part of the structural analysis of industries (Porter, 1980). The model measures the competitive intensity of an industry by identifying the strengths, the weaknesses and the leverage of key players (Rothwell, 2007b; Sawka & Fiora, 2003). There are five industry forces driving the industry competition: (1) the threat of entry; (2) the intensity of rivalry among existing competitors; (3) the pressure from substitute products; (4) the bargaining power of buyers; and (5) the bargaining power of suppliers (Porter, 1980).

The threat of entry of new players in the industry depends on the barriers to entry: (1) economies of scale; (2) product differentiation; (3) capital requirements; (4) switching costs; (5) access to distribution channels; (6) cost disadvantages independent of scale; and (7) government policy (Porter, 1980). The intensity of rivalry among the existing competitors takes a form of race competition whenever a competitor feels the pressure of the opportunity to gain position in the industry, by using tactics of price competition, advertising battles, product introductions or customer services increases and warranties (Porter, 1980). Intense rivalry is the result of (1) numerous or equally balanced competitors, (2) slow industry growth, (3) high fixed or storage costs, (4) lack of differentiation or switching costs, (5) capacity augmented in large increments, (6) diverse competitors, (7) high strategic stakes, and (8) high exit barriers (Porter, 1980). The organization and its competitors are also competing with other industries

producing substitute products, which their impact on the industry can be measured by the elasticity of the industry demand (Porter, 1980). The bargaining power of buyers is related to the volume and importance of the purchase, either by a single buyer or a group of buyers, and what it represents to their business (Porter, 1980). On the other hand, the bargaining power of suppliers is related to the number and the volume of each purchase made to a single or a group of suppliers (Porter, 1980).
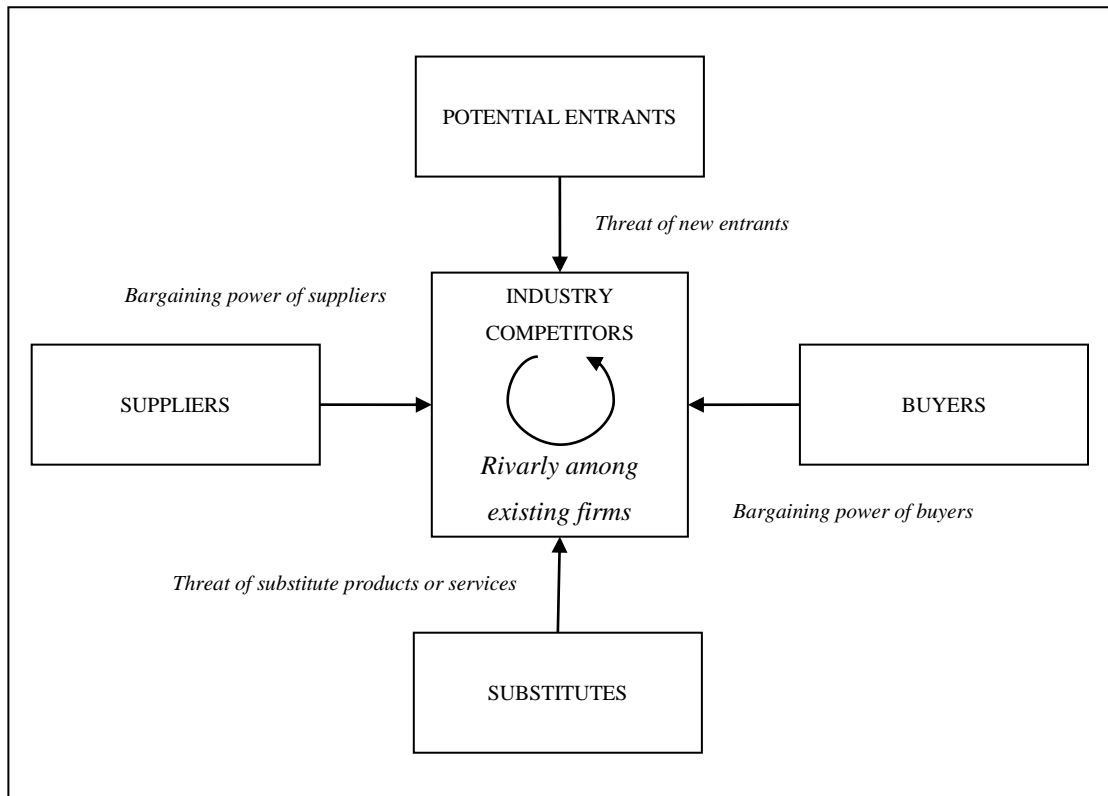
Figure 8 - Forces Driving Industry Competition (Porter, 1980)

Understanding the organization position towards competitors, buyers, suppliers, substitute products and new entrants helps strategic decision-makers realize the competition in the industry (Sawka, 2001). Whenever the model is considered part as the competitor analysis or part of the industry analysis; it is an important, critic and valuable model for the competitive intelligence analysis and for the competitive strategy design (Sawka & Fiora, 2003). From a competitive intelligence perspective the five forces model has four advantages when used as a basic competitive intelligence analytical tool. First, the model allows isolating the areas of the industry with higher potential for change. Second, provides strategic options to improve the organizational competitive position. Third, helps identify the weakest players or the

most disposed to alliances and partnerships, or more vulnerable to acquisitions. And fourth, helps to quickly determine the attractiveness of an industry (Sawka & Fiora, 2003).

2.2.4.9 Industry Analysis

Industry analysis is a profile-based analytical tool that provides an in-depth description of an industry and its key players (Prior, 2010). There two important aspects to consider: the focus and the data (Porter, 1980). The analysis should begin with an overview of the industry before focusing on the specifics, identifying who is in the industry, accessing to industry studies and annual reports (Porter, 1980). Then the data can be categorized into products lines, buyers, complementary and substitute products, growth (rate, seasonal or cyclical pattern, and determinants), technology of production and distribution (cost structure, economies of scale, value added, logistics, and labor), marketing and selling, suppliers, distribution channels, innovation, competitors, social, political, legal, and macroeconomic environment; and compiled by organization, year and functional area (Porter, 1980). The vision for the industry analysis of Michael Porter is not the only one, however, every other process is Porter related. Competitive intelligence analysts commonly use the five forces model (Porter, 1980) for the market research and the value chain technique (Porter, 1985) for the key success factors assessment of the competition, and then a matrix for the market analysis, by classifying competitors in high, medium or low, according to their intensity on each market segments identified (Alampalli, 2002). Other uses the five forces model (Porter, 1980) in a non-exclusive manner to assess the industry as the starting point to formulate the right questions (Patchett, 2002).

Another view is the strategic group analysis, a subset of industry analysis, focus explicitly on one of the key forces of the five forces model of Porter (1980), the competitive rivalry (Benssousan & Fleisher, 2003). Strategic group analysis allows identifying different competitive positions of competitors, the intensity of competitive rivalry within and between industry groups, the potential profit of the strategic groups in the industry, and the implications of the competitive position of the organization (Benssousan & Fleisher, 2003). A strategic group in the industry is a group or cluster of organizations similar to each other that differs from other groups in one or more of the following aspects: (1) historical evolution of the industry; (2) different resources

and capabilities; (3) unique goals; (4) different chronological points of entry in the industry; (5) segmentation; (6) different risk profiles (Benssousan & Fleisher, 2003). The process of the strategic group analysis starts with the analysis of the industry structure, where the five forces model (Porter, 1980) is use (Benssousan & Fleisher, 2003). In this first step all major competitors are also identified based on competitive variables such as specialization, cost position, brand identification, services, price policy, channel selection, leverage, product quality, technological leadership, and vertical integration policy (Benssousan & Fleisher, 2003). The second step of the process of the strategic group analysis is to map the strategic groups with similar strategies and competitive positions and identify their response or position to mobility barriers, bargaining power, threat of substitution and rivalry from other strategic groups (Benssousan & Fleisher, 2003). The third step is to measure the strength of barriers between groups and identify the relative competitiveness of each group (Benssousan & Fleisher, 2003). The measurement of the strength of barriers can starts with the classification of barriers by market-related strategies including the product line, the market segmentation and the distribution channels, by industry supply characteristics such as economies of scale, manufacturing processes and research and development progresses, and by organizations characteristics like management skills, diversification, and organizational structure (McGee & Howard, 1986). Second, continues with the assessment of the strength of bargaining power between strategic groups and industry buyers and suppliers (Benssousan & Fleisher, 2003). Third, the measurement of the strength of barriers follows with the determination of the threat of substitutes between strategic groups (Benssousan & Fleisher, 2003). Fourth, pursues with the evaluation of the intensity of internal rivalry between strategic groups (Benssousan & Fleisher, 2003). Finally, concludes with a five forces model on the strategic groups, integrating all available information and analyses conducted so far (Benssousan & Fleisher, 2003). The fourth step of the process of the strategic group analysis is to understand the strategy of the organization in comparison with the interaction of the strategic groups, identifying the strengths and weaknesses of the organization, and determine the best strategic group to exploit the strengths and minimize the weaknesses of the organization, given its current strategy (Benssousan & Fleisher, 2003). Finally, the fifth step is to identify the appropriate strategic responses to the challenge of industry evolution, either a mildly or intensely proactive strategy, such as a coping or shape-shifter strategy, and where the response can

include creating a new strategic group, moving to a better one, strengthen the existing group or the position within the group, or moving to a new one and strengthen it (Benssousan & Fleisher, 2003).

2.2.4.10 Nine Force Model

The nine forces model (Figure 9) crosses the five forces model (Porter, 1980) with politic, economic, social and technologic factors (Fleisher & Bensoussan, 2007). The framework allows the analyst to identify anomalies in the four factors that may have impact on the organization performance (Fleisher & Bensoussan, 2007).
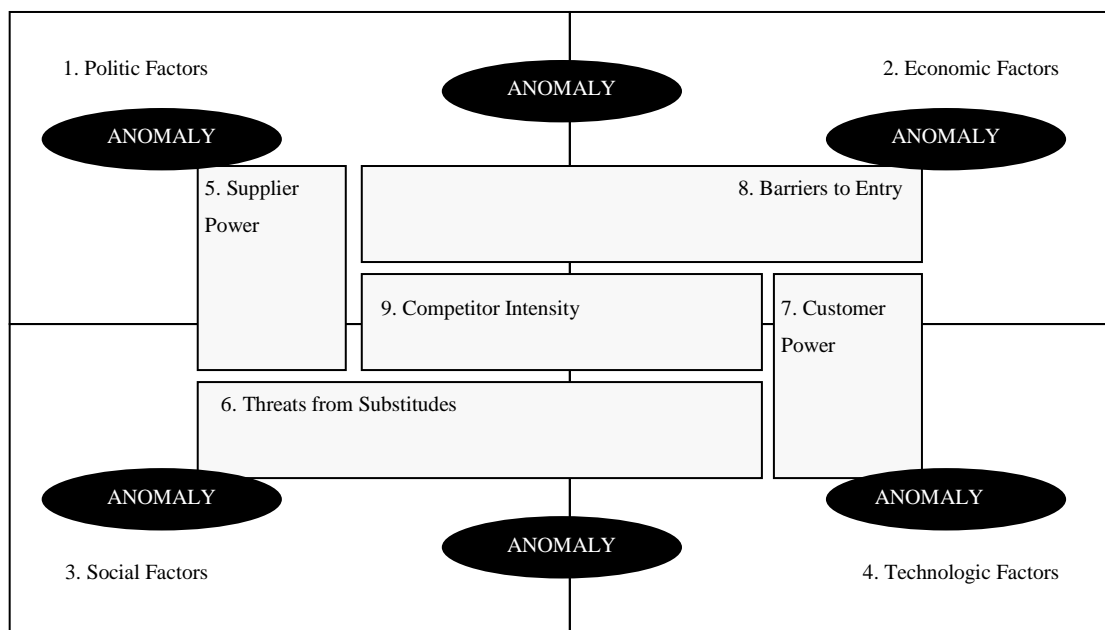
Figure 9 - The Nine Forces Model (adapted from Fleisher & Bensoussan, 2007)

2.2.4.11 Patent Analysis

Patent analysis can be important to the technological factors when conducting an analysis in that area (Comai, Tena & Vergara, 2006). Patent analysis can provide information about individuals, organizations and countries in cutting-edge work, time to exploit a patent, trending up technologies, and research relationships or joint ventures between organizations and subsidiaries (Kahaner, 1996). Most of the information contained in patents is never released elsewhere, and patents are never cited again by another inventor; thus when it does, is a sign that someone owns leading-edge technology (Kahaner, 1996). Organizations are using patents and other intellectual assets to prevent market share, margin erosion, and entrance into new markets (Rivette & Kline, 2001). Patent analysis can be performed in two areas, the

internal and the external patent landscape, which provides with insights about the strengths and weaknesses of the organizational patent portfolio and of the competition (Kirsch, 2006). For instance, when all the core technologies is hold by the same organization, competitors have the option to license its intellectual property, and intelligence analysis may turn way from patent into suppliers (Brager, 2007). Generically patents includes information about (1) claims, product or process sometimes with drawings or charts, (2) inventor or author, (3) assignee, the individual or organization the patent was assign to, (4) licensee, the individual or organization with the right to produce, and (5) citations to other patent in which the patent is based on (Kahaner, 1996).

Organizations can protect their newly created intellectual property by identifying their intellectual property assets, establishing a legal approach to protect them, and finally updating their security plans to meet today demands (Toren, 2005). A patent gives the licensee the right to avoid others from making, using or selling products or services that include a part of that patented technology for a limit period of time (Toren, 2005). Patent databases can be found in the internet and accessed freely. The United States patent database is the USPTO, the Japanese is JAPIO, the European is INPADOC (European Patent Office), and the Portuguese is INPI.

2.2.4.12 STEEP Analysis

The STEEP analysis is a perspective focus form to monitor and analyze the macro-environment of the organization (Comai & Millán, 2006). The process is a simply gathering, classifying and interpreting of information regarding the social, technologic, economic, ecologic and politic factors of the environment of the organization (Comai & Millan, 2006). Each factor affecting the organization is classified according to its origin and the all model can be a starting point for more sophisticated analytical tools (Comai & Millan, 2006). In fact, STEEP analysis identifies trends, which can be the input to trend analysis, and uncertainties as a contribution to scenario analysis (Hedin, Vaarnas & Vanhala, 2007). STEEP analysis has other acronyms such as STEP, SLEPT, STEPLE, PEST, PESTLE and PESTEL, where the L stand for the legal factor, often included in the politic factor (Comai & Millan, 2006; Weiss, 2002). The future horizon for this analysis is two to five years

and includes a trend identification, description, evaluation, and impact analysis (Hedin, Vaarnas & Vanhala, 2007).

2.2.4.13 Scenario Analysis

Originated in strategic planning, macroeconomics and macro political factors lack specificity of an industry for industry scenarios (Porter, 1985). In a competitive strategy perspective industry scenarios allow an organization to turn uncertainty into strategic implications in a particular industry (Porter, 1985). The construction of scenarios allows the organization to gain perspective on critical issues (Bryan, 2010). Scenario analysis is also one of the most versatile analytical tool, as it can be use to assess likely future competitors strategies, evaluate the impact of emerging technologies, and forecast overall future industry health (Sawka, 2003b).

Scenario analysis, also known as what-if analysis, is a systematic way to study and articulate future events that may have impact on the organization and its competitive environment (Prior, 2010). When identifying the several scenarios to include in the analysis, the scenario where everything remains the same must be consider, a part from challenge/response, cyclic, infinite possibilities, evolutionary, and revolutionary scenarios (Taborda & Ferreira, 2002). Scenario planning is a method for strategy planning that uses scenario analysis to formulate plans or prepare actions or responses to probable future events, resulting in plans that cover a range of probabilities, from the best case to worst case scenario (Prior, 2010). Scenario planning helps organizations to plan against an unknowable future, and is a future proof tool for managing the uncertainty of customers, competitors, regulatory and consumers (Dragon, 2010). One advantage of scenario analysis is the alternative views for a difficult outcome to view due to the lack of evidence, large number or variables or the suspicious thinking of the decision-maker of future projections (Fehringer & Sawka, 2003). When presenting sets of scenarios to decision-makers; they tend to discourage thinking the one single scenario can represents reality and actual future (Francis, 2004). Other advantages of the use of scenario analysis in the competitive intelligence process is the improvement of the risk management, by creating more creative and thoughtful leadership and decision-making, and the appearance of more agile organizations capable of quick changes in the light of the flexibility of the scenario analysis (Johnson, 2006a). Scenario analysis also helps decision-makers develop an

understanding of the future and make decisions about it (Francis, 2004). Scenario planning is a virtual necessity for organizations to have the strategic flexibility to prosper in the uncertainty future (Sawka, 2009). Horizon scanning is a specific use of scenario analysis focused in the systematic search for potential developments in the fields of science and technology over the long run emphasizing on the current thinking (Prior, 2010).

Scenario building has three possible approaches: the incrementally, the inductively, and the deductively (Johnson, 2006b). The incremental approach to scenario building is recommended to the organization that is unfamiliar with the tool, where the scenario development is performed by deviating from an official future (Johnson, 2006b). The inductive reasoning is suitable to the workshop-style scenario development in groups or subgroups and bring back together for presentation and emerging of trends of patterns (Johnson, 2006b). The deductive approach applies the deductive logic to scenario development based on the critical and important uncertainties identified (Johnson, 2006b).

One possible process to build industry scenarios is to (1) identify the uncertainties that may affect industry structure, (2) determine the casual factors driving them, (3) make a range of plausible assumptions about each important causal factor, (4) combine assumptions about individuals factors into internally consistent scenarios, (5) analyze the industry structure that would prevail under each scenario, (6) determine the sources of competitive advantage under each scenario, and (7) predict the competitor behavior under each scenario (Porter, 1985).
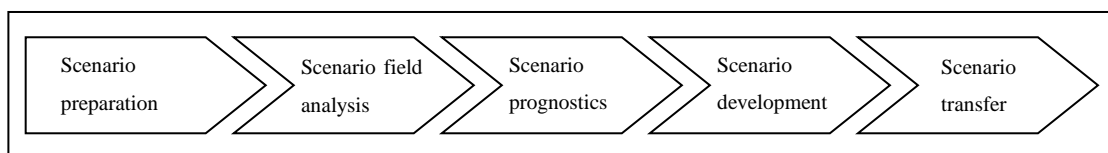
Figure 10 - Phases of Scenario Project (adapted from Fink & Schlake, 2000)

From a competitive intelligence perspective, another process to perform a scenario analysis is the one proposed by Alexander Fink and Oliver Schlake (2000) as shown in Figures 10 and Table 4, where the scenario management is the best way to deal with growing uncertainties. First three concepts are considered: (1) systems thinking

is the awareness for the development of the behavior of complex systems; (2) future-open thinking is the identification and the integration of alternative futures into the decision making process; and (3) strategic thinking is the identification of potential future successes as the basis of visionary strategies (Fink & Schlake, 2000). Then relying on the principles of systems thinking and future-open thinking, several scenarios are defined based on a complex of factors, describing a possible situation in the future (Fink & Schlake, 2000). The phases of the scenario building (Figure 10) are: (1) scenario preparation; (2) scenario field analysis; (3) scenario prognostics; (4) scenario development; and (5) scenario transfer (Fink & Schlake, 2000). On the first phase of the scenario building is to define the focus of the scenario project, a competitor, a product, or a technology, and is called the decision field (Fink & Schlake, 2000). In phase two a more specific scenario field is defined; the scenario field can be organizational scenarios where the center of the scenario is the organization or a business unit and the organizational environment include four forces: the industry including the competition, the markets, substitutes and complementary products and services (Fink & Schlake, 2000). Another possible scenario field is industry scenarios where the center is the competitive situation within the industry and the industrial environment includes suppliers, markets, substitutes and complementary products and services (Fink & Schlake, 2000). Market scenarios have the center on a specific market and the market environment includes the industry, final costumers, substitutes and complementary products and services (Fink & Schlake, 2000). Finally, global scenarios have the focus on a specific global issue surrounded by the issue and global environment, such as the future of electronic commerce (Fink & Schlake, 2000). Every scenario field includes a large number of influence factors that can be identified by a creative team in a brainstorming, and can be of three general types: (1) external scenarios focus on external factors and describe possible external conditions; (2) internal scenarios focus on highly influence internal factors and is possible to use them to identify future products specifications; (3) systems scenarios can focus on both internal and external factors, and although there are easy to create and hard to deal with, the impact on the organization comes in parts and alternatively between actions and side conditions (Fink & Schlake, 2000).

Phase three of the scenario building is the heart of the process and where the time that the scenarios should describe is defined (Fink & Schlake, 2000). With the future

horizon defined, developments on all key factors are searched and identified; each factor can have up to four projections (Fink & Schlake, 2000). Projections are listed in a catalog and will allow identifying windows of opportunities (Fink & Schlake, 2000). In the fourth phase, projections and combinations of projections are evaluated in a matrix for consistency and plausibility between them, using cluster analysis (Fink & Schlake, 2000). The number of pre-scenarios produced depends on the amount of different projection bundles and the complexity of the future situation. Future-mapping technique using a multidimensional scaling (MDS) allows visualizing the projection bundles and pre-scenario in a future space (Fink & Schlake, 2000). In the end, pre-scenarios must be named and described through the larger number of projection bundles and the identification of disruptive factors or events (Fink & Schlake, 2000).

Phase five of the scenario building process, scenario transfer, is the phase where analysis of the effects of the pre-scenarios has on the organization is conducted, and where analysis is rehearsing the future (Fink & Schlake, 2000). This rehearsal can be performed through a matrix (Table 4) combining the predictability of the scenarios and its robustness towards the future (Fink & Schlake, 2000). After the identification of opportunities and threats, organizations can define three different types of strategies: (1) planning-oriented strategy is based on predicted environment changes and actions are take in anticipation of forthcoming changes; (2) preventive strategy is based on reacting to environment changes where uncertainty is accepted and objectives are handle with unforeseen changes; and (3) proactive strategy is based on the acceptance of a wide range of unpredictable environment changes and nevertheless the attempt to anticipate events and exploiting them (Fink & Schlake, 2000). The robustness of pre-scenarios allows the determination of focused strategies, easy to communicate, or future robust strategies that are flexible and open for alternative developments (Fink & Schlake, 2000). The matrix allows nine main approaches for scenario building, classified in five categories: reaction on foreseeable trends; coping with upcoming risks; preserving flexibility; using opportunities for future success; and creating a new vision and influencing the future (Fink & Schlake, 2000).

Table 4 - Matrix of Scenario Transfer (Fink & Schlake, 2000)

	assessing the probability for the created scenarios			*influencing the occurrence of the most positive scenario*	
	Planning-oriented Strategies	**Preventive Strategies**			**Proactive Strategies**
Focused/Strategies	1 Traditional strategy based on the scenario with the highest probability. The advantage is the use of a consistent future scenario.	3 Defensive strategy based on the scenario with the greatest threats. This approach is used as a strategic risk management tool.		6 Offensive strategy based on the scenario with the best opportunities for future success. The risk is that this scenario will not occur.	8 Proactive strategy based on the most positive scenario. The aim is to influence the future in a way that this scenario will occur.
Future-robust Strategies	2 Traditional strategy based on the scenario with the highest probability, but strategy will be safeguarded by eventual planning.	4 Strategy concentrates on the minimization of risks by reaction on threats within all the identities scenarios.	5 Strategy preserves flexibility until it becomes more apparent which scenario will actually occur.	7 Strategy concentrates on the maximization of opportunities.	9 Proactive strategy based on the most positive scenario, but strategy will be safeguarded against other scenarios.
	React on fore-seeable trends!	Cope with up-coming risks!	Preserve flexibility!	Use opportunities for future success!	Influence the future! Create your vision!

By using scenario analysis, the organization can benefit from four additional functions within the strategic decision making process: decision support, where scenarios meet the demands of the strategic decision-maker; creation of orientation-knowledge, where scenarios produced knowledge that are not translated into decisions or actions, allowing the decision-making to solutions for specific future events; communication of future developments, where scenarios about future developments are structured and processed; and stimulation of strategic thinking, where scenarios encourages the organizational staff involved in scenario analysis to systematically be aware of future developments options, acting as a catalyst for strategic forward thinking (Fink & Schlake, 2000).

Another less complex process (Figure 11) to perform scenario analysis on a competitor is to (1) determine critical questions; (2) brainstorm drivers that affect the competitor future; (3) identify distinct outcome possibilities based on the drivers; (4) fill in information gaps and refine focus accordingly; and (5) flesh-out descriptions of alternative outcomes, determine strategic implications, and present findings and recommendations to the decision-maker (Fehringer & Sawka, 2003). When

identifying distinct outcomes, consider the ones where the competitor become successful in domestic markets, in international markets, pursue an acquisition or alliance with others, and fails (Fehringer & Sawka, 2003).
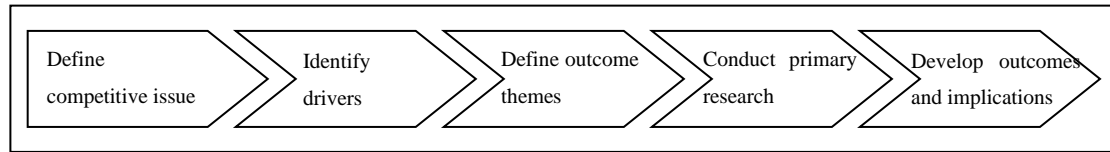
Figure 11 – The Scenario Analysis Methodology (adapted from Fehringer & Sawka, 2003)

The process of scenario analysis identifies uncertainties, pair them to develop scenarios, crossing the scenarios developed into analysis if the present and future strategy (Hedin, Vaarnas & Vanhala, 2007). The scenario analysis should be used when in presence on highly volatile and complex competitive environments or to response to a key intelligence topic with high level of uncertainty (Rothwell, 2009). In these circumstances the perspective of the scenario analysis tend to merge with an early warning system, as its process goes through a brainstorm to identify drivers, group the drivers identified, develop scenarios based on those group of drivers, develop core and contingent strategies for the scenarios and create an early warning system to monitor the future accordingly to the scenarios developed (Rothwell, 2009).

Nevertheless, scenario analysis is not with pitfalls, as communication throughout the organization tends to be via scenarios (Roxburgh, 2010). Furthermore, too narrowed scenarios can exposed the organization to the future, as also discarding extreme ones thinking of them as a waste of time, or too quickly for lack of reviewing (Roxburgh, 2010). And finally, if the uncertainty is so high that scenario building based on reliable factors is impossible, avoid scenario analysis at all (Roxburgh, 2010).

2.2.4.14 Six-Angles of Competition

The six-angles of competition model was first discussed in the academic literature by Robert Cantrell (1999) as an analytical tool related to industry analysis through the five forces model of Porter in 1980 and the concept of competitive advantages of Porter in 1985 (Comai & Millan, 2006). The model begins with a functional system, such as a product, product component or several products functional system (Cantrell, 1999). The process is to identify the competition of the product in analysis at the

different levels of the functional system, note the angles with higher threats or opportunities and prioritize them (Cantrell, 1999). The angles are (1) the direct competitors of the product, (2) the alternative use of the product, (3) the substitute products, (4) economic aspects, (5) the product complements, and (6) the buyers of the product (Cantrell, 1999). The identification is made from two perspectives, the base technology or business model of the product, and the buyer need or desire as shown in Table 5 (Cantrell, 1999). There is a both defensive and offensive use for the six-angles of competition model, as the warning against potential competitors set the defensive mode of the organization, and the awareness of it may trigger offensive actions (Cantrell, 1999). In another words, the defensive orientation to define threats and the offensive orientation to define opportunities (Comai & Millan, 2006).

Table 5 - The Six-Angles of Competition Model

Angles	Base Technology or Business Model	Buyer Need or Buyer Desire
Direct Competitors	Same	Same
Alternative Use	Same	Different
Substitute Products	Different	Same
Economic	Different	Different
Products Complements	-	Complementary
Buyers	Learning	Do it yourself

Adapted from Cantrell, 1999

2.2.4.15 SWOT Analysis

SWOT analysis is an analytical tool to identify internal strengths and weaknesses, and external threats and opportunities regarding a specific situation of the competitive environment (Prior, 2010). SWOT analysis has slight future orientation and a moderate objectivity and accuracy that require few resources (Fehringer, 2007). SWOT analysis can be used as a preliminary analysis or a starting point to additional analysis (Fehringer, 2007; Kahaner, 1996). SWOT analysis is also a useful tool to understand where the organization stands comparing to a competitor (Fehringer, 2007). When applied exclusively to the competition, SWOT analysis can be also known as situational analysis or competitor profiling (Prior, 2010). SWOT analysis can also be used when a quick analysis is required or when a larger picture of a competitor must be taken (Kahaner, 1996).

Strengths of an organization or a competitor include their powerful attributes such as patents, technology, market share, depth of management, financial position, customer loyalty, quality of the products and services (Kahaner, 1996). Weaknesses include their liabilities such as weighty debt, unskilled workforce, labor conflicts, poor-quality products, poor image, and out-of-date equipment or processes (Kahaner, 1996). Opportunities of an organization or a competitor are changes to prosper from changes in the market, in the industry, in government regulation, in demographics, patents expiration or drastic drops on costs of raw materials (Kahaner, 1996). Threats are external conditions that can harm an organization or a competitor and include raw materials shortages, costly government regulations, new competitors, or high interest rates for organizations with financial responsibilities (Kahaner, 1996).

One process to perform a SWOT analysis is starting with a brainstorming, never alone though, ranking all quadrants, matching strengths with threats and weaknesses with opportunities, as a starting point for further analysis and never showing to the decision-maker (Fehringer, 2007). The internal analysis, strengths and weaknesses, ought to be realized from a competitive position relative to the competitors at hand (Comai & Millan, 2006). Another less simple way to perform a SWOT analysis is to (1) identify internal strengths and weaknesses; (2) then identify external opportunities and threats; and (3) cross every single strengths and weaknesses with opportunities and threats for implications in a 2x2 matrix (Figure 12) (Kahaner, 1996). For instant, if a strength identified of the organization is a skilled workforce, an opportunity is the falling of a competitor and a threat is the growing of another competitor, then a possible strength-opportunity implication is the hiring of skilled workers from the falling competitor, and a possible strength-threat implication is the eventual need to keep the current workforce happy (Kahaner, 1996).

Another view of the SWOT analysis is the TOWS analysis where threats and opportunities are evaluated in relation to its weaknesses and strengths for strategic change to gain competitive position in the industry (Prescott & Herko, 2010). The process starts to apply vision to performance framework including the organization vision, industry dynamics, key capabilities and strategic initiatives to the vision, changes to value chain, key performance and sustainability metrics (Prescott & Herko,

	Strengths (S)	**Weaknesses (W)**
Opportunities (O)	SO implications	WO implications
Threats (T)	ST implications	WT implications

Figure 12- SWOT analysis matrix (adapted from Kahaner, 1996)

2010). Then identify the role of key considerations, such as the types of TOWS analyses, either broad-based or event-based, project constraints, selection of frameworks, validity and reliability of intelligence sources, opportunities and threats relativity to resources, processes, and values, strengths and weaknesses situation towards opportunities and threats (Prescott & Herko, 2010). The third step in the process of TOWS analysis is to assess strengths and weaknesses regarding tangible and intangible situation, casual ambiguity, time compression diseconomies, immobility, path dependence, inseparability, bargaining power, core rigidities, inertia and competency traps (Prescott & Herko, 2010). Strengths are also assessed through its valuable, rare, non-imitable and non-substitutable status (Prescott & Herko, 2010) as a resource of RBV theory of strategic management discipline (Barney & Arikan, 2005). Weaknesses are also assessed in the light of the same theory by the scarce, inconvertible and costly status, and its appropriative condition (Prescott & Herko, 2010). The following step is to assess opportunities and threats assuming that the same event can be both an opportunity and a threat (Prescott & Herko, 2010). Opportunities should consider the current and the emerging situation of the industry or the creation of new conditions drive by evolution which can also help assess threats identified from STEEP and industry analysis (Prescott & Herko, 2010). Resource, processes, and values compatibility, blindspots, signals and cognitive biases are also issues to consider when assessing opportunities and threats (Prescott & Herko, 2010). The fifth step is matching process for the threats, weaknesses, opportunities and strengths in a very similar way of the Kahaner (1996) process described before regarding the acquire, leverage, protect and destroy capabilities, reactive, adaptive and

proactive choices, applying a motivation versus ability framework (Prescott & Herko, 2010). In the sixth step of the TOWS process the importance versus imminence matrix is created by classifying threats, opportunities, weaknesses and strengths as low or high in the two variables ranking them into critical – high importance and imminence, address when possible – low on one of the variable and high on the other, and monitor for changes – low of both variable (Prescott & Herko, 2010). In this seventh step the competitive intelligence roles and outcomes are the development of key intelligence topics, early warning initiatives and project-focus (Prescott & Herko, 2010). The final step of the process of TOWS analysis is the implementation and monitoring of the projects (Prescott & Herko, 2010). In the end, TOWS analysis provide competitive intelligence with a process of developing key intelligence topics, early warning initiatives, and keep the focus on competitive intelligence projects (Prescott & Herko, 2010).

One application of the SWOT analysis is the IDEA (International, Domestic, Expected and Alliances) methodology where offensive thinking might generate ideas for new products or services, new business, business growth or strategies to organizational growth (Fox, 2009). While focusing, brainstorming and creative thinking using a SWOT analysis perspective on international organizations entering the market, domestic companies entering the market or expanding their markets in new ways, expected or traditional competitors and alliances, new ideas emerged that may involve new market opportunities, positioning, alliances, technological innovations, acquisition opportunities or methods of distribution (Fox, 2009).

2.2.4.16 Text Analysis

Linguistics research and its prefixes, suffixes and modifying words are important to text analysis, as the effort to convert large volumes of documents into computer-readable forms, using technologies such as OCR, has grown (Kahaner, 1996). Nowadays, and much like data mining, recent XML-based technologies, statistical classification methods such as KNN, and text recognition techniques turned text mining a reality (Cahill, 2004). Text mining is a software program used in text analysis to extract concepts and understand the meaning of large volume of text (Prior, 2010). Text analysis is the collection of methodological techniques in order to explore, investigate, and examine attitudes, thoughts, patterns, and opinions found in

text (Anderson, 2008). Text analysis often includes data collection, data coding, data analysis, and interpretation (Anderson, 2008). As a process, text analysis is preceded by data collection and followed by text interpretation (Figure 13). Data collection or text identification includes selecting web forums, blogs, speeches, focus groups, open-ended questions, call logs and newspapers for analysis (Anderson, 2008). Text interpretation includes statistical analyses, such as regression, cluster analysis or factor analysis, and modeling techniques, like structure equation modeling or path analysis, which can be applied to the results of the text analysis as they tend to appear in structured data (Anderson, 2008). Text analysis includes text mining and content analysis, and when jointly applied it can identifies synonyms, groups related words, extract discussion themes, opinions or sentiments, and explore term patterns and term relationships (Anderson, 2008). The goal of text mining is to find patterns and trends in natural language text (Cahill, 2004). Text mining uses both computer software and human coders to recognize themes and patterns (Anderson, 2008). One process of text mining is (1) data acquisition from websites, news groups, chat rooms, blogs, and feeds of newswires, magazines, newspapers and journals through webcrawlers; (2) normalization of the text into a standard format such as XML-based; (3) filtering the text for a pre-defined set of candidates entities, using statistical classification methods, recognition techniques and linguistic-based entity detection; (4) mining the filtered text for relevant entities known as subjects and concepts known as issues, and recognition and comparison of patterns relationships; (5) analysis of a highly structured data; and (6) visualization of the results of the mining and the analysis performed in order to rapidly and visually identify trends and patterns (Cahill, 2004). Content analysis allows the experimental identification of words, themes, and patterns, and also the measure of emotions, attitudes, thought processes and relevant concerns (Anderson, 2008).

One application of text mining is tech mining where the specific goal is to exploit science and technology information sources (Porter, 2005). The process of the tech mining is to identify data sources such as research and development publications and patent databases, to use specific software to search, retrieve, clean, analyze, represent and visualize thousands of records, and finally to produce technological intelligence outputs of the empirical analyses towards the key intelligence topic (Porter, 2005).
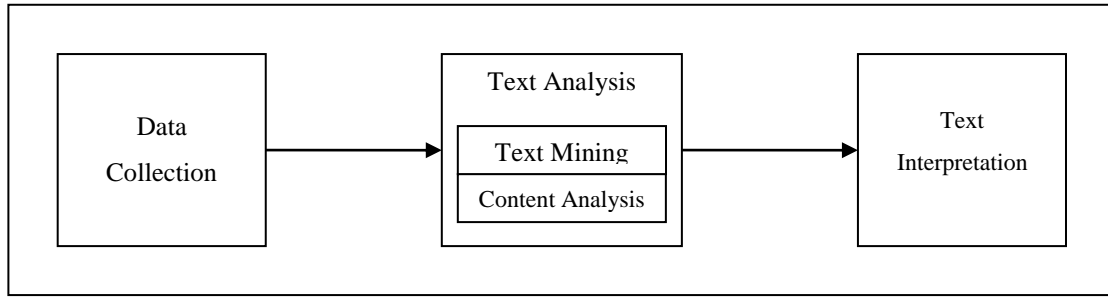
Figure 13 - Text Analysis Process (adapted from Anderson, 2008)

2.2.4.17 Theorem of Bayes

Although the population parameters on classical statistics like the mean or the standard deviation are treated as unknown but constant, estimated by sampling techniques, Bayesian inference consider the parameters as random variables, each one with a probability attached (Mignogna, 2002). The theorem of Bayes calculates the probability of the occurrence of a range of mutually exclusive and collectively exhaustive events given the impact of a new event, as shown in the following formula:

$$P(E_i \mid A) = \frac{P(A \mid E_i)P(E_i)}{P(A)} = \frac{P(A \mid E_i)P(E_i)}{P(A \mid E_1)P(E_1) + P(A \mid E_2)P(E_2) + ... + P(A \mid E_k)P(E_k)}$$

where E_i is the ith event of k mutually exclusive and collectively exhaustive events and A is the new event that might impact the probability of ith event (Newbold, Carlson & Throne, 2007). So, the probability of event E_i occurs is a posterior probability influenced by the prior probability of the event A occurs and the information disclosed by the sample of the k events (Mignogna, 2002). The theorem of Bayes can be used to handle conditional uncertainties avoiding misinterpretations on competitive intelligence analysis or to manage the risk in decision situations (Michaeli & Simon, 2008). The theorem, along with conditional probabilities and decision tree diagrams, can also be used to monitor the range of indicators on an early system or to establish probabilities on a scenario analysis. In fact, probabilistic modeling and decision trees helps to structure and sequence decisions, breaking into smaller and well-sequenced decisions, therefore allowing organization to move forward without taking excessive risks (Bryan, 2010). See Appendix F for an application of the Theorem of Bayes.

2.2.4.18 Value Chain
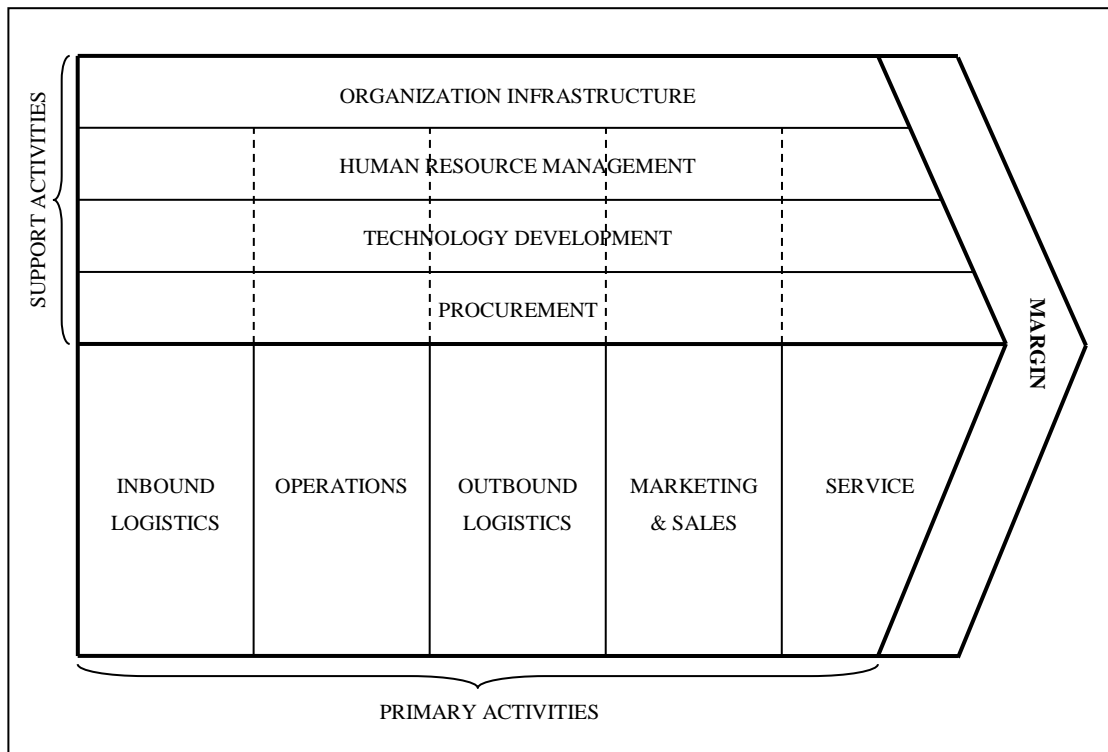
Figure 14 - The Generic Value Chain (adapted from Porter, 1985)

Value chain is a systematic way of analyzing all the activities in an organization and how they interact as the source of competitive advantage (Porter, 1985). Competitive advantage is gained when some or all of the activities of the organization perform at a lower cost or with greater levels of differentiation than the competition (Prior, 2010). An organization value chain is part of a larger stream of activities called the value system, where is also included the supplier value chains, upstream value, the channel value chains, channel value), and the buyer value chains (Porter, 1985). The value chains of organizations may differ depending on their strategies, as a diversified organization may present several business unit value chains (Porter, 1985). The process of applying the value chain tool to an organization or competitor includes identifying the value activities that can be divided in primary activities and support activities (Porter, 1985). There are five categories of primary activities: (1) inbound logistics; (2) operations; (3) outbound logistics; (4) marketing and sales; and (5) service (Porter, 1985). Some of these categories can be in turn divided depending on the industry and organization strategy, for instant marketing and sales can be divided into marketing management, advertising, sales force administration, sales force

operations, technical literature and promotion (Porter, 1985). There are four categories of support activities: (1) procurement; (2) technology development; (3) human resource management; and (4) organization infrastructure; that in turn can also be divided into a number of distinct value activities (Porter, 1985). The value chain is define when relevant activities are isolated and separated by having different economics, having a high potential impact of differentiation, or representing a significant or growing proportion of cost (Porter, 1985).

