

IN SEARCH OF INNOVATION: LOOKING OUTSIDE THE COMPANY

Celso dos Santos Malachias¹

Luiz Carlos Di Serio²

ABSTRACT

In dynamic and highly competitive markets, such as in the Information Technology industry, innovation is imperative for business competitiveness. This research contributes to studies on innovation in the service sector, traditionally known for being less innovative than the manufacturing sector. Through the lens of Absorptive Capacity and Peripheral Vision constructs, this study aims to explore the relationship between innovative capabilities and innovation outcomes, moderated by competitive environment perceived by the companies' leadership. Utilizing a multiple case study methodology, this paper examines the process of market information acquisition in three small and medium Brazilian Knowledge Intensive Business Service (KIBS) companies. It finds evidence that the Absorptive Capacity and Peripheral Vision have functioned as conditioning factors for more innovative outcomes. Furthermore, it presents indication that the leadership's perception about the competition in the business environment possibly affects to generate differentiated innovative outcomes.

Keywords: Absorptive Capacity. Peripheral Vision. Innovation.

¹ Doutorando em Administração na FGV EAESP. e-mail: celso.malachias@gmail.com

² Professor Doutor na FGV EAESP. e-mail: luiz.diserio@fgv.br

1 INTRODUCTION

In the current information era data is generated in huge volumes, forcing companies to translate these data into information, and transform them into knowledge (IBM, 2014; SLATER, 2013) in order to adapt and compete in their environment. Due to frequent and intense external changes, companies should be alert to what happens in their external environment and seek signs for their survival (SILVER, 2013). However, how can enterprises identify market opportunities that generate innovation when the signals are still weak? What mechanisms or capabilities should companies utilise in order to understand their environment and explore opportunities to innovate? Should the company have a competitive intelligence system able to anticipate the future (RODRIGUES; FERNANDEZ, 2011)?

The main objective of this research is to explore how some companies in the IT industry have captured signals in the market and converted them into innovations, considering their potential innovative capabilities and their business environment.

Chesbrough (2003), Laursen and Salter (2006) argue the companies should be open in the sense of using external ideas as well as internal ideas to innovate. Teece (2012) states that a company's "sensing" should be encouraged to detect threats and opportunities on their radar, expanding its Peripheral Vision (Day & Schoemaker, 2005; Schoemaker & Day, 2009). Peripheral Vision, to these authors, is a company's capability to detect signals in their periphery, when the signals are still weak. Cohen and Levinthal (1990) focused their studies on corporate capabilities to acquire and assimilate knowledge to increase their innovative capacity. Aguilar (1967, apud Choo 2002) and Choo (1993, 2002) have focused on how companies monitor their external,

even when the signs of these events have not become strong. The mechanism for early signal detection is also called *early warning system* (REINHARDT, 1984; BOTTERHUIS et al., 2010).

The literature review shows that there is a gap in relation to both constructs, Absorptive Capacity (AC) and Peripheral Vision (PV), working together affect the generation of innovation in the company, specifically in the knowledge intensive in services sector (KIBS). Through qualitative methodology in three small and medium size Brazilian information technology companies, using case studies, this study investigates the influence of the Absorptive Capacity and Peripheral Vision constructs as drivers for capturing external signals, interpreting them and generating innovation. We found evidence that both constructs, AC and PV, induce a positive effect on the innovative performance of the service sector. Additionally, it was possible to find some evidences that how companies' leaders perceive competition in their market possibly drives innovative outcomes.

The next section reviews the literature utilised in this study. We then present the research method, results, discussion and conclusion including limitation and future studies.

2 LITERATURE REVIEW

In the current information age (CASTELLS, 2010), the large volume of generated data (IBM, 2014) produces frequent and intense technological, social, behavioural and political changes. Based on that, managers face increasing uncertain environments, more pressure to carefully monitor the markets in which their companies operate (ANSOFF, et al., 1982; DAFT et al., 1988). Duncan (1972) performed a study describing environmental conditions considering two axes, complexity and dynamism,

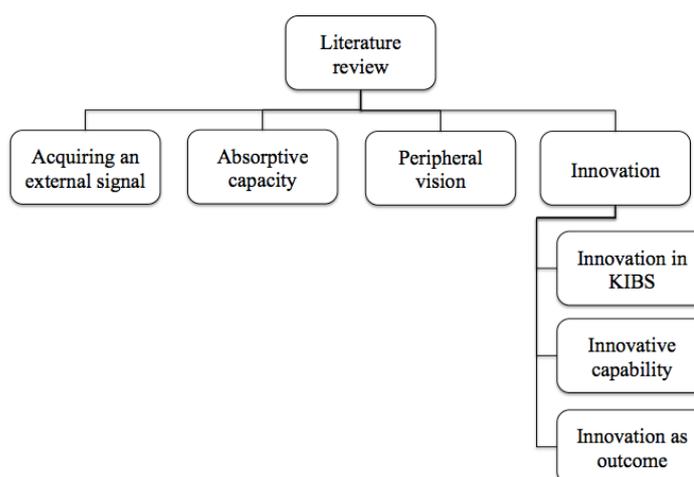
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varying from simple to complex, and static to dynamic respectively. The simple-complex states refers to the number of possible factors or components of the environment considered for decision making; static-dynamic conditions refer to the change frequency of these components, alternating from few changes (low frequency/static), to many changes (high frequency/dynamic). In this study the main factors we present to the respondents to them to evaluate the environment's dynamic and complexity are: competitors, clients, and new technologies. Given this business environment configuration defined by the complexity and dynamism axes, a company's challenge consists of detecting, interpreting and acquiring external signals. This study explores how a company, in a high complex and dynamic business environment, can acquire external signals through Absorptive Capacity (AC) and Peripheral Vision (PV) lens and convert them into innovations. The literature review will present and discuss the main subjects as shown in the Figure 1.

Figure 1 – The literature review and its main components



Source: Authors

2.1 Acquiring an external signal

In order to give meaning to an external signal and classify it as a threat or as an opportunity (ANSOFF, 1975; JACKSON; DUTTON, 1988) it is necessary to submit the signal to a specific process. According to Choo (2006, p. 131), this process follows some steps. Initially the sign (or signal, here adopted as a interchangeable term) is perceived and worked by a physical human sense, such as vision, audition, and touch in a *sensing* and *selective* process (we tacitly filter part of the data). After that process (sensing and selecting) the signal becomes a data. When the *data* passes through the *meaning* or *interpretation* process, acquiring significance, it becomes *information*. For the information to become knowledge, it is necessary the human intervention through mental processes such as comparisons, cause-consequence analyses, connections and conversation, according to Davenport and Prussak (1998).

The conversion process of data into information is called *interpretation*. The interpretation is done through event analysis in relation to a standard established by individuals, or in our case, by companies, in such a way that makes sense (also called sense making) to individuals or to companies as stated by Daft and Weick (1984). The same authors mention the interpretation process as a way of *making sense*, outlined by individual beliefs whose meaning becomes shared with the company's employees. However, companies should not simply monitor the market reactively and broadly without a focus or strategy. Choo (2002) argues the company should have a strategy to monitor the environment. Analysability dimensions of the environment and the attitude of the company define the four possibilities to monitor the market. The analysability axe assumes two states, analysable or non-analysable. What will determine whether a market is analysable or not is the company's knowledge base, which will give meaning to a signal or not. In the attitude dimension there are two possibilities, reactive or proactive. In our study we focus on the analysable portion of the environment and the proactive attitude of the company. The decision to select the proactive search attitude is based on some studies (see CHESBROUGH, 2003; ALOINI; MARTINI, 2013) that link more innovative outcomes to that strategy. However, what are the capabilities of a particular company to absorb an external signal?

2.2 Absorptive capacity

Cohen & Levinthal (1990) with the concept of absorptive capacity (AC), originally from Adler's (1965, cited in TU et al., 2006) macroeconomics concept, propose a relationship between the ability of the company to look at the market and its innovative ability, or more specifically the relationship between the perceived value of the new on external information, assimilation and commercial application.