2.2.4.19 War Gaming

War gaming, or war game, is a process where individuals or teams representing the organization, the competitors and the market, playing roles of decision-makers and analyzing the results in timed phases until a strategy, counter-strategy, plan or action emerges (Prior, 2010). War gaming is very effective in industries undergoing high rates of change (Prior, 2010). When traditional tactics seams to fail in the light of a new event regarding a competitor, a new technology or a major market change, war gaming can provide insights to gain strategic transparency on the market or the competitor (Fuld, 2010). A war game is not about winning or losing, is about gaining a fresh and realistic view on the competitive landscape (Fuld, 2010). A war game allows the organization (1) to gain practice in making better decisions, (2) to identify additional information necessary for future decisions before the actual time to make them, (3) to identify probable moves of the competition and the best responses to them, (4) to identify probable responses of the competition to the organization moves, (5) to increase teamwork and limit surprises, (6) to identify the organizational strengths and weaknesses, and (7) to identify the strengths and weaknesses of the competition (Kahaner, 1996). A simple process of a war game has the steps of preparation, introduction, war game session, analysis, wrap-up, and follow-up (Kahaner, 1996). In the preparation the actions and activities to test and study are defined (Kahaner, 1996). Introduction is where the briefing session is realized (Kahaner, 1996) and a briefing book prepared and distributed to the participants, containing the necessary knowledge to the teams (Fuld, 2010). Some analytical tools such as the five forces model, the four corner model or the three generic strategies can be included in the briefing in order to prepare the teams (Fuld, 2010). In war game session or sessions, teams are playing against each other in a role-playing session (Kahaner, 1996). A short of what-if shocking scenarios may be introduced in the

second half of the game (Fuld, 2010). In the analysis step, after the game is complete, teams review the learned lessons by identifying additional information to collect and to analyze, and begin to develop actions and plans (Kahaner, 1996). Wrapping-up the game, specific analysis-based tasks are assigned to individuals and groups to monitor all actions and plans developed in the follow-up final step (Kahaner, 1996).

Any other purposes for playing a war game either than developing or testing a strategy is a waste of time (Gilad, 2006). These two types of war games may reflect their differences in the game itself, as their game structure, choice of players, participation of senior executives, role of the teams, and defensive politics may be differ (Gilad, 2006). The idea is to act or represent the forces in analysis by creating teams representing those forces, inputting events and scenarios in the game, having teams to act on those events and scenarios, and identifying the best strategies for them (Hedin, Vaarnas & Vanhala, 2007). Competitive intelligence staff can have an important role in war gaming as they can perform the necessary research in the preparation step for the several competitor profiles, briefing book, and assignment of tasks (Kurtz, 2002). They can also participate as members of competitor teams or as war game facilitators, by respond to umpire team approved request from competitor teams and by preparing the after action report (Kurtz, 2002). The war game takes place typically in a war room, a large briefing area where everyone gathers in teams around a provided scenario or competitive situation (Shaker, 2011). Nowadays, the virtual war game is a reality where the teams worked on an inexpensive social media, web casting, and videoconference programs; it is call the virtual or distributed war games (Shaker, 2011). A major advantage of virtual war games is the ability to bring in external expertise, however, the dynamics of face-to-face and in-group exchanges may be lost (Shaker, 2011).

The process of a typical war game begins before the game session including the design, development, and preparation of the documentation (Kurtz, 2002). One initial issue to consider when starting is if the war game is the appropriate analytical tool for the key intelligence topic at hand; only then a war game definition and scoping meeting should take place (Kurtz, 2002). The process continues with a war game plan and budget written in a document that must be approved by the top management (Kurtz, 2002) for it might include the majority of the workforce of the organization. A

war game design document is developed from several war game design meetings (Kurtz, 2002). In the next step a group of development activities are distributed throughout the organization such as confirming and advising the participants, market and competitive researching, war game materials preparation, and administration and logistical arrangements providing (Kurtz, 2002). A walkthrough rehearsal is conducted and finally the war game is played in one or several sessions (Kurtz, 2002). In the end, a document is developed as an after action report and a executive debriefing is conducted with the final results of the war game (Kurtz, 2002). Typical the teams in a war game are the organization team, the market team, one or more competitor team, the wild card team, the X team, the umpire team and the facilitator team (Kurtz, 2002). The organization and the competitor teams represent the organization and the competitor strategies, moves and actions through the war game session or the several rounds of the game (Kurtz, 2002). The market team represents the reaction of the customers of the organization to its moves or any other moves from the remaining teams (Kurtz, 2002). The wild car team represents a potential future competitor and the X team represents the economy, governments, regulators, and other entities that may affect the market, the organization and the competitors, including natural disasters (Kurtz, 2002). The umpire team plays the role of a referee ensuring that all other teams follow the same rules of engagement (Kurtz, 2002). Finally, the facilitator team provides the structure, discipline, processes and tools to warrant the successful of the war game, and is also in charge of capturing all relevant outputs for the after action report (Kurtz, 2002).

War gaming benefits can be (1) a fully understand of the current situation, opportunities and threats, and future issues, (2) tested recommendations and suggestions for future actions, (3) identification of blind spots of the organization and competitors, and potential proactive strategies to protect or exploit weaknesses identified, (4) identification of missing intelligence, (5) improved teamwork and decision-makers, and (6) anticipation and awareness of upcoming changes and better planned responses to threats and emerging opportunities (Weiss, 2004). Another benefits from war gaming is the insights that decision-makers gain, such as the implications of their decisions or how the teamwork develop strategies and spark ideas when confronted with a near future event (Fuld, 2010).
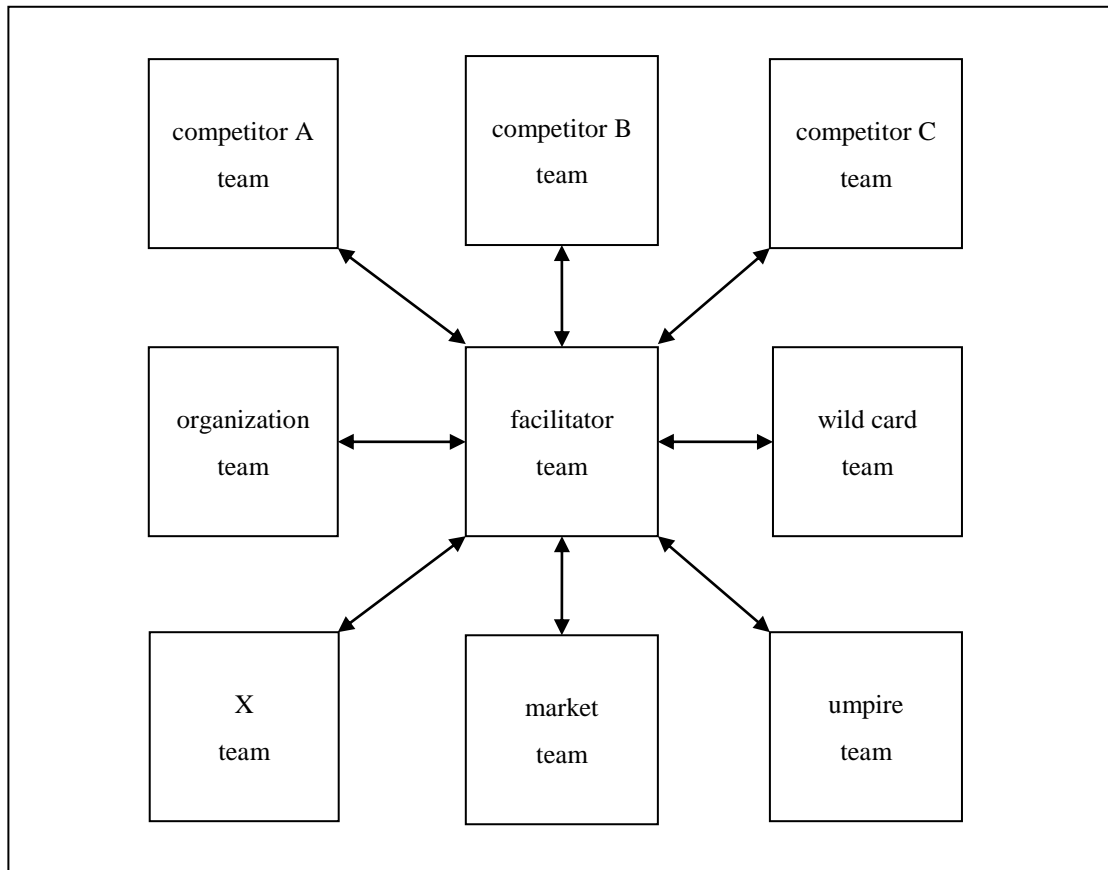
Figure 15 - Teams interaction in a War Game (adapted from Kurtz, 2002)

2.2.4.20 Win/Loss Analysis

Win/loss analysis is a mean of comparing the organization wins with the actual customer, competitor, or industry drivers of purchase decisions (Sawka, 2003c). The win/loss analysis is performed through interviews to customers, sales force members and others that allow the gathering of market information (Sawka, 2003c). Win/loss analysis can reveal the strengths and the weaknesses of the organizational sales strategy (Sawka, 2003c).

Win/loss analysis is triggered by a particular market event and should not be performed for every sale; it ends when eventual corrective actions have been plan and implemented (Sawka, 2003c). The analysis has five steps (Figure 16): (1) definition of win/loss requirements, where unexplained market wins or losses, disconnections between sales strategy and market results, and surprising competitor victories are identified; (2) setting of interview parameters, where strategies for sales representatives and customers are aligned, and logistics defined; (3) conducting the

interviews, starting with the sales representatives interviews, using cross-validation, and conducting customers interviews; (4) synthesizing the information by identifying trends and patterns, discontinuities, and segmenting and storing the information; and (5) drawing conclusions by identifying forces at work in the market, potential responses and tactical opportunities.

| win-loss requirements | interview parameters | interviews conduction | information synthesis | conclusions and plans |
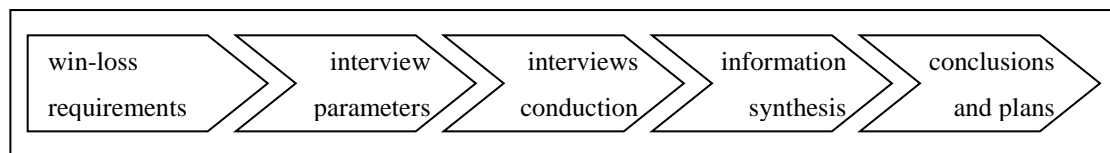
Figure 16 – The Win/Loss Analysis Process (adapted from Sawka, 2003c; 2010)

Another process to perform a win/loss analysis to follow the steps of the figure 17, starting by deciding which accounts to analyze and how often, and continues by including the competitive intelligence perspective in the sales process, as often sales force deletes competitive information about sales and losses to keep only information about the wins (Naylor, 2002). The reason for a loss might be the same why the competition is targeting organizational wins (Naylor, 2002). The third step is to create a questionnaire based on four areas: sales attributes; organization reputation; product attributes; and services issues (Naylor, 2002). The interviewer must have a clear understanding of the sales process, the circumstances of the win or lose, and a detailed and specific sensitiveness for each case (Naylor, 2002). In the fifth step the interview should be conducted spontaneously and intuitively according to the organization culture and the industry understanding (Naylor, 2002). Next, summarizing each interview and analyzing key trends allows creating intelligence on the clients or customers decision-making criteria to help sales force to compete more effectively in the future (Naylor, 2002). In the last step, intelligence is dissemination on a need to know basis, taking the organization culture and security policies under consideration (Naylor, 2002).
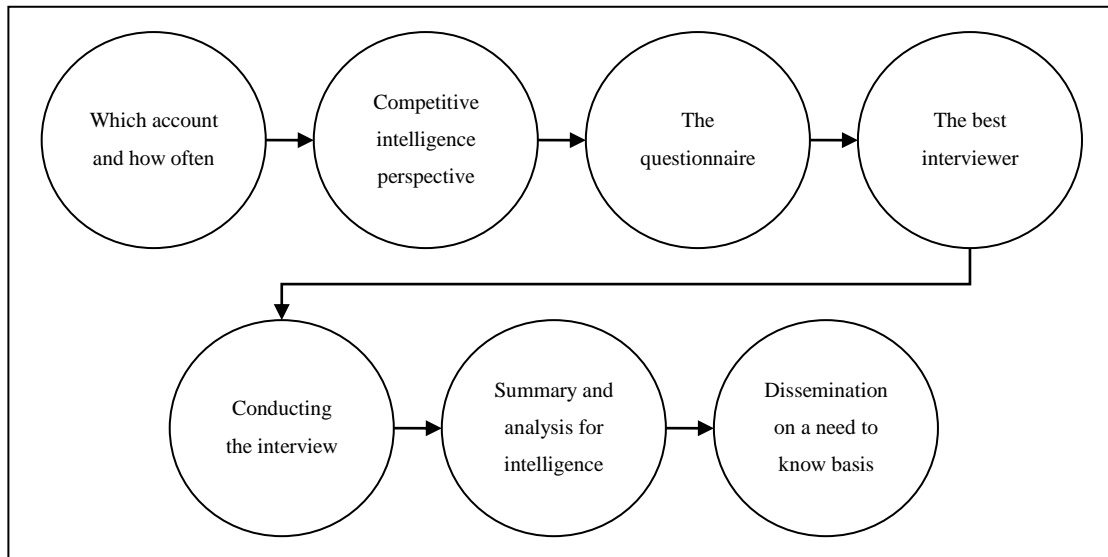
Figure 17 - The Win/Loss Analysis Process (adapted from Naylor, 2002)

The win/loss analysis is of the most underutilized intelligence analytical tool to review the opportunities that have been won or lost (Marcet, 2011). Some benefits of the win/loss analysis for the strategic decision-making are the increasing of profits and revenues, the accuracy of revenue forecast, and the improvement of product or service mix (Naylor, 2002). Other strategic benefits are the eventual timely influence on product or service development, a more confidence on marketing alliances, the identification of trends against each competitor, and the inclusion of the analysis results on an early warning system (Naylor, 2002). Strategic decision-makers and top management must be involved and sponsor the win/loss analysis (Reynolds, 2003; Schulz, 2002). Common failures on the win/loss analysis are attributed to event driven or sporadically analysis, instead of a systematic use, analysis variety and enclosed results, and isolated analysis as opposite to part of a larger program or process for the decision-making (Naylor, 2002). Nowadays, CRM systems have win/loss analysis processes fully integrated with decision-makers and sales force (Marcet, 2011).

2.2.5 Dissemination
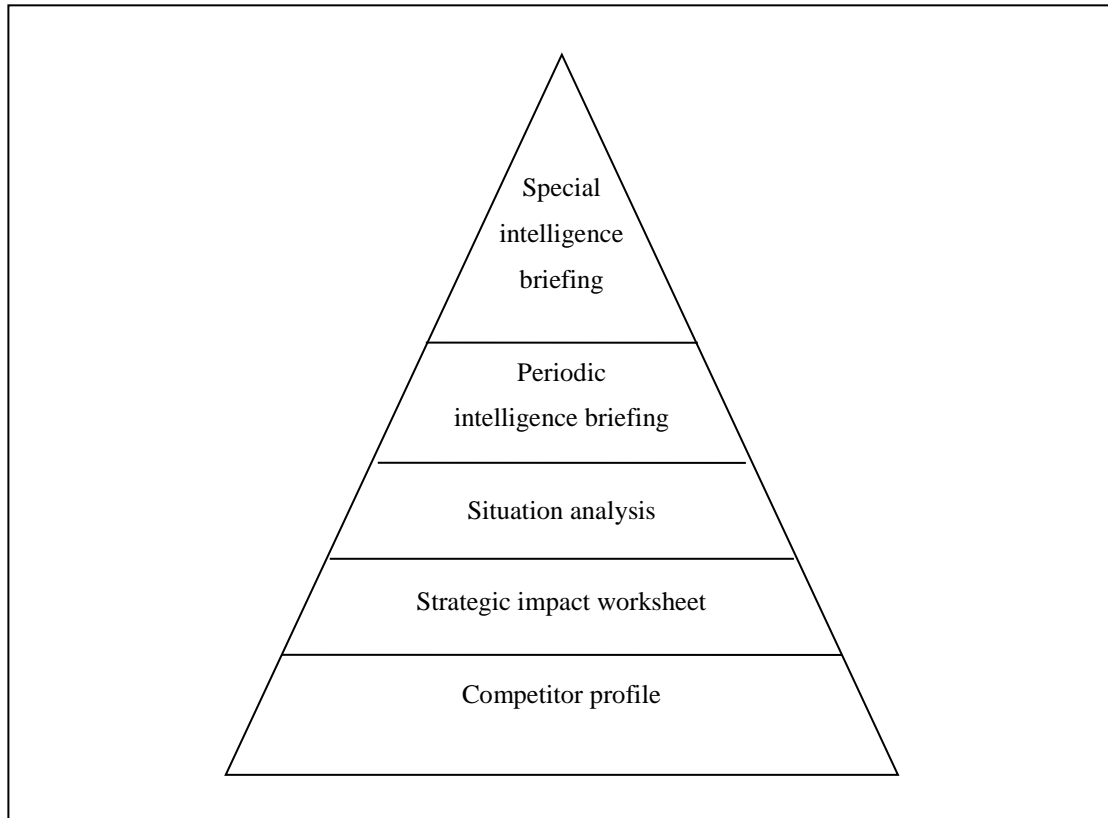
Figure 18 - The Hierarchy of Intelligence Products (adapted from Bernhardt, 1994)

The fourth and last step of the intelligence cycle adopted in this thesis is dissemination. Dissemination is the act of distributing the intelligence produced to those who required in the first place (Kahaner, 1996). Intelligence can be disseminate as a report (Marling, 2003), memos, at a meeting or in a formal conversation (Taborda & Ferreira, 2002). No matter what form of dissemination, intelligence must suggest possible courses of action based on the previous analytical work in articulated recommendations defended by logical arguments (Kahaner, 1996). The intelligence product dissemination formats can be ordered in the following hierarchy (Figure 18) according to its increasing strategic value: competitor profile; strategic impact worksheet, situation analysis, periodic intelligence briefings, special intelligence briefing (Bernhardt, 1994). Intelligence can also be distributed to decision-makers

other than the one that originate the key intelligence topic and consequent intelligence (Kahaner, 1996). Monthly competitor news or newsletters are other forms of intelligence reports (Bernhardt, 1994). The strategy for dissemination of intelligence products can be based on three issues: (1) the intelligence, where the decision for dissemination is based on its actionability, timeless and relevance; (2) the decision-maker, to whom intelligence is actionable, timely and relevant; and (3) the frequency of the dissemination (Fiora, 2005).

When distributing intelligence several critical factors must be taken under consideration, to the success of the dissemination, such as the use of persuasive presentation skills for instance (Calof, 1998). Communication, the ability to pass the knowledge up, down and sideways, can determine the success of an office, division, or organization (Glassford, 2002). The style of communication must be aligned with the personality of the decision-makers to better manage their expectation and promote a two-way communication (Kalinowski, 2003). The style of communications can be (1) analytical, focus on the problem solving and accuracy, (2) driver, focus on independency, action-oriented and goal driven, (3) amiable, focus on sympathy, serenity, and enjoying some popularity, and (4) expressive, focus on enthusiasm, creativity and accuracy (Kalinowski, 2003). The focus on improving writing and speaking skills on schools and business lack the development of communication skills (Glassford, 2002). Good communicators tend to involve their audience into their story, through the correlating the subject briefed and the real situation, making sense by (1) using metaphorical shortcuts, where data, facts and intelligence is packed into understandable formats, (2) matching mental frameworks, disseminating intelligence as new information in order to fit the existing mental frameworks of decision-makers, (3) giving meaning to the analysis, where intelligence is wrap in a story of what it really means, (4) creating context, where the complexity is explain by the storytelling, (5) assuming the role of the storyteller, answering the who, how, what, why, where and when questions, (6) and seeing the analysis as a novel, where the protagonist is the organization, the antagonist are all major competitors, minor characters are minor competitors, government agencies, and other organizations that may have impact on the competitive environment, heroes and villains are individuals decision-makers and players of all entities involved, and the storyline is the success and failures of them all (Glassford, 2002). Telling literally a story by creating a storyboard, filling in the gaps,

adding vertical logic, and effective storyboarding helps the dissemination of intelligence (Sawka, 2005).Turning the presentation into a story may increase the audience interest and understanding of the intelligence been delivered (Koretsky, 2007). Another view on the communication skills is to give attention to what is been said – threats and opportunities, the way is been said – detailed, briefed, summarized, and how is been said – where the goal is to be heard and understood (Himerlfarb, 2008).

Sometimes, demonstrating empathy and using counseling skills is necessary (Calof, 1998). Bad news can be ease through a decision-maker profiling, preliminary reports, or standing for the right and logical approach no matter what (Taborda & Ferreira, 2002). One way to minimize a potential hostile reaction to bad news deliverance or unexpected intelligence revelations is to determine the audience for the intelligence report, potential uncomfortable spots, recent organizational defeats or current infighting (Garland, 2000). Another way to disseminate intelligence that qualifies as bad news is to assemble all facts regarding the competitive issue, disseminate as early as possible, discard the use of third parties speakers, look the decision-maker in the eye, be objective, and have a plan to address the issue (Ryan, 2006). Furthermore, preliminary and error-free reports may prepare the decision-maker, and if the conclusions are solid and aligned with the analysis, ordered changes do not alter the reality or the analysis (Garland, 2000). A checklist on communicating complex intelligence issues to decision-makers is to (1) acknowledge previous facts; (2) present unfamiliar types of intelligence in context and with clarity; (3) present intelligence that respond to the decision-maker needs; (4) present intelligence aligned with the decision-maker responsibility and decision facing; and (5) listen to comments and conversation of the decision-maker in previous presentations in order to identify the needs (Cullen, 2000).

Other critical factors are the assertiveness and diplomacy with which the findings and intelligence conclusions are organize in the intelligence report (Calof, 1998). Decision-makers are not interested in personal opinions of intelligence analysts; they are interested in understanding the problem, by looking at the facts, evidence, cause-and-effect patterns, and estimations (Bernhardt, 1999). Intelligence products must be focus on the intelligence needs identified (Fuld, 2003; Kahaner, 1996; Taborda &

Ferreira, 2002; Whitehead, 2002), based on verified information and sources, include analysis and comments, be actionable, digestible (Whitehead, 2002), deliver on time (Bernhardt, 1999; Fuld, 2003; Kahaner, 1996; Sperger, 2005; Taborda & Ferreira, 2002; Whitehead, 2002), and ought to add value to the decision-making process (Whitehead, 2002). Written intelligence reports should meet the useful and the quantifiable criteria with a timely action to take and at least rough estimations on monetary savings by taking that action (Pasemko, 2000). The sensitive nature of these products and the weight of each word used also affect its own validity (DeSouza, 2003). A written intelligence report must revealed clarity, concise language and brevity (Pasemko, 2000). Apart from the implications to the organization and optional actions, intelligence products can also include recommendations for a follow-up collection and monitoring (Bernhardt, 1999). Any action-oriented intelligence is the result of producing implications and recommendations for the decision-maker (Prescott, 1999). Intelligence products must include structured assumptions and argumentation about the unknown and alert for information gaps that might have a depth impact (Bernhardt, 1999). Although presentations may be necessary on a later stage for final recommendations, an early written memo may require relevant arguments and ideas (Pasemko, 2000). Information gaps can be filled with probable scenarios, leaving the decision to the decision-maker and not to the intelligence analyst (Taborda & Ferreira, 2002).

Also intelligence reports should use a format or media appropriate for each decision-maker (Calof, 1998; Kahaner, 1996). Communicating intelligence is not an over-sophisticated task, and often a more conversational manner is preferred (Bernhardt, 1999). Decision-maker profiling can be useful in this step to determine the preferred communication method of the decision-maker, either a newsletter, a report, a presentation, a voicemail, face-to-face or in a one-on-one meeting (Kindler, 2003; Taborda & Ferreira, 2002). At least the preferable format of dissemination can be identified in the first contact, in the plan and direction step, along with the purpose for the intelligence (Kangiser, 2003).

There are three levels of audience, intelligence products can be delivered to: (1) newsletters to the general audience; (2) event-driven products to a more selected audience; and (3) strategic reports to the strategic decision-makers, often top

management (Sullivan, 2008). Event-driven intelligence delivers can take the form of a briefing note, an alert, or a special report (Sullivan, 2008). The third level, the strategic reports are often related to key intelligence topics and other strategic findings, and are the basis of decision-maker action, otherwise possible inexistent (Sullivan, 2008). When the presentation has an international audience, the basic rule is to keep the presentation as simple as possible using universal symbols; if possible have someone who understands the culture of the audience to review the presentation (Elizondo & Glitman, 2003). The presentation idiom, the form of expression and set of principles associated, can be one of two types: the ballroom and the conference room styles (Abela, 2006). The ballroom style is characterize by an audience of fifty or more people, an information flow primarily in one way, from the speaker to the audience, with the objective to inform or entertain (Abela, 2006). The presentation should have extensive animation and color, typically twenty-four points type size for a larger room, be projected at an approximate rhythm of one slide per minute during twenty to forth-five minutes (Abela, 2006). On the other hand, the conference room style is suited for any kind of audience but often smaller, has a two way information flow, with the objective to engage, persuade, facilitate decision-making, and drive action (Abela, 2006). The presentation should have little or none animation and color, smaller type size for printed paper delivery method, presented at a slower rhythm like one to ten slides an hour for any type of duration (Abela, 2006).

Another perspective on the presentation form of delivering intelligence is the conventional and unconventional approach (Cullen, 2000). The conventional approach allows a quick comprehension from decision-makers that are unfamiliar with the intelligence issue at hand, by the use of conventional images organized to focus on the critical intelligence (Cullen, 2000). The unconventional approach helps flexible decision-makers to recognize new opportunities by the use of provocative images, preventing them from dismissing the unexpected (Cullen, 2000). Recurrent intelligence products, such as newsletters or market alert reports, allow distinct decision-makers to monitor competitive issues and may not be linked to a specific decision or key intelligence topic (Farcot, 2003). Reference intelligence products are deliver differently as its intelligence also differs (Farcot, 2003) Competitor profiles, benchmarking and regulatory reports can be deliver through an HTML matrix where each cell refers to a different issue and is linked to the correspondent file or report;

and where the updating of the intelligence is automatic and transparent to the decision-maker maintaining the same deliver method (Farcot, 2003). Strategic intelligence delivery is more specific and may vary with the reporting requirements of the decision-maker, the best workflow to document the intelligence analysis, and a clear and concise summary of the key facts supporting the intelligence (Farcot, 2003). This summary should use a template with the name and contacts of the intelligence producers for future contact and follow the basic rules of the creation of a presentation (Farcot, 2003). These basic rules, some already discussed, can be resumed here by keeping in mind one slide per minute, seven lines per slide, seven words per line, avoid two-lines titles, light background with dark text for a lighted room, dark background with light text for a darker room, twenty-eight size for tiles and twenty-four size for text at least, and easy-to-read typeface such as a sans serif type (Farcot, 2003). The use of graphics may help display and explain complex data, emphasize results, saving decision-makers time, is appealing, adds value to the data and encourage communication and discussion (Kangiser, 2003). Other notes for a clear and concise report are presenting conclusions and recent events upfront, based on a summary of key facts that support them (Fiora, 2002), accentuating the positive implications on the organization (Fiora, 2003a), such as opportunities (Fiora, 2003b).

An intelligence newsletter can be developed by following the next steps: (1) definition of the key intelligence topic that the newsletter will answer to. This may help planning competitive intelligence activities; (2) identification of the publisher of the newsletter; (3) gathering of key information and intelligence for the newsletter. The intelligence should be compiled and synthesized; (4) dissemination of the newsletter regularly in the right format for the size and diversity of the audience; (5) brand the newsletter (Lawrence, 2005). Additional guidelines are placing intelligence in context, keeping it short, objective, and avoiding personal positions (Sullivan, 2008). In summary, intelligence products must be delivered in a format easy to interpret and of use for the decision-maker (Kangiser, 2003). Five rules for communicating intelligence are (1) avoiding to lengthen the communication, where shorter is better, and often fifteen to twenty percent of the all researched and analyzed is enough to deliver the intelligence, (2) keeping the message simple and direct, where the actionable intelligence leave no room for rhetoric, creative writing, or prose, (3) making the report or presentation proofread by warranty an error free, consistent, professional-looking, standardized

and well formatted document, (4) making the report or presentation appealing to the eye, as the decision-maker may have other decision-making supporting reports at hand, and (5) swallowing the pride, for in the end, it is a decision-maker decision (Sawka, 2000). The gospel of the intelligence writer is The Elements of Style by William Strunk Jr. and E. B. White first published in 1959 (Sawka, 2000).

Intelligence must be delivered on time to be used in the decision-making process, even if the product is not perfect (Bernhardt, 1999; Kahaner, 1996). It is better an almost right report deliver on time, than an absolute right report delivered too late (Taborda & Ferreira, 2002). On the other hand, intelligence must not be shown prematurely to the decision-maker, in order to ensure its integrity based on adequate checks and controls (DeSouza, 2003). Previous intelligence reports, meanwhile made public, can always be also delivered as information reports, reserving the name intelligence for on time, still actionable products (Fuld, 2010). One final critical factor is the volume and detailed level of the disseminated intelligence (Calof, 1998). Reporting on the significant issues to the decision-maker, as the results of the analysis, instead of the depth details of the analysis itself, is very important in dissemination (Bernhardt, 1999). There is several technologies use in reporting and dissemination intelligence to the decision-makers, like editing tools and retention and retrieval of drafts (Marling, 2003). Collaborative virtual workspaces and coordination of analyst collaborators is also use in this step of the intelligence cycle (Marling, 2003). One final area where technology has an important role is in the protection of the data transmitted or communicated (Marling, 2003). Intelligence products might have an impact on the organization and on its culture, therefore should not be deliver beyond the decision-making process (Taborda & Ferreira, 2002). Intelligence products must also be delivered in compatible software or systems for future manipulation by the decision-maker (Kangiser, 2003)

Listening can also be a form of presenting intelligence to the decision-maker, as sometimes the same opinions appear from different sources, intelligence reports or logical thinking (Calof, 1998). A high trust level must exist between the intelligence disseminator and the decision-maker (Kahaner, 1996), and can be built through time with a constant good intelligence delivery (Taborda & Ferreira, 2002). There are five rules to improve the communication of intelligence to the decision-maker: (1) in the

beginning the shorter the intelligence report or product the better; (2) intelligence products must be written in a clear, concise, easy-to-read style; (3) intelligence products must be reviewed for grammatical errors and misspelling; (4) intelligence products must be visually attractive; and (5) intelligence analysts must hold themselves from proud and report back only what really matters and not the entire chronological analysis history (Taborda & Ferreira, 2002). In the end, dissemination as the last step of the intelligence cycle brings the process back to its beginning, as the organizational status probably will change with the intelligence deliver and the decisions made (Kahaner, 1996). Intelligence must not be delivered lightly, nor deposited in a database; a characteristic of intelligence is knowledge, and knowledge call for contextualization and discussion (Lewis, 2003). Competitive intelligence activities are not one shot deal, is a continuous process, only measured by the use of the intelligence delivered, with the single purpose to support the decision-maker to make better decisions (Kahaner, 1996). And dissemination is all about the consciously way intelligence is communicated and its impact on the audience, the competitive issue and the decision to be made (Himelfarb, 2008a).

2.3 LEGAL ASPECTS AND ETHICAL CODE OF COMPETITIVE INTELLIGENCE

"Mama will always find out where you've been"

Waters, 1979f

Legal aspects and ethics in competitive intelligence are often related with the collection step of the intelligence cycle, however, and for the purpose of this thesis, legal aspects and ethics will be discussed having the complete cycle and the entire range of competitive intelligence activities in mind. Previously discussed in the section of history of competitive intelligence, there is a wrongly perception that competitive intelligence is industrial espionage and should not be supported by top management (Calof, 1998). However, any dictionary would define espionage as the discovering of secrets, either being political or military information of a country, or industrial information of a business. Therefore, competitive intelligence, as discussed and defined in this thesis, being a systematic, ethical and legal process that analyses the competitive environment of the organization, using the intelligence cycle to

deliver intelligence to the decision-making process, is not espionage (Calof, 1998). The legal and ethical aspects of competitive intelligence allow to clearly denying it. Any illegal, unethical or counterproductive competitive intelligence activity is considered unacceptable from a business perception (Schultz, Collins & McCulloch, 1994). Illegal behavior is any behavior or activity that leads to breaking the law (Taborda & Ferreira, 2002). Unethical behavior is any behavior or activity that leads to breaking professional or organizational rules or codes (Taborda & Ferreira, 2002). In the competitive intelligence profession is acceptable to perform activities based on a set of rules of engagement and information collection, known as the Code of Ethics (Taborda & Ferreira, 2002). Some large organizations are known to have a code of ethics of their own (Taborda & Ferreira, 2002). See Appendix G for some examples of codes. All illegal activities are clearly unethical activities (Schultz, Collins & McCulloch, 1994). Nevertheless, there are some activities, known as cloudy activities, where is not clear its legality or ethicality. In this case, legal counseling or senior professional help might be required (Taborda & Ferreira, 2002; Rothwell, 2008a). If legal counseling or senior professional help is not available, cancel the cloudy activity (Tyson, 2010).

In general, legal and ethical issues can be related to the intellectual property and business secrets (Taborda & Ferreira, 2002). Although the definition of intellectual property varies on different countries, the World Intellectual Property Organization defines as creations of the mind, including inventions, literary and artistic works, and symbols, names and images used in commerce (WIPO, 2015). Intellectual property can be typically protected through patents, trademarks, and rights (Taborda & Ferreira, 2002). A patent is the official legal right to make or sell an invention for a particular number of years. A registered trademark is a name or a symbol of a product or service that cannot be legally used by others. Rights are the legal authority over who may use a book or a film. One process to protect the intellectual property is to (1) identify the importance of the intellectual property, (2) inform the organization of its importance and punish its unapproved dissemination, (3) ensure the intellectual property is known only by those who need it, (4) mark documents containing intellectual property, (5) keep them separated from common documents, (6) limit the access to the document and location, (7) make those who have access sign a

nondisclosure agreement, (8) act legally and immediately on perpetrators (Gronroos, 1999; Taborda & Ferreira, 2002).

2.3.1 Legal Aspects of Competitive Intelligence

"I fought the Law,
And the law won"
Curtis, 1959

One major legal aspect of competitive intelligence activities is current laws and regulations of the country or region where the activities are been conducted (Kahaner, 1996; Taborda & Ferreira, 2002). Legal standards differ from country to country (Kahaner, 1996; Taborda & Ferreira, 2002). The activities of trespassing, thieving and bribery to collect information are illegal activities, just like hiring external helps to engage those or similar activities (Schultz, Collins & McCulloch, 1994). Also illegal activities are those which cause others to violate their ethical conduct or engage in illegal activities (Schultz, Collins & McCulloch, 1994).

Another legal aspect of competitive intelligence activities is the trade secret (Kahaner, 1996). The United States Economic Espionage Act of 1996 defines trade secret as information, including a formula, pattern, compilation, program, device, method, technique or process that first, derives independent economic value, actual or potential from not being generally known to, and not being readily ascertainable by proper means by other persons who can obtain economic value from its disclosure or use; and second, is the subject of efforts that are reasonable under the circumstance to maintain its secrecy (Kahaner, 1996; Miller, 2001). The owner of a trade secret is responsible to keep it safe (Schultz, Collins & McCulloch, 1994). This law turns any theft of a trade secret into a federal crime (Kahaner, 1996). The important to retain in the trade secret definition is that a trade secret is not public, cannot be protected through proper means, its owner has not disclosed it, and has taken reasonable precautions to prevent its disclosure (Schultz, Collins & McCulloch, 1994). However, an employee cannot be responsible for keeping a trade secret unless it has been told which particular information is a trade secret (Schultz, Collins & McCulloch, 1994). For that reason, competitive intelligence should be transversal to the organization (Schultz, Collins & McCulloch, 1994). Similar to the trade secret concept, the

European Union adopted the European Data Protection Directive (EU, 1995) where EU members adopt or amend national legislation to ensure individuals rights to protect their privacy and control their personal information on electronic databases (McGonagle & Brogan, 2000).

An example of a legal aspect in Portugal and Europe is the recent recommendation of the Council of Europe regarding the processing of personal data in the context of employment. For instance, employers should avoid interferences with the right to a private life of employees. The monitoring of the content of private electronic communications at work is illegal. Video surveillance, revealing location of employees or biometric data are issues to take under consideration when colleting and storing personal data (EU, 2015).

One advantage of a trade secret over patent is its relatively free cost of keeping secret a trade secret (Toren, 2005). Another advantage is the eternal life of a trade secret, as a patent is exclusive for a limit period of time (Toren, 2005). On the other hand, patents also have some advantages over a trade secret, such as the exclusivity of the right of use (Toren, 2005). Establishing the misappropriation of a trade secret can be complicated, as bad faith intent is general more difficult to show then the infringement of the use of a patent (Toren, 2005). The trade secret depends on the extent of its awareness outside the organization, either by employees or others involved in the business of the organization, the extent of the measures to keep it a secrecy, its value for the organization and the competition and the level of difficulty to achieved or acquired it (Kappes & Wexler, 2008). One solution for theses disadvantages can be the use of patents for specific aspects of an invention and the use of trade secrets for the remaining related information (Toren, 2005). Best practices for sealing leaks on secrets and confidential information include education and training programs, assessment of access needs to them or limitation of their availability, nondisclosure agreements, checkout requirements, and regular audits (Wexler & Mulligan, 2009). A four-step program can be implemented to protect trade secrets and confidential information: (1) identification of trade secrets and development of contracts to enforce the organization rights; (2) dissemination of personnel policies and procedures; (3) conduction of regular audits on employees about trade secrets and

confidential information; an (4) enforcement of the organization rights on every misappropriation case (Kappes & Wexler, 2008).

2.3.2 Ethical Code of Competitive Intelligence

"One slip, and down the hole we fall
It seems to take no time at all
A momentary lapse of reason"
Moore,1987a

When addressing ethics in competitive intelligence activities, the organization may raise the issue either to use or not competitive intelligence as a support tool for the decision-making process (Schultz, Collins & McCulloch, 1994). Understanding which collection methods are ethical and which are not, may also be a misty issue in business ethics, but perfectly acceptable is profit, although the means to obtain it, may be a problem (Schultz, Collins & McCulloch, 1994). Unlike the legal aspects of competitive intelligence, ethics is a squishy area (Kahaner, 1996). Although organizations make available ethical guidance to their employees, the message is not always perceived (Kahaner, 1996). Furthermore, ethics keeps changing as society changes (Kahaner, 1996). However, a code of ethics keeps the organization out of the court, avoids legal entanglements and costs, keeps employees less stress, and keeps the organization credible and with good reputation (Kahaner, 1996). Besides it is possible to collect the necessary information legal and ethically, as eighty-five percent is in the public domain (Kahaner, 1996). Every organization involved in competitive intelligence activities should have a corporate policy or code of ethics with rules when gathering information and protecting trade secrets (Schultz, Collins & McCulloch, 1994). Examples of these rules are related to (1) the legality and ethicality of information collection from competition; (2) the fairness and honesty need in competition; (3) the prohibition of questionable, fraudulent, and illegal activities; (4) the report of illegalities and violations of codes; (5) the continuation of the duty of trade secret protection for recent former employees; and (6) the obligation of protection for trade secrets of suppliers, customers, and even competitors (Schultz, Collins & McCulloch, 1994).