These seminal authors present the following components of AC:

- Receiver: can be centralized or decentralized,

- Internal Knowledge Base: diversity of knowledge as a source of increased AC,
- Good communication: ranging from the same language to different one; trade-off between the commonality and diversity. Cross-functional people working in the same project facilitate the product launching.

Cohen & Levinthal (1990) show the learning process influences the company's absorptive capacity. They argue the harder it is to learn something, the more R&D is crucial to increase the company's AC. Nooteboom et al. (2007) refer to *cognitive distance* as the difference from current knowledge database to a specific knowledge to be acquired. Based on that, we can say that the further is the knowledge to be captured from the current company's knowledge database the more important R&D is, joining both constructs, AC and Cognitive Distance.

The knowledge database can help a company to recognise patterns (GRIMPE; SOFKA, 2009), assimilate and exploit the value of new external information. Nelson and Winter (1982) mention that the more explicit and encoded the new knowledge is, the easier it is to understand and assimilate it. But where should a company to look for innovation? Closer to the current company's knowledge and current business or should a company also pay attention to the periphery, far from its current knowledge base?

2.3 Peripheral vision

Peripheral Vision (DAY; SCHOEMAKER, 2005) aims to discuss a non-trivial aspect of the search process, putting the company's attention to the periphery, not just in their current industry segment.

Referring to Day and Schoemaker (2007), Peripheral Vision (PV) is related on the information processing paradigm and the stages of the learning process (DAY;

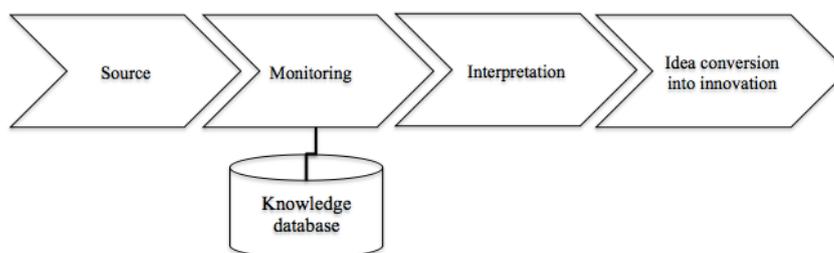
SCHOEMAKER, 2007, pp. 184-202) Using a process-oriented approach, they suggest the following steps for Peripheral Vision:

- *Scope (or source, the term here will be interchangeable as synonym):* by definition a company's peripheral vision should be broad, considering the costs involved in amplifying their range. It refers to where the company looks at.
- *Monitoring:* basically it's related to how the company will look at to the market. In terms of attitude, reactive, or proactive. The monitoring also can be of two types, *exploration* and *exploitation*. The first focuses on the company's attention to a large extent, focused on the periphery of the familiar knowledge of the company, so the company has a wide view without much detail and without an initial clarity of what is found. In the case of *exploitation* the place or the pursuit of knowledge is familiar to the company, and this is positioned in a more comfortable area to perform analyses of what is found.
- *Interpretation:* The process of interpretation is directly related to the individuals "mental model", or company's knowledge repertory; or rather to the composition of the various existing models in the company.
- *Action and Screening:* the point here is when making a decision and act in what is seen in the market. Wait or act? In any case, it is necessary to create a management style and capabilities to capture the signal and respond fast to it.
- *Feedback and Adjustment (or Learning):* learn and adapt. Increasingly companies and individuals are learning from the experiences in the periphery with the constant challenge of creating different mental models,

It is an iterative process of monitoring, interpretation, action and learning, which may be able to change the central and peripheral visions of the company.

A graphic view with the main elements used in this studied is shown in the Figure 2:

Figure 2 – Elements to acquire an external signal and convert into innovation



Source: Authors.

The focus in this study will comprehend the four initial steps, source, monitoring, interpretation and conversion. Adding the knowledge database from AC. The idea is to explore how these components may affect the innovation. And how can the organisation innovate looking to the peripheral to acquire an external signal? What are the drivers of innovation and are they the same for all industries, including the intensive knowledge based sector?