Examples of legal and ethical activities are reverse engineer, to acquire a product of the competition and dismantle for analysis, and the use of a service of the competition to collect information about it (Taborda & Ferreira, 2002). The competitor should protect any secrets and turn them into trade secrets or patents. Nevertheless, to avoid unethical collection activities, the organization can start contacting in-house sources such as the sales workforce (Berger, 1998). A job interview with no intend of hire is, by the Principles of European Contract Law (Lex Mercatoria, 2015), illegal and an unethical activity (Ehrlich, 2006). Misrepresentation is not restricted to lies; also omissions can be considered misrepresenting the organization, as in the previous case of the false flag job seeker (Ehrlich, 2006). Interviewers must disclosure the organization either in the beginning or in the end of the interview if agreed by the interviewee, and never misrepresenting the organization or the intent of the interview (Jensen, 2004).

Most authors refer to the misrepresentation (Curtis & Carter, 2008; Himelfarb, 2008b; Prescott, 2006; Rothwell, 2008a; Wexler & Mulligan, 2009), contractual obligations and nondisclosure agreements (Curtis & Carter, 2008; Weiss, 2001), intellectual property and trade secrets (Curtis & Carter, 2008; Himelfarb, 2008b), and unsolicited information (Prescott, 2006; Rothwell, 2008a) as important issues to address in a code of ethics. One simple process to build a code of ethics in the organization is to (1) review others code of ethics from SCIP or other organizations websites; (2) research ethical lapses on codes reviewed; (3) create a draft ethics policy; (4) avoid cover every single plausible situation; (5) get top management comments; and (6) review the code with the legal department for final approval (Kindler, 2003; 2006). The code of ethics should also be disseminated throughout the organization, managing grey zone cases and reviewing it annually (Kindler, 2003; 2006).

2.4 COUNTERINTELLIGENCE

"You better watch out,
There may be dogs about
I've looked over Jordan, and I have seen
Things are not what they seem."
Waters, 1977

The worst enemy of the organization regarding intelligence tends to be the organization itself (Fuld, 2010). Preventing every single leak is virtually impossible, however it is possible to reduce them (Kahaner, 1996). Counterintelligence is more than preventing leaks, is one of the areas to manage in the intelligence cycle (Calof, 1998), and one of the four types of key intelligence topics (Bernhardt, 1999). Counterintelligence is the task of protecting intelligence and information that once known or in the hand of the competition may reduce the competitive advantages of the organization (Lauria, 2008; Taborda & Ferreira, 2002). Counterintelligence is an intelligence activity, not a security activity, and depends on the understanding of the competition capabilities and intentions (DeGenaro, 2005). Counterintelligence requires the existence of competitive intelligence activities in the organization (De Genaro, 2005).

There are four components of counterintelligence: (1) disinformation, the active dissemination of false information with the intent to deceive; (2) misinformation, incorrect information that the competition may collect on their own about the organization; (3) deception, valid information presented in a way that may be misunderstood; and (4) shielding, the control and protection of valuable information (Lauria, 2008). Ethically speaking, some issues may arise from some of these components, such as the misinformation component. One of the Ten Commandments of Legal and Ethical Intelligence Gathering of Fuld & Company (see appendix G), thou shalt not swap misinformation, may seem an unethical activity. However, the importance of this activity is in the action, if the competition finds the incorrect information and does not validate it, the organization is not swapping, exchanging or trading; then it cannot be consider an unethical activity. As for disinformation, we fail to identify in the competitive intelligence literature any reference that states the activity of disinformation as either an ethical or unethical activity. The deliberately construction and dissemination of false information does not seem like an ethical activity by the Ten Commandments, however, once again the organization is not swapping misinformation. In doubt, the gold rule of ethics is to contact the legal department or the top management for validation. Nevertheless, disinformation or misinformation in the sense of distracting or moving away the attention of the competition from valuable information, by either producing intensive information about irrelevant issues or acting publicly on non-strategic issues and secretly on

strategic ones, is ethically acceptable (Kahaner, 1996), as it can also be defined as deception.
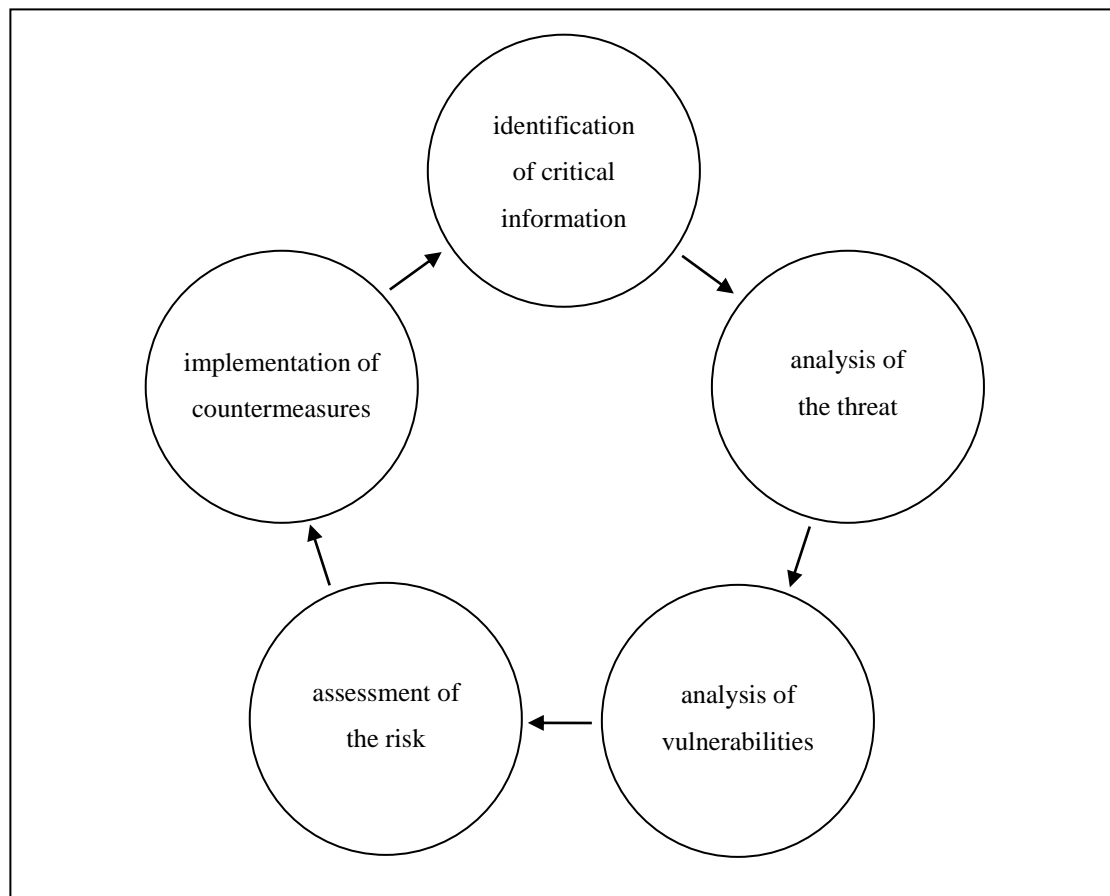
Figure 19 - The Operations Security Model (adapted from Kahaner, 1996)

Shielding valuable information is related with the prevention of information leaks and the protection of information. Preventing leaks from the organization, as every business transaction generates information, may be a simple surveillance occupation to the following areas: (1) official communications, including press releases, public filings, technical papers, speeches and presentations; (2) plant and office tours; (3) employees, where open discussions about valuable information can never take place in elevators, airplanes, hotels, trade shows, or parties; (4) non-employees, including suppliers, distributors, mailers, printers, and bankers with access to some valuable information; (5) documents, where a rating system for security with private, confidential and restricted levels can be implemented; (6) hiring ads; (7) computer data; and (8) litigation and lawsuits, where some valuable information is often reveal (Kahaner, 1996). Protecting information can be achieved by the use of the OPSEC

model, an efficient and low-cost tactic to protect public-domain and proprietary information (Kahaner, 1996). The OPSEC, or Operations Security model (Figure 19), is a five steps process: (1) identification of critical information; (2) analysis of the threat; (3) analysis of vulnerabilities; (4) assessment of the risk; and (5) implementation of countermeasures (DeGenaro, 2005; Kahaner, 1996). The countermeasures can be the creation of trade secrets or the register of patents as defined previously in this thesis.
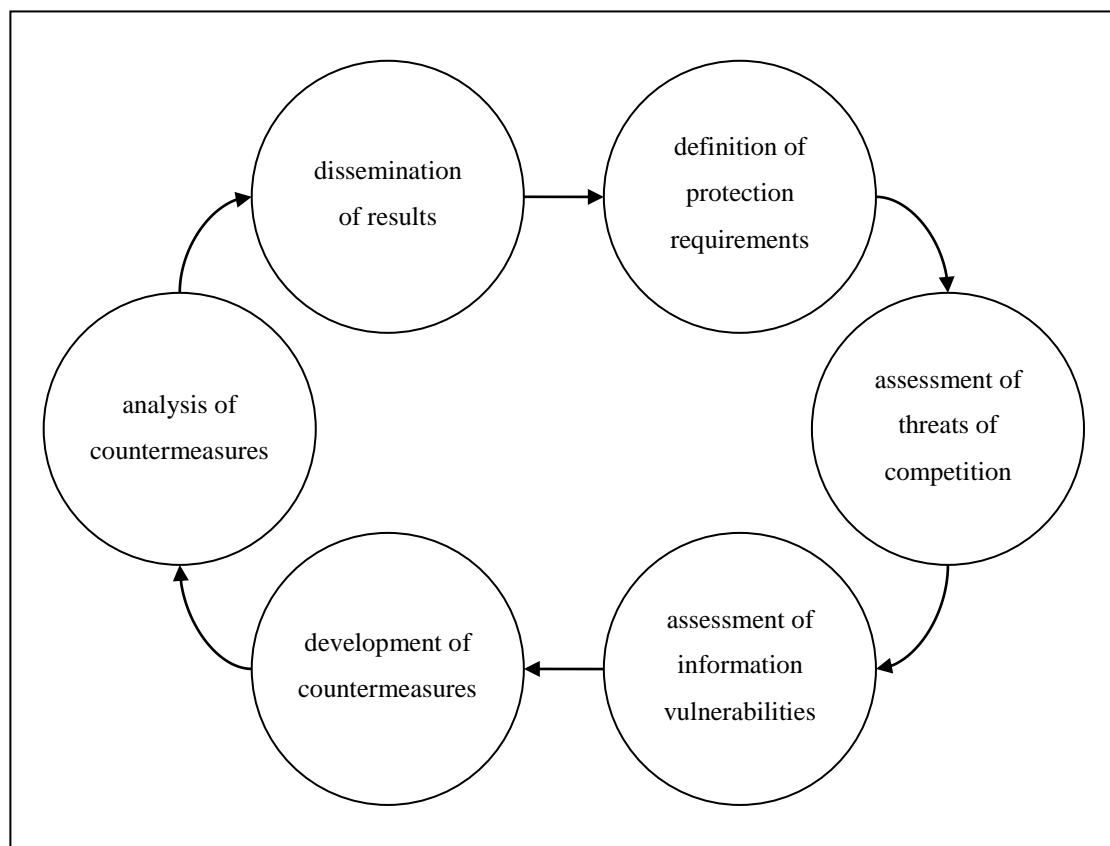
Figure 20 - The Counterintelligence Cycle (adapted from Lauria, 2008; Taborda & Ferreira, 2002)

Another way to look at counterintelligence is to consider the defensive and the offensive forms of intelligence. The defensive intelligence activities are (1) security countermeasures, by defending the organization against the competition attacks on information, (2) operational security, which consists on denying the existence of strategic activities planned and executed or in execution, and (3) counterintelligence, where the competition intelligence activities are uncovered (DeGenaro, 2005). Security countermeasures and operations security aim to reduce information vulnerability, while counterintelligence aims to reduce the threat of external

intelligence activities (DeGenaro, 2005). The perfect tool for operational security is the OPSEC (DeGenaro, 2005).

At last, the counterintelligence cycle, which helps to protect intelligence and valuable information, has the following phases (Figure 20): (1) the definition of protection requirements; (2) the assessment of threats of competition; (3) the assessment of the information vulnerabilities; (4) the development of countermeasures; (5) the analysis of the countermeasures; and (6) the dissemination of results (Lauria, 2008; Taborda & Ferreira, 2002). The development and analysis of the countermeasures include the development and deployment of protection measures as well (Lauria, 2008). In the definition of requirements, the most sensitive and relevant information are identified (Taborda & Ferreira, 2002). The capability of collection and analysis of the competition is the goal of the threat assessment phase (Taborda & Ferreira, 2002). Identifying what to protect and from whom is clearly an advantage for the organization when assessing vulnerabilities of information, which can also shows the efficacy of the security department and the counterintelligence function (Taborda & Ferreira, 2002). Developing countermeasures is not enough, they need to be deployed and their efficacy measured (Taborda & Ferreira, 2002). In the analysis phase of the counterintelligence cycle, the developed and deployed countermeasures are analyzed by its efficacy and reviewed for changes on the competition and current efficacy (Taborda & Ferreira, 2002). The dissemination of the results to the decision-maker allows the assessment of the intelligence and information to be protected (Taborda & Ferreira, 2002) and one more piece of the puzzle of the competition and their intelligence capabilities. The counterintelligence cycle and the intelligence cycle are related as their collection and analysis steps use the same techniques and tools, and as some synergies about the competitive environment are established (Taborda & Ferreira, 2002).

An intelligence and counterintelligence training for all of the organization and protection policies can bring additional value to the competitive intelligence process and consequent strategic value (Taborda & Ferreira, 2002). A simple policy of register external contacts, name and organization of each contact for instance, on an intelligence system, can help identify potential competitors and intelligence activities (Taborda & Ferreira, 2002). Other recommendations on counterintelligence activities

or protection of information activities are to review key intelligence topics and questions from the competition perspective, to include non-disclosure agreements for consulting outsourcing, and to avoid amateur aggressive moves in order to unnecessarily alert the competition (Nolan, 2005). Yet another guideline to protect information from ethical external competitive intelligence activities and occasional unethical attempts is to have a switchboard gatekeeper policy that allows passing through only calls with identified names reducing unprotected access points (Brendel, 2007). Regional and satellite offices are also point of access to information, and an eventual public relations or communications department should gather all external enquiries and requests from journalists, researchers, and competitors intelligence professionals (Brendel, 2007). Written enquiries or request allows a better management and avoids the fastest and most effective tool of collection, the telephone (Brendel, 2007). Also stalling, regularly classifying sensitive information, applying need to know policies and ensuring a robust internal personal computer security may persuade the information collector to look for a different source of information (Brendel, 2007). Employees exposed to external contact should know which organizational information is public and online to limit its level of exposure and information to communicate (Brendel, 2007). When gathering together intelligence and valuable information in the same system, updates, security patches and all regular information systems security measures must be applied in the system (Resnick, 2005).

2.5 MATURITY AND BEST PRACTICES OF COMPETITIVE INTELLIGENCE

"Hello?

Is there anybody in there?

Just nod if you can hear me.

Is there anyone at home?"

Gilmour & Waters, 1979

In this section the maturity of competitive intelligence function is discussed starting by the implementation of the competitive intelligence system, moving to the competitive intelligence team and required skills, to the maturity itself and a model of best practices in competitive intelligence. In order to discuss the maturity or address

the best practices model, there must be evidence of an implemented and working competitive intelligence function, which depends on the existence of a competitive intelligence team and a competitive intelligence system.

2.5.1 Competitive Intelligence System

"Ancient bonds are breaking,
Moving on and changing sides"
Wright & Waters, 1972

Building a competitive intelligence system in the organization may be a cheap task on money, resources, and materials, because most of all requires a change in the organizational attitude regarding information and intelligence; it can be as simply as putting together existing bits and piece (Kahaner, 1996). The competitive intelligence system should answer to the decision-maker needs by setting the perfect balance between human resources, technology and processes (Taborda & Ferreira, 2002). Regarding human resources, the competitive intelligence system should have (1) leadership from innovation and initiative top management with tolerance for errors and continuous learning, (2) decision-makers trained in the competitive intelligence process and benefits for the decision-making process, and (3) competitive intelligence staff with knowledge in competitive intelligence process, collection and analytical tools (Taborda & Ferreira, 2002). Technology may help building a competitive intelligence system but should not be a starting point as intelligence production is a human activity no matter how technology is used in the process (Taborda & Ferreira, 2002). Good intelligence results depend on the utilization level of technology not on the sophistication level of technology (Taborda & Ferreira, 2002). Nevertheless, there are ten steps that can be considered when selecting a competitive intelligence software (Camastro, 2008; Sewell, 2007): (1) definition of objectives and expectations; (2) definition of a timeline; (3) definition of the project team, core users and decision-makers; (4) definition of technical and security requirements; (5) definition of key deliverables; (6) identification of the current workflow and business practices; (7) definition of content management; (8) definition of collaboration requirements and information sharing; (9) definition of user interface; and (10) assessment of a software demonstration (Sewell, 2007). At last regarding processes on that perfect balance, two processes should be considered, the process of competitive intelligence, largely

discussed previously, and the process of building a competitive intelligence system (Taborda & Ferreira, 2002): (1) selection of a competitive intelligence director next to the strategic decision-maker; (2) identification of key intelligence users and topics using procedures defined in the planning and direction step of the intelligence cycle; (3) intelligence audition of the organization for data, information, collectors, and analysts; (4) design of a network for intelligence flow using existing channels that can be accepted by current culture and top management; and (5) establishment of organizational legal and ethical guidelines for competitive intelligence activities (Kahaner, 1996). The return of a competitive intelligence system is not immediate, however if it starts with new software will probably be none (Taborda & Ferreira, 2002).
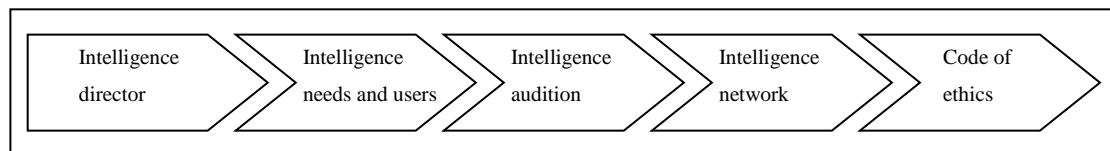
Figure 21 - The Process of Building a Competitive Intelligence System (adapted from Kahaner, 1996)

Another view of a decision-oriented approach to design a competitive intelligence system is addressing each decision area with key concerns, as following: (1) deciding on the focus of competitive intelligence efforts, some issues should be considered, such as the early warning of opportunities and threats, the strategic decision-making support, the competitor monitoring and assessment, and the strategic planning support; (2) for the location and structure of the system, where are the profitable sales, the largest threats and where do new products come from are issues to consider; (3) regarding competitive intelligence staff the key concerns are the director, a human intelligence network, some information specialists, and analysts; (4) the intelligence products should be timely, accurate and relevant; (5) competitive intelligence projects should be built following a project-based approach, have focus on decisions, prioritize intelligence needs, and consider pitfalls; and finally (6) regarding ethics, a code of ethics based on the local and regional laws should be consider (Prescott, 1999). One effective method to decide on the focus of competitive intelligence efforts is to conduct an intelligence audit (Prescott, 1999). An intelligence audit should provide answers about intelligence activities currently conducted in the organization, types of

intelligence needed, the way intelligence activities can assist the organization or the decision-making process, the role of employees in that assistance, and current facilitators and barriers to building the system. (Prescott, 1999).

There are eight competitive intelligence organizational models that can be applied to small, mid-size or large organizations, also working as evaluating frameworks for each case: (1) the intelligence ad-hoc team, responding to decision-makers requests; (2) the process manager as a single person operation, also commonly known as lone practitioner; (3) the basic intelligence system, which can be characterize as two minds and a library; (4) the business intelligence center performing systematic collection and analysis from internal information systems; (5) the intelligence department, where intelligence is confine to a unit or division; (6) the hub and spoke common in global organizations with mature functions; (7) the intelligence matrix also common in multinational organizations where intelligence appears aligned with the organization culture; and (8) the intelligence community where decision-makers interact with the corporate intelligence department, and in turn with the corporate intelligence community position in operational divisions and functional departments around the world (Kalb & Herring, 2012). These models can be selecting according to the organizational culture as following: (1) organizations with formal and disciplined culture, traditional structures, management processes and procedures are compatible with the intelligence department, the hub and spoke, and the intelligence community models; (2) organizations with cost consciousness and conservative management cultures are compatible with the intelligence center, the matrix organization and the basic intelligence system models; and (3) conservative management cultures in early phases of competitive intelligence programs development are compatible with the intelligence ad-hoc teams and the process manager models (Kalb & Herring, 2012).

Common problems with building competitive intelligence systems are the lack of involvement of top management, unfocused decision-makers, too much collection and less analysis, non-information-driven and not ethical employees (Kahaner, 1996). Also important issues to the success of a competitive intelligence system are counseling, ad-hocracy, adaptation, focus and adrenaline (Taborda & Ferreira, 2002). During the building process of a competitive intelligence system, a small and mid-size organizations mentality where there is no time for big pretty reports is an advantage

(Taborda & Ferreira, 2002). However, the ultimate focus on the customer satisfaction tends to be answered by respond directly to them, determine their needs, increase their satisfaction and define them; only then building a competitive intelligence capability in the organization can solve customer satisfaction (Simon & Blixt, 1995).

2.5.2 Competitive Intelligence Team

"Together we stand, divided we fall"

Waters, 1979g

No matter the size of the organization, a competitive intelligence team often includes a director, information collectors or researchers and analysts, as previously discussed. However, in the process of competitive intelligence, information protectors, legal, juridical and consulting teams, can also participate (Taborda & Ferreira, 2002). Team sizes vary, are often less than ten persons and less than three the ones that interact with the decision-maker or top management (Taborda & Ferreira, 2002). Even in large organizations teams of five or less is not uncommon (Bernhardt, 1994). In smaller teams a manager for planning, direction and dissemination, and an analyst to collect and analyze can be enough (Heppes & du Toit, 2009). The tendency on the number of members on the competitive intelligence team is to increase with the size of the organization and to decrease with the years of establishment or maturity of the function (Lackman, Saban & Lanasa, 2000).

The director of the team or head of competitive intelligence is often a seasoned manager with strong analytical skills and direct line to decision-makers and top management, and understands the role of intelligence in the power balance of the organization (Bernhardt, 1994). On a diversified organization, with several sub business units, the competitive intelligence team or function may be divided in several smaller teams according to the sub business units, where the director (1) acts as catalyst in the development of the all competitive intelligence system, (2) coordinates network issues, (3) directs and monitors competitive intelligence activities focusing on intelligence needs, (4) provides centralized resources, (5) and is responsible for training of the intelligence team (Bernhardt, 1994; Tyson, 1998).

The analyst of a competitive intelligence team should master ten key set of skills in order to be truly competent: (1) creative vs. scientific; (2) deduction vs. abduction vs. induction; (3) individual vs. group vs. organization; (4) intuition vs. intellect; (5) precision vs. perspective; (6) past vs. present vs. future; (7) qualitative vs. quantitative; (8) automation vs. human process; (9) written or spoken vs. visualization; and (10) objectivity vs. subjectivity (Fleisher & Wright, 2010). The analyst can be classified towards its attitude in competitive intelligence as a warrior, an assault, an active, a reactive and a sleeper (Rouach & Santi, 2001). The classification is based on the activity and expertise of the analyst, where a warrior attitude is offensive and expert, and a sleeper attitude is inactive and amateur (Rouach & Santi, 2001). In detail, a warrior attitude is when the analyst manages the competitive intelligence process proactively and continuously in the search for opportunities, has a war mentality and offensive position on patent and counterfeit war, and fights against disinformation (Rouach & Santi, 2001). Sophisticated tools such as war gaming are used in certain cases and a code of ethics is present in the warrior attitude, as well as an unlimited or significant number of resources available (Rouach & Santi, 2001). In the assault attitude, the analyst is often an ex-intelligence specialist, with sharp processing data skills and aims for strategic information (Rouach & Santi, 2001). Significant resources, professionalism and ethics are available in the assault attitude, and the emphasis is deposited on the human intelligence (Rouach & Santi, 2001). An active attitude is when the analyst does look for strategic information through normal sources in an organization without a proper information system (Rouach & Santi, 2001). Competitive intelligence analysis tends to be a competition observatory with limited resources and weak networking (Rouach & Santi, 2001). In the reactive attitude, the analyst is a mere opportunist, responding only to attack from the competition and with a very limited budget (Rouach & Santi, 2001). Finally, a sleeper attitude is when no interest in competitive intelligence or knowledge management exists in the organization (Rouach & Santi, 2001). Additionally, four soft skills are required to the competitive intelligence analyst when engaging in international activities: (1) cultural awareness, which may be solved by including international members in the team; (2) collaboration with internal and external, and cross-geographical teams; (3) building consensus either by flexibility or tolerance of or to different, non-conventional approaches and out of the box thinking;

and (4) adapting the communication style to the team and the internal customer (Rothwell, 2008b).

To conduct competitive intelligence activities, individuals need to hold an education or skills on research (Daulong, 2003; Moon, 2003), library science (Daulong, 2003; Piccoli, 2003; Shumadine, 2003), finance (Daulong, 2003; Kelly, 2003; Moon, 2003; Shumadine, 2003), technology (Kelly, 2003), analytical (Daulong, 2003; Kalb, 2003; Kelly, 2003; Potter, 2003; Sawka & Correia, 2003; Wilhelm, 2003), communication (Kalb, 2003; Kelly, 2003; Moon, 2003; Potter, 2003), presentation (Kelly, 2003; Potter, 2003) and journalism (Prescott, 2003). Also creativity (Potter, 2003), curiosity (Dennis, 2003, House & Henrich, 2003; Moon, 2003; Shumadine, 2003) and persistence (Potter, 2003; Sawyer, 2003) helps individuals to perform competitive intelligence activities. Unique skills necessary to successful competitive intelligence activities is the knowledge sponge, meaning those individual characteristics of loving capture and absorbing everything about the industry surroundings (Kalb, 2003). Often the combination of a large perception of the industry and patterns recognition in small data is all the necessary skills (Rosenkrans, 2003). Competitive intelligence personnel previous occupations are commonly marketing, sales, market analysis, market research, journalism, government intelligence, private investigation, consulting, media relations, corporate librarianship, academic and writing jobs (Burkhardt, 2007). Competitive intelligence role in an international perspective might require an evolution, from a departmental based to a community and peer-based, from receiving questions and finding fact to asking questions and linking facts, from report-based deliverables and autonomy to communication adapted to the audience and collaboration with other business units, and from national focus to world focus (Rothwell, 2008b).

The competitive intelligence team is often positioned in the business development or planning group, not in the marketing or market research units (Bernhardt, 1994). Although close to decision-makers, the competitive intelligence function should be accessible to everyone in the organization (Kahaner, 1996).

2.5.3 Maturity of the Competitive Intelligence Function

"Since, my friend, you have revealed your deepest fear,
I sentence you to be exposed before your peers.
Tear down the wall!"
Waters & Ezrin, 1979

Effective competitive intelligence functions are characterize by pro-activity, systematic, intelligence needs-driven aspects, and often start with pilot programs (Bernhardt, 1994; Tyson, 1998). Coordination between individual business units or teams, flexible design allowing change, and never comfortable with the current competitive intelligence system are also characteristics of an effective competitive intelligence function (Bernhardt, 1994; Tyson, 1998). The competitive intelligence function has to respond to the intelligence needs regarding culture and organization restrictions (Bernhardt, 1994). A typical world-class competitive intelligence function spend more time on the analysis and dissemination steps than on collection, which can vary from twenty to thirty per cent (Calof, 1998). The proactive competitive intelligence function is proper resourced, analytical skilled, and mapped for monitoring indicators on high-risk areas (Heppes & du Toit, 2009). On the other hand, less capable or reactive competitive intelligence functions take up to sixty per cent on collection, leaving very less time for intelligence production (Calof, 1998). When intelligence and marketing research are combining in the same function, the last takes about ninety per cent shifting competitive intelligence activities to second plan (Lackman, Saban & Lanasa, 2000). In high technological industries, competitive intelligence function can be found near the technological and research and development departments; in less technological industries the competitive intelligence function is commonly near the marketing and sales areas (Taborda & Ferreira, 2002). In any case, is also often to find the competitive intelligence function working closely with those department or areas, and positioned near top management and strategic decision-makers (Taborda & Ferreira, 2002). Several surveys conducted by SCIP through the years about the position of the competitive intelligence function (Figure 22) present a strategy location decentralizing tendency but also a new tendency for the independent competitive intelligence location in the organization (Kalb & Herring, 2012). Intelligence is an art, and apart the difficulty to position an art department in

the organization, the competitive intelligence function can be incorporate into the organizational culture and policies (Fuld, 2010). More established competitive intelligence functions have the involvement of top management in the intelligence needs identification process (Lackman, Saban & Lanasa, 2000).
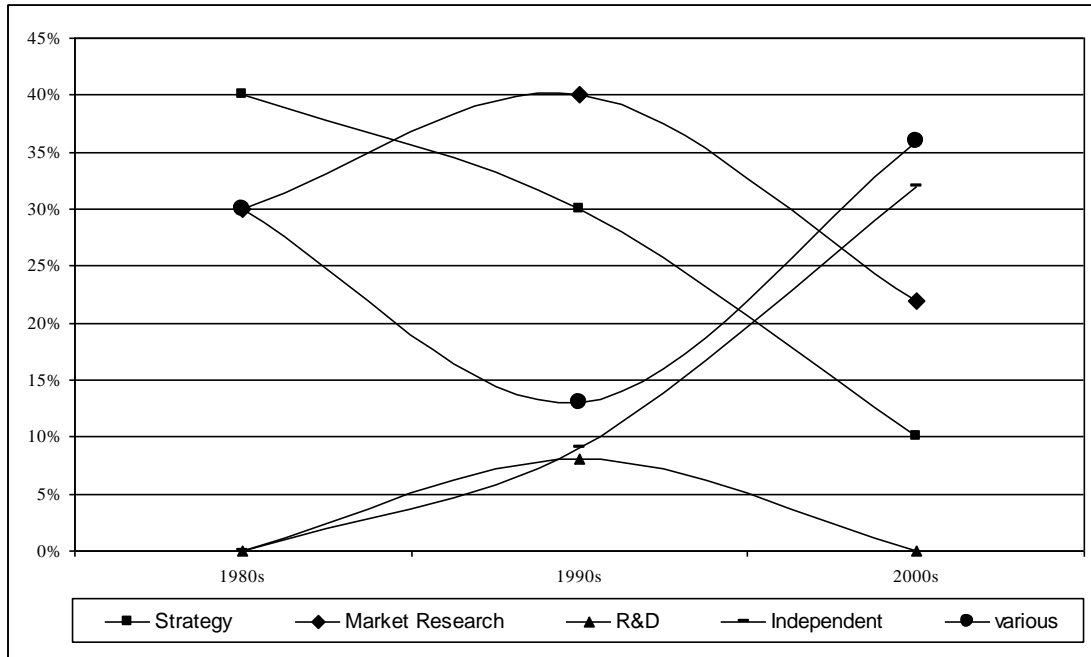
Figure 22 – Position of the Competitive Intelligence Function (Kalb & Herring, 2012)

A possible evolution of the competitive intelligence function varies from ad-hoc and reactive activities to a centralized tracking system, classifying the function from infancy to mature (Calof, 1998). Infant activities are resume to newspaper reading like a librarian producing profiles; where mature activities are fully integrated between issues such as competition, customers, and suppliers for instance, involving entire departments using competitive intelligence systems for producing intelligence (Calof, 1998). Another evolution of a world-class competitive intelligence capability is based on the stages: (1) an early stage where basic facts are provided, although creating competitive intelligence awareness; (2) a mid-level capability where trends and implications are identified from collected information, creating a relationship with decision-makers; and (3) a world-class competitive intelligence capability part of the organizational strategy force (Heppes & du Toit, 2009). A competitive intelligence function seems to move in time from competitor awareness to competitor-sensitive and to competitor-intelligence (West, 2001). The early stage of competitor awareness

means that key competitors are known and incomplete and certainty unverified knowledge is available (West, 2001). In the next stage, competitor-sensitive, the organization is aware of the risk and damage that the competitors can inflict, and is concern with security on protecting from them (West, 2001). The ultimate stage, competitor-intelligence, the organization uses serious resources in analyzing the competition and anticipating their moves (West, 2001).

On the table 6, that resumes classifications on the maturity of the competitive intelligence function, the focus on the classification vary, as Calof (1998) is the duality ad-hoc vs. continuous competitive intelligence activities, Rouach and Santi (2001) is the competitive intelligence team attitude, West (2001) is competitors, and Heppes and du Toit (2009) is strategy. Judith Leavitt developed in 2006 the competitive intelligence maturity matrix, that is based on five aspects of the competitive intelligence process as a roadmap to achieve a stage where intelligence produced provide more value to the organization: teams; tools; techniques; processes; and products (Herring & Leavitt, 2011). Singh and Beurschgens (2006) classification or developmental stages to reach a world-class capability, is based on the focus on eleven activities that can be identified in a competitive intelligence function: the role and responsibility; the processes used; the secondary research; the primary research; type of analysis conducted; the people involved; the organizational structure; the competitive intelligence awareness; the technology used; the value perception; and the competitive intelligence professionalism (Singh & Beurschgens, 2006). The ultimate roadmap to achieve a competitive intelligence world-class capability as the most mature stage that a competitive intelligence function can reach is the Herring-Leavitt world-class competitive intelligence program roadmap (Herring & Leavitt, 2011). This roadmap crosses the competitive intelligence maturity matrix of Leavitt and the ten characteristics and three criteria for the world-class intelligence programs of Jan Herring (Herring & Leavitt, 2011). The ten characteristics of a world-class competitive intelligence program are: (1) an educated decision-maker or top management team that uses intelligence; (2) a well-respected and trusted director of competitive intelligence; (3) an awareness and acceptance of the role and value competitive intelligence in the organization; (4) a professionally planned and executed intelligence operations; (5) a legal and ethical guidelines program-based; (6) a proficient collection from both secondary and primary sources whose proactive use

provides the organization early warning; (7) analysis that provides competitive insight with managerial foresight; (8) a counterintelligence operation designed to protect intellectual property from intelligence activities of competitors; (9) an employment of information technology for collection, analysis, and end-users applications support; (10) an adequate set of resources with professional and trained personnel (Herring, 2006c; Herring & Leavitt, 2011). The three additional criteria for a world-class intelligence program are the constant support and regular use of competitive intelligence activities by management, its continuous operation for five years or more, and its incorporation into the organizational culture (Herring, 2006c; Herring & Leavitt, 2011). The Herring-Leavitt world-class competitive intelligence program roadmap is based on users and uses, people and professional development, sources and methods, and policies, processes and procedures, and includes a developmental stage in the first two years, a professionalization stage within three to five years, and an optimization stage after the fifth year (Herring, 2006c; Herring & Leavitt, 2011).

Table 6 - The Maturity of the Competitive Intelligence Function

	imature				mature
Calof, 1998	infancy				mature
Rouach & Santi, 2001	sleepers	reactive	active	assault	warrior
West, 2001	competitor awareness		competitor sensitive		competitor intelligence
Leavitt, 2006	ad-hoc	emerging	defined	institutional	optimized
Singh & Beurschgens, 2006	stick fetching	pilot		proficient	world-class
Heppes & du Toit, 2009	early stage		mid-level		world-class
Herring & Leavitt, 2011	developmental		professionalization		optimization

Apart from any other classification, maturity ranking, stages or roadmap for developing or implementing a world-class competitive intelligence capability in the organization, there are three basic methods to identify such capability: opinion surveys conducted to business executives and leaders; self-assessment of the organization competitive intelligence function or program by comparison with an

independent established model or benchmark; and professional judgment by external competitive intelligence experts (Herring & Leavitt, 2011).

2.5.4 Best Practices in Competitive Intelligence

"There's nothing you can say
To make me change my mind"
Waters, 1979h

Best practices in competitive intelligence can be resumed to every single issue addressed and discussed so far, from the definition of competitive intelligence to the mature of the competitive intelligence function. A world-class competitive intelligence capability takes at least five years of commitment of the top management (Calof, 1998). Competitive intelligence is about developing skills, process, and structures as the easy tasks, and the hard task of changing organizational culture (Calof, 1998). Intelligence is the product of many individuals in the organization, competitive intelligence function is positioned in the organization, and the process of competitive intelligence is an activity part of the job of everyone in it (Fuld, 2010).

Attitude Type	Gathering type	User type	Location type
Immune Attitude	Easy Gathering	Joneses User	Ad-hoc Location
Task Driven Attitude	Hunter Gathering	Knee-jerk User	Designated Location
Operational Attitude		Tactical User	
Strategic Attitude		Strategic User	
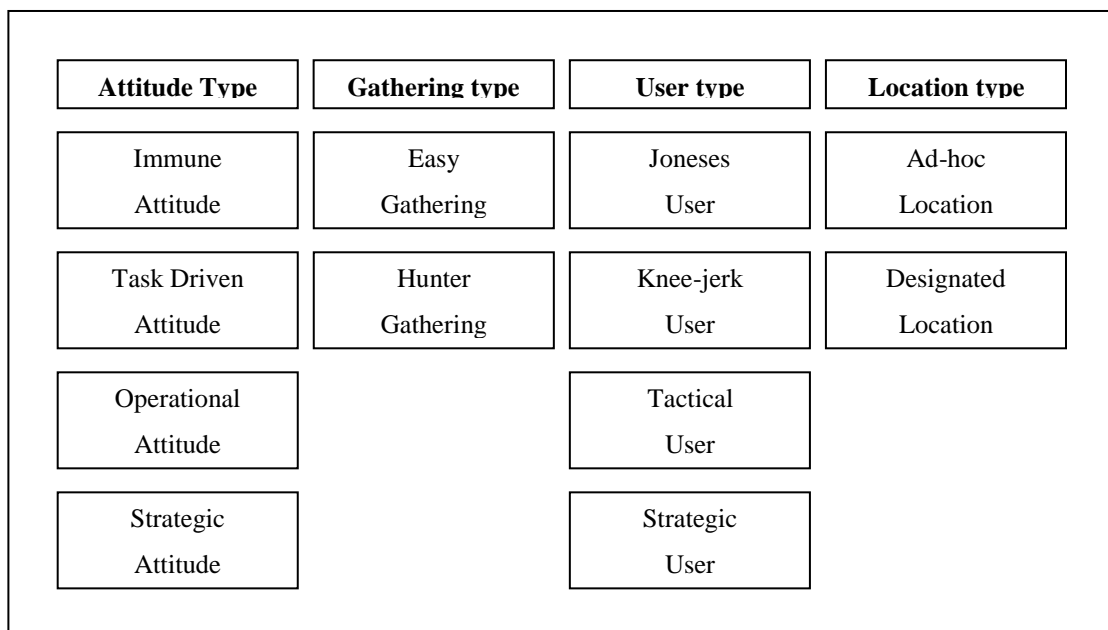
Figure 23 - The Competitive Intelligence Best Practices Model (adapted from Wright, Eid & Fleisher, 2009).

A model for best practices in competitive intelligence was develop by Sheila Wright, David Pickton and Joanne Calow (2002) when conducting a study about United Kingdom organizations with an active competitive intelligence function. The model is based on the classification of the organization in four different strands: attitude, gathering, use, and location (Wright, Pickton & Calow, 2002; Wright, Eid & Fleisher, 2009). Each strand has descriptors (Figure 23) that characterize competitive intelligence activities in the organization (Wright, Eid & Fleisher, 2009).

An immune attitude of the competitive intelligence activities of the organization means that management is too busy thinking about today to worry about tomorrow. Management thinks that competitive intelligence is a waste of time. There is a minimal or no support from either top management or other departments. A task-driven attitude in the organization means that competitive intelligence activities find answers to specific questions and extend its knowledge on competitor, usually on an ad-hoc basis. There are departments more excited about competitive intelligence than top management who do not see the benefits of it. An operational attitude means that there is a process center in the organization trying to understand, analyze and interpret the market. Management tries to develop positive attitudes toward competitive intelligence for short-term and personal gain. In a strategic attitude there is an integrated procedure where competitors are identified and monitored, and reaction strategies are planned and simulated. Competitive intelligence has top management support, cooperation from others, and is seen as essential for future success (Wright, Eid & Fleisher, 2009).

An easy gathering is when organizations use general publications or specific industry periodicals as information sources, and think that these constitute exhaustive information. Organizations are unlikely to commit resources to obtain difficult or costly information. On the other hand, a hunter gathering is when organizations realize that competitive intelligence needs an extra and sustained effort for information collection. Resources are available to allow the competitive intelligence team to act within reasonable cost parameters. Intellectual effort is supported in the organization (Wright, Eid & Fleisher, 2009).

A Joneses user is when the organization is trying to obtain answers to disparate questions with no organizational learning taking place. The organization commission competitive intelligence reports from a consultant because that is what everybody else is doing. A knee-jerk user is when the organization obtains some competitive intelligence data, but fails to assess its quality or impact, and acts immediately. The imprudence often leads to wasted and inappropriate efforts, sometimes with damaging results to the organization. A tactical user is when the organization uses competitive intelligence mostly to inform tactical measures such as price changes, promotional efforts, competitor activities in the market or a segment. The organization is aware of the potential value of competitive intelligence to the business. A strategic user is when the organization uses competitive intelligence to identify opportunities and threats in the industry and addresses what-if questions. Employees known the critical success factors, and that top management culture encourages involvement and displays trust in the process (Wright, Eid & Fleisher, 2009).

An ad-hoc location means that there is no formal competitive intelligence function in the organization. Competitive intelligence activities are conducted on an ad-hoc basis by other departments with inexistence of sharing policies. A designated location means that the organization has an intelligence unit, with fill-time staff, dedicated roles, and addressing strategic issues. The competitive intelligence staff has access to decision-makers and their status is not a barrier to effective communication (Wright, Eid & Fleisher, 2009).

2.6 SUMMARY

"To cut a long story short"
Kemp, 1980

Competitive intelligence is a systematic, ethical and legal process that analyses the competitive environment of the organization, using the intelligence cycle to deliver intelligence to the decision-making process. The competitive intelligence environment contains customers, suppliers, distributors, substitute products, government or industry regulations, technology, the economy, other industries, demographics, prospects, culture and societal issues and competitors (Sharp, 2009). Intelligence is information pieces that have been filtered, distilled, analyzed, and deliver to the

decision-maker that will act upon (Kahaner, 1996). The four types of competitive intelligence are competitor intelligence, market intelligence, technological intelligence, and strategic and social intelligence (Deschamps & Nayak, 1995). Business intelligence is primarily data mining and produces historical and current views of internal business operations (Sharp, 2009).

The process of competitive intelligence adopted for this thesis is the classic four-step intelligence cycle (Kahaner, 1996). The first step, planning and direction, includes the identification of the decision-maker intelligence needs and the planning of the following steps (Kahaner, 1996). The collection step includes the gathering of information from secondary and primary sources, and its processing for the analyst (Kahaner, 1996). Analysis includes the identification of patterns and trends from the information collected and processed, and the producing of intelligence, establishing possible scenarios and actions for the decisions at hand (Kahaner, 1996). At last, in the four step, dissemination, intelligence is deliver to decision-makers accordingly to their prefer channel of communicating, in a clear form and in time of the decision-making process (Kahaner, 1996).

The process of competitive intelligence is conducted in a legal and ethical manner, following international, national and local laws, and a code of ethics (Kahaner, 1996). Counterintelligence is the task of protecting intelligence and information that in the wrong hands can reduce competitive advantages of the organization (Taborda & Ferreira, 2002). The implementation of a competitive intelligence system goes through an intelligence audition to the organization (Kahaner, 1996). The competitive intelligence team includes at least a director, collector and analyst positions and varies with the size and the structure of the organization. The competitive intelligence staff should own some competitive intelligence process, research, analytical, presentation and communication skills. The existence of a competitive intelligence system and team is evidence of a competitive intelligence function, wherever it might be positioned, and its goal is to acquire a world-class capability as the most mature state of the function. The best practices model discussed can be interpreted a characterization of a world-class competitive intelligence capability consider the desired best practice state for each of the four strands.

As a final point and presented previously, there are three reasons not to use of the process of competitive intelligence with the classic intelligence cycle adopted in this thesis: (1) the dysfunctional and bureaucratic aspects of the intelligence cycle; (2) its inadequacy for tactical intelligence activities; and (3) its inoperability due to the unclearly careers paths and the three-year growing cycle (McGonagle, 2007). Apart from the provocative article of John McGonagle (2007) there is a lack of evidence of the dysfunctional or the functional aspect of the intelligence cycle. On the other hand, McGonagle (2007) himself admits the functional aspect of the intelligence cycle in some competitive environment and for the strategy development. Contrary to the no-positioning of the intelligence cycle to evolve to survive (McGonagle, 2007) there are several intelligence cycle discussed in this thesis, all of them evolved for the military cycle of intelligence, and the eight different competitive intelligence organizational models applied to different-sized organizations (Kalb & Herring, 2012). Not only the intelligence cycle is a dynamic and flexible process, but it also evolves in reaching the most mature state of competitive intelligence activities, the world-class capability. The flexibility on the intelligence cycle functional aspect appears as the iteration between the collection and analysis steps, in order to identify primary sources of information from analysis conducted on secondary information, occurs when necessary.

The inadequacy of the intelligence cycle to tactical intelligence does not pose a problem in this thesis, as the issue at hand is related to the strategic decision-making process. Nevertheless, decision-makers of tactical intelligence such as sales or marketing either use specific models like marketing intelligence or assume their roles as decision- makers instead of assuming roles of intelligence analysts, therefore solving the problem of the separation of the each step of the intelligence cycle. An intelligence attitude in the organization does not mean that everyone is an intelligence analyst.

The third reason for the intelligence cycle fail is the three-year growing cycle and unclearly careers paths. The three-year growing cycle is related to the wither of death of the competitive intelligence function in the first three due to increase of the complexity of competitive intelligence assignments or the tendency to ignore intelligence reports by decision-makers. Although the intelligence cycle depends and

starts on the intelligence needs of the decision-makers, a pro-active model or team can turn an ad-hoc competitive intelligence function to a typically mature or world-class, where the intelligence needs are still fulfilled but are not conditioning the intelligence cycle and activities. The competitive intelligence activities turn into continuous activities. The fight against the unused of intelligence in decision-making is performed through a simple, direct, and timely dissemination of intelligence as discussed in the dissemination section of this thesis. In summary, the competitive intelligence process is an attitude towards organizational learning, information sharing, culture cooperation, and intelligence use (Wright & Calof, 2006; Wright, Eid & Fleisher, 2009). Competitive intelligence is a common practice in competitive environments conducted by all sizes, strategies, and cultures organizations (Wright, Eid & Fleisher, 2009).

CHAPTER 3 – METHODOLOGY

"I have seen the writing on the wall"

Waters, 1979i

Recovering the two research questions of this thesis, we address to (1) the use of competitive intelligence in the decision-making process on Portuguese organizations; and (2) to the satisfaction level of decision-makers when making a decision based on intelligence. The arguments presented previously were that the majority of the decision-makers do not use intelligence in the strategic decision-making process, because they ignore the existence of competitive intelligence as a support decision-maker tool. And that those few decision-makers that do use intelligence in the strategic decision-making process are more satisfied and confident with the decision made than those who do not use intelligence reports.

In the paradigm of positivism versus phenomenology, and for the purpose of this thesis, we have chosen the positivism approach to the research at hand. Therefore, to answer to the two research questions previously describe, we have adopted the research approach of buildup constructs or propositions based on hypothesis. A quantitative methodology based on a survey research strategy, using the data collection method of questionnaires, was also chosen.

This chapter includes the hypotheses which support the constructs, the pre-test questionnaire, the final questionnaire, and data recodification.

3.1 CONSTRUCTS

"Black and blue

And who knows which is which and who is who"

Waters & Wright, 1973

From the literature review on the previous chapter, several hypotheses can be established to measure the frequency of the use of competitive intelligence in the

decision-making process on Portuguese organizations. One of the first hypotheses that can be created is from this thesis definition of competitive intelligence:

H1 – The existence of a systematic, legal and ethical process to analyze the competitive environment, using the intelligence cycle, delivering intelligence to the decision-making process in the organization is a sign of the presence of competitive intelligence activities.

Another implicit hypothesis regarding the production of intelligence can be also created from the definition:

H2 – The existence of intelligence in the organization is a sign of the presence of a competitive intelligence process.

Intelligence is actionable recommendations or insights (Calof, 2008; Calof & Skinner, 1998; Dishman & Calof, 2008) produce by the competitive intelligence process originates another hypothesis:

H3 – The existence of actionable intelligence produced in the organization is a sign of the presence of competitive intelligence activities.

The best practices model of intelligence valuable (Swanson, 2005) implies some other hypothesis about intelligence:

H4 – The intelligence produced is accurate or technical, misperception and biased self-aware.
H5 – The intelligence produced is objective on hypotheses and conclusions.
H6 – The intelligence produced is usable regarding its comprehension and immediate application.
H7 – The intelligence produced is relevant to the decision-maker.
H8 – The intelligence produced is readable to the entire organization.
H9 – The intelligence produced is timely delivered.

Regarding the controversy of competitive intelligence versus business intelligence, the position in this thesis is that business intelligence is the use of information technology systems to store, process and analyze data (van Roosmalen, 2009), where data mining techniques are involved (Prior, 2010; Weiss, 2003). Therefore, and even considering the two other positions, the corresponding hypothesis is:

> *H10 – The existence of business intelligence activities, the use of information technology, primarily data mining techniques, to produce historical and current views of internal business operations in the organization (Sharp, 2009), is not a sign of the presence of competitive intelligence activities.*

The four types of competitive intelligence (Deschamps & Nayak, 1995) produce another hypothesis:

> *H11 – The existence of one of the four types of competitive intelligence (competitor intelligence, market intelligence, technological intelligence, and strategic and social intelligence) in the organization is a sign of the presence of competitive intelligence activities.*

The intelligence process is defined through the classic intelligence cycle (Kahaner, 1996):

> *H12 – The existence of a process using the classic four-step intelligence cycle of planning and direction, collection, analysis, and dissemination in the organization is a sign of the presence of competitive intelligence activities.*

Planning and direction is the first step of the intelligence cycle and has three fundamental goals (Kahaner, 1996):

> *H13 – The existence of a sub-process of planning and direction which aims to understand the decision-maker intelligence needs, to plan the collection of information and its analysis, and to keep the decision-maker informed in the organization is a sign of the presence of competitive intelligence activities.*

The key intelligence topics are used to identify and prioritize decision-maker intelligence needs and to classified those needs into strategic decisions and actions, early-warning topics, descriptions of key players (Herring, 1999, 2005; Johnson, 2004), and counterintelligence needs (Bernhardt, 1999). Every key intelligence topic must have a decision or future action associated and a deadline (Taborda & Ferreira, 2002). Therefore, from this subject of key intelligence topics, the following hypotheses emerge:

H14 – The existence of the key intelligence topic process to identify intelligence needs in the organization is a sign of the presence of competitive intelligence activities.

H15 – The existence of key intelligence topics applied to strategic, early-warning, key players and counterintelligence intelligence needs in the organization is a sign of the presence of competitive intelligence activities.

H16 – The existence of key intelligence topics that include a statement defining the intelligence need, key elements and trends describing the current and future situation, key intelligence questions, preliminary hypotheses, and a deadline in the organization is a sign of the presence of competitive intelligence activities.

The second step of the intelligence cycle is collection, where the necessary information is gathered in a creative, legal and ethical fashion, processed and stored electronically (Kahaner, 1996; Marling, 2003). The necessary information can be divided into primary and secondary (Calof, 1998; Kahaner, 1996; Taborda & Ferreira, 2002). Primary information is unadulterated facts, raw and unchanged information, (Kahaner, 1996). Secondary information presents changed information often filtered from larger information sources or altered by opinion (Kahaner, 1996). Sources of primary information are mainly human (Bernhardt, 1994), but also annual reports, government documents, speeches, live television and radio interviews, organizational financial reports (Kahaner, 1996). Sources of primary information can be reached through human contact and observation (Kahaner, 1996). Sources of secondary information are mainly published information, and include newspapers, magazines, books, taped and edited television and radio programs, reports of experts, databases and online databases services (Bernhardt, 1994; Kahaner, 1996). Information

collected from humans lack validation and reliability evaluation (Naylor, 2011). Observation is the most powerful tool to collect information from human sources (Kahaner, 1996). The frequency of the information to collect creates the typology of competitive intelligence work in ad-hoc request or continuous intelligence activities (Fahey & King, 1997). The corresponding hypotheses can be created from the collection step of the intelligence cycle:

H17 – The existence of a sub-process of collection which aims to creatively, legally and ethically gathers, process and store the necessary information to produce intelligence in the organization is a sign of the presence of competitive intelligence activities.

H18 – The perception that primary information is unadulterated facts, raw and unchanged information in the organization is a sign of the presence of competitive intelligence activities.

H19 – The perception that secondary information is changed, filtered or altered information in the organization is a sign of the presence of competitive intelligence activities.

H20 – The perception that sources of primary information are humans, speeches, live television and radio interviews, annual reports, government documents, and organizational financial reports in the organization is a sign of the presence of competitive intelligence activities.

H21 – The perception that sources of secondary information are published information, newspapers, books, taped and edited television and radio programs, reports of experts, databases and online databases services in the organization is a sign of the presence of competitive intelligence activities.

H22 – The perception that the information collected from human sources must be validated and evaluated for reliability in the organization is a sign of the presence of competitive intelligence activities.

H23 – The perception that observation is a tool for collect information from human sources in the organization is a sign of the presence of competitive intelligence activities.

H24 – The existence of a higher frequency of the information gathered turns the competitive intelligence activities in the organization into a continuous work, as a lower frequency turns into an ad-hoc work.

Analysis is the third step of the intelligence cycle and is characterized by the analysis of the collected information to identify patterns and trends and establish scenarios (Taborda & Ferreira, 2002). In the literature review several analysis tools were addressed, but some were relegate to an appendix with the purpose of distinguish into the group of the more and the group of the less frequently used or commonly refer. Therefore the group of the more frequently used analysis tools includes Analysis of Competing Hypotheses, Blind Spots Analysis, Competitor Analysis, Decision-Maker Profiling, Early Warning, Financial Analysis, Four Corners Model, Five Forces Model, Industry Analysis, Nine Force Model, Patent Analysis, STEEP Analysis, Scenario Analysis, Six-Angles of Competition, SWOT Analysis, and Text Analysis. The group of the less frequently used analysis tools includes Appreciative Inquiry, Backcasting, Balanced Scorecard, Benchmarking, Bibliometrics, Business Intelligence, Content Analysis, Dashboard, Decision Tree, Disclosure Analysis, Environmental scanning, Forecasting, Grounded Theory, Group think, Link Analysis, Market Analysis, Meyer-Briggs Type Indicator, Mind Maps, Modeling, Narrative Analysis, Opportunity Analysis, Portfolio Analysis, Predictive Analytics, Quarterback Technique, Risk Analysis, Social Network Analysis, Stress Value-added Analysis, Thin Slicing, and Trend Analysis. Thus, the following hypotheses can be created from the analysis step are:

> *H25 – The existence of a sub-process of analysis which aims to identify patterns, trends, and establish scenarios from the information gathered in the organization is a sign of the presence of competitive intelligence activities.*
> *H26 – Organizations that tend to use analysis tools from the group of the more frequently used analysis tools are likely to perform competitive intelligence activities.*

As the last step of the intelligence cycle, dissemination is the distribution of the intelligence produced to the decision-maker (Kahaner, 1996). Intelligence can be delivered through several intelligence products. The hierarchy of intelligence products is in a descending relevance, Special Intelligence briefing, Periodic intelligence briefing, Situation analysis, Strategic impact worksheet, and Competitor profile (Bernhardt, 1994). The existence of such products can help the existence of competitive intelligence activities in the organization:

H27 – The existence of a sub-process of dissemination which aims to deliver the intelligence produce in the organization to the decision-maker is a sign of the presence of competitive intelligence activities.

H28 – The existence of intelligence products is a sign of the presence of competitive intelligence activities.

In regards of the legal and ethical aspects of competitive intelligence activities, the existence of a code of ethics in the organization indicates the presence of competitive intelligence activities (Schultz, Collins & McCulloch, 1994). On the other hand, counterintelligence activities, including the protection of intellectual property are also a sign of the presence of competitive intelligence activities (De Genaro, 2005; Lauria, 2008; Taborda & Ferreira, 2002). Often used to protect intellectual property is the use of patents and trade secrets (Toren, 2005). In the same way, the four components of counterintelligence, disinformation, misinformation, deception, and shielding, are prove of the presence of counterintelligence activities, and therefore, competitive intelligence activities (Lauria, 2008).

H29 – The existence of a code of ethics in the organization is a sign of the presence of competitive intelligence activities.

H30 – The existence of activities for the protection of intellectual property, disinformation, misinformation, deception, shielding (counterintelligence activities) in the organization is a sign of the presence of competitive intelligence.

H31 – The existence of patents or trademarks registered in the name of the organization or trade secrets might be a sign of the presence of counterintelligence activities, and therefore of competitive intelligence activities.

The eight competitive intelligence organizational models (Kalb & Herring, 2012) discuss previously characterize the competitive intelligence system in the organization independently of its size. On the other hand, the presence of a competitive intelligence system requires the existence of an intelligence process, people and technology (Taborda & Ferreira, 2002). Therefore, the hypotheses are:

H32 – The existence of one of the eight competitive intelligence organizational models in the organization is a sign of presence of competitive intelligence activities.

H33 – The existence of a competitive intelligence system including processes, people and technology is a sign of the presence of competitive intelligence activities.

Regarding the maturity of the competitive intelligence function in a organization, apart from measuring the obviously existence of competitive intelligence activities, the models discussed previous also can be used for measuring the maturity of the function towards a world-class capability, as the ultimate goal. In this area the Herring-Leavitt world-class competitive intelligence program roadmap (2011) is a good example to use, however all models are valid. Therefore identifying even a low level of maturity is evidence of the existence of competitive intelligence activities. Even the competitive intelligence best practices model (Wright, Eid & Fleisher, 2009) can be use in the way.

H34 – The existence of an immature or mature competitive intelligence function in the organization is a sign of the existence of competitive intelligence activities.

The second research question, the satisfaction level of decision-makers when making a decision based on intelligence, has to be measured through direct questions to the decision-maker. Our argument is that decision-makers are more satisfied with the decision made when based on intelligence. Nevertheless, only those organizations where competitive intelligence activities have been detect, may reveal a level of satisfaction of decision based on intelligence. Therefore, the hypothesis is:

H35 – Decision-makers are more satisfied when making decisions based on intelligence than on other reports or information-based products.
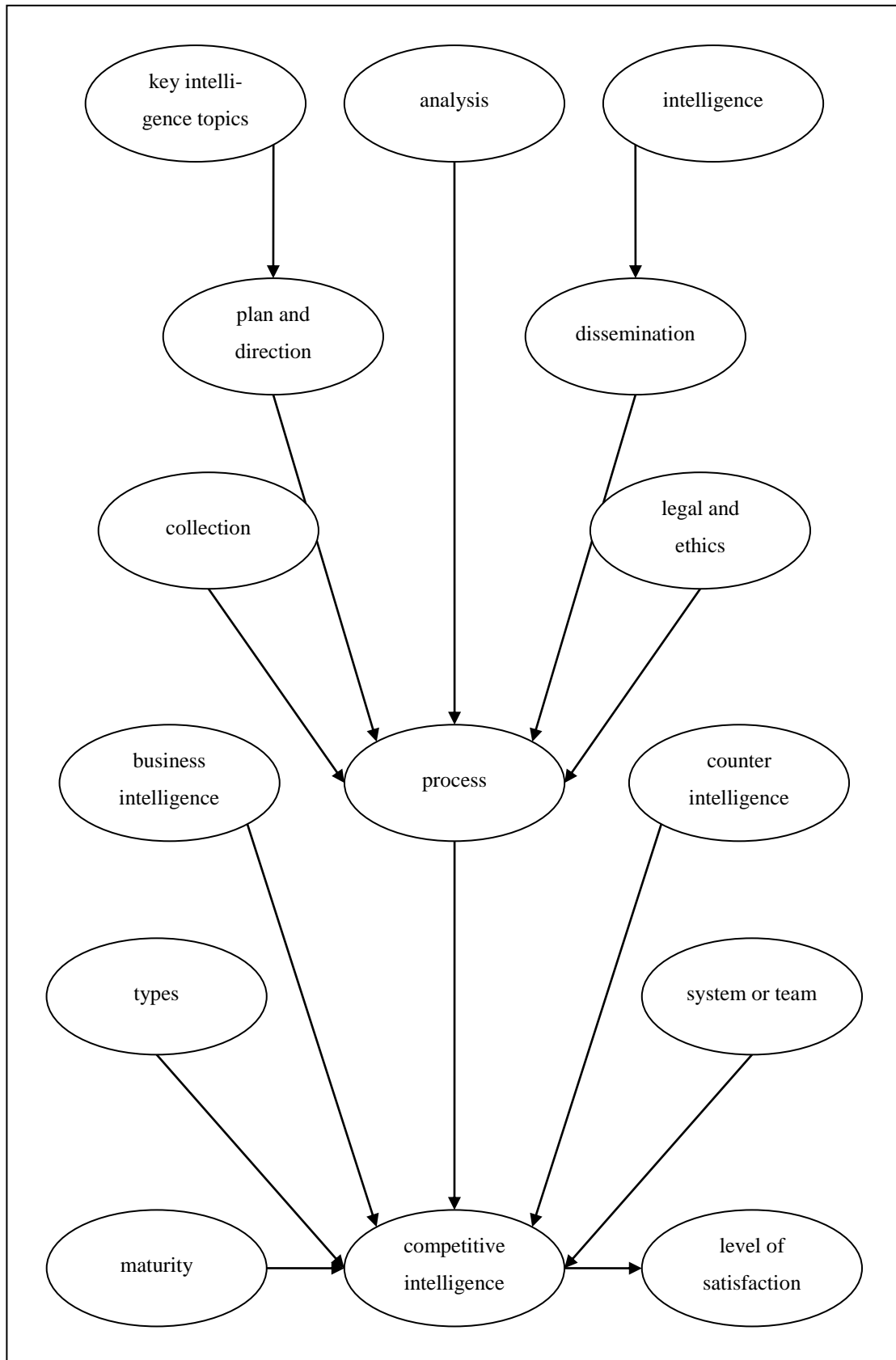
Figure 24 - Theoretical Framework (constructs)

In summary, from a literature review perspective we have thirty four hypotheses to be tested through a single questionnaire direct to the decision-maker or makers of the organization, and one more about the level of satisfaction. These hypotheses, a total of thirty five, are the support for fifteen constructs about the presence of competitive intelligence activities in the organization and the level of satisfaction of the decisions made based on intelligence (Table 24 in Appendix K). A theoretical framework with those fifteen constructs or variables allows to answer the two research questions (Figure 24), that is, if Portuguese organizations use competitive intelligence in the decision-making process, and if those that use, are satisfied with the decisions made based on intelligence. The framework will also allow the measuring the frequency of that use, either to a maturity model or a best practices model application.

Finally, to produce the questionnaire, the hypotheses were grouped by its own constructs to create the correspondent question group. The first research question is related to the frequency of the use of competitive intelligence, and even a hypothetic low level of frequency of use is still the use of competitive intelligence. Likert scales can be chosen to identify frequencies, on an always-often-sometimes-never scale format (Pearse, 2011). Likert scales are characterized by a declarative statement and a number of response categories with distinct cut-off points, linearity and equal intervals between the categories (Pearse, 2011). On the other hand questionnaire development requires also an item analysis, reliability and validity (Rattray & Jones, 2007). Item analysis should spread responses across all options, have clarity and relevance of the items and avoid social desirability bias (Rattray & Jones, 2007). Questionnaire reliability refers to its repeatability, stability or internal consistency (Jack & Clarke, 1998) and can be measure by the Cronbach Alpha statistic (Rattray & Jones, 2007). Questionnaire validity refers to the level of correlation between the items in the questionnaire and the theoretical framework present previously (Rattray & Jones, 2007).

The scale used for the measure of the frequency of the use of the several constructs is a 6-point Likert-type scale varying from always to never as following: always, very often, often, sometimes, rarely, and never. An additional response option was consider to the cases where the construct does not apply to the organization. Some constructs also require additional direct questions. In those cases, a ratio scale was created to the

questions. A satisfaction scale is used for the level of satisfaction construct varying from very satisfied to nothing satisfied. Like the frequency of the use scale, an additional response option for the cases where the question does not apply.

3.1.1 Intelligence

The intelligence construct is created based on nine related hypotheses that can be divided in two groups: the hypotheses to measure the existence of intelligence in the organization; and the hypotheses to understand the quality of the intelligence produced in the organization.

> *Question 1 – How often are the following products produced in your organization?*
> *Options: competitor profile, periodic intelligence briefing, situation analysis, special intelligence briefing, strategic impact worksheet.*
> *Ordinal Likert-type scale: always – never.*

The answers for this question provide evidence-data of the produce of intelligence in the organization. A never-answer on all the five options is evidence of non-producing of intelligence on the organization.

> *Question 2 – How often the intelligence products have the following characteristics in your organization?*
> *Options: accurate, technical, misperception self-aware, biased self-aware, objective on hypotheses and conclusions, usable on its comprehension and immediate application, relevant to the decision-maker, readable to the entire organization, timely delivered.*
> *Ordinal Likert-type scale: always – never.*

The answers for this question provide an idea of the quality of the intelligence produced in the organization.

3.1.2 Key Intelligence Topics

The key intelligence topics construct is based on three hypotheses also divided in two, where the existence and quality of key intelligence topics is measure.

Question 3 – How often are the key intelligence topics use to identify intelligence needs on the following issues in your organization?

Options: strategic issues, early-warning issues, key-players issues, counterintelligence issues.

Ordinal Likert-type scale: always – never.

The answers for this question provide –evidence-data of the use of key intelligence topics in the organization. A non-never answer is evidence of the use of the key intelligence topics in the organization.

Question 4 – How often have the key intelligence topics the following characteristics in your organization?

Options: statement defining the intelligence need, key elements describing the current situation, key elements describing the future situation, trends describing the current situation, trends describing the future situation, key intelligence questions, preliminary hypotheses, deadline.

Ordinal Likert-type scale: always – never.

The answers for this question provide evidence of the quality of the key intelligence topics created in the organization.

3.1.3 Plan and Direction

The plan and direction construct is based the key intelligence topics construct and an additional hypothesis. The hypothesis tends to measure the correct plan and direction of competitive intelligence activities discussed and adopted in this thesis.

Question 5 – How often does a competitive intelligence plan includes the following features in your organization?

Options: intelligence needs, plan to information collection, plan to information analysis, plan to keep the decision-maker informed.

Ordinal Likert-type scale: always – never.

The answers for this question provide evidence of the existence of a plan for competitive intelligence activities. The answers must be cross with the questions three and four for cross-validation of the identification of the intelligence needs.

3.1.4 Collection

The collection construct is based on seven hypotheses regarding the collection process, primary and secondary information and their sources. Hypothesis seventeen is also based for the legal and ethics constructs discussed further ahead.

> *Question 6 – How often is information processed in the following way in your organization?*
> *Options: creatively collected, legally collected, ethically collected, electronically processed, electronically stored, validated (from human sources only), evaluated for reliability (from human sources only).*
> *Ordinal Likert-type scale: always – never.*

The answers for this question provide evidence for the collection, processing and storing of information, and evidence of its legality and ethically, which is based for the legal and ethics constructs, as well. Also provide information for the validation and evaluation on its reliability.

Regarding primary and secondary information and their sources, the best way to measure these subjects is to measure the frequency of the use of their sources. The use of both primary and secondary information provides evidence for competitive intelligence activities. The separation of both types of information will enlarge the questionnaire with no practical results. Therefore, hypotheses eighteen and nineteen, do not originates directed or related questions. On the other hand, it is possible to retrieve the level of the use of primary information through the level of use of only some sources.

> *Question 7 – How often is information collected from the following sources in your organization?*
> *Options: humans, speeches, live television and radio interviews, annual reports, government documents, organizational financial reports (primary),*

newspapers, books, taped and edited television and radio programs, reports of experts, databases, online databases services (secondary), websites, observation (primary).

Ordinal Likert-type scale: always – never.

The answers for this question provide evidence of the use of sources primary and secondary information. A low-level answer on all options except organizational financial reports may indicate an unawareness of other sources of information other than the organization itself. And that is evidence of business intelligence activities, just like defined in this thesis, and not competitive intelligence.

3.1.5 Analysis

The analysis construct is based on two hypotheses, one related to the goal of the analysis and other to the analytical tools use. However, it is possible to measure that goal with a single question towards the use of the analytical tools. In this thesis, analytical tools are divided in those more used and referred in the literature review and those less. Although all of them can be use in competitive intelligence activities, specific combinations of those tools provide evidence of more or less mature competitive intelligence functions.

> *Question 8 – How often is information analyzed with the following tools for patterns and trends in your organization?*
>
> *Options: Analysis of Competing Hypotheses, Blind Spots Analysis, Competitor Analysis, Decision-Maker Profiling, Early Warning, Financial Analysis, Four Corners Model, Five Forces Model, Industry Analysis, Nine Force Model, Patent Analysis, STEEP Analysis, Scenario Analysis, Six-Angles of Competition, SWOT Analysis, Text Analysis, Theorem of Bayes, Value Chain, War Gaming, Win/Loss Analysis, Appreciative Inquiry, Backcasting, Balanced Scorecard, Benchmarking, Bibliometrics, Business Intelligence, Content Analysis, Dashboard, Decision Tree, Disclosure Analysis, Environmental scanning, Forecasting, Grounded Theory, Group think, Link Analysis, Market Analysis, Meyer-Briggs Type Indicator, Mind Maps, Modeling, Narrative Analysis, Opportunity Analysis, Portfolio Analysis, Predictive Analytics,*

Quarterback Technique, Risk Analysis, Social Network Analysis, Stress Value-
added Analysis, Thin Slicing, and Trend Analysis.
Ordinal Likert-type scale: always – never.

The answers for this question provide the necessary data for evidence of the production of intelligence in the organization.

3.1.6 Dissemination

The dissemination constructs is based on a single hypothesis and the intelligence construct.

Question 9 – How often is intelligence deliver to the decision-maker in your
organization?
Options: no options.
Ordinal Likert-type scale: always – never.

The answers for this question, allied with the answers of question one, provide very accurate evidence about the dissemination of intelligence in the organization.

3.1.7 Legal and ethics

The legal and ethical construct is based on the hypothesis of the code of ethics. However, the hypothesis regarding the collection sub-process is also related.

Question 10 – How often is information collected legally and ethically in your
organization?
Options: no options.
Ordinal Likert-type scale: always – never.

From the code of ethics hypothesis, a different question emerges.

Question 11 – Is there a Code of Ethics or a similar document in your
organization?
Options: no options.

Ratio scale: yes/no.

The answers for these questions provide evidence of awareness for legal and ethical aspects in the organization.

3.1.8 Process

The process construct is based on two hypothesis and the five constructs of plan and direction, collection, analysis, dissemination, and legal and ethics. The measure of the existence of a process of competitive intelligence in the organization depends on the perception of competitive intelligence of the decision-maker. The existence of the four-steps, legal and ethical process is measure by previous constructs, leaving only the systematic characteristic.

> *Question 12 – How often is a systematic process for the analysis of the competitive environment present in your organization?*
> *Options: no options*
> *Ordinal Likert-type scale: always – never.*

The answers for this question allied with the others constructs provide evidence of the existence of a process of competitive intelligence.

3.1.9 Types

The types construct refers to the competitive intelligence types and is based on a single hypothesis.

> *Question 13 – How often is the following types of competitive intelligence produced in your organization?*
> *Options: competitor intelligence, market intelligence, technological, strategic and social intelligence.*
> *Cross-validation additional options: marketing intelligence, business intelligence (data mining), counterintelligence, environment scanning, cooperative intelligence, collaborative intelligence.*
> *Ordinal Likert-type scale: always – never.*

The answers for this question provide data evidence of the level of knowledge of the decision-makers regarding competitive intelligence issues.

3.1.10 Business Intelligence

The business intelligence construct is measure by the previous questions related to the types construct.

3.1.11 Counterintelligence

Also the counter intelligence construct is partially measure by the types construct. However, two other hypotheses originate one more question.

Question 14 – How often is intellectual property protected by the following solutions in your organization?

Options: disinformation, misinformation, deception, shielding, patents registration, trademark registration, trade secret.

Ordinal Likert-type scale: always – never.

The answers for this question provide evidence for counterintelligence activities.

3.1.12 System or Team

The competitive intelligence system or team construct is based on two hypotheses measuring by different questions and scales.

Question 15 – What competitive intelligence organizational model best represents the competitive intelligence system in your organization?

Options: the intelligence ad-hoc team (responding to decision-makers requests), the process manager (single person operation / lone practitioner), the basic intelligence system (two minds and a library), the business intelligence center (systematic collection and analysis from internal information systems), the intelligence department (intelligence confined into a unit or division), the hub and spoke (global organizations with mature functions), the intelligence matrix (multinational organizations with intelligence aligned with organization culture), the intelligence community (interaction between decision-makers interact, corporate intelligence

department and corporate intelligence community in operational divisions and functional departments around the world), none.

Ratio scale: ratio button (one mutually exclusive answer).

Question 16 – How many people have this job description in your organization?

Options: Chief intelligence officer, intelligence director or manager, information collector, information researcher, analysts, information protector, legal consultant or specialist, juridical consultant or specialist, industry consultant or specialist, technical consultant, and other (specify).

Ratio scale: 0, 1, 2, 3, 4, and 5 or more (several answers)

The answers for these questions provide data-evidence for the existence of a competitive intelligence system or team in the organization.

3.1.13 Maturity

The maturity construct is based on two hypotheses where an ad-hoc work is evidence for an immature competitive intelligence function. Otherwise, combined with several aspects of several maturity classifications, is evidence for a mature, world-class competitive intelligence capability.

Question 17 – Identify the following characteristics of your competitive intelligence function.

Options: activities based on ad-hoc requests and/or focus on competition; continuous activities based on key intelligence topics; activities focus in understand, analyze and interpret the market; activities that identify and monitor threats, planning and simulating strategies; activities that have the support of top management; activities with exclusive resources for information collection; activities which use intelligence without impact analysis; activities which use intelligence in tactical measures; activities which use intelligence for the opportunities and threats identification; activities of a division or department with fulltime people; activities that have not the support of top management; activities that use public and published sources of information; activities that are consider a waste of time.

The answer for this question, allied with previous answers and constructs, provide evidence of the maturity level of the competitive intelligence function accordingly with several classifications and the best practice model. Evidence of the maturity is mostly collected from previous questions and constructs. Evidence for the best practices model is collected from this question.

3.1.14 Competitive Intelligence

The competitive intelligence construct is based on six previously described constructs, which in turn are based on all other constructs and hypotheses. This constructs is the ultimate goal for data-evidence gathering to measure the first research question: the use of competitive intelligence in the strategic decision-making process.

3.1.15 Satisfaction

The satisfaction construct is based on a single hypothesis and valid only for those organizations where some kind of competitive intelligence activities is identified. First, information-based products are identified in the decision-making process, and then the satisfaction of the decision made is measure.

Question 18 – How often is strategic decision based on the following products in your organization?

Options: internal studies, benchmarking studies, business intelligence reports (data mining), market research, competitive intelligence reports, technical reports, newspapers and magazines, official government reports, gossip and hearsay, personal insights, information on the internet, copycat/followers strategy, six sense or instinct, none, other (specify).

Ordinal Likert-type scale: always – never.

Question 19 – Which product(s) gives/would give you more satisfaction on the decision made?

Options: (the same of question 18).

Ordinal Likert scale: very satisfied – nothing satisfied.

3.2 PRE-TEST QUESTIONNAIRE

"If I don't stand my own ground,

how can I find my way out of this maze?"

Waters & Gilmour, 1977

A pre-test version of the questionnaire was produced and distributed in paper and in a PDF version by email, to a selected group of organizations. This version aimed to collect some previous data for tests, and more important, some commentaries on the questionnaire. The pre-test questionnaire was first developed in English in the software Teleform 7.0 and then translated to Portuguese. The seven-page questionnaire was distributed to sixteen organizations in June of 2015.

An additional question about the Troika memoranda was included to measure the understanding of competitive intelligence in the uncertainty times described in the first chapter of this thesis.

Question 20 – Was the Troika memoranda of 2011 analyzed in your organization to identify opportunities and threats?

Options: no options.

Ratio scale: yes/no.

The questionnaire includes all 20 questions previously defined and described, along with some additional fields. The additional fields of number of employees, sales volume, headquarters location, economic activity, name and email were created to easily characterize the organizations socially. The fields for the number of employees and sales volume were created in open fields allowing a maximum of 999.999 employees and of 9.999.999.999,00€ sales volume in numeric format. The field sales volume had an additional note, guiding the responder to fill up the last year calculated sales volume available. The fields also allowed alphanumeric writing. The fields for the headquarters location and the economic activity were created also in open fields allowing a maximum of 20-alphanumeric responses. The fields of the name and email allowed a maximum of 23-alphanumeric responses. These two last fields were created in order to deliver back the results of the survey.

Eleven of the distributed pre-test questionnaires were answered, with some significant and relevant commentaries. The most common commentary was the reason for not revealing in the questionnaire the use of competitive intelligence in the decision-making process. Some organizations state that they don't have dimension to this kind of activities. Other organizations did not present any reasons but warned about the answers being mostly in the never or the not applicable option. Several organizations commented on the extension of the questionnaire. One of them also commented on its technical aspect and on the repetition of questions.

The English and Portuguese pre-test versions of the questionnaire can be found in the Appendix H in the end of this thesis.

3.3 FINAL QUESTIONNAIRE

"It doesn't have to be like this
All we need to do is make sure we keep talking"
Gilmour, Wright & Samson, 1994a

After the analysis of the commentaries, a final version of the questionnaire was produced and published online, using HTML and PHP languages. The major changes made to this questionnaire based on the previous commentaries, was the splitting it into two parts. Also the risk of not having responses due to the long questionnaire set this division. In the first part of the questionnaire, the most direct questions and the questions that would allow answering the two research questions were included. Therefore, the questions 1, 9, 10, 11, 12, 13, 18, 19, 20, along with the fields for information collection on number of employees, sales volume, headquarters location, economic activity, and a field for name and email, form the first part of the final questionnaire. The question 10 regarding the legal and ethical construct was deleted for being a repeated question and replaced by another direct question on competitive intelligence activities:

New question 10 – Is there competitive intelligence activities in your organization?
Options: no options.

143

Ratio scale: yes/no.

The maximum capacity of alphanumeric responses was change to 6, 10 and 250 characters in the fields of number of employees, sales volume, name and email. The fields of headquarters location and economic activity were changed from open fields to an answer chosen from a specific list. The drop down list for the headquarters location field includes the 18 Portuguese districts and the Azores and Madeira Islands. The drop down list for the economic activity field includes the first level of the Portuguese Classification of Economic Activities, CAE Rev. 3 (Statistics Portugal, 2013), the sections A to U (see both list in Appendix I).

The second part of the questionnaire included the remaining questions 2, 3, 4, 5, 6, 7, 8, 14, 15, 16, 17. The second part of the questionnaire was only shown to the respondent if one of the responses of the three first questions of the first part, the questions new 10, 11 and 20, were yes, or the responses of the following two, questions 12 and 9, were at least rarely. A warning about the positive detection of competitive intelligence activities in the organizations and a second invitation to continue thoroughly their participation in the survey was also shown (see final online questionnaire in Appendix J). If the responses to the questions new 10, 11 and 20 were no or the questions 12 and 9 were never or not applicable, a simple warning with a thank you message was shown instead, thus ending the participation in the survey.

Regarding the technical aspect of the pre-test version, some terms had been already translated to common expressions in Portuguese. However, the majority of the terms in the competitive intelligence matters are just too specific and hard to translate. Some translated terms lost their meaning. Also, some terms are known in the academic community by their original names. As a result, although most of the respondents are not academics nor have come across with these terms in their education or professional experience, the technical aspect of the questionnaire was maintained. Instead, and to minimize the unawareness of the competitive intelligence terms, the definition of competitive intelligence and of the intelligence cycle was included in the beginning of the questionnaire.

The final questionnaire was developed in Portuguese only and all the questions were non mandatory to response, allowing the respondent to leave blanks the fields which terms were unknown to. Both parts of the questionnaire were reordered and renumbered (see Table 24 for corresponding matching in the several versions of the questionnaire in Appendix K). The responses were saved in two different text files, for each part of the questionnaire, and then imported and converted to Microsoft®[2] Excel format. The responses of the first part and the second part of the questionnaire from the same organization were identified by a unique 9-character random number. The files use the original questions numbers as defined in this thesis.

The web link for the online questionnaire was sent to a total of 10.911 organizations using the Mail Chimp service, a kind of newsletter sending service. The Mail Chimp service produces automatic reports on the status of the campaign where the emails are sent. The report states that a total of 4.252 different organizations opened the emails and 513 times the link to the online questionnaire was clicked by distinct organizations (Mail Chimp, 2015). The online questionnaire was available between August 13, 2015 and September 26, 2015. The final version of the online questionnaire can be found in the Appendix J in the end of this thesis.