2.4 Innovation

Various studies have demonstrated the importance of innovation for a company's survival (PORTER, STERN; COUNCIL ON COMPETITIVENESS, 1999; CROSSAN; APAYDIN, 2010; CAINELLI et al., 2006) Many factors affect a company's innovation capability (LAWSON; SAMSON, 2001) and innovation studies show many drivers that condition innovation outcome in an organisation (CROSSAN; APAYDIN, 2010) such as: leadership (top management, board), managerial levers (mission, resource allocation, organization culture, knowledge management, etc.), business process (initiation, development, product commercialization, etc.). In this research we discuss some aspects of innovation, such as the innovation characteristics,

innovative capabilities, and a company's innovative performance, as observed in the information technology services or knowledge intensive-based sector (KIBS).

2.5 Innovation in KIBS

The service sector, traditionally known for low innovation intensity (KON, 2004), increasingly innovates and has segments with high innovation rates (HOWELLS, 2000) as in the case of high-intensity services knowledge segment (KIBS). But, how does innovation occur in the KIBS sector? Unlikely what would be classified by Pavitt (1984), as the service sector dominated by suppliers, and also different from innovation in the manufacturing industry, where there is a strong dependence of innovation with Research and Development (R&D) formal function, in KIBS services, the innovation occurs much as a function of the relationship and interaction with the external environment, as well as of other external factors, such as an innovative environment and technological regime (MALACHIAS; MEIRELLES, 2009). Therefore, the mentioned constructs, Absorptive Capacity and Peripheral Vision, are key to an IT company to innovate, once both promote openness of vision and a relationship mechanism with the market. But what capabilities should a company have to innovate? And, how to measure their potential innovative capabilities?

2.6 Innovative capability

This study intends to evaluate a company's innovation outcome compared to their potential innovative capability, indicating willingness. It seeks to investigate how much a company is able to innovate and whether it effectively innovates. In other words, we explore how much a company shows capabilities to innovate, and what is the effective innovation outcome. As innovative capability we search for formal indicators such as,

formal company's R&D structure, budget for innovation, innovation strategy defined and ideas innovation program. This ratio shows a proxy measurement to evaluate the innovative company's capability.

2.7 Innovation as outcome

Innovation sometimes is intangible and difficult to measure. Specifically in the service sector, Szczygielski (2011) discusses the difficulty of measuring the results of innovation. While other authors such as Kanerva, Hollanders and Arundel (2006) mention patents as the traditional elements used to measure innovation in manufacturing, that is not a good metrics to analyse innovation performance in services (MIOZZO et al., 2015), since in the latter, their products are typically mixed with processes, and innovations are often incremental.

In order to measure the innovative performance in services, Cainelli, Evangelista and Savona (2006) explore elements such as: the number of new innovation process used by the company, the number of new services offered to the market, and the revenues in recent years originated from new services. Kanerva et al. (2006) add trademarks and copyrights as innovation measurement. Adams, Neely, Yaghi and Bessant (2008) propose a specific model for ICT (Information and Communication Technology), where the main measurement points are: financial performance, business performance, "innovativeness", knowledge conversion and knowledge usage.

Some of these indicators are used in the field research for innovation evidence in the company that we describe in details in the next section.