3.4 DATA RECODING

"No more turning away
From the weak and the weary"
Moore, 1987b

The valid responses of the online questionnaire were imported to the IBM® SPSS®[3] Statistics version 22 software. The SPSS database has a total of 195 variables, originated from all the options of the questions of this thesis, along with some control variables. Next, the missing values were identify in the SPSS and removed from the data. The responses to the questions with a 6-Likert-type always-never scale including a seventh option for not applicable and the questions with a 5-Likert very satisfied-nothing satisfied including a sixth option for not applicable were affected. The not

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[2] Microsoft® is a trademark of Microsoft Corporation, all rights reserved.

[3] IBM and SPSS are trademarks of International Business Machines Corp., all rights reserved.

applicable option was considered a missing value, consequently the valid N for some questions decrease. The non-mandatory questions originates data were the respondent did not answer the question. In the cases of the questions of yes/no, when the respondent did not answer, was also considered a missing value. In the cases of the Likert-type and Likert scales a data recoding was necessary, replacing the missing value with the value 9, and adding this value to the missing values of each variable, as a did not answer flag. In the case of the questions regarding the number of employees and the sales volume, the data recoding was executed considering a negative value, as all positive values were valid responses. In the cases of the questions about the headquarters location and the economic activity, and because the options were chosen from a drop-down list, the respondents that did not answer add a default response corresponding to zero, that was saved in the results files. Therefore, it was only necessary to add zero to the missing value in those variables.
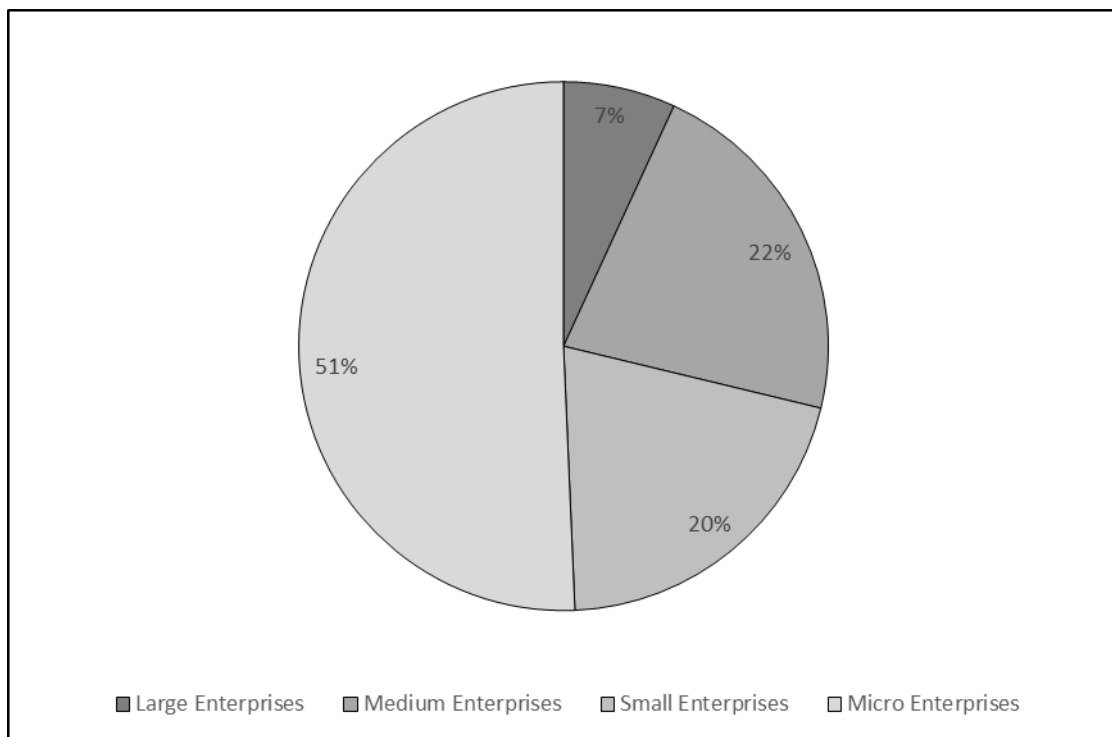
Figure 25 - The SME Classification results

The valid responses on the number of employees and sales volume allowed classifying the Portuguese organizations that respond to the questionnaire. Using the SPSS and the current SME classification (EU, 2003), some new variables were created to best understand the questions regarding competitive intelligence in the

146

SME context. Therefore, the variables Medium, Small, Micro and Large Enterprises were created regarding the Micro (50,7%), Small (20,5%), Medium (21,9%), and Large (6,8%) Enterprises categories (see Figure 25).
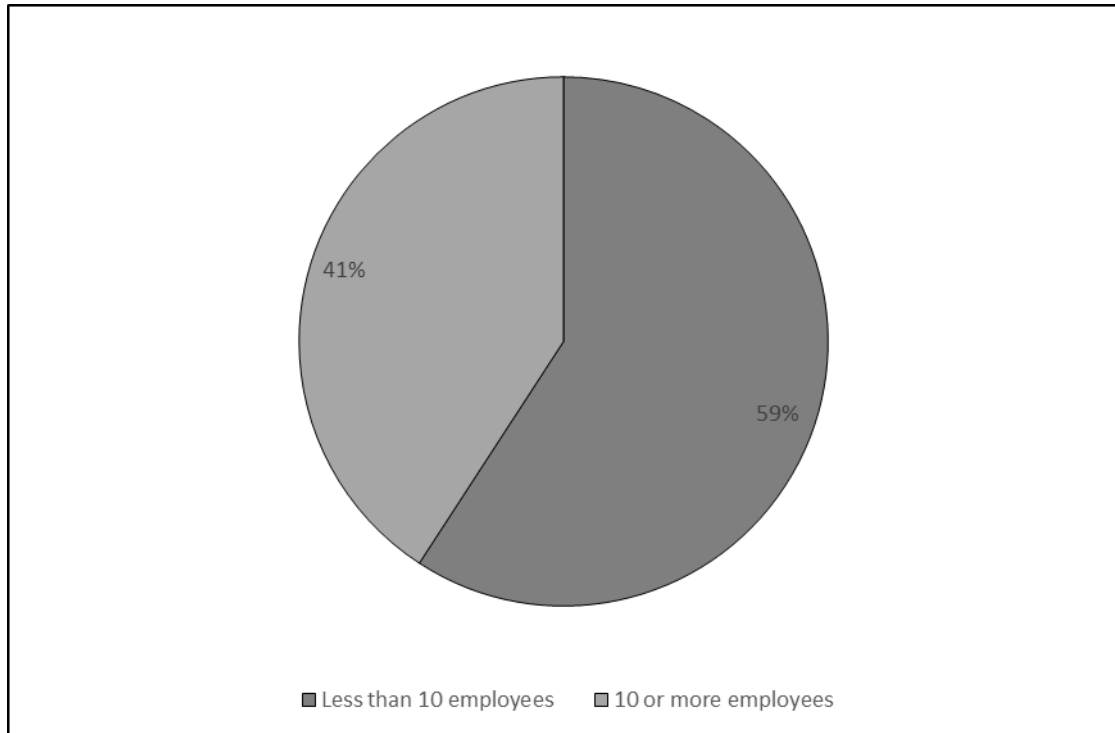
Figure 26 - The Number of Employees Recoded results
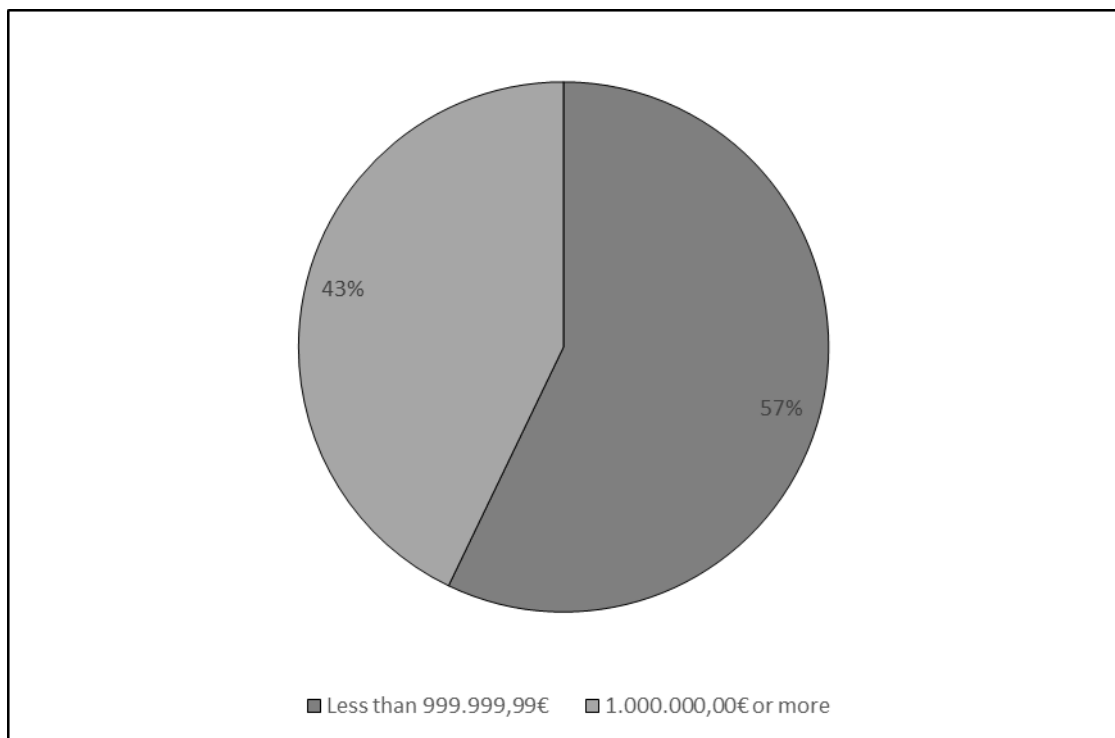
Figure 27 - The Sales Volume Recoded results

However, for statistical purposes, the number of observations of this SME classification does not allow statistical significance tests. Therefore, the SME classification was replaced by a new classification considering both original variables of the number of employees and the sales volume. Variables R_number_employees and R_sales volume were created, considering the organizations with less than ten employees (59,2%) and with ten or more employees (40,8%), and the organizations with less than one million euros of sales volume (57,1%) and with one million euros or more of sales volume (42,9%) (see Figure 26 and 27).
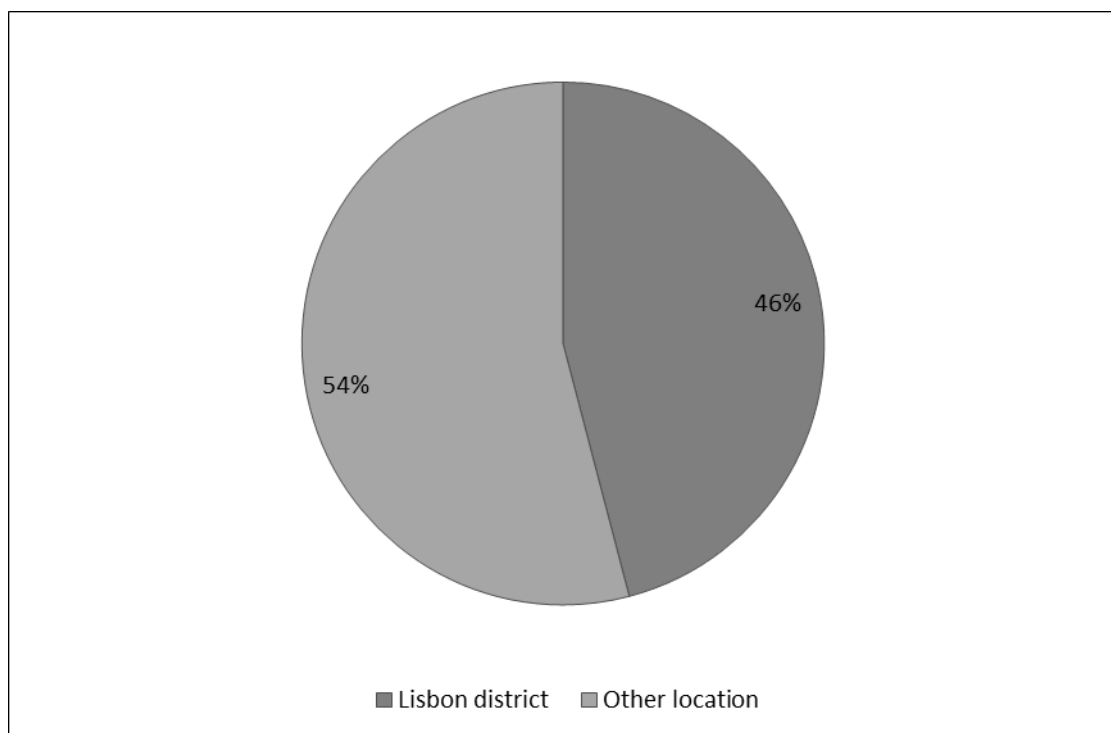
Figure 28 - The Headquarters Location Recoded results

The valid responses on the headquarters location and economic activity revealed 45,9% from the Lisbon district and 44,4% from the Hotels and restaurants sector, with no other significant results in other options on both questions. Therefore the variables headquarters location and economic activity were recoded (Figure 28 and 29). Other variables were also created to measure the constructs through synthetic indicators and are presented in the next chapter.
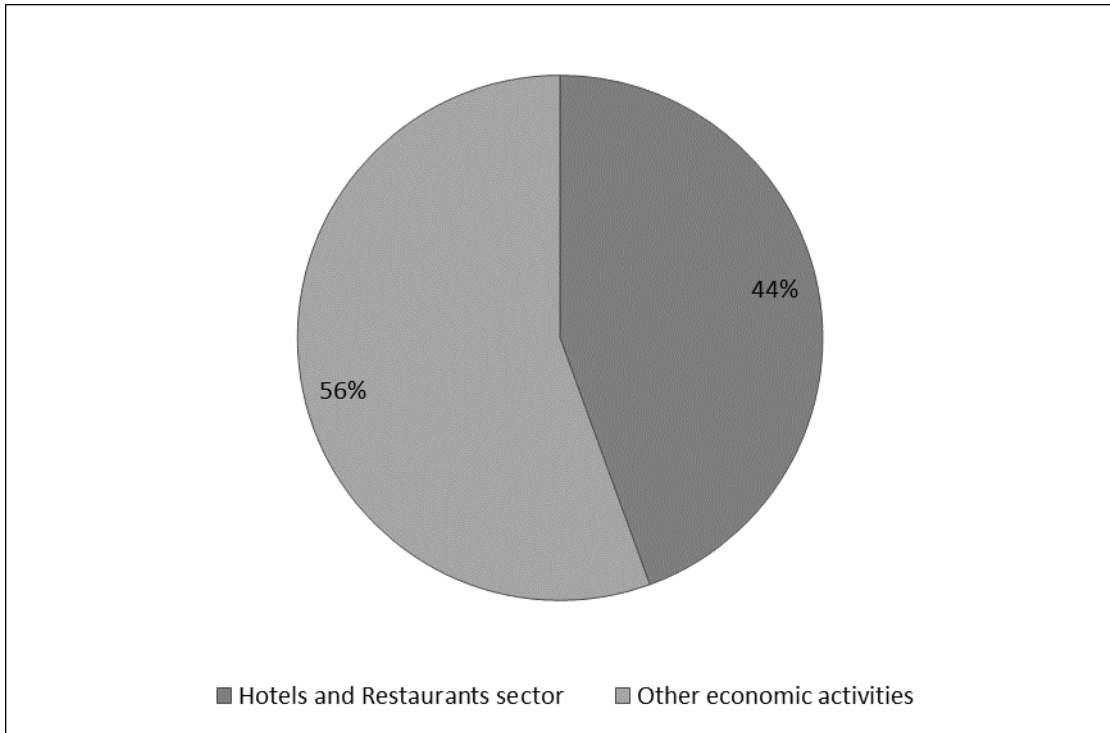
Figure 29 - The Economic Activity Recoded results

CHAPTER 4 – RESULTS AND ANALYSIS

"And all you touch and all you see
Is all your life will ever be?"
Waters, Gilmour & Wright, 1973

This chapter includes the description of the sample and the results of the survey. The universe of the survey was all Portuguese organizations, from the public to the private sector, from profitable companies to associations and cooperative organizations. According to the Statistics Portugal, there are 1.062.782 organizations in Portugal (Statistics Portugal, 2015), based on 2012 data, last updated on March 13, 2014. The database containing the 10.911 valid emails was created from Amadeus and on public information available in the Portuguese regulators websites, such as Anacom, Bank of Portugal, ERSE, Infarmed or Tourism of Portugal. Amadeus is a database of comparable financial information for public and private European companies based on the Simplified Business Information (IES). The database of the email of Portuguese organizations represents about 1% of the universe. A total of 103 valid responses to the online questionnaire were received, representing 103 responses to the first part of the questionnaire, but only 29 responses to the second part of the questionnaire. Therefore, the statistical analysis will be focus mainly on the variables of the questions of the first part of questionnaire.

4.1 SAMPLE

"And with these words I can see
Clear through the clouds that covered me"
Moore, 1987c

As stated before, 103 valid responses to the questionnaire were received, representing about 20% of the link clicked, 2,4% of the emails opened, 0,9% of the emails sent, and less than 0,01% of the universe of the survey. The questions 18 and 19 option 14 and 15, regarding the none and other options, had a low level of valid responses observed, therefore will remain out of focus of the analysis. Therefore the sample was selected through a non-probabilistic method called the sample by convenience. In a

sample by convenience, the sample is selected through the availability and accessibility of the elements of the target-population (Reis et al., 1999), in this case through the available valid responses collected in the survey.

4.2 INTELLIGENCE

The intelligence construct can be measure through the results of the question 1 regarding the intelligence products produced in the organization. A statistics technique called synthetic indicator can be used to measure the constructs. To create a synthetic indicator, the reliability of the variables must be assessed through a Cronbach Alpha test, then a Factor Analysis can determine the weight of each variable of the indicator, or alternatively a theory-based weight can be used, and finally the creation of the indicator itself, creating a new specific variable (Maroco, 2007). In this case, for the intelligence construct, the Cronbach Alpha test reveals a 0,939 reliability value on the data for the five items, which is a high reliability-level of the data (Maroco & Garcia-Marques, 2006; Maroco, 2007). The theory discussed in this thesis states that the five variable of the question 1 represents the types of intelligence products possible to produce from a hierarchical point of view of importance (Bernhardt, 1994). Therefore a higher weight should be given to the strategic impact worksheet, which is the most important product of intelligence, and a lower for the competitor profile, which is the less important (Table 7).

Table 7 - The Intelligence Construct

	N	mean	std dev	weight	cronbach alpha test
competitor profile	91	3,5	1,67	0,10	
periodic intelligence briefing	89	2,8	1,73	0,15	
situation analysis	92	3,6	1,74	0,20	0,939
special intelligence briefing	90	2,6	1,63	0,25	
strategic impact worksheet	94	3,3	1,78	0,30	
intelligence construct	81	0,6	0,30	-	-

Scale: 1 – never; 6 – always.

The data reveals that the intelligence construct has a mean of 0,6 in a 6-Likert-type scale of frequency of use, placing the frequency of use of intelligence from the five hierarchical intelligence products point of view in never.

4.3 DISSEMINATION

The dissemination construct can be measure through the results of question 9 regarding the deliverance of intelligence to the decision-maker. However, because the question is a direct question without options, the synthetic indicator cannot be created. Therefore, the dissemination construct is directly related to the results of the question 9. The data reveals that the dissemination construct has a mean of 3,11 in the 6-Likert-type scale of frequency of use, which means that sometimes intelligence is deliver to decision-maker.

Table 8 - The Dissemination Construct

	N	mean	std dev
intelligence deliver to the decision-maker	83	3,1	1,91

Scale: 1 – never; 6 – always.

4.4 LEGAL AND ETHICS

The legal and ethics construct can be measure through the results of the question 11 regarding the existence of a code of ethics or a similar document in the organization. The question used a yes/no scale. The data reveals that 52% of the organizations in this sample do not possess a code of ethics or a similar document.

Table 9 - The Legal and Ethics Construct

	N	yes	no
code of ethics or similar document	100	48	52

Scale: yes / no.

4.5 PROCESS

Table 10 - The Process Construct

	N	mean	std dev
systematic process to analyze competitive environment	94	3,6	1,57

Scale: 1 – never;6 – always.

The process construct can be measure from the results of the question 12 regarding the use of a systematic process to analyze the competitive environment. The question 12 is also a direct question without options, thus representing directly the entire

construct. The data reveals that the process construct has a mean of 3,6 in the 6-Likert-type scale of frequency-use, placing the frequency of use of a systematic process to analyze the competitive environment in the organizations of this sample, somewhere between sometimes and often.

4.6 TYPES

The types construct can be measure by part of the results of question 13. The first four options, competitor intelligence, market intelligence, technological intelligence, and strategic and social intelligence are the four types of competitive intelligence (Deschamps & Nayak, 1995). The four variables reveal the value of 0,938 on the Cronbach Alpha test validating the reliability of the data for the creation of a synthetic indicator. Because the four items are equal parts of a whole, the weight of each one should be also equal to each other. The data reveals a synthetic indicator for types of intelligence of 2,9 in a 6-Likert-type scale of frequency of use, placing the production of the four types of intelligence nearly a sometimes frequency.

Table 11 - The Types Construct

	N	mean	std dev	cronbach alpha test
competitor intelligence	89	3,1	1,82	
market intelligence	91	3,2	1,78	0,938
technological intelligence	91	2,9	1,73	
strategic and social intelligence	93	2,9	1,60	
types construct	87	2,9	1,58	-

Scale: 1 – never; 6 – always.

4.7 BUSINESS INTELLIGENCE

The business intelligence construct can be measure by the results of a single option of the question 13, the business intelligence option. The results of this option of the question 13 were connected to the frequency of the production of business intelligence in the organization. The data reveals a mean of 2,9 in a 6-Likert-type scale on the frequency of the production of business intelligence, placing this production somewhere near sometimes on that scale.

Table 12 - The Business Intelligence Construct

	N	mean	std dev
business intelligence (data mining)	90	2,9	1,70

Scale: 1 – never; 6 – always.

4.8 COUNTERINTELLIGENCE

In a similar manner, the counterintelligence construct can be measure by the results of a specific option of the question 13. The results of this option reveal the frequency of the production of counterintelligence in the organization. The data reveals a mean of 2,4 in a 6-Likert-type scale of frequency of use, which means that the frequency of the production of counterintelligence in somewhere between rarely and sometimes.

	N	mean	std dev
counterintelligence	85	2,4	1,58

Scale: 1 – never; 6 – always.

4.9 OTHER INTELLIGENCE

Table 13 - The Non-Intelligence Construct

	N	mean	std dev	cronbach alpha test
marketing intelligence	90	3,1	1,67	
environment scanning	87	2,7	1,70	0,943
cooperative intelligence	86	2,7	1,70	
collaborative intelligence	85	2,6	1,66	
non-intelligence construct	83	2,7	1,52	-

Scale: 1 – never; 6 – always.

From an academic point of view, it might be interesting to understand the frequency of the production of other kinds of intelligence not related with competitive intelligence. Therefore, considering the remaining four option of the question 13, marketing intelligence, environment scanning, cooperative intelligence and collaborative intelligence, a Cronbach Alpha test and a Factor Analysis was conducted. The Cronbach Alpha test was 0,943. The Factor Analysis reveals only one component and equal weights for the four items in the creation of a synthetic indicator. The data reveals a mean of 2,7 in the 6-Likert-type scale of frequency of the

synthetic indicator, placing the frequency of the production of intelligence not related to competitive intelligence somewhere between rarely and sometimes.

4.10 COMPETITIVE INTELLIGENCE

The competitive intelligence construct can be measure by the results of the questions new 10 and 20. The new question 10 was directly related to the existence of competitive intelligence activities in the organization. The data reveals that 48,3% of the organizations in this sample possesses competitive intelligence activities. On the other hand, the question 20 was related to the analysis of the Troika memoranda as prove of an intelligence awareness regarding the future competitive environment that the document could provide in 2011. The data reveals that only 25,8% of the organizations of the sample did in fact analyzed the troika memoranda somewhere between 2011 and 2015 for opportunities and threats.

Table 14 - The Competitive Intelligence Construct

	N	yes	no
competitive intelligence activities	89	43	46
troika memoranda analyzed	97	25	72

Scale: yes / no.

4.11 SATISFACTION

The satisfaction construct can be measure by the results of the questions 18 and 19, regarding the base products for the strategic decision and the satisfaction in basing that same strategic decision on those products. The thirteen options available in both questions can be divided throughout the theory in those products that can be produce in the organization, those that are produced outside the organization, and those that are closely related to the decision-maker on a personal basis. In the first group we find internal studies, benchmarking studies, business intelligence (data mining), market research and technical reports. The second includes newspapers and magazines, official government reports, information on the internet and copycat/followers strategy. The third group includes gossip and hearsay, personal insights and six sense or instinct. The competitive intelligence reports option is analyzed separately for comparable purposes. First, the question 18 about the products in which decision is

based, reveals a Cronback Alpha test of 0,897 for the first group, 0,805 for the second and 0,688 for the third. Although the value for the third group is lower, for the purpose of this thesis, the indicator will consider. The weight of each item is the same, as the importance of each one is the same. The data reveals a mean of 3,7 in the 6-Likert-type scale of frequency of use for the group of products that can be produced internally, placing the frequency of use of internal products in which strategic decision is based, in the sometimes-level of the scale. The second group reveals a mean of 3,0 in a 6-Likert-type scale of frequency of use, placing the use of external products for the base of decisions in sometimes-level of the scale. The third group, regarding the products that depend on personal characteristics of the decision-maker, reveals a mean of 2,4, placing the use of personal products somewhere between rarely and sometimes. Finally, the data reveals a mean of 2,6 in a 6-Likert-type scale of frequency of use, for the frequency of competitive intelligence reports as basis for the decision-making.

Table 15 - The Decision-based Construct

	N	mean	std dev	cronbach alpha test
internal studies	88	3,7	1,66	
benchmarking studies	91	3,2	1,68	
business intelligence	91	2,9	1,75	0,897
market research	97	3,4	1,64	
technical reports	92	3,0	1,71	
based on internal products (I)	80	3,1	1,36	-
newspapers and magazines	90	3,0	1,42	
official government reports	94	3,1	1,60	0,805
information on the internet	94	3,6	1,51	
copycat/followers strategy	92	2,9	1,49	
based on external products (II)	83	3,0	1,16	-
gossip and hearsay	93	1,9	1,25	
personal insights	93	2,9	1,59	0,688
six sense or instinct	92	2,7	1,50	
based on personal products (III)	87	2,4	1,11	-
based on competitive intelligence reports	89	2,6	1,72	-

Scale: 1 – never; 6 – always.

Second, the question 19 about the satisfaction reveals a Cronbach Alpha test of 0,939 for the internal products group, 0,838 to the external products group and 0,650 for the

personal products group. Again a lower-level Cronbach Alpha value reveals a lower level of reliability for the last group. The weight of the items in each group is equal between them. The data reveals a mean of 3,2 in a 5-Likert scale of satisfaction for the decisions based on internal products, placing the satisfaction-level on the indifferent level. For the group of the decisions based on external products, the data reveals a mean of 2,9 in a 5-Likert scale of satisfaction, which means a indifferent level for the satisfaction of decision-makers based on external products. The data also reveals a mean of 2,6 in the 5-Likert scale of satisfaction for the third group, meaning that the satisfaction of the decision-makers in this sample is between little satisfied and indifferent when that decision is based on personal products. The satisfaction of the decisions based on competitive intelligence reports has a mean of 2,8 of the 5-Likert scale of satisfaction.

Table 16 - The Satisfaction Construct

	N	mean	std dev	cronbach alpha test
internal studies	84	3,5	1,32	
benchmarking studies	78	3,3	1,37	
business intelligence	76	2,9	1,35	0,939
market research	85	3,3	1,31	
technical reports	80	3,2	1,28	
based on internal products (I)	66	3,2	1,21	
newspapers and magazines	87	2,9	1,17	
official government reports	86	2,9	1,19	0,838
information on the internet	89	3,4	1,24	
copycat/followers strategy	80	3,0	1,26	
based on external products (II)	72	2,9	1,02	
gossip and hearsay	74	2,0	1,16	
personal insights	79	3,0	1,25	0,650
six sense or instinct	79	2,9	1,41	
based on personal products (III)	64	2,6	0,97	-
based on competitive intelligence reports	79	2,8	1,33	-

Scale: 1 – nothing satisfied; 5 – very satisfied.

4.12 SOCIAL-ECONOMIC AND GEOGRAPHIC DATA

The recoded data from the number of employees, sales volume, headquarters location and economic activity can be cross with the previous constructs and synthetic

indicators created, to easily understand if there are significant differences between organizations with less or more than ten employees, between organizations with less or more than 999.999,99€ of sales volume, between organizations with the headquarters in Lisbon and outside Lisbon, and between organizations of the hotels and restaurants sector and other economic activities.

Table 17 - Constructs (always-never scale) vs. Social-Economic and Geographic Data (I)

	employees			sales volume		
	<10	>=10	T-test	< M	>= M	T-test
intelligence	0,50	0,71	**0,002**	0,56	0,70	**0,077**
dissemination	2,53	3,94	**0,001**	2,81	3,86	**0,024**
process	3,26	4,05	**0,017**	3,51	3,97	0,206
types	2,52	3,52	**0,003**	2,88	3,34	0,229
business intelligence	2,43	3,41	**0,008**	2,82	3,22	0,343
counterintelligence	2,08	2,94	**0,021**	2,42	2,54	0,773
non-intelligence	2,41	3,09	**0,047**	2,77	2,78	0,973
decision-based (I)	2,66	3,85	**0,000**	3,04	3,70	**0,048**
decision-based (II)	2,93	3,27	0,194	3,16	3,02	0,625
decision-based (III)	2,31	2,64	0,180	2,66	2,37	0,274
competitive intelligence reports	2,20	3,22	**0,008**	2,65	2,87	0,603
satisfaction-based (I)	2,89	3,59	**0,023**	3,14	3,56	0,189
satisfaction-based (II)	2,86	3,06	0,415	3,07	2,88	0,435
satisfaction-based (III)	2,47	2,77	0,228	2,63	2,63	0,995
competitive intelligence reports	2,61	3,13	0,105	2,86	2,96	0,767

Notes: M - one million Euros. Statistical significant differences of means are presented in bold. Scale: 1 – never; 6 – always. Satisfaction-based scale: 1 – nothing satisfied; 5 – very satisfied.

The data reveals that there are significant differences between organizations with less than ten employees and organization with ten or more employees on the constructs of intelligence ($t(67) = -3,158$; $p < 0,1$), dissemination ($t(73) = -3,474$; $p < 0,1$), process ($t(83) = -2,427$; $p < 0,1$), types ($t(79) = -3,015$; $p < 0,1$); business intelligence ($t(80) = -2,735$; $p < 0,1$), counterintelligence ($t(59) = -2,366$; $p < 0,1$), non-intelligence ($t(72) = -2,024$; $p < 0,1$), decision-based (I) ($t(60) = -4,095$; $p < 0,1$), decision-based on competitive intelligence reports ($t(74) = -2,741$; $p < 0,1$) and satisfaction-based (I) ($t(60) = -2,327$; $p < 0,1$). Regarding organizations with more less or more than one million euros of sales volume, the data reveals that there are significant differences only on the intelligence ($t(58) = -1,802$; $p < 0,1$), the dissemination ($t(59) = -2,311$; p

< 0,1), and the decision-based (I) ($t(54) = $ -2,022; $p < 0,1$) constructs (Table 17). The data is this sample reveals that the mean of the construct where the difference is statistical significant, is higher for organization with ten or more employees than on organization with less than ten employees. Similarly, the mean of the intelligence, dissemination, and decision-based (I) constructs are higher on organizations with the sales volume of one million euros or more, than on organization with the sales volume lower than one million euros.

Table 18 - Constructs (always-never scale) vs. Social-Economic and Geographic Data (II)

	headquarters location			economic activity		
	lx	**other**	**T-test**	**hotels**	**other**	**T-test**
intelligence	0,65	0,55	0,150	0,60	0,61	0,887
dissemination	3,39	2,65	**0,080**	2,40	3,50	**0,007**
process	3,88	3,37	0,130	3,63	3,63	0,996
types	3,28	2,72	0,114	2,84	3,14	0,397
business intelligence	3,00	2,73	0,466	2,82	2,96	0,705
counterintelligence	2,69	2,17	0,133	2,31	2,62	0,364
non-intelligence	2,95	2,54	0,241	2,60	2,93	0,352
decision-based (I)	3,44	2,88	**0,074**	2,92	3,37	0,162
decision-based (II)	3,14	2,99	0,582	2,97	3,21	0,384
decision-based (III)	2,61	2,26	0,153	2,35	2,57	0,388
competitive intelligence reports	2,79	2,37	0,257	2,60	2,58	0,952
satisfaction-based (I)	3,69	2,77	**0,002**	2,99	3,43	0,152
satisfaction-based (II)	3,19	2,71	**0,042**	2,80	3,11	0,214
satisfaction-based (III)	3,00	2,30	**0,003**	2,51	2,74	0,361
competitive intelligence reports	3,15	2,57	**0,066**	2,75	2,97	0,490

Notes: lx = Lisbon district; other = other locations; hotel = hotels and restaurants sector; other = other economic activities. Statistical significant differences of means are presented in bold. Scale: 1 – never; 6 – always. Satisfaction-based scale: 1 – nothing satisfied; 5 – very satisfied.

The data also reveals that there are significant differences between means of some constructs regarding the headquarters location. The differences on the constructs of dissemination ($t(74) = 1,773$; $p < 0,1$), decision-based (I) ($t(72) = 1,815$; $p < 0,1$), satisfaction-based (I) ($t(56) = 3,219$; $p < 0,1$), satisfaction-based (II) ($t(65) = 2,071$; $p < 0,1$), satisfaction-based (III) ($t(59) = 3,101$; $p < 0,1$), and satisfaction-based on competitive intelligence reports ($t(66) = 1,870$; $p < 0,1$) are significant, meaning that organizations with the headquarters in the Lisbon district have higher means on these

constructs than organization outside the Lisbon district. Regarding the economic activity variable, only the dissemination construct has statistical significant differences ($t(76)$ = -2,762; $p < 0,1$), mean that organizations in the Hotels and Restaurants sector has a lower mean than the organizations on other economic activities (Table 18).

Table 19 - Constructs (yes/no scale) vs. Social-Economic and Geographic Data

		employees		sales volume		headquarters location		economic activity	
		<10	>=10	< M	>= M	lx	other	hotel	other
competitive intelligence activities	yes	40,4%	63,6%	46,2%	64,3%	61,1%	38,0%	39,5%	56,8%
	no	59,6%	36,4%	53,8%	35,7%	38,9%	62,0%	60,5%	43,2%
code of ethics or similar document	yes	40,4%	61,5%	38,1%	63,6%	65,1%	36,5%	41,9%	56,6%
	no	59,6%	38,5%	61,9%	36,4%	34,9%	63,5%	58,1%	43,4%
troika memoranda analyzed	yes	16,1%	40,5%	17,1%	37,5%	25,6%	24,5%	21,4%	27,5%
	no	83,9%	59,5%	82,9%	62,5%	74,4%	75,5%	78,6%	72,5%

Notes: **M - one million Euros. lx = Lisbon district; other = other locations; hotel = hotels and restaurants sector; other = other economic activities. Scale: yes / no.**

Regarding the two constructs based on direct questions new 10, 11 and 20, the data reveals that the competitive intelligence activities and a code of ethics exist in a bigger percentage in organization with ten or more employees (63,6%). In organizations with less than ten employees, 59.6% admit not having competitive intelligence activities or a code of ethics. Furthermore, almost two thirds of organizations with a sales volume of one million euros or more admit competitive intelligence activities and a code of ethics in their organizations. Organizations with sales volume lower than one million euros have the tendency to denied the existence of competitive intelligence activities (53,8%) or a code of ethics (61,9%). Almost two thirds of organizations in the Lisbon district admit having competitive intelligence activities (61,1%) and a code of ethics (65,1%). Outside the Lisbon district the scenario inverts to almost two thirds denied the existence of both issues. Regarding the economic activities of the organizations, the data reveals, with a smaller difference, that organizations in the Hotels and Restaurants sector denied the existence of competitive intelligence activities (60,5%) and a code of ethics (58,1%), and that in opposition, organizations of other economic activities admit having both issues (Table 19). The analysis of the Troika memoranda, were mainly conducted by

organizations with ten or more employees and a sales volume above one million euros both. However, percentages above two thirds and three quarters in some cases, reveals that the Troika memoranda, as a glimpse of the future, were not analyzed (Table 19).

CHAPTER 5 – CONCLUSIONS

"One world, it's a battleground"

Moore, 1987d

Due to the division of the questionnaire in two parts, and the valid responses on both, this thesis will focus on the mainly on the responses of the first part of the questionnaire, which was developed in order to answer to the two research questions. Therefore, when addressing those questions, (1) the use of competitive intelligence in the decision-making process on Portuguese organizations, and (2) the satisfaction level of decision-makers when making a decision based on intelligence, some conclusions can be discussed from the data of this sample.

The existence of intelligence produced internally in Portuguese organizations is rare. Nevertheless, intelligence is sometimes delivered to the decision-maker. Portuguese organizations do possess a systematic process to analyze the competitive environment and often use it. However, the type of intelligence produced is sometimes business intelligence or competitive intelligence, followed by non-competitive intelligence types and rarely counterintelligence. Less than half the Portuguese organizations in this sample admit having competitive intelligence activities, but lack a code of ethics or a similar document in doing so. Furthermore, only about one quarter of the organizations in this sample admit having analyzed the Troika memoranda of 2011, which could cast a future perspective to the Portuguese social-economic environment throughout the years of 2011 to 2015. Finally, the strategic decision-making is barely sometimes based on competitive intelligence reports, but when it happens, the level of satisfaction from the decision-maker is an indifferent one (Figure 30).

The qualification of the organizations for the second part of the questionnaire was based on organizations responding yes on one of the three following questions, new 10, 11 and 20, or responding rarely or higher on one the question 12 and 9. The organization with one of these five answers was considered to have been detected some kind of competitive intelligence activity, and giving the possibility to continue

162
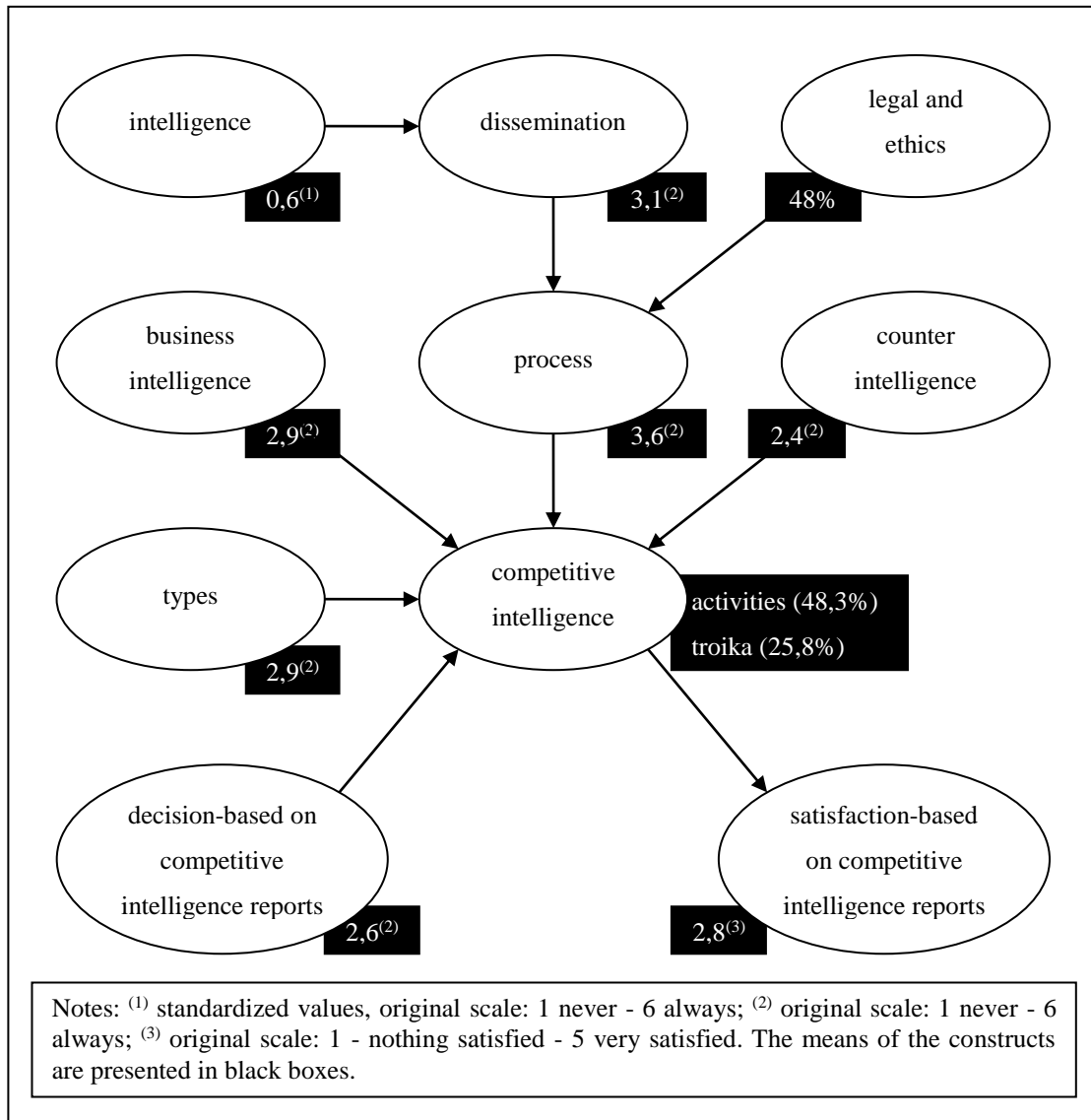
Figure 30 - Theoretical Framework from the sample

the questionnaire. Considering only those organizations, when analyzing the data, the strategic decision-based on competitive intelligence reports the mean rises from 2,6 to 3,2 on organizations with code of ethics or similar document, to 3,5 on organizations that have analyzed the Troika memoranda, and to 3,6 on organizations with competitive intelligence activities. However no significant rising can be observed in organizations that use a systematic process to analysis of the competitive environment or in organizations where intelligence is delivered to the decision-maker. A similar increase of the mean can be observed on the satisfaction-based on competitive intelligence reports from 2,8 to 3,4 and 3,5. Again, no significant increases are observed on the systematic process and on the intelligence deliver (Table 20). These increases reveal that organizations use different systematic processes than competitive

intelligence to analyze the competitive environment and deliver other non-competitive intelligence to the decision-maker. In fact, considering all the data again, the most used products in which strategic decisions are based on are (1) internal studies, (2) information on the internet, and (3) market research. Competitive intelligence reports are only more used than gossip and hearsay from a list of thirteen products (Table 15). Similarly, the products that cause more satisfaction when making decision based on them are the same, and competitive intelligence reports occupy the same place in the list.