2.8 Justification

In the context of market dynamism and complexity where the companies of this study are inserted, also known as KIBS (Knowledge Intensive Based Service), a specific service sector segment, it is essential to monitor external business environment (LESCA, CARON-FASAN; FALCY, 2012). The service production, in the service sector, occurs through interactions with customers, and the products (services) produced in this segment only exist with customer consumption (GALLOUJ; WEINSTEIN, 1997), in a process of value co-creation (PRAHALAD; RAMASWAMY, 2000). In the process of interaction between the company and the external world, knowledge is created, following the classical model of Nonaka & Takeuchi's knowledge creation (2008). For these authors, knowledge is a source, or, a raw material, for innovation. In this context for a company to acquire an external knowledge, the company should monitor their business environment in search of weak signals (HILTUNEN, 2010), not only to avoid threats, but also to anticipate signs while they are still weak, that may stimulate them in creating innovations. More and more companies realise the value in pursuing external knowledge to their borders, resulting in superior performance to that which would be obtained only considering the knowledge contained within its boundaries (IRELAND; HITT; VAIDYANATH, 2002). Additional to the relevance of acquiring external signals for innovation, it's rare the literature involving the main constructs discussed here, absorptive capacity, peripheral vision and innovation, moreover focusing in the knowledge intensive based sector (KIBS). Thus, the intention of this exploratory study is to subsidy a more proactive way to generate innovation based on the external signals. It will help the academic and managerial environment, increasing theoretical aspects in innovation acquired externally to the company and gives practical tools to the companies leadership to increase innovation outcomes, productivity and competitiveness.

3 METHODOLOGY

The research method is *deductive*, when the researcher starts with some specific theory or preconceptions about the object to be studied and seeks evidences for supporting the theories. As research technique initially we used literature review and, later for fieldwork we utilised case study. According to Yin (2010, p. 39) one reason to choose the case study approach is when it would be necessary to have "an empirical inquiry that investigates a contemporary phenomenon in depth and in its real life context, especially when the boundaries between phenomenon and context are not clearly evident". One Eisenhardt's (1989, p. 548-549) conclusions from theory building based on case studies is that this process of theory building "it is particularly well-suitable to new research areas or research areas for which existing theory seems inadequate". Our option to case study approach is based on the former option, to little research about the subject, or, considered, new research area. In our research the number of cases is three. All the three companies, detailed in the item *The Companies*, are representatives of KIBS economy sector with small and medium size in term of revenue.

3.1 Research objectives

As Medeiros (2007, p. 30) states from the research objectives' point of view, initially we established an explanatory research, which conducts to a study, analysis, recording and interpretation of the facts and identify the causes. *The main research objective in this project is to study the relationship between the company and their business environment specifically to generate innovation based on the signals in the market.*

3.2 Research approach

The research approach used is qualitative. Qualitative occurs when there has been little sampling of the experiment, either to study the nature of the event and its essence, as data collection is used interview or observation and the research instrument is the researcher himself, as Prodanov & Freitas (2013, p. 70-71). The technique utilised was *interview* based on a semi-structured script with 19 open-ended questions with the three CEOs.

3.3 The industry segment

According to the Companies and Markets website (2015) the Global Information Technology (IT) market, including all its components, such as software, services and hardware, produced revenue about US\$ 3.6 trillion in 2011; just the service portion of the IT market alone could reach US\$ 1.14 trillion by 2017. The IT services are included in the service sector called KIBS (MILES et al., 1995), which stands for Knowledge Intensive Based Services and includes companies intensive in knowledge as for instance, engineering, research, consulting, professional services, information technology, software development, among others. The innovative companies in this service sector are differentiated in the generation of innovation compared to manufacturing industry segments based on tangible goods. The latter traditionally use the formal research and development (R&D) function rather more intensively than the service sector; service companies are less R&D dependent (NIJSSEN et al., 2006). Other key aspect for innovation generation in information technology (IT) services is the interaction among professionals from different business areas with the external environment, with an intensive exchange of information through events, workshops, and expert forums, etc. (MALACHIAS; MEIRELLES, 2009).

3.4 The companies

This study was based on three small and medium-sized Brazilian companies - here called companies A, B and C - , recently established or which have been in operation for less than 30 years. They all belong to the KIBS (Knowledge Intensive Based Services) sector. Table 1 shows a summary about the three companies.

Table 1 – Summary about the companies

Company	Life time (years)	Brief history and business model	Client industry
A	10	It was initially a company fully focused on Information Technology services and, for nearly about a one year, it turned into a software company, radically changing its business model	Transportation & Logistics
B	30	It was also fully services based and migrated to software solutions about five years ago, with a pay-for-use business model (also known as Software as a Service – SaaS)	All industries
C	08	It operates in advisory and specialized services and it is currently assessing the possibility to migrate to a software business model. It develops and uses its own software in project and knowledge management increasing its employee's productivity	All industries

Source: Authors

This research used 19 open-ended questions as guidance to interview the three CEOs. In the Table 2, there is a summary of the questions used as script, the companies' leaders answers, and how they are associated to the main constructs. A codification was created to run the intensity of the association of each interviewee's answer for each construct (L = Low, M = Medium and H = High). The main constructs or concepts utilised in this research are:

- Absorptive Capacity (AC): Emphasis on how formal the Research and Development (R&D) function is and how diversified the company's knowledge base is; diversified here means, different genres, functionalities and ages in their teams,
- Peripheral Vision (PV): It indicates formal and informal elements of the company to monitor and interpret external signals. For example, if they use technologies, processes, and professionals for this purpose or if they do it spontaneously (informal),
- Innovation Willingness (IW) (or Innovation Capability): It indicates how much the company is ready for innovation, evidenced by elements such as company's R&D structure, budget for innovation, defined innovation strategy, and ideas suggestions program,
- Innovative Outcome (IO) (or Innovation as outcome): It is related to the main innovations produced by the company, as evidence of their results, either, in number of innovations or financial results,
- Dynamism and Complexity (DC): Complexity is related to the number of variables in the market to monitor (here under context of competitors, clients, new technologies). Dynamism is a function of how frequent these variables vary (change frequency),
- The united elements, Peripheral Vision, R&D and the diversity of the knowledge base (these last two elements are part of Absorptive Capacity), could be called as the

Extended Peripheral Vision (EPV) of the company; it's a way to extend the peripheral vision power adding the knowledge database diversity and R&D function;

3.5 The interviewee's representativeness

We selected the three companies' CEOs as representative to respond the interviews. They are the founders and the managing directors, with responsibility for the whole company. It means these executives are able to answer strategic aspects, such as where to look for external signals for innovation outside the company, to decide what resources allocate to acquire and to convert ideas into innovation. Therefore, we understand they are good company's spokespersons and their opinions can be extended as representative to the whole companies.

4 RESULTS

The Table 2 shows a summary of the leaders' answers to the 19 open-ended questions. How to read the Table 2? The signal X indicates to what construct that question refers to. The last three columns on the right indicate the company's answers, codified with the letters L, M or H (Low, Medium and High). Therefore, for instance, the question 1 refers to concepts Dynamism and Complexity, and in this case, company A and B answered, "low" while company C answered "high". It means that the companies A and B perceive the business environment (competitors, clients, new technology) with low dynamism and low complexity, or in other words, their market perception is close to static (opposite to dynamic) and simple (opposite to complex). On

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the other hand the company C perceives their environment as dynamic and complex to analyse. The same “way to read” applies to the whole table. Another important observation, as it was said in the theoretical session, the factors analysed to define the complexity and dynamism of market are competitors, clients and new technologies. It means an environment perceived by the leadership with many competitors, reflects a complex and dynamic business environment.

Table 2 – Summary of main constructs and companies' leaders codified answers

		Constructs			Questions	Companies		
Absorptive Capacity (AC)	Peripheral Vision (PV)	Dynamism & Complexity (DC)	Innovation & Willingness (IW)	Innovation Outcome (IO)		A	B	C
		X			1	L	L	H
		X			2	H	H	M
		DC (1,2,11,12)						
X			X		3	H	M	L
		R&D (3)				H	M	L
			X		4	H	M	L
			X		5	H	M	H
			X		6	H	H	H
			X		7	M	M	L
		IW (3,4,5,6,7)						
X					8	M	H	H
Knowledge database diversity (8)						M	H	H
				X	9	M	H	M
				X	10	H	-	M
	X	X			11	M	L	M
	X	X			12	L	M	M
	X				13	L	L	M
	X				14	H	M	H
	X				15	M	M	M
	X				16	H	L	H
	X				17	M	L	H

PV (11,12,13,14,15,16,17)					
Extended Peripheral Vision related to AC (3,8) and PV (11,12,13,14,15,16,17)	X	18	M	H	H
Innovation Outcome (9,10,18)	X	19			

Source: Authors

Note 1: The numbers in the Table refer to the questions in the questionnaire used as script in the interviews.