Table 20 - Second Part of the Questionnaire vs. Decision- and

Satisfaction-based on Competitive Intelligence Reports

		decision-based on competitive intelligence reports [1]	satisfaction-based on competitive intelligence reports [2]
competitive intelligence activities	yes	3,6	3,4
code of ethics or similar document	yes	3,2	3,5
troika memoranda analyzed	yes	3,5	3,4
process	rarely - always	2,6	2,8
dissemination	rarely - always	2,7	2,8

[1] Scale: 1 – never; 6 – always.
[2] Satisfaction-based scale: 1 – nothing satisfied; 5 – very satisfied.

From a competitive intelligence perspective, and in the light of this thesis, basing strategic decision on internal studies, information on the internet, and market research, might not be enough to keep gaining competitive advantages. The lack of the intelligence aspect on the internal studies and market research, such as the action to take, their implications and control indicators, hardly keep any organization as market leader or on the top for much time. Furthermore, the secondary aspect of the information collected from the internet can hardly give any reliability in the decision based on. A part from the obvious risk of the Salinger syndrome[4], information collected from the internet must be checked, triangulated and confirmed, and should not be based for any kind of organizational decision. However, the truth in this sample is that Portuguese organizations based their decision on internal studies, internet and market research, and feel satisfied with it.

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[4] Salinger syndrome refers to someone who believes everything he reads on the internet.

Another conclusion that can be taken from this sample is that there is no significant difference between the four types of intelligence produced. Although organizations firstly produce market intelligence, then competitor intelligence, follow with technological intelligence, and final strategic and social intelligence, the means vary from 2,9 and 3,2. In fact, the four types of competitive intelligence, marketing intelligence and business intelligence are the most produced types of intelligence in Portuguese organizations. Unfortunately, counterintelligence falls behind in the 10-item list of intelligence types, which denotes very little awareness of the importance of the information and intelligence of the organization. According with this sample data, 48,3% of the Portuguese organizations conduct competitive intelligence activities, but only 48% of the organizations follow a code of ethics. When cross-checking these two variables, 11,5% of the organizations conduct competitive intelligence activities without a code of ethics of ethics or similar document (Table 21). Organizations than often produce competitor intelligence products based on competitors information, should be aware that the competition is doing exactly the same. Counterintelligence, as a system to protect critical information and to create of self-awareness of its importance, is the technique for these cases.

Table 21 - Code of Ethics vs. Competitive Intelligence Activities

		competitive intelligence activities	
		yes	no
code of ethics or	yes	36,8%	11,5%
similar document	no	11,5%	40,2%

In summary, Portuguese organizations rarely produce intelligence that is sometimes delivered to the decision-making process, which is mostly based on internal studies, information on the internet, and market research, as their often used systematic process to analyze the competitive environment. Thus, beneath strategic decisions in Portuguese organizations lay on internal studies, information from the internet and market research.

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"Across the stream with wooden shoes
With bells to tell the king the news
A thousand misty riders climb up
Higher once upon a time."
Barret, 1967

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APPENDICES

APPENDIX A – TWENTY SIX SELECTED DEFINITIONS OF COMPETITIVE INTELLIGENCE

A.1 Definitions

The following definitions were selected from scientific journals, books, and magazines, among additional sources, as internet sources. There are a total of twenty six definitions and for the purpose of this thesis some definitions have been translated or rearranged, and words have been added or removed. Nevertheless the true meaning have been maintained and respected as them have been primarily understood.

Competitive intelligence is a business tool that can make a significant contribution to the strategic management process in modern business organizations, driving business performance and change by increasing knowledge, internal relationships and the quality of strategic plans (Bernhardt, 1993; Priporas, Gatsoris & Zacharis, 2005).

Competitive intelligence is an analytical process that transforms disaggregated competitor, industry, and market data into actionable strategic knowledge about the competitor's capabilities, intentions, performance, and position; and it is the end product, or output, from that process. Competitive intelligence is at once both a process and a product (Bernhardt, 1994).

Competitive intelligence is the process by which organizations gather and use information about products, customers, and competitors, for their short- and long-term strategic planning (Ettore, 1995; Liu & Wang, 2008).

Competitive intelligence is a systematic program for gathering and analyzing information about your competitor's activities and general business trends to further your own company's goals (Kahaner, 1996).

True competitive intelligence is a process for predicting moves and blind spots of regulators, customers, competitors, suppliers, and so forth. It is used to identify opportunities and minimize surprises (Calof, 1998).

Competitive intelligence is the art and science of preparing companies for the nature by way of a systematic knowledge management process. It is creating knowledge from openly available information by use of a systematic process involving planning, collection, analysis, communication and management, which results in decision-maker action (Calof & Skinner, 1998; Wright & Calof, 2006; Tanev & Bailetti, 2008).

Competitive intelligence is defined as the process of developing actionable foresight regarding competitive dynamics and non-market factors that can be used to enhance competitive advantage. Competitive dynamics refers to the evolution of a firm's industry, and the moves and countermoves of competitors, suppliers, customers, alliance partners, and potential competitors (Prescott, 1999).

We can define competitive intelligence as the set of inter-related measures that aim at systematically feeding the organization decision process with information about the organizational environment in order to make possible to learn about it, to anticipate its evolution and to take better decisions in consequence (Carvalho & Ferreira, 2001).

Competitive intelligence is a management practice that provides a continuous and coordinated program of collection, selection, archive, analysis and distribution of information about the environment of the organization in pursuit of competitive advantage. Only those activities conducted within legality and ethical relevant codes are consider to be competitive intelligence. Competitive intelligence is best described through the sequential activities of the intelligence cycle (Millán & Comai, 2001).

Competitive intelligence is the process of monitoring the competitive environment. Competitive intelligence enables senior managers in companies of all sizes to make informed decisions about everything from marketing, R&D, and investing tactics to long-term business strategies. Effective competitive intelligence is a continuous

process involving the legal and ethical collection of information, analysis that doesn't avoid unwelcome conclusions, and controlled dissemination of actionable intelligence to decision-makers (Miller, 2001).

Competitive intelligence is an art of collecting, processing and storing information to be made available to people at all levels of the firm to help shape its future and protect it against current competitive threat; it should be legal and respect codes of ethics; it involves a transfer of knowledge from the environment to the organization within established rules (Rouach & Santi, 2001; Wright, Bisson & Duffy, 2012).

Competitive intelligence is the acquisition of knowledge using human, electronic and other means, and the interpretation of knowledge relating to the environment. It allows strategists to develop and implement policy to gain competitive advantage (Trim, 2001; Liu & Wang, 2008).

Competitive intelligence is a tool that augments the strategic decision-making process. It involves the monitoring of a competitor's products, services, pricing, revenues, decision-making and decision-makers, sales techniques and sales people to identify early warnings of opportunities and threats (Rich, 2002).

Competitive intelligence is a support decision-making tool design to continuously monitor competitors, clients and suppliers, substitute products and new entrants, and regulators. Competitive intelligence produces filtered information to the management to respond to signals of change from the environment. Competitive intelligence is also an attitude and a matter of management and organizational behavior (Taborda & Ferreira, 2002).

Competitive intelligence is a systematic collection, analysis and dissemination process with a long term focus, that includes business strategy, continuous in-time scanning of the competitive business environment, identifying and analyzing the impact or potential impact and trends on the business, determining and tracking intelligence needs, early identification of opportunities and threats, and peeking over the horizon. Competitive intelligence also focuses on more short term issues such as the strategic analysis and tracking of competitors, customers, and suppliers; and legal

and ethical collection, analysis and dissemination actions. Competitive intelligence is a discipline and management tool that adds value to strategic and tactical decision-making (Whitehead, 2002).

Competitive intelligence is a process of ethically collecting, analyzing and disseminating precise pertinent, specific, opportunistic, predictable and actionable information about the business environment, competitor and the organization itself (SCIP, 2003; Cavalcanti, 2005).

Competitive intelligence is a systematic approach into collecting, distributing and acting upon information on the external business environment (Hirvensalo, 2004).

Competitive actionable intelligence is the legal and ethical gathering, analysis, and interpretation of available information for anticipatory decision-making and action in the dynamic structure of marketplace and strategic planning (Johnson, 2004).

Competitive intelligence is the process by which organizations gather actionable information about competitors and the competitive environment and, ideally, apply it to their planning processes and decision-makers in order to improve their enterprise's performance. Competitive intelligence links signals, events, perceptions and data into discernable patterns and trends concerning the business and competitive environments (Fleisher & Bensoussan, 2007).

Competitive intelligence is becoming recognized as a means of verifying and analyzing the environment of operations to support better decision-making. Competitive intelligence is legal and associated with a detailed code of ethics (Richardson & Luchsinger, 2007).

Competitive Intelligence is the legal and ethical collection and analysis of information regarding the capabilities, vulnerabilities, and intentions of business competitors. It is also a necessary, ethical business discipline for decision-making based on understanding the competitive environment (SCIP, 2007; Brody, 2008).

In summary, competitive intelligence is an ethical and legal process that ultimately makes an enterprise a dominant player in its competitive environment (Heppes & du Toit, 2009).

Competitive intelligence is knowledge and foreknowledge about the entire business environment that results in action (Sharp, 2009).

Competitive intelligence is the process by which organizations gather information on competitors and the competitive environment, ideally using this in their decision-making and planning processes with the goal of adjusting activities to improve performance (Wright, Eid & Fleisher, 2009).

Competitive intelligence is a systematic and ethical program for gathering, analyzing, and managing any combination of data, information, and knowledge concerning the business environment in which a company operates that, when act upon, will confer a significant competitive advantage or enable sound decision to be made. Its primary role is strategic early warning (Prior, 2010).

Competitive intelligence is a systematic process that transforms random bits and pieces of data into strategic knowledge. It is information about current competitive position as well as specific future plans of competitors. It is information about the driving forces within the marketplace. It is information about specific products and technology. It is also information external to the marketplace, such as economic, regulatory, political, and demographic influences that have an impact on the market (Tyson, 2010).

APPENDIX B – THE KNOWLEDGE CREATING COMPANY MODEL

B.1 Creation and sharing of knowledge in the organization

The Knowledge Creating Company model (Nonaka & Takeuchi, 1995) theorizes how knowledge is created in the organization as result of a continuous cycle of four processes (Figure 31). The continuous conversion of tacit knowledge into explicit knowledge and back to tacit allows the organization to create and share knowledge

(Albescu et al., 2009). The process of socialization helps on the creation of tacit knowledge by the share of experiences among employees of the organization. The externalization process formalizes tacit knowledge explicitly by turning into text, formulas or models the knowledge informally placed in the employees. Combination is the process of manipulating explicit knowledge by learning and thinking of techniques to sort, select and combine it. Internalization allows the creation of tacit knowledge when learning by doing and sharing mental models and technical know-how (Albescu et al., 2009; Nonaka, 1991; Nonaka & Takeuchi, 1995). "Tacit knowledge is valorized by socialization and explicated by externalization. Once communicated, knowledge is deeply understood, inter-correlated by combination, a process that produces new tacit knowledge by internalization" (Albescu et al., 2009: p. 43).
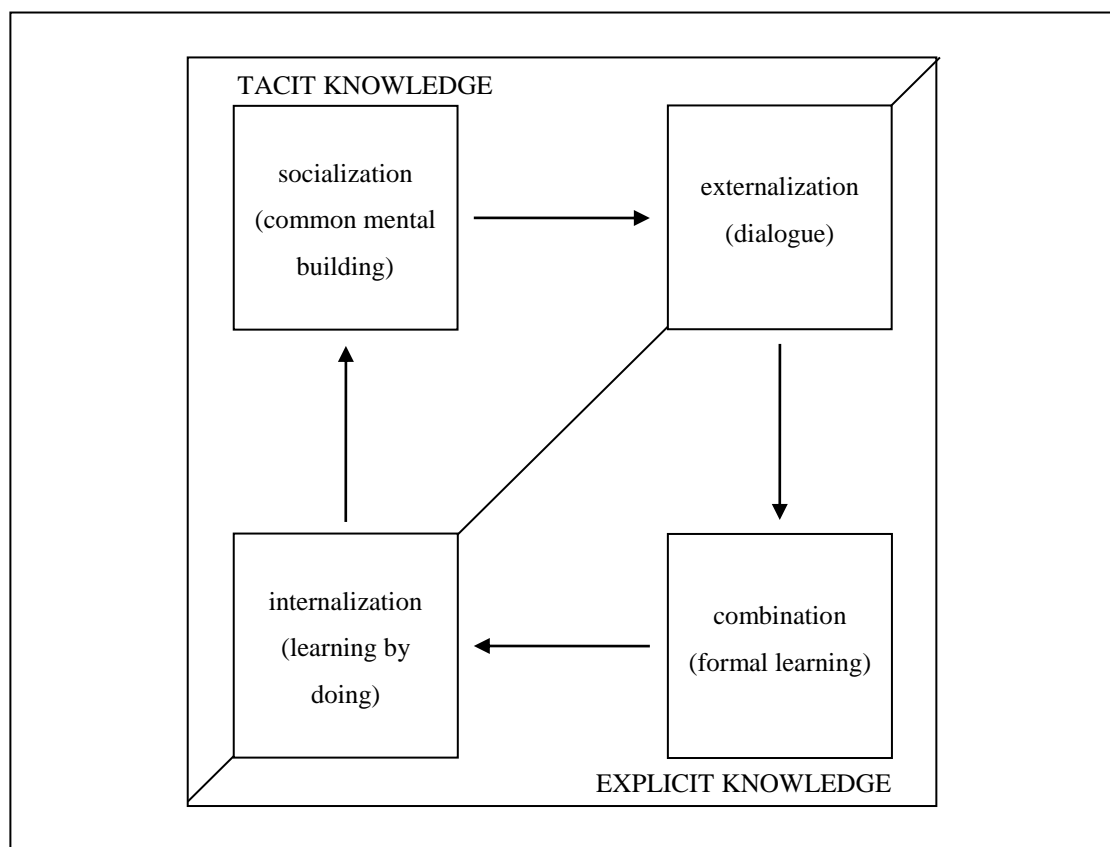
Figure 31 – The Knowledge Creating Company Model (adapted from Nonaka & Takeuchi, 1995)

APPENDIX C – A FAROUT APPLICATION

C.1 Three Analytical Tools

Consider the three following analytical tools commonly used by competitive intelligence practitioners and professionals: competitor analysis; SWOT analysis, and financial analysis.

Competitor analysis is future-oriented, accurate, objective, and useful, but it requires time and resources. Because of those characteristics, it is best applied periodically (as when a major competitor undergoes a significant change) and updated frequently. SWOT analysis is a quick and useful technique with little future orientation that is moderately objective and accurate and requires few resources. In most cases, it should be a starting point for additional competitive analysis. Financial analysis is a quick and objective technique that is moderately accurate and requires few resources. It can be regularly used to indicate competitor financial performance (Fehringer, 2007).

C.2 A FAROUT comparison

The table 22 shows the use of the FAROUT approach in choosing a competitive intelligence technique.

Table 22 - A FAROUT Comparison of Competitive Intelligence Techniques

Analytical method	Future orientation	Accuracy	Resource efficiency	Objectivity	Usefulness	Timeless
Competitor analysis	4	4	1	5	5	2
SWOT analysis	2	3	4	3	4	4
Financial analysis	1	3	5	5	2	5

Scales: Future orientation (1 = low level of future orientation | 5 = highly future orientation); Accuracy (1 = low level of accuracy | 5 = accuracy has been greatly increased); Resource efficiency (1 = a large volume of resources – financial, human, data, etc – is required | 5 = highly efficient in use of resources); Objectivity (1 = not highly objective | 5 = potential for biases could be minimized); Usefulness (1 = low level of valued output | 5 = high level of valued output); Timeliness (1 = requires a great deal of time | 5 = takes little time) (Fehringer, 2007).

APPENDIX D – A 12-MODEL EXAMPLE

The competitive landscape map can be achieve by classifying some analysis models and techniques that are most known or that the organization is more familiar with, and interconnected them in order to use the most sophisticated ones, hopefully with more benefits. This example is adapted from Comai & Millan (2006).

D.1 Models classification

The models are classified by their main objective, their time frame, their use or strategy level, and their purpose.

- The main objective of competitor profiling is the competitive environment, with an actual and future time frame, on a business and organizational strategy level and the purpose of monitoring the competition on a continuous basis.

- The main objective of the six angles of competition model is competitors or costumers, with an actual and future time frame, on a business strategy level and the purpose of identify business opportunities and threats from potential competitors.

- Stakeholders analysis have the main objective of understand the industry and the market, with an actual time frame, on a business and organizational strategy level, and the purpose of examining individuals and organizations considered stakeholders.

- Blind spots analysis has the main objective on decision-makers and analysts with an actual time frame and the purpose of identify cognitive biases and errors of perception.

- The main objective of patent analysis is the competitor, the technology and the industry, with an actual time frame, on a business use, and with the purpose of identifying technological trends using patents and scientific literature as sources of information. It can support the technology factor of the STEEP analysis.

- Value chain has the main objective of competitor and the organization, with an actual time frame, on a business level, with the purpose of identifying the competitive advantages.

- The industrial analysis or the five forces model has the main objective of the competitive environment, with an actual and future time frame, on a business

and organizational strategy level, with the purpose of identifying the industry, their players and the competitive dynamic.

- The STEEP analysis has the focus on the macro environment with a future time frame on a business and organizational level, with the purpose of identifying the implications of the environment on the business unit or organizational strategy.

- The main objective of analysis of competing hypotheses is the environment and organizations, with an actual and future time frame, on a business and organizational level, with the purpose of overcome the analyst cognitive limitations on major issues with less information that require careful examination or alternative explanations.

- Scenario analysis has the main objective on competitors, organization, industry and technology, with a future time frame, on organizational level, with the purpose of studying future scenarios for the industry, market and competitive strategy.

- War gaming has the objective on competitors and the organization, with a future time frame, on a business and organizational strategy level, with the purpose of studying possible reactions from the competition.

- The main objective of SWOT analysis is the business and the industry with an actual and future time frame, on organizational level, with the purpose of comparing the opportunities and threats on the industry with the strengths and weaknesses of the organization.

D.2 Models interconnection

The models interconnection depends on the toolkit selected, nevertheless some basic ideas should be present: (1) each initial model produces analyses for another model; (2) there are potential priorities between the models; (3) there are simple and complex models; (4) complex models may require specific skills and should be applied once the simple models have been utilized; (5) future-oriented models are more complex. For the purpose of the example, internal analysis includes an organization or competition analysis using the patent analysis, the industry analysis and the competitor profiling. Two more simple analytical models were added, the decision-makers profiling and the historic analysis as starters for other models and techniques.
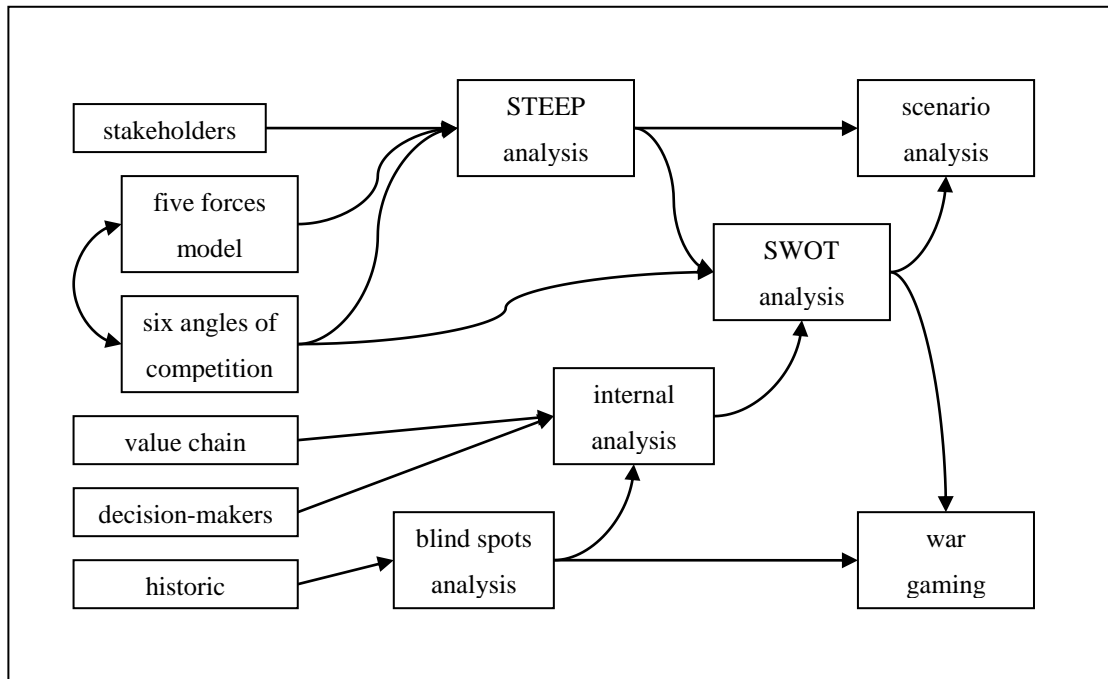
Figure 32 – The Interconnection between Models (adapted from Comai & Millan, 2006).

APPENDIX E – OTHER ANALYTICAL TOOLS

As discuss previous, depending on the key intelligence topic at hand, every social science analytical tool is a valid tool for intelligence analysis. Less used or less discussed in academic literature, here is a list of other analytical tools, somehow relevant to someone in the intelligence community.

E.1 Appreciative Inquiry

Appreciative inquiry is a tool for understanding the organization current state of vision and rapidly develops cultures, norms and behaviors to a new future (Simon, 2001). Appreciative inquiry was first introduced as a method to change the social system of an organization (Srivastva & Cooperrider, 1999). The method of appreciative inquiry has four cycles: discover, where the best examples within the organization are identified; dream, where a vision of the desired future state is set; design, where the gap between the two first cycles are identified; and deliver, where the designed state is implemented in the organization (Simon, 2001). Although this tool seems more like a collection tool, it might be used to understand the organization before analyzing something out of context or unaligned with the organizational vision or strategy.

E.2 Backcasting

Backcasting is a brainstorming-based technique where each past event and the activities leading to it are analyze to identify the signals and the indicators that preceded the event (Wergeles, 2005b).

E.3 Balanced Scorecard

Balanced scorecard is a performance measurement system based on financial ratios and quantification of intangible assets of the organization such as brand image, customers, reputation, human capital, information, innovation, and corporate culture (Prior, 2010).

E.4 Benchmarking

Benchmarking is a systematic process that evaluates and compares organizational activities, products, services and work processes with those organizations representing best practices in the industry for the purpose of performance improvement or best practices adopting (Prior, 2010).

E.5 Bibliometrics

Bibliometrics is use of statistical and mathematical methods to bibliographic references with purpose of comparison and comprehension (Prior, 2010). It includes citation analysis a tool for the study of citations to and from documents (Prior, 2010).

E.6 Business Intelligence

Business intelligence is information technology solutions to analyzed large data collections through data mining techniques (Prior, 2010). Data mining is the systematic computer analysis of large volumes of data with the purpose to reveal patterns, trends, and relationships about customers, products, and services (Prior, 2010). Cluster analysis is a statistical tool that groups pieces of data some how related and is commonly used in data mining (Prior, 2010). Also using cluster analysis, strategic group analysis purpose is to identify clusters or groups of competitors that adopt similar strategies, are affected by competitive actions and external events in a similar way, and tend to respond in similarity (Prior, 2010).

E.7 Content Analysis

Content analysis is a technique for the identification of keywords and descriptors in a document with the purpose of facilitate information retrieval (Prior, 2010). Content analysis can be useful in speech analysis.

E.8 Dashboard

Dashboard is a visualization tool that allows monitoring current key performance indicators to provide quick responses to changes in specific areas such as sales, customer relations, performance assessments and inventory levels (Prior, 2010). Digital dashboards allow the aggregation of a large amount of data and information for the decision-maker and the competitive intelligence analyst (Farcot, 2004). Digital dashboards can have three different applications: (1) monitoring of the progress of competitive intelligence issues and of problems requiring an immediate attention, and provide a single access point for all organizational staff involve in intelligence activities or similar; (2) analytical applications as the dashboard technology may provide analytical tools for the issue at hand; and (3) managerial application on the progress of the key intelligence topic resolutions and internal monitoring on global intelligence progress (Farcot, 2004). In fact, the systematic ongoing intelligence production can be disseminated to a interested bundle of decision-makers through dashboards (Pfeifer, 2004).

E.9 Decision Tree

Decision tree is a graphical representation of the sequential and possible decisions to make identified by the analysis and often associated with statistical probabilities (Prior, 2010).

E.10 Disclosure Analysis

Disclosure analysis is a sociological technique to identify the way people use language to bring order to their world, by analyzing speech patterns and their subtleties (Harrington, 2006). Usually applied to recorded or videotaped interviews, disclosure analysis goal is to understand the actions that words spoken perform, the aim of the speech of the speaker, the relationships constructed with the interaction with others, and how those relationship change in different contexts (Harrington, 2006).

E.11 Environmental scanning

Environmental scanning is a possible focus of the analysis in competitive intelligence involving a continuous monitoring of the business environment, primarily to identify opportunities and threats in changes on that environment (Prior, 2010).

E.12 Forecasting

Forecasting is a macroeconomic forecast technique commonly used in marketing intelligence and applied to market share and sales forecasts (Hedin, Vaarnas & Vanhala, 2007). Forecast is future-oriented to a time horizon between one to ten years, and often uses statistical models to forecast the future after causes and effects are identified (Hedin, Vaarnas & Vanhala, 2007).

E.13 Grounded Theory

In a competitive intelligence perspective, grounded theory is the use of inductive reasoning to guarantee the theory is fully grounded in the research data instead of first developed and then confirmed by sources of information or interviewees (Harrington, 2006). The process starts is to form hypothesis in emerging data, by eliciting and analyzing qualitative data, identifying categories, with the purpose of generating new theories grounded in the collected information; is a process of inductive reasoning, moving from specific observations to general conclusions (Harrington, 2006). Recently, sociologists in face of the impossibility of starting the process without a cognitive bias or hypothesis assume its existence and force its revelation (Harrington, 2006).

E.14 Group think

Group think is when the desire for a consensual agreement overrides the realistic and rational assessment of a specific situation (Prior, 2010). This happen because people often avoid to seen as foolish by having different views or opinions, to embarrassing or angering senior members of the group, or just the organizational culture mutes risk taking (Rothwell, 2007c). Group think strangles good intelligence (Fuld, 2010). Also denial is another intelligence barrier, as people tend to see what they wish to see (Fuld, 2010).

E.15 Link Analysis

Link analysis is an internet search technique developed from complex algorithms either based on the number of web pages linked to a relevant webpage to the search, or on the number of visits of that webpage on a specific period of time (Prior, 2010). Link analysis is also recently applied in other areas such as international terrorism, illegal money flows, fraud detection in banking and insurance, web analysis, and telecommunications, with the intent of building networks of interconnected objects based on relationships to discover patterns and trends (Barnea, 2005).

E.16 Market Analysis

Market analysis is a tool that provides measuring and evaluation on actual or potential sales of products or services (Prior, 2010). Market signals have two different functions: true intention or bluff; and discerning the difference between them involves delicate judgments (Porter, 1980). Forms of market signals are: (1) prior announcements of moves; (2) announcements of results or actions after the fact; (3) public discussions of the industry by competitors; (4) competitors discussions and explanations of their own moves; (5) competitors tactics relative to what they could have done; (6) divergence from past goals; (7) divergence from industry precedent; (8) the cross-parry[5]; (9) the fighting brand; (10) private antitrust suits (Porter, 1980).

E.17 Meyer-Briggs Type Indicator

The Meyer-Briggs type indicator is a tool for the psychological personality profiling adapted by William Bridges to study organizational character types (Wells, 2001). Organizations and individuals exhibit extroverted or introverted tendencies and can be determined by understanding what the sources of energy of organizations are or what defines its orientation (Bridges, 1992). The indicator works by understanding organizations or individuals along four dimensions: (1) extraversion versus introversion; (2) sensing versus intuition; (3) thinking versus feeling; and (4) judging versus perceiving (Bridges, 1992; Wells, 2001). Identifying a competitor sense of purpose and its key challenges is the goal of competitive intelligence (Wells, 2001).

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[5] "When one firm initiates a move in one area and a competitor responds in a different area with one that affects the initiating firm, the situation is called cross-parry" (Porter, 1980: p.84).

E.18 Mind Maps

Mind maps are a form of representing topics, ideas, projects, tasks, and similar items in a visual format including words, images, numbers and colors (Prior, 2010). Mind maps can be use in brainstorming meetings, creative thinking, decision-making, planning and problem solving (Prior, 2010). Mind maps is similar to semantic networks but with a focus on a central concept or theme (Prior, 2010). Semantic networks represent knowledge in the form of concepts, known as nodes, and links that indicates the relationship between concepts (Prior, 2010). Mind mapping provides a universal key to unlock the potential of the brain (Buzan, 2015).

E.19 Modeling

Modeling is a technique used to produce probable results based on assumptions and what-if questions for decision-making (Prior, 2010).

E.20 Narrative Analysis

Narrative analysis is a sociological technique that looks at phrases as building blocks of a story, and treats each block as unique identifying its meaning and implications (Harrington, 2006). When focuses on the manner that the speaker tells a story, understanding the meanings created through words, narrative analysis practical use is to reduce speech data into manageable pieces of information with a significance attached (Harrington, 2006).

E.21 Opportunity Analysis

Opportunity analysis, stated as an important piece in the analysis step of the competitive intelligence process (Calof, 1998), is the identification, evaluation, and exploitation of potential business opportunities to the organization (Prior, 2010). However, opportunity analysis differs from any opportunities analytical tool, such as the SWOT analysis, by implementing a different perspective. Instead of identifying and understanding how the several competitive circumstances can impact the organization, the opportunity analysis identifies the achievable goals given a current and likely future competitive environment (Sawka, 2001).

E.22 Portfolio Analysis

Portfolio analysis is a technique to assess opportunities and enhance the return of investment of the businesses portfolio, in order to optimize the allocation of resources among strong and weak products, brands or business units (Prior, 2010).

E.23 Predictive Analytics

Predictive analytics is the use of relevant software to analyze large data collections using techniques such as artificial intelligence, data mining, decision trees, game theory, neural networks, pattern-matching algorithms, statistics and visualization, on factors as products and services, customer behavior, business transactions and market dynamics in order to identify decisions suggestions and results optimization (Prior, 2010).

E.24 Quarterback Technique

Quarterback technique is a technique to gather information on external events such as trade shows and conferences, where the competitive intelligence team use specific and predetermined information and analytical needs to optimize the information source encounter, and in which requires quick reaction to new circumstances, some flexibility in managing the resources, constant discussion throughout the event, and is often coordinated from a online war room (Prior, 2010).

E.25 Risk Analysis

Risk analysis is the identification of potential risks to the organization and consequent analysis of their likelihood and counter actions (Hedin, Vaarnas & Vanhala, 2007). The process of risk analysis goes through the risk identification using analytical tools such as STEEP analysis, forecasting, trend analysis, scenario analysis and war gaming, the analysis of the risk impact on short, medium, and long term, and finally the risk mitigation activities identification (Hedin, Vaarnas & Vanhala, 2007). Similarly, risk assessment is the identification of factors that can potentially affect the profitability or existence of the organization, and often includes a costs and benefits evaluation and actions to reduce the risk (Prior, 2010).

E.26 Social Network Analysis

Social network analysis is a technique to map and measure the links and relationships between organizations and individuals on a network or collaborative activities, and often reveals specific expertise or influences, how and with whom people cooperate, who collaborate the most , and who fails to collaborate at all (Prior, 2010). Social network analysis is not online social networking (Carpe, 2005a). Avoiding the common personal habits of online social networking, helps building a social network based on specific objectives, ethics, and philosophy that will serve the organization (Naylor, 2009). Social network analysis combines techniques from anthropology, sociology and psychology (Carpe, 2005a).

E.27 Stress Value-added Analysis

Stress value-added analysis involves a simple internal market and industry analysis (Pasemko, 2000). Regarding the industry analysis, the awareness of the external market consider the products and services available, the threats and opportunities of the industry, the capabilities of the competitors, their strengths and weaknesses, and the effect of economic conditions on the industry (Pasemko, 2000). The internal market analysis involves the products and services available from the organization or in development, the strengths and weaknesses of the organization and the current strategic plan or direction set by the strategic decision-maker (Pasemko, 2000).

E.28 Thin Slicing

Thin slicing is a technique to cut down unnecessary information to focus on the relevant data when making decisions (Gladwell, 2007; Rothwell, 2007b). This approach can be effective in the analytical process and applied to brainstorming, alternative hypotheses or building scenarios (Rothwell, 2007b).

E.29 Trend Analysis

Trend analysis is an analytical tool to identify present and future trends and their impact on the organization (Hedin, Vaarnas & Vanhala, 2007). The process is to identify trends, descript and evaluate them, and analyze their impact on the organization (Hedin, Vaarnas & Vanhala, 2007). Trend analysis has a macro and micro scope, and a medium future orientation, as it is possible to identify future trends today (Hedin, Vaarnas & Vanhala, 2007).

APPENDIX F – AN APPLICATION OF THE THEOREM OF BAYES

F.1 Novel release with different covers

Consider a book publisher with the following decision at hand: to release their next novel with different covers or with the same cover on all the standard editions formats. The standards formats available are the paper back format, the handbook format and an illustrated version. Historically, the paper back format sells approximately twice the handbook format and three times the illustrated version. A total of 75% of sales of the handbook format occurs in a different covers release type, but only 15% of sales of the other two formats occur in a different covers release. If the sales prices for the standard formats are 24,99€, 9,99€ and 39,99€ for a total sales estimation of 50.000 copies, should the publisher spend an additional 10.000,00€ in different covers?

Consider E_1 the sales in the paper back format of the total sales of a novel. E_2 is the sales in the handbook format of the total of sales of a novel. E_3 is the sales in the illustrated version of the total of sales of a novel. And A is the release of a new novel with different covers. The priori probabilities are:

$$P(E_1) = 0,54(54)$$
$$P(E_2) = 0,27(27)$$
$$P(E_3) = 0,18(18)$$

from the solution of the system of the following equations:

$$\begin{cases} P(E_1) = 2P(E_2) \\ P(E_1) = 3P(E_3) \\ P(E_1) + P(E_2) + P(E_3) = 1 \end{cases}$$

The conditional probabilities of the event A are:

$$P(A \mid E_1) = 0,15$$
$$P(A \mid E_2) = 0,75$$
$$P(A \mid E_3) = 0,15$$

Applying the theorem of Bayes, it is possible to calculate the probability of the sales of the different formats given the impact of the release of the new novel having different covers. Note that the sales of the three different formats are mutually

exclusive and collectively exhaustive events. This means that there are no more formats available to the publisher. Obviously, this is a fictional example, not corresponding to the reality, and quite simple to better explain how this tool can be utilized in the decision-making process.

Calculating the posteriori probabilities:

$$P(E_1 \mid A) = \frac{P(A \mid E_1)P(E_1)}{P(A \mid E_1)P(E_1) + P(A \mid E_2)P(E_2) + P(A \mid E_3)P(E_3)} =$$

$$= \frac{0,15 \times 0,54(54)}{0,15 \times 0,54(54) + 0,75 \times 0,27(27) + 0,15 \times 0,18(18)} = \frac{0,081(81)}{0,081(81) + 0,2045(45) + 0,027(27)} =$$

$$= \frac{0,081(81)}{0,3136(36)} = 0,26086956313799621506260101606905$$

$$P(E_2 \mid A) = \frac{P(A \mid E_2)P(E_2)}{P(A \mid E_1)P(E_1) + P(A \mid E_2)P(E_2) + P(A \mid E_3)P(E_3)} = 0,652173912627599243$$

$$P(E_3 \mid A) = \frac{P(A \mid E_3)P(E_3)}{P(A \mid E_1)P(E_1) + P(A \mid E_2)P(E_2) + P(A \mid E_3)P(E_3)} = 0,086956521045998738542$$

we have approximately:

$$P(E_1 \mid A) = 0,261$$
$$P(E_2 \mid A) = 0,652$$
$$P(E_3 \mid A) = 0,087$$

Including now the information about the estimate future sales of the next novel release and the prices, we can establish a table to support the final decision.

Table 23 - New Release Sales Estimation

release type	sales of paper back	sales of handbook	sales of illustrated	total of sales
same cover	681.477,30€	136.213,65€	36.350,91€	854.041,86€
different covers	324.870,00€	325.674,00€	173.956,50€	824.500,50€

From a sales point of view alone, releasing the new novel with different covers is clearly a mistake. A release with the same cover is always more profitable, even if the additional cost of making different covers is null.

APPENDIX G – CODE OF ETHICS

This appendix contains examples of code of ethics chronologically ordered.

G.1 Code of Ethics (SCIP, 1996)

1. To continually strive to increase respect and recognition for the profession on local, state, and national levels.
2. To pursue his or her duties with zeal and diligence while maintaining the highest degree of professionalism and avoiding all unethical practices.
3. To faithfully adhere to and abide by his or her company's policies, objectives, and guidelines.
4. To comply with all applicable laws.
5. To accurately disclose all relevant information, including the identity of the professional and his or her organization, prior to all interviews.
6. To fully respect all requests for confidentiality of information.
7. To promote and encourage full compliance with these ethical standards within his or her company, with third-party contractors, and within the entire profession.

G.2 The Ten Commandments of Legal and Ethical Intelligence Gathering (Fuld & Company, 1996)

1. Thou shalt not lie when representing thyself.
2. Thou shalt observe thy company's legal guidelines as set forth by the Legal Department.
3. Thou shalt not tape-record a conversation.
4. Thou shalt not bribe.
5. Thou shalt not plant eavesdropping devices.
6. Thou shalt not deliberately mislead anyone in an interview.
7. Thou shalt neither obtain from nor give to thy competitor any price information.
8. Thou shalt not swap misinformation.
9. Thou shalt not steal a trade secret (or steal employees away in hopes of learning a trade secret).
10. Thou shalt not knowingly press someone for information if it may jeopardize that person's job or reputation.

G.3 Core Principles of Code of Ethics development for the collection of information (Prescott, 1999).

The following principles should be addressed while developing a Code of Ethics in a form of avoid them:

- Misrepresentation is to purposely mislead of falsely represent oneself or the organization. Examples are posing as a vendor or academic when collecting information and conducting false job interviews.

- Improper influence is to induce others to divulge information for which they have an obligation to keep confidential. Examples of this improper conduct are the offering of job promise, promotions, gifts and bribery for the information.