Note 2: AC stands for Absorptive Capacity and PV stands for Peripheral Vision.

Note 3: H, M and L stand for High, Medium and Low and indicate the intensity with that concept is manifested in the company, declared by the CEOs.

Table 3 is the question number 19 of the Table 2 unfolded, i.e., details about the number of sources monitored to search for innovation, sources used to convert into innovation, number of radical or incremental innovation generated and typically the radical innovation source.

Table 3 – Source of ideas and innovation impact perception

From question 19	Companies		
	A	B	C
Total Sources	10	10	10
External Sources	9	7	9
Incremental innovation	6	2	5
Radical innovation	3	1	4
Typically the radical comes from	<ul style="list-style-type: none"> • Research Centre • International • Other Industry 	<ul style="list-style-type: none"> • Consultants 	<ul style="list-style-type: none"> • International • Consultants • Events in the market • Other Industry

Source: Authors

4 DISCUSSIONS

From the data presented in the Table 2 and Table 3 we can consider the following analysis:

- Company C perceives a more complex and dynamic environment (DC) compared to the other two; also, it presents less willingness to innovate (Table 2), but it is in fact the most innovative (Table 3),
- Company A perceives a less dynamic and complex environment, and it has a higher willingness to innovation and has good innovative result,

- In terms of research and development (R&D, # 3), the company A uses more this function (High), followed by B (Medium) and then C (Low),
- The higher diversity (Knowledge database, # 8) occurs in C (High), followed by A (Medium) and B (High) with the same intensity,
- The Peripheral Vision (Line “PV”) has been more pronounced in the company C, followed by A and B,
- The here called Extended Peripheral Vision (EPV), as the result of effect of PV and AC, shows the company C with greater Extended Peripheral Vision capacity, followed by A, and B;

Specifically in the question 19 (Table 3) we explore the sources of innovation versus the potential outcome or innovation impact perception by the leadership. Radical innovation here doesn't mean they really had a radical innovation as Christensen defined (1997), changing a market, for instance. Radical innovation here refers to the leadership's perception, how they classify, in their perception, for instance changing the business model, from solution selling to cloud solution (pay per use). From Table 3 we have:

- Company B is the least in external sources usage (7 out 10) and it's the least in innovation outcome (2 incremental and 1 radical, according to Table 3),
- The company A and C use 9 sources (out of 10 possible); in common, their sources of generation of radical innovations are: international sources (other countries) and other industries to look for a external signal for innovation (rather than its own industry),
- Company A and C look for external signals in other regions/countries (international) and in other industry and both of them generated more radical and as well more incremental innovation;

Based on the findings reported in the fieldwork with the three companies, declared by the three CEOs, and analysed from the perspective of the theories presented here, we could interpret these results with the following possible explanations:

- Company A, despite having a greater innovation willingness (innovation capability) they have similar innovative performance (outcome) of company C; this could be potentially due to their low perception of market dynamic and complexity, and, in this way they see less need to innovate more,
- Company C seems to be the most innovative and its environment is considered to be more aggressive, competitive and more dynamic; potentially the company can interpret that a more aggressive environment they need to innovate more to be competitive and survive,
- Company A is the most product-oriented (software) and it has a (software) manufacturing behaviour, it means, they act like a tangible goods manufacturing company, what is compatible with their largest R&D structure comparing the three companies; in this aspect (R&D), C is the most service-based, so it is compatible with the theory expecting less (formal) R&D functions or structure,
- The (knowledge database) diversity of C, possibly, it is one of the mechanisms for creation of innovation (innovation outcome), despite their low innovative willingness,
- The more attention to the market of Company C, evidenced by its (high developed) Peripheral Vision (PV) capability and what we called here Extended Peripheral Vision (EPV), it's may be a important factor for innovation generating that makes C the most innovative company similar to A; despite the fact that C has less innovation capability rather than it was perceived in A,
- The further away from current company's knowledge (industry) it is the search for innovation, considering the answers in the Table 3, when company A and C look for signals in other regions/countries, the greater the possibility of generation of radical

innovations; and, in the opposite situation, the closer to its original geography and knowledge (industry), the more incremental innovations are generated;

If we consider the innovation outcome and their extended peripheral vision collected from Table 2 and 3, we have the Table 4:

Table 4 – Summary of innovation outcome and extended periphery vision

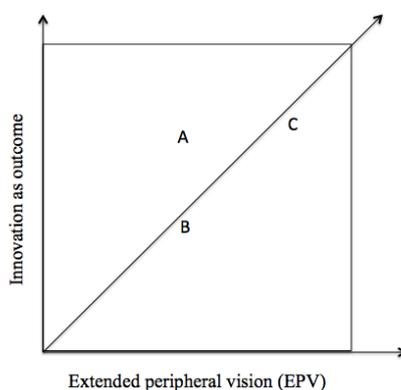
Companies	Innovation outcome	Extended Peripheral Vision
A	High	Medium
B	Medium	Medium
C	High	High

Source: Authors

Schematically the Figure 3 shows a graphic plotting the companies' position in the two axes, innovation outcome and extended peripheral vision.

Figure 3 - Schematic representation of innovative outcome

and extended peripheral vision



Source: Authors

We can see the company C has the higher extended peripheral vision capability and gets the best results in terms of innovation outcome. On the other hand, the company B has the least extended peripheral vision and gets the lower innovation outcome. The company A has an intermediate EPV and despite that has obtained a medium innovative performance.

5 FINAL CONCLUSIONS

Based on the findings and analyses performed with the constructs and theories presented here, we see a relationship between Absorptive Capacity and Peripheral Vision as positive conditioning elements of innovation in the KIBS companies. This suggests theoretical and managerial support to a better company's innovative performance, based

on external signals acquisition. An interesting finding is potentially to relate complexity and dynamism leadership perception, with innovative outcome. Partially we could verify the influence of the company's knowledge database diversification in region/countries and industry data. Also, the search strategies in different industry segments from its original one and other geographies (international source) suggest the generation of more radical innovations. Last, but not least, search only in their industry segment suggests incremental innovations generation.

As a *limitation* of this study, using case studies approach is the generalisation and suggestion of a theory or a framework. Another limitation is the number of cases studies and interviewees. As futures studies we suggest to research more enterprises in the KIBS industry segment in order to get more evidences of the suggested theories. Also, it would be very interesting to execute a quantitative approach generating primary data or using second data, as a way to increase the external validity.

RESUMO

EM BUSCA DA INOVAÇÃO: OLHANDO PARA FORA DA EMPRESA

Em mercados dinâmicos e altamente competitivos, tais como Tecnologia da Informação, a inovação é imperativo para a competitividade nos negócios. Esta pesquisa contribui com estudos sobre inovação no setor de serviços, tradicionalmente conhecido por ser menos inovador que o setor de manufatura. Através dos construtos Capacidade Absortiva e Visão Periférica, este estudo objetiva explorar a relação entre as capacidades inovativas e os resultados da inovação, moderado pela percepção da liderança das empresas sobre o ambiente competitivo. Utilizando uma metodologia de múltiplos estudos de caso, este artigo examina o processo de aquisição de informação do mercado em três empresas de pequeno e médio porte de serviços de negócios intensivos em conhecimento (sigla em inglês: KIBS). O estudo encontra evidências que a Capacidade Absortiva e Visão Periférica funcionaram fatores condicionantes para mais resultados inovadores. Ainda, ele apresenta indícios que a percepção da liderança

sobre a concorrência no ambiente de negócios afeta a geração diferenciada de inovações como resultados.

Palavras chave: Capacidade Absortiva; Visão Periférica; Inovação.

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