- Covert collection is to apply collection techniques in a manner where the observed person or organization does not know that intelligence is being sought. Examples of covert collection are electronic espionage, planting moles in the competition, and examining their trash.

- Unsolicited information is the receipt of information that was not requested. Examples of unsolicited information are a competitor strategic plan found in a hotel conference room and overhearing conversation about new products in a bar.

G.4 Code of Ethics (SCIP, 2009; 2015)

1. To continually strive to increase the recognition and respect of the profession.
2. To comply with all applicable laws, domestic and international.
3. To accurately disclose all relevant information, including one's identity and organization, prior to all interviews.
4. To avoid conflicts of interest in fulfilling one's duties.
5. To provide honest and realistic recommendations and conclusions in the execution of one's duties.
6. To promote this code of ethics within one's company, with third-party contractors, and within the entire profession.
7. To faithfully adhere to and abide by one's company policies, objectives, and guidelines.

G.5 Rules We Don't Do It (Sharp, 2009)

1. If it involves lying, stealing or trespassing – we don't do it.
2. Dumpster diving – we don't do it.
3. Paying sources for confidential information – we don't do it.
4. Appropriating passwords – we don't do it.
5. Encouraging people to violate nondisclosure agreements – we don't do it.
6. Using a false identity or pretense to get information – we don't do it.
7. Acquiring a company's proprietary information – we don't do it.
8. Asking new hires to divulge proprietary information from a previous employer – we don't do it.
9. Giving gifts or favors to get proprietary information – we don't do it.
10. Receiving proprietary information from an anonymous source – we don't do it.

G.6 American Marketing Association Guidelines (AMA, 2010)

Marketers' professional conduct must be guided by:

1. The basic rule of professional ethics: not knowingly to do harm;
2. The adherence to all applicable laws and regulations;
3. The accurate representation of their education, training and experience; and
4. The active support, practice and promotion of this Code of Ethics.

G.7 Portuguese Code of Ethics

Some Portuguese organizations has large code of ethics for their employees, as long as 20-pages documents and more, such as Portugal Telecom, Electricidade de Portugal, ANA - Aeroportos de Portugal, EP - Estradas de Portugal, and CTT - Correios de Portugal.

APPENDIX H – THE FIRST DRAFT OF THE QUESTIONNAIRE

H.1 English version (original)

The original version of the questionnaire was developed in English in the software Teleform 7.0, from the literature review, hypotheses, constructs and questions presented in this thesis. A copy of the questionnaire is presented in the next pages.

43537

Survey on the use of competitive intelligence in the decision-making process in Portuguese organizations

This questionnaire is confidential and is part of PhD thesis survey about competitive intelligence and strategic decisions. Please answer the following questions. Thank you.

> Regarding your organization, please indicate how often the following situations occur. Choose the option that best represents your opinion. Use the frequency scale:
> **1** - never; **2** - rarely; **3** - sometimes; **4** - frequently; **5** - very frequently; **6** - always; **7** - not applicable.

1. The following products are produced:

	1	2	3	4	5	6	7
competitor profile	○	○	○	○	○	○	○
periodic intelligence briefing	○	○	○	○	○	○	○
situation analysis	○	○	○	○	○	○	○
special intelligence briefing	○	○	○	○	○	○	○
strategic impact worksheet	○	○	○	○	○	○	○

2. The following types of intelligence are produced:

	1	2	3	4	5	6	7
competitor intelligence	○	○	○	○	○	○	○
market intelligence	○	○	○	○	○	○	○
technological intelligence	○	○	○	○	○	○	○
strategic and social intelligence	○	○	○	○	○	○	○
marketing intelligence	○	○	○	○	○	○	○
business intelligence (data mining)	○	○	○	○	○	○	○
counterintelligence	○	○	○	○	○	○	○
environment scanning	○	○	○	○	○	○	○
cooperative intelligence	○	○	○	○	○	○	○
collaborative intelligence	○	○	○	○	○	○	○

3. The intelligence products have the following characteristics:

	1	2	3	4	5	6	7
accurate	○	○	○	○	○	○	○
technical	○	○	○	○	○	○	○
misperception self-aware	○	○	○	○	○	○	○
biased self-aware	○	○	○	○	○	○	○
objective on hypotheses and conclusions	○	○	○	○	○	○	○
usable on its comprehesion and immediate application	○	○	○	○	○	○	○
relevant to the decision-maker	○	○	○	○	○	○	○
readable to the entire organization	○	○	○	○	○	○	○

4. The key intelligence topics have the following charateristics:

	1	2	3	4	5	6	7
statement defining the intelligence need	○	○	○	○	○	○	○
key elements describing the current situation	○	○	○	○	○	○	○
key elements describing the future situation	○	○	○	○	○	○	○
trends describing the current situation	○	○	○	○	○	○	○
trends describing the future situation	○	○	○	○	○	○	○
key intelligence questions	○	○	○	○	○	○	○
preliminary hipotheses	○	○	○	○	○	○	○
deadline	○	○	○	○	○	○	○

Survey on the use of competitive intelligence in the decision-making process in Portuguese organizations

Regarding your organization, please indicate how often the following situations occur. Choose the option that best represents your opinion. Use the frequency scale:
1 - never; **2** - rarely; **3** - sometimes; **4** - frequently; **5** - very frequently; **6** - always; **7** - not applicable.

5. The key intelligence topics are use to identify intelligence needs on the following issues:

	1	2	3	4	5	6	7
strategic issues	○	○	○	○	○	○	○
early-warning	○	○	○	○	○	○	○
key players	○	○	○	○	○	○	○
counterintelligence	○	○	○	○	○	○	○

6. A competitive intelligence plan includes the following features:

	1	2	3	4	5	6	7
intelligence needs	○	○	○	○	○	○	○
plan to information collection	○	○	○	○	○	○	○
plan to informastion analysis	○	○	○	○	○	○	○
plan to keep the decision-maker informed	○	○	○	○	○	○	○

7. The information is processed in the following way:

	1	2	3	4	5	6	7
creatively collected	○	○	○	○	○	○	○
legally collected	○	○	○	○	○	○	○
ethically collected	○	○	○	○	○	○	○
eletronically processed	○	○	○	○	○	○	○
electronically stored	○	○	○	○	○	○	○
validated (from human sourdes only)	○	○	○	○	○	○	○
evaluated for reliability (from human sources only)	○	○	○	○	○	○	○

8. The information is collected from the following sources:

	1	2	3	4	5	6	7
humans	○	○	○	○	○	○	○
speeches	○	○	○	○	○	○	○
live television and radio interviews	○	○	○	○	○	○	○
annual reports	○	○	○	○	○	○	○
government documents	○	○	○	○	○	○	○
organizational finnacial reports (primary)	○	○	○	○	○	○	○
newspapers	○	○	○	○	○	○	○
books	○	○	○	○	○	○	○
taped and edited television and radio programs	○	○	○	○	○	○	○
reports of experts	○	○	○	○	○	○	○
databases	○	○	○	○	○	○	○
online database services (secondary)	○	○	○	○	○	○	○
websites	○	○	○	○	○	○	○
observation (primary)	○	○	○	○	○	○	○
other:	○	○	○	○	○	○	○

Regarding your organization, please indicate how often the following situations occur. Choose the option that best represents your opinion. Use the frequency scale:

1 - never; **2** - rarely; **3** - sometimes; **4** - frequently; **5** - very frequently; **6** - always; **7** - not applicable.

9. The information is analyzed with the following tools for patterns and trends:

	1	2	3	4	5	6	7
analysis of competing hypotheses	O	O	O	O	O	O	O
blind spot analysis	O	O	O	O	O	O	O
competitor analysis	O	O	O	O	O	O	O
decision-maker profiling	O	O	O	O	O	O	O
early warning	O	O	O	O	O	O	O
financial analysis	O	O	O	O	O	O	O
four corners model	O	O	O	O	O	O	O
five forces model	O	O	O	O	O	O	O
industry analysis	O	O	O	O	O	O	O
nine forces model	O	O	O	O	O	O	O
patent analysis	O	O	O	O	O	O	O
STEEP analysis	O	O	O	O	O	O	O
scenario analysis	O	O	O	O	O	O	O
six-angles of competition	O	O	O	O	O	O	O
SWOT analysis	O	O	O	O	O	O	O
text analysis	O	O	O	O	O	O	O
Bayes theorem	O	O	O	O	O	O	O
value chain	O	O	O	O	O	O	O
war gaming	O	O	O	O	O	O	O
win/loss analysis	O	O	O	O	O	O	O
appreciative inquiry	O	O	O	O	O	O	O
backcasting	O	O	O	O	O	O	O
balanced scorecard	O	O	O	O	O	O	O
benchmarking	O	O	O	O	O	O	O
bibliometrics	O	O	O	O	O	O	O
business intelligence (data mining)	O	O	O	O	O	O	O
content analysis	O	O	O	O	O	O	O
dashboard	O	O	O	O	O	O	O
decision tree	O	O	O	O	O	O	O
disclosure analysis	O	O	O	O	O	O	O
environment scanning	O	O	O	O	O	O	O
forecasting	O	O	O	O	O	O	O
grounded theory	O	O	O	O	O	O	O
group think	O	O	O	O	O	O	O
link analysis	O	O	O	O	O	O	O
market analysis	O	O	O	O	O	O	O
Meyer-Briggs type indicator	O	O	O	O	O	O	O

Survey on the use of competitive intelligence in the decision-making process in Portuguese organizations

Regarding your organization, please indicate how often the following situations occur. Choose the option that best represents your opinion. Use the frequency scale:
1 - never; **2** - rarely; **3** - sometimes; **4** - frequently; **5** - very frequently; **6** - always; **7** - not applicable.

9. The information is analyzed with the following tools for patterns and trends (continued):

	1	2	3	4	5	6	7
mind maps	O	O	O	O	O	O	O
modeling	O	O	O	O	O	O	O
narrative analysis	O	O	O	O	O	O	O
opportunity analysis	O	O	O	O	O	O	O
portfolio analysis	O	O	O	O	O	O	O
predictive analytics	O	O	O	O	O	O	O
quarterback technique	O	O	O	O	O	O	O
risk analysis	O	O	O	O	O	O	O
social network analysis	O	O	O	O	O	O	O
stress value-added	O	O	O	O	O	O	O
thin slicing	O	O	O	O	O	O	O
trend analysis	O	O	O	O	O	O	O

10. The intellectual property is protected by the following solutions:

	1	2	3	4	5	6	7
disinformation	O	O	O	O	O	O	O
misinformation	O	O	O	O	O	O	O
deception	O	O	O	O	O	O	O
shielding	O	O	O	O	O	O	O
patents registration	O	O	O	O	O	O	O
trademark registration	O	O	O	O	O	O	O
trade secret	O	O	O	O	O	O	O

11. The strategic decision is based on the following products:

	1	2	3	4	5	6	7
internal studies	O	O	O	O	O	O	O
benchmarking studies	O	O	O	O	O	O	O
business intelligence reports (data mining)	O	O	O	O	O	O	O
market research	O	O	O	O	O	O	O
competitive intelligence reports	O	O	O	O	O	O	O
technical reports	O	O	O	O	O	O	O
newspapers and magazines	O	O	O	O	O	O	O
official government reports	O	O	O	O	O	O	O
gossip and hearsay	O	O	O	O	O	O	O
personal insights	O	O	O	O	O	O	O
information on the internet	O	O	O	O	O	O	O
copycat/followers strategy	O	O	O	O	O	O	O
six sense or instinct	O	O	O	O	O	O	O
none	O	O	O	O	O	O	O
other	O	O	O	O	O	O	O

43537

Survey on the use of competitive intelligence in the decision-making process in Portuguese organizations

	1	2	3	4	5	6	7
12. Intelligence is deliver to the decision-maker:	◯	◯	◯	◯	◯	◯	◯
13. The information is collected legally and ethically:	◯	◯	◯	◯	◯	◯	◯
14. There is a systematic process for the analysis of the competitive environment:	◯	◯	◯	◯	◯	◯	◯

	sim	não
15. Is there a Code of Ethics or a similar document?	◯	◯
16. The Troika memoranda of 2011 was analyzed to identify opportunities and threats?	◯	◯

17. What of the following competitive intelligence organizational model best represents your competitive intelligence system?

the intelligence ad-hoc team (responding to decision-makers requests) ◯

the process manager (single person operation / lone practitioner) ◯

the basic intelligence system (two minds and a library) ◯

the business intelligence center (systematic collection and analysis from internal information systems) ◯

the intelligence department (intelligence confined into a unit or division) ◯

the hub and spoke (global organizations with mature functions) ◯

the intelligence matrix (multinational organizations with intelligence aligned with organization culture) ◯

the intelligence community (interaction between decision-makers interact, corporate intelligence department and corporate intelligence community in operational divisions and functional departments around the world) ◯

18. Identify the following characteristics of your competitive intelligence function:

activities based on ad-hoc requests and/or focus on competition ◯

continuous activities based on key intelligence topics ◯

activitiesfocus in understand, analyze and interpret the market ◯

activities that identify and monitor threats, planning and simulating strategies ◯

activities that have the support of top management ◯

activities with exclusive resources for information collection ◯

activities which use intelligence without impact analysis ◯

activities which use intelligence in tactical measures ◯

activities which use intelligence for the opportunities and threats identification ◯

activities of a division or department with fulltime people ◯

activities that have not the support of top management ◯

activities that use public and published sources of information ◯

activities that are consider a waste of time ◯

Regarding your organization, please answer the following question on the number of people that exists, in a scale from none to five or more. Choose the option that best represents your opinion.

19. How many people have the following job description?

	0	1	2	3	4	5 ou mais
chief inteligence officer	○	○	○	○	○	○
intelligence director or manager	○	○	○	○	○	○
information collector	○	○	○	○	○	○
information researcher	○	○	○	○	○	○
information protector	○	○	○	○	○	○
analists	○	○	○	○	○	○
legal consultant or specialist	○	○	○	○	○	○
juridical consultant or specialist	○	○	○	○	○	○
industry consultant or specialist	○	○	○	○	○	○
technical consultant	○	○	○	○	○	○
outro	○	○	○	○	○	○

Em relação à sua organização, por favor indique a sua satisfação. Escolha a opção que melhor representa a sua opinião. Utilize a escala de satisfação:
1 - nada satisfeito; **2** - pouco satisfeito; **3** - indiferente; **4** - satisfeito; **5** - muito satisfeito; **6** - não aplicável.

20. Which of the following products gives/would give you more satisfation on the decision made?

	1	2	3	4	5	6
internal studies	○	○	○	○	○	○
benchmarking studies	○	○	○	○	○	○
business intelligence reports (data mining)	○	○	○	○	○	○
market research	○	○	○	○	○	○
competitive intelligence reports	○	○	○	○	○	○
technical reports	○	○	○	○	○	○
newspapers and magazines	○	○	○	○	○	○
official government reports	○	○	○	○	○	○
gossip and hearsay	○	○	○	○	○	○
personal insights	○	○	○	○	○	○
information on the internet	○	○	○	○	○	○
copycat/followers strategy	○	○	○	○	○	○
six sense or instinct	○	○	○	○	○	○
none	○	○	○	○	○	○
other	○	○	○	○	○	○

43537

Survey on the use of competitive intelligence in the decision-making process in Portuguese organizations

number of employees

sales volume _____ € (último exercício com contas encerradas)

headquarters location

economic activity

If interested in receiving the survey report, please fil up your name and email.

name

email

Thank you.

H.2 Portuguese version (translated)

The translated version of the first draft of the questionnaire was developed from the original first draft of the questionnaire in the software Teleform 7.0. A copy of the questionnaire is presented in the next pages.

Inquérito sobre o uso de Competitive Intelligence no processo de tomada de decisão nas empresas Portuguesas

Este questionário é confidencial e parte de uma tese de doutoramento sobre Competitive Intelligence e Decisão Estratégica. Por favor queira responder às questões que lhe são colocadas. Obrigado pela sua participação.

Em relação à sua organização, por favor indique a frequência com que ocorrem as seguintes situações. Escolha a opção que melhor representa a sua opinião. Utilize a escala de frequência de uso:
1 - nunca; **2** - raramente; **3** - às vezes; **4** - frequentemente; **5** - muito frequentemente; **6** - sempre; **7** - não aplicável.

1. Os seguintes produtos são produzidos:

	1	2	3	4	5	6	7
perfil de concorrente	○	○	○	○	○	○	○
briefing periódico de *intelligence*	○	○	○	○	○	○	○
análise de situação (*situation analysis*)	○	○	○	○	○	○	○
briefing especial de *intelligence*	○	○	○	○	○	○	○
análise de impacto estratégico	○	○	○	○	○	○	○

2. Os seguintes tipos de *intelligence* são produzidos:

	1	2	3	4	5	6	7
competitor intelligence	○	○	○	○	○	○	○
market intelligence	○	○	○	○	○	○	○
technological intelligence	○	○	○	○	○	○	○
strategic and social intelligence	○	○	○	○	○	○	○
marketing intelligence	○	○	○	○	○	○	○
business intelligence (data mining)	○	○	○	○	○	○	○
counterintelligence	○	○	○	○	○	○	○
environment scanning	○	○	○	○	○	○	○
cooperative intelligence	○	○	○	○	○	○	○
collaborative intelligence	○	○	○	○	○	○	○

3. Os produtos de *intelligence* têm as seguintes características:

	1	2	3	4	5	6	7
preciso	○	○	○	○	○	○	○
técnico	○	○	○	○	○	○	○
consciente de eventual falta de percepção	○	○	○	○	○	○	○
consciente de interpretações tendenciosas (*biases*)	○	○	○	○	○	○	○
objectivo nas hipóteses e conclusões	○	○	○	○	○	○	○
utilizável na compreensão e na sua aplicação imediata	○	○	○	○	○	○	○
relevante para o decisor	○	○	○	○	○	○	○
acessível na leitura para a organização inteira	○	○	○	○	○	○	○

4. Os *key intelligence topics* têm as seguintes caraterísticas:

	1	2	3	4	5	6	7
uma frase que defina a necessidade de *intelligence*	○	○	○	○	○	○	○
elementos chave que descrevam a situação actual	○	○	○	○	○	○	○
elementos chave que descrevam a situação futura	○	○	○	○	○	○	○
tendências chave que descrevam a situação actual	○	○	○	○	○	○	○
tendências chave que descrevam a situação futura	○	○	○	○	○	○	○
key intelligence questions	○	○	○	○	○	○	○
hipóteses preliminares	○	○	○	○	○	○	○
um prazo de entrega	○	○	○	○	○	○	○

Inquérito sobre o uso de Competitive Intelligence no processo de tomada de decisão nas empresas Portuguesas

Em relação à sua organização, por favor indique a frequência com que ocorrem as seguintes situações. Escolha a opção que melhor representa a sua opinião. Utilize a escala de frequência de uso:
1 - nunca; **2** - raramente; **3** - às vezes; **4** - frequentemente; **5** - muito frequentemente; **6** - sempre; **7** - não aplicável.

5. Os *key intelligence topics* são utilizados para identificar as necessidades de intelligence sobre os seguintes assuntos:

	1	2	3	4	5	6	7
assuntos estratégicos	O	O	O	O	O	O	O
alertas (*early-warning*)	O	O	O	O	O	O	O
players chave (*key players*)	O	O	O	O	O	O	O
contra-*intelligence* (*counterintelligence*)	O	O	O	O	O	O	O

6. Os planos de *competitive intelligence* incluem os seguintes componentes:

	1	2	3	4	5	6	7
necessidade de *intelligence*	O	O	O	O	O	O	O
um plano de recolha de informação	O	O	O	O	O	O	O
um plano de análise de informação	O	O	O	O	O	O	O
um plano para manter o decisor informado	O	O	O	O	O	O	O

7. A informação necessária é processada dos seguintes modos:

	1	2	3	4	5	6	7
recolhida criativamente	O	O	O	O	O	O	O
recolhida legalmente	O	O	O	O	O	O	O
recolhida eticamente	O	O	O	O	O	O	O
processada eletronicamente	O	O	O	O	O	O	O
armazenada/guardada electronicamente	O	O	O	O	O	O	O
validada	O	O	O	O	O	O	O
avaliada quanto à sua confiança	O	O	O	O	O	O	O

8. A informação é recolhida a partir das seguintes fontes de informação:

	1	2	3	4	5	6	7
humanos	O	O	O	O	O	O	O
discursos	O	O	O	O	O	O	O
entrevistas ao vivo na televisão ou radio	O	O	O	O	O	O	O
relatórios anuais	O	O	O	O	O	O	O
documentos governamentais	O	O	O	O	O	O	O
relatórios financeiros da organização	O	O	O	O	O	O	O
jornais	O	O	O	O	O	O	O
livros	O	O	O	O	O	O	O
programas gravados e editados na televisão e radio	O	O	O	O	O	O	O
relatórios de especialistas	O	O	O	O	O	O	O
bases de dados	O	O	O	O	O	O	O
serviços de bases de dados *online*	O	O	O	O	O	O	O
páginas *web*	O	O	O	O	O	O	O
observação	O	O	O	O	O	O	O
outro: _____	O	O	O	O	O	O	O

Em relação à sua organização, por favor indique a frequência com que ocorrem as seguintes situações. Escolha a opção que melhor representa a sua opinião. Utilize a escala de frequência de uso:
1 - nunca; **2** - raramente; **3** - às vezes; **4** - frequentemente; **5** - muito frequentemente; **6** - sempre; **7** - não aplicável.

9. A informação é analisada com as seguintes ferramentas de análise procurando padrões e tendências:

	1	2	3	4	5	6	7
análise de hipóteses concorrentes (*ACH*)	O	O	O	O	O	O	O
análise de pontos cegos (*blind spot analysis*)	O	O	O	O	O	O	O
análise do concorrente	O	O	O	O	O	O	O
perfil do decisor	O	O	O	O	O	O	O
alertas (*early warning*)	O	O	O	O	O	O	O
análise financeira	O	O	O	O	O	O	O
modelo dos quatro cantos (*four corners model*)	O	O	O	O	O	O	O
modelo das cinco forças (*five forces model*)	O	O	O	O	O	O	O
análise da indústria	O	O	O	O	O	O	O
modelo das nove forças (*nine forces model*)	O	O	O	O	O	O	O
análise de patentes	O	O	O	O	O	O	O
análise PEST (*STEEP analysis*)	O	O	O	O	O	O	O
análise de cenários	O	O	O	O	O	O	O
análise dos seis ângulos da concorrência (*six-angles*)	O	O	O	O	O	O	O
análise SWOT	O	O	O	O	O	O	O
análise de textos/documentos	O	O	O	O	O	O	O
teorema de Bayes	O	O	O	O	O	O	O
cadeia de valor	O	O	O	O	O	O	O
jogos de guerra (*war gaming*)	O	O	O	O	O	O	O
análise de ganhos/perdas	O	O	O	O	O	O	O
appreciative inquiry	O	O	O	O	O	O	O
backcasting	O	O	O	O	O	O	O
balanced scorecard	O	O	O	O	O	O	O
benchmarking	O	O	O	O	O	O	O
análise bibliométrica	O	O	O	O	O	O	O
business intelligence (*data mining*)	O	O	O	O	O	O	O
análise de conteúdos	O	O	O	O	O	O	O
dashboard	O	O	O	O	O	O	O
árvore de decisão	O	O	O	O	O	O	O
análise *disclosure*	O	O	O	O	O	O	O
environment scanning	O	O	O	O	O	O	O
previsão	O	O	O	O	O	O	O
grounded theory	O	O	O	O	O	O	O
pensamento de grupo (*group think*)	O	O	O	O	O	O	O
análise de conexões (*link analysis*)	O	O	O	O	O	O	O
análise de mercado	O	O	O	O	O	O	O
indicador de tipo de Meyer-Briggs (*MBTI*)	O	O	O	O	O	O	O

Em relação à sua organização, por favor indique a frequência com que ocorrem as seguintes situações. Escolha a opção que melhor representa a sua opinião. Utilize a escala de frequência de uso:

1 - nunca; **2** - raramente; **3** - às vezes; **4** - frequentemente; **5** - muito frequentemente; **6** - sempre; **7** - não aplicável.

9. A informação é analisada com as seguintes ferramentas de análise procurando padrões e tendências (continuação):

	1	2	3	4	5	6	7
mapeamento ou mapas mentais	O	O	O	O	O	O	O
modelização	O	O	O	O	O	O	O
análise narrativa ou de discursos	O	O	O	O	O	O	O
análise de oportunidades	O	O	O	O	O	O	O
análise de portfólio	O	O	O	O	O	O	O
análise preditiva	O	O	O	O	O	O	O
técnica de *quarterback*	O	O	O	O	O	O	O
análise de risco	O	O	O	O	O	O	O
análise de redes sociais	O	O	O	O	O	O	O
análise ou testes de stress (*stress value-added*)	O	O	O	O	O	O	O
thin slicing	O	O	O	O	O	O	O
análise de tendências	O	O	O	O	O	O	O

10. A propriedade intelectual é protegida pelas seguintes soluções:

	1	2	3	4	5	6	7
desinformação	O	O	O	O	O	O	O
informação falsa	O	O	O	O	O	O	O
decepção ou desilusão	O	O	O	O	O	O	O
protecção de informação	O	O	O	O	O	O	O
registo de patentes	O	O	O	O	O	O	O
registo de marcas	O	O	O	O	O	O	O
segredo de negócio	O	O	O	O	O	O	O

11. A tomada de decisão estratégica é baseada nos seguintes produtos:

	1	2	3	4	5	6	7
estudos internos	O	O	O	O	O	O	O
estudos de *benchmarking*	O	O	O	O	O	O	O
relatórios de *business intelligence* (*data mining*)	O	O	O	O	O	O	O
estudos de mercado	O	O	O	O	O	O	O
relatórios de *competitive intelligence*	O	O	O	O	O	O	O
relatórios técnicos	O	O	O	O	O	O	O
jornais e revistas	O	O	O	O	O	O	O
relatórios oficiais do governo	O	O	O	O	O	O	O
boatos e rumores	O	O	O	O	O	O	O
informação privilegiada	O	O	O	O	O	O	O
informação da *internet*	O	O	O	O	O	O	O
imitação de estratégias de organizações líderes	O	O	O	O	O	O	O
sexto sentido ou instinto	O	O	O	O	O	O	O
nenhum	O	O	O	O	O	O	O
outro	O	O	O	O	O	O	O

Inquérito sobre o uso de Competitive Intelligence no processo de tomada de decisão nas empresas Portuguesas

Em relação à sua organização, por favor indique a frequência com que ocorrem as seguintes situações. Escolha a opção que melhor representa a sua opinião. Utilize a escala de frequência de uso:
1 - nunca; **2** - raramente; **3** - às vezes; **4** - frequentemente; **5** - muito frequentemente; **6** - sempre; **7** - não aplicável.

	1	2	3	4	5	6	7
12. *Intelligence* é entregue ao decisor:	O	O	O	O	O	O	O
13. A informação é recolhida legal e eticamente:	O	O	O	O	O	O	O
14. Existe um processo sistemático de análise da envolvente competitiva:	O	O	O	O	O	O	O

Em relação à sua organização, por favor responda às seguintes questões escolhendo apenas uma opção de resposta. Escolha a opção que melhor representa a sua opinião.

	sim	não
15. Existe um código de ética, de conduta ou um documento similar?	O	O
16. O Memorando da *Troika* de 2011 foi analisado no sentido de identificar oportunidades e ameaças?	O	O

17. Dos seguintes modelos organizacionais, indique qual o que melhor representa a sua organização ou a sua função de *competitive intelligence*?

equipa *ad-hoc* de *intelligence* (respondendo aos pedidos do decisor) O

gestor de processo (operação de um homem só) O

sistema básico de *intelligence* (duas mentes e uma biblioteca) O

centro de *business intelligence* (recolha e análise sistemática a partir sistemas de informação internos) O

departamento de *intelligence* (unidade ou divisão de *intelligence*) O

hub and spoke (organizações globais com funções de *competitive intelligence* maturas) O

matriz de *intelligence* (organizações multinacionais onde *intelligence* está linhada com a cultura da organização) O

comunidade de *intelligence* (interacção entre os decisores, o departamento corporativo de *intelligence* e a comunidade corporativa de *intelligence* em departamentos operacionais e funcionais espalhados pelo mundo) O

Em relação à sua organização, por favor responda à seguinte questão escolhendo uma ou mais opções. Escolha a(s) opção(ões) que melhor representa(m) a sua opinião.

18. Assinale as seguintes situações presentes na sua organização sobre as actividades de *intelligence*:

São actividades baseadas em pedidos ad-hoc e/ou centradas na concorrência O

São actividades contínuas e baseadas em key intelligence topics O

São actividades centradas em compreender, analisar e interpretar o mercado O

São actividades que identificam e monitorizam ameaças, e que planeiam e simulam estratégias O

São actividades que contam com o suporte da gestão de topo O

São actividades com recursos próprios para a recolha de informação O

São actividades cujo intelligence é utilizada sem análise do seu impacto O

São actividades cujo intelligence é utilizada em operações tácticas e operacionais O

São actividades cujo intelligence é utilizada na identificação de oportunidades e ameaças O

São actividades oriundas de uma divisão ou departamento com pessoas a tempo inteiro O

São actividades que não contam com o suporte da gestão de topo O

São actividades que utilizam fontes de informação públicas e publicadas O

São actividades consideradas um perda de tempo O

Em relação à sua organização, por favor responda à seguinte questão indicando o número de pessoas para cada situação. Utilize a escala numérica de zero a cinco ou mais pessoas.

19. Quantas pessoas ocupam os seguintes cargos?

	0	1	2	3	4	5 ou mais
chief inteligence officer (CIO)	O	O	O	O	O	O
director de intelligence	O	O	O	O	O	O
information collector (que recolhe informação)	O	O	O	O	O	O
information researcher (que pesquisa informação)	O	O	O	O	O	O
information protector (que protege informação)	O	O	O	O	O	O
analista	O	O	O	O	O	O
consultor ou especialista legal	O	O	O	O	O	O
consultor ou especialista jurídico	O	O	O	O	O	O
consultor ou especialista da indústria	O	O	O	O	O	O
consultor técnico	O	O	O	O	O	O
outro _____	O	O	O	O	O	O

Em relação à sua organização, por favor indique a sua satisfação. Escolha a opção que melhor representa a sua opinião. Utilize a escala de satisfação:
1 - nada satisfeito; **2** - pouco satisfeito; **3** - indiferente; **4** - satisfeito; **5** - muito satisfeito; **6** - não aplicável.

20. Qual a sua satisfação com a tomada de decisão estratégica baseada nas seguintes opções?

	1	2	3	4	5	6
estudos internos	O	O	O	O	O	O
estudos de *benchmarking*	O	O	O	O	O	O
relatórios de *business intelligence* (*data mining*)	O	O	O	O	O	O
estudos de mercado	O	O	O	O	O	O
relatórios de *competitive intelligence*	O	O	O	O	O	O
relatórios técnicos	O	O	O	O	O	O
jornais e revistas	O	O	O	O	O	O
relatórios oficiais do governo	O	O	O	O	O	O
boatos e rumores	O	O	O	O	O	O
informação privilegiada	O	O	O	O	O	O
informação da *internet*	O	O	O	O	O	O
imitação de estratégias de organizações líderes	O	O	O	O	O	O
sexto sentido ou instinto	O	O	O	O	O	O
nenhum	O	O	O	O	O	O
outro _____	O	O	O	O	O	O

Inquérito sobre o uso de Competitive Intelligence no processo de tomada de decisão nas empresas Portuguesas

8383

Por favor preencha os seguintes dados relacionados com a sua organização.

número de trabalhadores

volume de vendas € (último exercício com contas encerradas)

local da sede (distrito)

sector de actividade

Se tiver interesse em receber o relatório com os resutados deste inquérito por favor preencha o seu nome e email.

nome

email

Obrigado pela sua participação.

APPENDIX I – LISTS OF THE FINAL QUESTIONNAIRE

I.1 List of the headquarters location field

The field headquarters location was filled up from a drop down list of the Portuguese district (Statistics Portugal, 2015), plus both Azores and Madeira Islands, like shown below:

1. Aveiro
2. Beja;
3. Braga;
4. Bragança;
5. Castelo Branco;
6. Coimbra;
7. Évora;
8. Faro;
9. Guarda;
10. Leiria;
11. Lisboa;
12. Portalegre;
13. Porto;
14. Santarém;
15. Setúbal;
16. Viana do Castelo;
17. Vila Real;
18. Viseu;
19. Região Autónoma dos Açores;
20. Região Autónoma da Madeira.

I.2 List of the economic activity field

The field economic activity was filled up from a drop down list of the Portuguese Classification of economic Activities, the CAE Rev. 3 (Statistics Portugal, 2013). Only the first level of this classification was considered, the sections A to U, as shown below:

A. Agricultura, produção animal, caça, floresta e pesca;

B. Indústrias extractivas;

C. Indústrias transformadoras;

D. Electricidade, gás, vapor, água quente e frio e ar frio;

E. Captação, tratamento e distribuição de água, saneamento, gestão de resíduos e despoluição;

F. Construção;

G. Comércio por grosso e a retalho, reparação de veículos automóveis e motociclos;

H. Transportes e armazenagem;

I. Alojamento, restauração e similares;

J. Actividades de informação e de comunicação;

K. Actividades financeiras e de seguros;

L. Actividades imobiliárias;

M. Actividades de consultoria, científicas, ténicas e similares;

N. Actividades administrativas e dos serviços de apoio;

O. Adminstração pública e defesa, segurança social obrigatória;

P. Educação;

Q. Actividades de saúde humana e apoio social

R. Actividades artísticas, de espectáculos, desportivas e recreativas;

S. Outras actividades

T. Actividades das famílias empregadoras de pessoal doméstico e actividades de produção das famílias para uso próprio;

U. Actividades dos organismos internacionais e outras instituições extraterritoriais.

APPENDIX J – THE FINAL VERSION OF THE QUESTIONNAIRE

J.1 Portuguese version (original)

The final version of the questionnaire was developed in HTML and PHP languages and launch online at the web server named Pascal of the School of Economics and Management. A copy of the first part and second of the questionnaire is presented in the next pages.

Inquérito sobre o uso de *Competitive Intelligence* no processo de tomada de decisão nas empresas Portuguesas

Este questionário é confidencial e parte de uma tese de doutoramento sobre *Competitive Intelligence* e Decisão Estratégica. Por favor queira responder às seguintes questões que lhe são colocadas. Obrigado pela sua participação.

Por favor, considere *competitive intelligence* como uma ferramenta de gestão de apoio à tomada de decisão, definida para os devidos efeitos como um processo sistemático, ético e legal de análise da envolvente competitiva da organização, utilizando o ciclo de *intelligence* para fornecer *intelligence* ao processo de decisão. Considere ainda as quatro fases do ciclo de *intelligence*: identificação das necessidades de *intelligence*; recolha de informação; análise de informação; disseminação de *intelligence*.

Em relação à sua organização, por favor responda às seguintes questões. Escolha a opção que melhor representa a sua opinião.

	sim	não
1. Existem actividades de *competitive intelligence*?	○	○
2. Existe um código de ética, de conduta ou um documento similar?	○	○
3. O Memorando da *Troika* de 2011 foi analisado no sentido de identificar oportunidades ou ameaças?	○	○

Em relação à sua organização, por favor indique a frequência com que ocorrem as seguintes situações. Escolha a opção que melhor representa a sua opinião. Utilize a escala de frequência de uso: 1 - nunca; 2 - raramente; 3 - às vezes; 4 - frequentemente; 5 - muito frequentemente; 6 - sempre; 7 - não aplicável.

	1	2	3	4	5	6	7
4. Um processo sistemático de análise da envolvente competitiva é utilizado:	○	○	○	○	○	○	○
5. Relatórios de *Intelligence* são produzidos e entregues ao decisor:	○	○	○	○	○	○	○

6. Os seguintes produtos de *intelligence* são produzidos:

	1	2	3	4	5	6	7
perfil de concorrente	○	○	○	○	○	○	○
briefing periódico de *intelligence*	○	○	○	○	○	○	○
análise de situação (*situation analysis*)	○	○	○	○	○	○	○
briefing especial de *intelligence*	○	○	○	○	○	○	○
análise impacto estratégico	○	○	○	○	○	○	○

7. Os seguintes tipos de *intelligence* são produzidos:

	1	2	3	4	5	6	7
competitor intelligence	○	○	○	○	○	○	○
market intelligence	○	○	○	○	○	○	○
technological intelligence	○	○	○	○	○	○	○
strategic and social intelligence	○	○	○	○	○	○	○
marketing intelligence	○	○	○	○	○	○	○
business intelligence (data mining)	○	○	○	○	○	○	○
counterintelligence	○	○	○	○	○	○	○
environment scanning	○	○	○	○	○	○	○
cooperative intelligence	○	○	○	○	○	○	○
collaborative intelligence	○	○	○	○	○	○	○

8. A tomada de decisão estratégica é baseada nos seguintes produtos:

	1	2	3	4	5	6	7
estudos internos	○	○	○	○	○	○	○
estudos de (*benchmarking*)	○	○	○	○	○	○	○
relatórios de *business intelligence* (*data mining*)	○	○	○	○	○	○	○
estudos de mercado	○	○	○	○	○	○	○
relatórios de *competitive intelligence*	○	○	○	○	○	○	○
relatórios técnicos	○	○	○	○	○	○	○
jornais e revistas	○	○	○	○	○	○	○

relatórios oficiais do governo	○ ○ ○ ○ ○ ○ ○
boatos e rumores	○ ○ ○ ○ ○ ○ ○
informação privilegiada	○ ○ ○ ○ ○ ○ ○
informação da *internet*	○ ○ ○ ○ ○ ○ ○
imitição de estratégias de organizações líderes de mercado	○ ○ ○ ○ ○ ○ ○
sexto sentido ou instinto	○ ○ ○ ○ ○ ○ ○
nenhum	○ ○ ○ ○ ○ ○ ○
outro, indique qual:	○ ○ ○ ○ ○ ○ ○

Em relação à sua organização, por favor indique a sua satisfação. Escolha a opção que melhor melhor representa a sua opinião. Utilize a escala de satisfação: 1 - nada satisfeito; 2 - pouco satisfeito; 3 - indiferente; 4 - satisfeito; 5 - muito satisfeito; 6 - não aplicável.

9. Qual a sua satisfação com a tomada de decisão estratégica baseada nas seguintes opções?

	1	2	3	4	5	6
estudos internos	○	○	○	○	○	○
estudos de (*benchmarking*)	○	○	○	○	○	○
relatórios de *business intelligence* (*data mining*)	○	○	○	○	○	○
estudos de mercado	○	○	○	○	○	○
relatórios de *competitive intelligence*	○	○	○	○	○	○
relatórios técnicos	○	○	○	○	○	○
jornais e revistas	○	○	○	○	○	○
relatórios oficiais do governo	○	○	○	○	○	○
boatos e rumores	○	○	○	○	○	○
informação privilegiada	○	○	○	○	○	○
informação da *internet*	○	○	○	○	○	○
imitição de estratégias de organizações líderes de mercado	○	○	○	○	○	○
sexto sentido ou instinto	○	○	○	○	○	○
nenhum	○	○	○	○	○	○
outro, indique qual:	○	○	○	○	○	○

Por favor preencha os seguintes dados relacionados com a sua organização.

número de trabalhadores	
volume de vendas	€ (último exercício com contas encerradas)
local da sede	-- seleccione o distrito --
sector de actividade	-- seleccione o sector --

Se tiver interesse em receber o relatório com os resultados deste inquérito, por favor preencha o seu nome e email.

| nome | |
| email | |

ENVIAR >>>

Inquérito sobre o uso de *Competitive Intelligence* no processo de tomada de decisão nas empresas Portuguesas

Este questionário é confidencial e parte de uma tese de doutoramento sobre *Competitive Intelligence* e Decisão Estratégica. Obrigado pela sua participação.

Obrigado pela sua participação.

Gonçalo João
Doutorando em Gestão no ISEG
goncalo@iseg.utl.pt

Inquérito sobre o uso de *Competitive Intelligence* no processo de tomada de decisão nas empresas Portuguesas

Este questionário é confidencial e parte de uma tese de doutoramento sobre *Competitive Intelligence* e Decisão Estratégica. Por favor queira responder às seguintes questões que lhe são colocadas. Obrigado pela sua participação.

**Parabéns, detectaram-se actividades de *competitive intelligence* na sua organização.
Se quiser aprofundar a sua participação, preencha a segunda parte do questionário em baixo.
Caso contrário, feche a janela do seu internet browser.
Obrigado pela sua participação.**

Por favor, considere *competitive intelligence* como uma ferramenta de gestão de apoio à tomada de decisão, definida para os devidos efeitos como um processo sistemático, ético e legal de análise da envolvente competitiva da organização, utilizando o ciclo de *intelligence* para fornecer *intelligence* ao processo de decisão. Considere ainda as quatro fases do ciclo de *intelligence*: identificação das necessidades de *intelligence*; recolha de informação; análise de informação; disseminação de *intelligence*.

Em relação à sua organização, por favor indique a frequência com que ocorrem as seguintes situações. Escolha a opção que melhor representa a sua opinião. Utilize a escala de frequência de uso: **1** - nunca; **2** - raramente; **3** - às vezes; **4** - frequentemente; **5** - muito frequentemente; **6** - sempre; **7** - não aplicável.

1. Os *key intelligence topics* têm as seguintes características:

	1	2	3	4	5	6	7
uma frase que defina a necessidade de *intelligence*	○	○	○	○	○	○	○
elementos chave que descrevam a situação actual	○	○	○	○	○	○	○
elementos chave que descrevam a situação futura	○	○	○	○	○	○	○
tendências chave que descrevam a situação actual	○	○	○	○	○	○	○
tendências chave que descrevam a situação futura	○	○	○	○	○	○	○
key intelligence questions	○	○	○	○	○	○	○
hipóteses preliminares	○	○	○	○	○	○	○
um prazo de entrega	○	○	○	○	○	○	○

2. Os *key intelligence topics* são utilizados para identificar as necessidades de *intelligence* sobre os seguintes assuntos:

	1	2	3	4	5	6	7
assuntos estratégicos	○	○	○	○	○	○	○
alertas *early-warning*	○	○	○	○	○	○	○
players chave (*key players*)	○	○	○	○	○	○	○
contra-*intelligence* (*counterintelligence*)	○	○	○	○	○	○	○

3. Os planos de *competitive intelligence* incluem os seguintes componentes:

	1	2	3	4	5	6	7
necessidade de *intelligence*	○	○	○	○	○	○	○
um plano de recolha de informação	○	○	○	○	○	○	○
um plano de análise de informação	○	○	○	○	○	○	○
um plano para manter o decisor informado	○	○	○	○	○	○	○

4. A informação necessária é processada dos seguintes modos:

	1	2	3	4	5	6	7
recolhida criativamente	○	○	○	○	○	○	○
recolhida legalmente	○	○	○	○	○	○	○
recolhida eticamente	○	○	○	○	○	○	○
processada electronicamente	○	○	○	○	○	○	○
armazenada/guardada electronicamente	○	○	○	○	○	○	○
validada	○	○	○	○	○	○	○
avaliada quanto à sua confiança	○	○	○	○	○	○	○

5. A informação é recolhida a partir das seguintes fontes de informação:

	1	2	3	4	5	6	7

	1	2	3	4	5	6	7
humanos	○	○	○	○	○	○	○
discursos	○	○	○	○	○	○	○
entrevistas ao vivo na televisão ou rádio	○	○	○	○	○	○	○
relatórios anuais	○	○	○	○	○	○	○
documentos governamentais	○	○	○	○	○	○	○
relatórios financeiros da organização	○	○	○	○	○	○	○
jornais	○	○	○	○	○	○	○
livros	○	○	○	○	○	○	○
programas gravados e editados na televisão e rádio	○	○	○	○	○	○	○
relatórios de especialistas	○	○	○	○	○	○	○
bases de dados	○	○	○	○	○	○	○
serviços de bases de dados *online*	○	○	○	○	○	○	○
páginas *web*	○	○	○	○	○	○	○
observação	○	○	○	○	○	○	○
outro, indique qual:	○	○	○	○	○	○	○

6. A informação é analisada com as seguintes ferramentas de análise procurando padrões e tendências:

	1	2	3	4	5	6	7
análise de hipóteses concorrentes (*ACH*)	○	○	○	○	○	○	○
análise de pontos cegos (*blind spot analysis*)	○	○	○	○	○	○	○
análise do concorrente	○	○	○	○	○	○	○
perfil do decisor	○	○	○	○	○	○	○
alertas (*early-warning*)	○	○	○	○	○	○	○
análise financeira	○	○	○	○	○	○	○
modelo dos quatro cantos (*four corners model*)	○	○	○	○	○	○	○
modelo das cinco forças (*five forces model*)	○	○	○	○	○	○	○
análise da indústria	○	○	○	○	○	○	○
modelo das nove forças (*nine forces model*)	○	○	○	○	○	○	○
análise de patentes	○	○	○	○	○	○	○
análise PEST (*STEEP analysis*)	○	○	○	○	○	○	○
análise de cenários	○	○	○	○	○	○	○
análise dos seis ângulos da concorrência (*six-angles*)	○	○	○	○	○	○	○
análise *SWOT*	○	○	○	○	○	○	○
análise de textos/documentos	○	○	○	○	○	○	○
teorema de Bayes	○	○	○	○	○	○	○
cadeia de valor	○	○	○	○	○	○	○
jogos de guerra (*war gaming*)	○	○	○	○	○	○	○
análise de ganhos/perdas	○	○	○	○	○	○	○
appreciative inquiry	○	○	○	○	○	○	○
backcasting	○	○	○	○	○	○	○
balance scorecard	○	○	○	○	○	○	○
benchmarking	○	○	○	○	○	○	○
análise bibliométrica	○	○	○	○	○	○	○

	1	2	3	4	5	6	7
business intelligence (data mining)	○	○	○	○	○	○	○
análise de conteúdos	○	○	○	○	○	○	○
dashboard	○	○	○	○	○	○	○
árvore de decisão	○	○	○	○	○	○	○
análise disclosure	○	○	○	○	○	○	○
environment scanning	○	○	○	○	○	○	○
previsão	○	○	○	○	○	○	○
grounded theory	○	○	○	○	○	○	○
pensamento de grupo (group think)	○	○	○	○	○	○	○
análise de ligações (link analysis)	○	○	○	○	○	○	○
análise de mercado	○	○	○	○	○	○	○
indicador de tipo de Meyer-Briggs (MBTI)	○	○	○	○	○	○	○
mapeamento ou mapas mentais	○	○	○	○	○	○	○
modelização	○	○	○	○	○	○	○
análise narrativa ou de discursos	○	○	○	○	○	○	○
análise de oportunidades	○	○	○	○	○	○	○
análise de portfólio	○	○	○	○	○	○	○
análise preditiva	○	○	○	○	○	○	○
técnica de quarterback	○	○	○	○	○	○	○
análise de risco	○	○	○	○	○	○	○
análise de redes sociais	○	○	○	○	○	○	○
análise ou testes de stress (stress value-added)	○	○	○	○	○	○	○
thin slicing	○	○	○	○	○	○	○
análise de tendências	○	○	○	○	○	○	○

7. A propriedade intelectual é protegida pelas seguintes soluções:

	1	2	3	4	5	6	7
desinformação	○	○	○	○	○	○	○
informação falsa	○	○	○	○	○	○	○
decepção ou desilusão	○	○	○	○	○	○	○
protecção de informação	○	○	○	○	○	○	○
registo de patentes	○	○	○	○	○	○	○
registo de marcas	○	○	○	○	○	○	○
segredo de negócio	○	○	○	○	○	○	○

8. Os produtos de intelligence produzidos têm as seguintes características:

	1	2	3	4	5	6	7
preciso	○	○	○	○	○	○	○
técnico	○	○	○	○	○	○	○
consciente de eventual falta de percepção	○	○	○	○	○	○	○
consciente de interpretações tendenciosas (biases)	○	○	○	○	○	○	○
objectivo nas hipóteses e conclusões	○	○	○	○	○	○	○
utilizável na compreensão e na sua aplicação imediata	○	○	○	○	○	○	○
relevante para o decisor	○	○	○	○	○	○	○
acessível na leitura para toda a organização	○	○	○	○	○	○	○

9. Dos seguintes modelos organizacionais, qual o que melhor representa a sua organização ou a sua função de *competitive intelligence*?

equipa *ad-hoc* de *competitive intelligence* (respondendo aos pedidos do decisor)	○
gestor de processo (operação de um homem só)	○
sistema básico de *intelligence* (duas mentes e uma biblioteca)	○
centro de *business intelligence* (recolha e análise sistemática a partir de sistemas de informação internos)	○
departamento de *intelligence* (unidade ou divisão de *intelligence*)	○
hub and *spoke* (organizações globais com funções de *competitive intelligence* maturas)	○
matriz de *intelligence* (organizações multinacionais onde *intelligence* está alinhada com a cultura da organização)	○
comunidade de *intelligence* (interacção entre os decisores, o departamento corporativo de *intelligence* e a comunidade corporativa de *intelligence* em departamentos operacionais e funcionais espalhados pelo mundo)	○

10. Assinale as seguintes situações presentes na sua organização sobre as actividades de *intelligence*:

São actividades baseadas em pedidos *ad-hoc* e/ou centradas na concorrência	☐
São actividades contínuas e baseadas em *key intelligence topics*	☐
São actividades centradas em compreender, analisar e interpretar o mercado	☐
São actividades que identificam e monitorizam ameaças, e que planeiam e simulam estratégias	☐
São actividades que contam com o suporte da gestão de topo	☐
São actividades com recursos próprios para a recolha de informação	☐
São actividades cujo *intelligence* é utilizada sem análise do seu impacto	☐
São actividades cujo *intelligence* é utilizada em operações tácticas e operacionais	☐
São actividades cujo *intelligence* é utilizada na identificação de oportunidades e ameaças	☐
São actividades oriundas de uma divisão ou departamento com pessoas a tempo inteiro	☐
São actividades que não contam com o suporte da gestão de topo	☐
São actividades que utilizam fontes de informação públicas e publicadas	☐
São actividades consideradas uma perda de tempo	☐

11. Quantas pessoas ocupam os seguintes cargos?

	0	1	2	3	4	5 ou mais
chief intelligence officer (*CIO*)	○	○	○	○	○	○
director de *intelligence*	○	○	○	○	○	○
information collector (que recolhe informação)	○	○	○	○	○	○
information researcher (que pesquisa informação)	○	○	○	○	○	○
information protector (que protege informação)	○	○	○	○	○	○
analista	○	○	○	○	○	○
consultor ou especialista legal	○	○	○	○	○	○
consultor ou especialista jurídico	○	○	○	○	○	○
consultor ou especialista da inústria	○	○	○	○	○	○
consultor técnico	○	○	○	○	○	○
outro, indique qual: _____	○	○	○	○	○	○

ENVIAR >>>

Inquérito sobre o uso de *Competitive Intelligence* no processo de tomada de decisão nas empresas Portuguesas

Este questionário é confidencial e parte de uma tese de doutoramento sobre *Competitive Intelligence* e Decisão Estratégica. Obrigado pela sua participação.

Obrigado pela sua participação.

Gonçalo João
Doutorando em Gestão no ISEG
goncalo@iseg.utl.pt

APPENDIX K – HYPOTHESES, CONSTRUCTS, QUESTIONS AND SCALES OF THE QUESTIONNAIRE

The following table resumes the hypotheses, constructs, questions and corresponding scales, including the changes made to the questionnaire after testing the pre-test questionnaire. The column thesis refers to the numeration of questions as they are presented in this thesis. The next three columns refer to the same questions numeration on the pre-test questionnaire, the first part of the final questionnaire and second part of the final questionnaire.

Table 24 - Hypotheses, Constructs, Questions and Scales of the Questionnaire

hypotheses	constructs	questions				scales
		thesis	pre-test	final I	final lI	
H1	process	Q12	Q14	Q4	-	always – never
H2	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H3	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H4	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H5	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H6	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H7	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H8	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H9	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H10	business intelligence	Q13	Q2	Q7	-	always – never
H11	types	Q13	Q2	Q7	-	always – never
H12	process	Q12	Q14	Q4	-	always – never
H13	plan and direction	Q5	Q6	-	Q3	always – never
H14	key intelligence	Q3	Q5	-	Q2	always – never
		Q4	Q4	-	Q1	always – never

237

hypotheses	constructs	questions				scales
		thesis	pre-test	final I	final ll	
	topics					
H15	key	Q3	Q5	-	Q2	always – never
	intelligence	Q4	Q4	-	Q1	always – never
	topics					
H16	key	Q3	Q5	-	Q2	always – never
	intelligence	Q4	Q4	-	Q1	always – never
	topics					
H17	collection;	Q6	Q7	-	Q4	always – never
	legal and	Q7	Q8	-	Q5	always – never
	ethics	Q10	Q13	deleted	deleted	-
		Q11	Q15	Q2	-	yes – no
H18	collection	Q6	Q7	-	Q4	always – never
		Q7	Q8	-	Q5	always – never
H19	collection	Q6	Q7	-	Q4	always – never
		Q7	Q8	-	Q5	always – never
H20	collection	Q6	Q7	-	Q4	always – never
		Q7	Q8	-	Q5	always – never
H21	collection	Q6	Q7	-	Q4	always – never
		Q7	Q8	-	Q5	always – never
H22	collection	Q6	Q7	-	Q4	always – never
		Q7	Q8	-	Q5	always – never
H23	collection	Q6	Q7	-	Q4	always – never
		Q7	Q8	-	Q5	always – never
H24	maturity	Q17	Q18	-	Q10	checkbox (several answers)
H25	analysis	Q8	Q9	-	Q6	always – never
H26	analysis	Q8	Q9	-	Q6	always – never
H27	dissemination	Q9	Q12	Q5	-	always – never
H28	intelligence	Q1	Q1	Q6	-	always – never
		Q2	Q3	-	Q8	always – never
H29	legal and	Q10	Q13	deleted	deleted	-
	ethics	Q11	Q15	Q2	-	yes – no
H30	counter intelligence	Q14	Q10	-	Q7	always – never
H31	counter Intelligence	Q14	Q10	-	Q7	always – never
H32	system or team	Q15	Q17	-	Q9	radio button (one mutually exclusive

hypotheses	constructs	questions				scales
		thesis	pre-test	final I	final ll	
						answer)
		Q16	Q19	-	Q11	0-5 or more
H33	system or team	Q15	Q17	-	Q9	radio button (one mutually exclusive answer)
		Q16	Q19	-	Q11	0-5 or more
H34	maturity	Q17	Q18	-	Q10	checkbox (several answers)
H35	level of satisfaction	Q18	Q11	Q8	-	always – never;
		Q19	Q20	Q9	-	very satisfied – nothing satisfied
-	Troika memoranda	Q20	Q16	Q3	-	yes – no
-	competitive intelligence	new Q10	-	Q1	-	yes – no

APPENDIX L – RESULTS OF THE SURVEY

L.1 Constructs Resume

The following tables resume the means of the constructs observed in the data of the sample. The first (Table 25) refers to constructs created based on questions with a 6-Likert-type scale of frequency of use, except the satisfaction-based construct, that are created on questions with a 5-Likert scale of satisfaction. The second (Table 26) refers to questions with a yes/no scale.

Table 25 - Likert-type Scale Constructs Resume

	N	mean	std dev
intelligence	81	0,6	0,30
dissemination	83	3,1	1,91
process	94	3,6	1,57
types	87	2,9	1,58
business intelligence	90	2,9	1,70
counterintelligence	85	2,4	1,58
non-intelligence	83	2,7	1,52
decision-based on internal products (I)	80	3,1	1,36

decision-based on external products (II)	83	3,0	1,16
decision-based on personal products (III)	87	2,4	1,11
decision-based on competitive intelligence reports	89	2,6	1,72
satisfaction-based on internal products (I)	66	3,2	1,21
satisfaction-based on external products (II)	72	2,9	1,02
satisfaction-based on personal products (III)	64	2,6	0,97
satisfaction-based on competitive intelligence reports	79	2,8	1,33

Table 26 - Yes/No scale Construct Resume

	N	yes	no
legal and ethics	100	48	52
competitive intelligence activities	89	43	46
troika memoranda analyzed	97	25	72

L.2 Variables Resume

Question 1 – How often are the following products produced in your organization?

Options: competitor profile, periodic intelligence briefing, situation analysis, special intelligence briefing, strategic impact worksheet.

Ordinal Likert-type scale: always – never.

competitor profile

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	15	14,6	16,5	16,5
	rarely	16	15,5	17,6	34,1
	sometimes	14	13,6	15,4	49,5
	often	15	14,6	16,5	65,9
	very often	20	19,4	22,0	87,9
	always	11	10,7	12,1	100,0
	Total	91	88,3	100,0	
Missing	9	12	11,7		
Total		103	100,0		

periodic intelligence briefing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	32	31,1	36,0	36,0
	rarely	12	11,7	13,5	49,4
	sometimes	11	10,7	12,4	61,8
	often	13	12,6	14,6	76,4
	very often	15	14,6	16,9	93,3
	always	6	5,8	6,7	100,0
	Total	89	86,4	100,0	
Missing	9	14	13,6		
Total		103	100,0		

situation analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	18	17,5	19,6	19,6
	rarely	12	11,7	13,0	32,6
	sometimes	7	6,8	7,6	40,2
	often	19	18,4	20,7	60,9
	very often	24	23,3	26,1	87,0
	always	12	11,7	13,0	100,0
	Total	92	89,3	100,0	
Missing	9	11	10,7		
Total		103	100,0		

special intelligence briefing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	35	34,0	38,9	38,9
	rarely	13	12,6	14,4	53,3
	sometimes	15	14,6	16,7	70,0
	often	9	8,7	10,0	80,0
	very often	15	14,6	16,7	96,7
	always	3	2,9	3,3	100,0
	Total	90	87,4	100,0	
Missing	9	13	12,6		
Total		103	100,0		

strategic impact worksheet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	21	20,4	22,3	22,3
	rarely	15	14,6	16,0	38,3
	sometimes	15	14,6	16,0	54,3
	often	12	11,7	12,8	67,0
	very often	17	16,5	18,1	85,1
	always	14	13,6	14,9	100,0
	Total	94	91,3	100,0	
Missing	9	9	8,7		
Total		103	100,0		

Question 9 – How often is intelligence deliver to the decision-maker in your organization?

Options: no options.

Ordinal Likert-type scale: always – never.

intelligence deliver to decision-maker

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	27	26,2	32,5	32,5
	rarely	11	10,7	13,3	45,8
	sometimes	11	10,7	13,3	59,0
	often	9	8,7	10,8	69,9
	very often	10	9,7	12,0	81,9
	always	15	14,6	18,1	100,0
	Total	83	80,6	100,0	
Missing	9	20	19,4		
Total		103	100,0		

Question 11 – Is there a Code of Ethics or a similar document in your organization?

Options: no options.

Ratio scale: yes/no.

code of ethics or similar document

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	52	50,5	52,0	52,0
	yes	48	46,6	48,0	100,0
	Total	100	97,1	100,0	
Missing	did not answer	3	2,9		
Total		103	100,0		

Question 13 – How often is the following types of competitive intelligence produced in your organization?

Options: competitor intelligence, market intelligence, technological, strategic and social intelligence.

Cross-validation additional options: marketing intelligence, business intelligence (data mining), counterintelligence, environment scanning, cooperative intelligence, collaborative intelligence.

Ordinal Likert-type scale: always – never.

competitor intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	28	27,2	31,5	31,5
	rarely	12	11,7	13,5	44,9
	sometimes	8	7,8	9,0	53,9
	often	17	16,5	19,1	73,0
	very often	13	12,6	14,6	87,6
	always	11	10,7	12,4	100,0
	Total	89	86,4	100,0	
Missing	9	14	13,6		
Total		103	100,0		

market intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	26	25,2	28,6	28,6
	rarely	10	9,7	11,0	39,6
	sometimes	13	12,6	14,3	53,8
	often	15	14,6	16,5	70,3
	very often	17	16,5	18,7	89,0
	always	10	9,7	11,0	100,0
	Total	91	88,3	100,0	
Missing	9	12	11,7		
Total		103	100,0		

technological intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	27	26,2	29,7	29,7
	rarely	17	16,5	18,7	48,4
	sometimes	12	11,7	13,2	61,5
	often	12	11,7	13,2	74,7
	very often	15	14,6	16,5	91,2
	always	8	7,8	8,8	100,0
	Total	91	88,3	100,0	
Missing	9	12	11,7		
Total		103	100,0		

strategic and social intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	25	24,3	26,9	26,9
	rarely	18	17,5	19,4	46,2
	sometimes	15	14,6	16,1	62,4
	often	14	13,6	15,1	77,4
	very often	17	16,5	18,3	95,7
	always	4	3,9	4,3	100,0
	Total	93	90,3	100,0	
Missing	9	10	9,7		
Total		103	100,0		

marketing intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	24	23,3	26,7	26,7
	rarely	14	13,6	15,6	42,2
	sometimes	10	9,7	11,1	53,3
	often	19	18,4	21,1	74,4
	very often	17	16,5	18,9	93,3
	always	6	5,8	6,7	100,0
	Total	90	87,4	100,0	
Missing	9	13	12,6		
Total		103	100,0		

business intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	29	28,2	32,2	32,2
	rarely	14	13,6	15,6	47,8
	sometimes	11	10,7	12,2	60,0
	often	15	14,6	16,7	76,7
	very often	15	14,6	16,7	93,3
	always	6	5,8	6,7	100,0
	Total	90	87,4	100,0	
Missing	9	13	12,6		
Total		103	100,0		

counterintelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	36	35,0	42,4	42,4
	rarely	12	11,7	14,1	56,5
	sometimes	14	13,6	16,5	72,9
	often	11	10,7	12,9	85,9
	very often	8	7,8	9,4	95,3
	always	4	3,9	4,7	100,0
	Total	85	82,5	100,0	
Missing	9	18	17,5		
Total		103	100,0		

environment scanning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	30	29,1	34,5	34,5
	rarely	14	13,6	16,1	50,6
	sometimes	12	11,7	13,8	64,4
	often	13	12,6	14,9	79,3
	very often	11	10,7	12,6	92,0
	always	7	6,8	8,0	100,0
	Total	87	84,5	100,0	
Missing	9	16	15,5		
Total		103	100,0		

cooperative intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	34	33,0	39,5	39,5
	rarely	10	9,7	11,6	51,2
	sometimes	12	11,7	14,0	65,1
	often	12	11,7	14,0	79,1
	very often	13	12,6	15,1	94,2
	always	5	4,9	5,8	100,0
	Total	86	83,5	100,0	
Missing	9	17	16,5		
Total		103	100,0		

collaborative intelligence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	33	32,0	38,8	38,8
	rarely	11	10,7	12,9	51,8
	sometimes	11	10,7	12,9	64,7
	often	14	13,6	16,5	81,2
	very often	12	11,7	14,1	95,3
	always	4	3,9	4,7	100,0
	Total	85	82,5	100,0	
Missing	9	18	17,5		
Total		103	100,0		

Question 18 – How often is strategic decision based on the following products in your organization?

Options: internal studies, benchmarking studies, business intelligence reports (data mining), market research, competitive intelligence reports, technical reports, newspapers and magazines, official government reports, gossip and hearsay, personal insights, information on the internet, copycat/followers strategy, six sense or instinct, none, other (specify).

Ordinal Likert-type scale: always – never.

internal studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	12	11,7	13,6	13,6
	rarely	11	10,7	12,5	26,1
	sometimes	14	13,6	15,9	42,0
	often	15	14,6	17,0	59,1
	very often	21	20,4	23,9	83,0
	always	15	14,6	17,0	100,0
	Total	88	85,4	100,0	
Missing	9	15	14,6		
Total		103	100,0		

benchmarking studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	17	16,5	18,7	18,7
	rarely	17	16,5	18,7	37,4
	sometimes	18	17,5	19,8	57,1
	often	13	12,6	14,3	71,4
	very often	14	13,6	15,4	86,8
	always	12	11,7	13,2	100,0
	Total	91	88,3	100,0	
Missing	9	12	11,7		
Total		103	100,0		

business intelligence reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	31	30,1	34,1	34,1
	rarely	13	12,6	14,3	48,4
	sometimes	9	8,7	9,9	58,2
	often	17	16,5	18,7	76,9
	very often	13	12,6	14,3	91,2
	always	8	7,8	8,8	100,0
	Total	91	88,3	100,0	
Missing	9	12	11,7		
Total		103	100,0		

market research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	15	14,6	15,5	15,5
	rarely	18	17,5	18,6	34,0
	sometimes	15	14,6	15,5	49,5
	often	16	15,5	16,5	66,0
	very often	22	21,4	22,7	88,7
	always	11	10,7	11,3	100,0
	Total	97	94,2	100,0	
Missing	9	6	5,8		
Total		103	100,0		

competitive intelligence reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	37	35,9	41,6	41,6
	rarely	13	12,6	14,6	56,2
	sometimes	7	6,8	7,9	64,0
	often	15	14,6	16,9	80,9
	very often	11	10,7	12,4	93,3
	always	6	5,8	6,7	100,0
	Total	89	86,4	100,0	
Missing	9	14	13,6		
Total		103	100,0		

technical reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	24	23,3	26,1	26,1
	rarely	17	16,5	18,5	44,6
	sometimes	16	15,5	17,4	62,0
	often	14	13,6	15,2	77,2
	very often	10	9,7	10,9	88,0
	always	11	10,7	12,0	100,0
	Total	92	89,3	100,0	
Missing	9	11	10,7		
Total		103	100,0		

newspapers and magazines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	14	13,6	15,6	15,6
	rarely	21	20,4	23,3	38,9
	sometimes	19	18,4	21,1	60,0
	often	20	19,4	22,2	82,2
	very often	12	11,7	13,3	95,6
	always	4	3,9	4,4	100,0
	Total	90	87,4	100,0	
Missing	9	13	12,6		
Total		103	100,0		

official government reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	18	17,5	19,1	19,1
	rarely	19	18,4	20,2	39,4
	sometimes	20	19,4	21,3	60,6
	often	14	13,6	14,9	75,5
	very often	14	13,6	14,9	90,4
	always	9	8,7	9,6	100,0
	Total	94	91,3	100,0	
Missing	9	9	8,7		
Total		103	100,0		

gossip and hearsay

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	45	43,7	48,4	48,4
	rarely	25	24,3	26,9	75,3
	sometimes	9	8,7	9,7	84,9
	often	10	9,7	10,8	95,7
	very often	2	1,9	2,2	97,8
	always	2	1,9	2,2	100,0
	Total	93	90,3	100,0	
Missing	9	10	9,7		
Total		103	100,0		

personal insights

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	23	22,3	24,7	24,7
	rarely	20	19,4	21,5	46,2
	sometimes	15	14,6	16,1	62,4
	often	18	17,5	19,4	81,7
	very often	10	9,7	10,8	92,5
	always	7	6,8	7,5	100,0
	Total	93	90,3	100,0	
Missing	9	10	9,7		
Total		103	100,0		

information on the internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	7	6,8	7,4	7,4
	rarely	22	21,4	23,4	30,9
	sometimes	13	12,6	13,8	44,7
	often	17	16,5	18,1	62,8
	very often	26	25,2	27,7	90,4
	always	9	8,7	9,6	100,0
	Total	94	91,3	100,0	
Missing	9	9	8,7		
Total		103	100,0		

copycat/followers strategy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	19	18,4	20,7	20,7
	rarely	23	22,3	25,0	45,7
	sometimes	14	13,6	15,2	60,9
	often	18	17,5	19,6	80,4
	very often	15	14,6	16,3	96,7
	always	3	2,9	3,3	100,0
	Total	92	89,3	100,0	
Missing	9	11	10,7		
Total		103	100,0		

six sense or instinct

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	23	22,3	25,0	25,0
	rarely	25	24,3	27,2	52,2
	sometimes	10	9,7	10,9	63,0
	often	21	20,4	22,8	85,9
	very often	9	8,7	9,8	95,7
	always	4	3,9	4,3	100,0
	Total	92	89,3	100,0	
Missing	9	11	10,7		
Total		103	100,0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	33	32,0	76,7	76,7
	rarely	3	2,9	7,0	83,7
	sometimes	1	1,0	2,3	86,0
	very often	5	4,9	11,6	97,7
	always	1	1,0	2,3	100,0
	Total	43	41,7	100,0	
Missing	9	60	58,3		
Total		103	100,0		

other description

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	102	99,0	99,0	99,0
Reação de terreno, estatistica	1	1,0	1,0	100,0
Total	103	100,0	100,0	

other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	never	11	10,7	78,6	78,6
	rarely	1	1,0	7,1	85,7
	very often	2	1,9	14,3	100,0
	Total	14	13,6	100,0	
Missing	9	89	86,4		
Total		103	100,0		

Question 19 – Which product(s) gives/would give you more satisfaction on the decision made?

Options: internal studies, benchmarking studies, business intelligence reports (data mining), market research, competitive intelligence reports, technical reports, newspapers and magazines, official government reports, gossip and hearsay, personal insights, information on the internet, copycat/followers strategy, six sense or instinct, none, other (specify).

Likert satisfaction scale: very satisfied – nothing satisfied.

internal studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	12	11,7	14,3	14,3
	little satisfied	6	5,8	7,1	21,4
	undifferent	10	9,7	11,9	33,3
	satisfied	35	34,0	41,7	75,0
	very satisfied	21	20,4	25,0	100,0
	Total	84	81,6	100,0	
Missing	9	19	18,4		
Total		103	100,0		

benchmarking studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	12	11,7	15,4	15,4
	little satisfied	11	10,7	14,1	29,5
	undifferent	13	12,6	16,7	46,2
	satisfied	25	24,3	32,1	78,2
	very satisfied	17	16,5	21,8	100,0
	Total	78	75,7	100,0	
Missing	9	25	24,3		
Total		103	100,0		

business intelligence reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	17	16,5	22,4	22,4
	little satisfied	10	9,7	13,2	35,5
	undifferent	19	18,4	25,0	60,5
	satisfied	20	19,4	26,3	86,8
	very satisfied	10	9,7	13,2	100,0
	Total	76	73,8	100,0	
Missing	9	27	26,2		
Total		103	100,0		

market research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	10	9,7	11,8	11,8
	little satisfied	15	14,6	17,6	29,4
	undifferent	14	13,6	16,5	45,9
	satisfied	28	27,2	32,9	78,8
	very satisfied	18	17,5	21,2	100,0
	Total	85	82,5	100,0	
Missing	9	18	17,5		
Total		103	100,0		

competitive intelligence reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	16	15,5	21,6	21,6
	little satisfied	14	13,6	18,9	40,5
	undifferent	18	17,5	24,3	64,9
	satisfied	17	16,5	23,0	87,8
	very satisfied	9	8,7	12,2	100,0
	Total	74	71,8	100,0	
Missing	9	29	28,2		
Total		103	100,0		

technical reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	11	10,7	13,8	13,8
	little satisfied	9	8,7	11,3	25,0
	undifferent	22	21,4	27,5	52,5
	satisfied	23	22,3	28,8	81,3
	very satisfied	15	14,6	18,8	100,0
	Total	80	77,7	100,0	
Missing	9	23	22,3		
Total		103	100,0		

newspapers and magazines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	10	9,7	11,5	11,5
	little satisfied	22	21,4	25,3	36,8
	undifferent	23	22,3	26,4	63,2
	satisfied	24	23,3	27,6	90,8
	very satisfied	8	7,8	9,2	100,0
	Total	87	84,5	100,0	
Missing	9	16	15,5		
Total		103	100,0		

official government reports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	13	12,6	15,1	15,1
	little satisfied	17	16,5	19,8	34,9
	undifferent	22	21,4	25,6	60,5
	satisfied	28	27,2	32,6	93,0
	very satisfied	6	5,8	7,0	100,0
	Total	86	83,5	100,0	
Missing	9	17	16,5		
Total		103	100,0		

gossip and hearsay

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	31	30,1	41,9	41,9
	little satisfied	18	17,5	24,3	66,2
	undifferent	14	13,6	18,9	85,1
	satisfied	9	8,7	12,2	97,3
	very satisfied	2	1,9	2,7	100,0
	Total	74	71,8	100,0	
Missing	9	29	28,2		
Total		103	100,0		

personal insights

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	12	11,7	15,2	15,2
	little satisfied	12	11,7	15,2	30,4
	undifferent	22	21,4	27,8	58,2
	satisfied	23	22,3	29,1	87,3
	very satisfied	10	9,7	12,7	100,0
	Total	79	76,7	100,0	
Missing	9	24	23,3		
Total		103	100,0		

information on the internet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	10	9,7	11,2	11,2
	little satisfied	12	11,7	13,5	24,7
	undifferent	13	12,6	14,6	39,3
	satisfied	39	37,9	43,8	83,1
	very satisfied	15	14,6	16,9	100,0
	Total	89	86,4	100,0	
Missing	9	14	13,6		
Total		103	100,0		

copycat/followers strategy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	12	11,7	15,0	15,0
	little satisfied	18	17,5	22,5	37,5
	undifferent	17	16,5	21,3	58,8
	satisfied	24	23,3	30,0	88,8
	very satisfied	9	8,7	11,3	100,0
	Total	80	77,7	100,0	
Missing	9	23	22,3		
Total		103	100,0		

six sense or instinct

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	19	18,4	24,1	24,1
	little satisfied	9	8,7	11,4	35,4
	undifferent	19	18,4	24,1	59,5
	satisfied	19	18,4	24,1	83,5
	very satisfied	13	12,6	16,5	100,0
	Total	79	76,7	100,0	
Missing	9	24	23,3		
Total		103	100,0		

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	18	17,5	56,3	56,3
	little satisfied	6	5,8	18,8	75,0
	undifferent	3	2,9	9,4	84,4
	satisfied	4	3,9	12,5	96,9
	very satisfied	1	1,0	3,1	100,0
	Total	32	31,1	100,0	
Missing	9	71	68,9		
Total		103	100,0		

other description

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	103	100,0	100,0	100,0

other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nothing satisfied	8	7,8	80,0	80,0
	little satisfied	1	1,0	10,0	90,0
	satisfied	1	1,0	10,0	100,0
	Total	10	9,7	100,0	
Missing	9	93	90,3		
Total		103	100,0		

Question 20 – Was the Troika memoranda of 2011 analyzed in your organization to identify opportunities and threats?

Options: no options.

Ratio scale: yes/no.

troika memoranda analyzed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	72	69,9	74,2	74,2
	yes	25	24,3	25,8	100,0
	Total	97	94,2	100,0	
Missing	did not answer	6	5,8		
Total		103	100,0		

New question 10 – Is there competitive intelligence activities in your organization?

Options: no options.

Ratio scale: yes/no.

competitive intelligence activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	46	44,7	51,7	51,7
	yes	43	41,7	48,3	100,0
	Total	89	86,4	100,0	
Missing	did not answer	14	13,6		
Total		103	100,0		

Socio-economic and geographic questions

number of employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	15,5	16,3	16,3
	2	15	14,6	15,3	31,6
	3	5	4,9	5,1	36,7
	4	7	6,8	7,1	43,9
	5	5	4,9	5,1	49,0
	6	1	1,0	1,0	50,0
	7	3	2,9	3,1	53,1
	8	3	2,9	3,1	56,1
	9	3	2,9	3,1	59,2

10	2	1,9	2,0	61,2
11	2	1,9	2,0	63,3
12	1	1,0	1,0	64,3
13	1	1,0	1,0	65,3
14	1	1,0	1,0	66,3
15	3	2,9	3,1	69,4
17	1	1,0	1,0	70,4
20	1	1,0	1,0	71,4
23	1	1,0	1,0	72,4
25	1	1,0	1,0	73,5
28	1	1,0	1,0	74,5
30	2	1,9	2,0	76,5
60	1	1,0	1,0	77,6
62	1	1,0	1,0	78,6
70	1	1,0	1,0	79,6
75	1	1,0	1,0	80,6
80	1	1,0	1,0	81,6
90	1	1,0	1,0	82,7
92	1	1,0	1,0	83,7
96	1	1,0	1,0	84,7
120	1	1,0	1,0	85,7
123	1	1,0	1,0	86,7
125	1	1,0	1,0	87,8
130	1	1,0	1,0	88,8
150	1	1,0	1,0	89,8
225	1	1,0	1,0	90,8
240	1	1,0	1,0	91,8
300	1	1,0	1,0	92,9
320	1	1,0	1,0	93,9
500	1	1,0	1,0	94,9
650	1	1,0	1,0	95,9
1000	1	1,0	1,0	96,9
1500	1	1,0	1,0	98,0
2000	1	1,0	1,0	99,0
12000	1	1,0	1,0	100,0
Total	98	95,1	100,0	
Missing -99	5	4,9		
Total	103	100,0		

sales volume

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	1,9	2,6	2,6
	2000	1	1,0	1,3	3,9
	2500	1	1,0	1,3	5,2
	2590	1	1,0	1,3	6,5
	3000	1	1,0	1,3	7,8
	12000	1	1,0	1,3	9,1
	14000	1	1,0	1,3	10,4
	15000	1	1,0	1,3	11,7
	17000	1	1,0	1,3	13,0
	17500	1	1,0	1,3	14,3
	25000	3	2,9	3,9	18,2
	28000	1	1,0	1,3	19,5
	30000	1	1,0	1,3	20,8
	40000	1	1,0	1,3	22,1
	50000	4	3,9	5,2	27,3
	98732	1	1,0	1,3	28,6
	100000	1	1,0	1,3	29,9
	150000	4	3,9	5,2	35,1
	154000	1	1,0	1,3	36,4
	160000	1	1,0	1,3	37,7
	170000	1	1,0	1,3	39,0
	250000	3	2,9	3,9	42,9
	300000	2	1,9	2,6	45,5
	400000	1	1,0	1,3	46,8
	480000	1	1,0	1,3	48,1
	500000	2	1,9	2,6	50,6
	645445	1	1,0	1,3	51,9
	760000	1	1,0	1,3	53,2
	780000	1	1,0	1,3	54,5
	800000	1	1,0	1,3	55,8
	900000	1	1,0	1,3	57,1
	1000000	1	1,0	1,3	58,4
	1600000	1	1,0	1,3	59,7
	1700000	1	1,0	1,3	61,0
	2500000	1	1,0	1,3	62,3
	3000000	1	1,0	1,3	63,6
	3200000	1	1,0	1,3	64,9
	3750000	1	1,0	1,3	66,2

5000000	1	1,0	1,3	67,5
5515661	1	1,0	1,3	68,8
5800000	1	1,0	1,3	70,1
6000000	1	1,0	1,3	71,4
7000000	1	1,0	1,3	72,7
7500000	1	1,0	1,3	74,0
8000000	1	1,0	1,3	75,3
8100000	1	1,0	1,3	76,6
12000000	2	1,9	2,6	79,2
13000000	2	1,9	2,6	81,8
15000000	1	1,0	1,3	83,1
15304043	1	1,0	1,3	84,4
16000000	1	1,0	1,3	85,7
21000000	1	1,0	1,3	87,0
28000000	1	1,0	1,3	88,3
30000000	2	1,9	2,6	90,9
50000000	1	1,0	1,3	92,2
60000000	1	1,0	1,3	93,5
90000000	1	1,0	1,3	94,8
245000000	1	1,0	1,3	96,1
500000000	1	1,0	1,3	97,4
700000000	1	1,0	1,3	98,7
750000000	1	1,0	1,3	100,0
Total	77	74,8	100,0	
Missing -99	26	25,2		
Total	103	100,0		

headquarters location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aveiro	4	3,9	4,1	4,1
	Beja	2	1,9	2,0	6,1
	Braga	1	1,0	1,0	7,1
	Bragança	2	1,9	2,0	9,2
	Castelo Branco	2	1,9	2,0	11,2
	Coimbra	3	2,9	3,1	14,3
	Faro	11	10,7	11,2	25,5
	Guarda	2	1,9	2,0	27,6
	Leiria	5	4,9	5,1	32,7
	Lisboa	45	43,7	45,9	78,6
	Portalegre	1	1,0	1,0	79,6
	Porto	3	2,9	3,1	82,7
	Santarém	5	4,9	5,1	87,8
	Setúbal	4	3,9	4,1	91,8
	Viana do Castelo	3	2,9	3,1	94,9
	Vila Real	1	1,0	1,0	95,9
	Viseu	2	1,9	2,0	98,0
	Região Autónoma dos Açores	2	1,9	2,0	100,0
	Total	98	95,1	100,0	
Missing	0	5	4,9		
Total		103	100,0		

economic activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	C - Indústrias transformadoras	2	1,9	2,0	2,0
	E - Captação, tratamento e distribuição de água; saneamento, gestão de resíduos e despoluição	2	1,9	2,0	4,0
	F - Construção	2	1,9	2,0	6,1
	G - Comércio por grosso e a retalho; reparação de veículos automóveis e motociclos	6	5,8	6,1	12,1
	H - Transportes e armazenagem	3	2,9	3,0	15,2
	I - Alojamento, restauração e similares	44	42,7	44,4	59,6
	J - Actividades de informação e de comunicação	4	3,9	4,0	63,6
	K - Actividades financeiras e de seguros	1	1,0	1,0	64,6
	L - Actividades imobiliárias	1	1,0	1,0	65,7
	M - Actividades de consultoria, científicas, técnicas e similares	8	7,8	8,1	73,7
	N - Actividades administrativas e dos serviços de apoio	1	1,0	1,0	74,7
	R - Actividades artísticas, de espectáculos, desportivas e recreativas	9	8,7	9,1	83,8
	S - Outras actividades de serviços	16	15,5	16,2	100,0
	Total	99	96,1	100,0	
Missing	0	4	3,9		
Total		103	100,0		