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Top managers should give the last word? uncertainty perceptions in dynamic capabilities.

Os gestores devem dar a última palavra? percepções de incerteza em capacidades dinâmicas

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Abstract

Purpose: This paper indicates that managers' perceptions of uncertainty could enhance the dynamic capability framework.
Design/methodology/approach: We first conducted a review of the literature regarding dynamic capabilities and uncertainty perceptions. After, a semi-structured interview script was developed and implemented with four top managers by na energy sector company.
Research, Practical & Social implications: Understand sensing, seizing and transforming the managers' capabilities is vital to distinguish between what can be done inside the firm, and what is possible under a system of contracts.
Originality/value: The dynamic capability enhance our understanding of uncertainty perception within the focal energy company in order of their ecosystems, opportunities, challenges, risks and competitiveness of energy sector company.
Keywords: uncertainty; dynamic capability; energy sector company.

Resumo

Objetivo: Este artigo indica que a percepção de incerteza dos gestores pode melhorar o quadro de capacidade dinâmica.
Método/abordagem: Primeiramente, realizamos uma revisão da literatura sobre capacidades dinâmicas e percepções de incerteza. Em seguida, foi elaborado um roteiro de entrevista semiestruturada com quatro gestores de topo de uma empresa do setor energético.
Contribuições teóricas/práticas/sociais: Compreender a detecção, apreensão e transformação das capacidades dos gestores é vital para distinguir entre o que pode ser feito dentro da empresa e o que é possível sob um sistema de contratos.
Originalidade/relevância: A capacidade dinâmica aumenta nossa compreensão da percepção de incerteza dentro da empresa de energia focal em ordem de seus ecossistemas, oportunidades, desafios, riscos e competitividade da empresa do setor de energia.
Palavras-chave: incerteza; capacidade dinâmica; empresa do setor de energia.

Introduction

Dynamic capabilities are known as the ability to integrate, build and reconfigure internal and external competence (Teece, Pisano & Shuen, 1997). "Top management's entrepreneurial and leadership skills around sensing, seizing, and transforming are required to sustain dynamic capabilities. But an important managerial function is to achieve semi-continuous asset orchestration and renewal, including the redesign of routines" (Teece, 2012, p. 1398). "They are required to orchestrate the resources/competences needed for creating and capturing the value of an innovation" (Teece, 2017, p. 704) in many kinds of sectors, including power generation. In the energy sector, large state-owned companies such as Petrobras and Eletrobras stand out in Brazil.

The Brazilian energy matrix consists of 54.7% of non-renewable sources and 45.3% of renewable sources - hydroelectric generation stands out with 12.6%. "The Brazilian energy matrix has an advantage infrastructure over the rest of the world" (Energy Research Office, 2019, p. 5) and remains an international reference in renewable energy resources (PDE, 2018).

Eletrobras is considered the largest company in the electricity sector in Latin America and maintains seven subsidiaries that operate in the areas of generation and transmission in Brazil and abroad. Among them, one noteworthy subsidiary that is the largest contributor to the sector in Northeastern Brazil is the São Francisco Hydroelectric Company. In 2018, its generation capacity was 10,323.43 MW and it had 287 transmission lines, which were 20,585.2 km in length. Chesf exclusively owns twelve hydroelectric plants, two wind plants, two solar plants, ten reservoirs, one hundred and twenty-one power sub-stations and fourteen elevating sub-stations (Chesf, 2019). That same year, it presented consolidated net operating revenues of R$ 4.792 billion and its operating cash generation, expressed by EBITDA, was R$ 720 million (Chesf, 2019). This paper will focus on the São Francisco Hydroelectric Company (Chesf).

The energy sector has been accepted to be relevant to dynamic capabilities (Shuen, Feiler & Teece, 2014). Auguer and Teece (2009, p. 417) point out that the impact of managers has often been overlooked in the dynamic capabilities' literature, attesting that "others have noted that economic theory lacks a role for management". Yet according to Teece (2012, p. 1395) "certain dynamic capabilities may be based on the skills and knowledge of one or a few executives".

More recently Teece (2017, p. 709) proposed that sensing, seizing and transforming the capabilities of managers is vital for a more complete theory of the firm and they are critical factors that distinguish between what can be done inside the firm, as opposed to what is possible under a system of pure contracts. In this sense, the dynamic capability framework is essential to enhance our understanding of uncertainty perception within the focal energy company. Milliken (1987) defines uncertainty as the individual's perception of the inability to make predictions accurately. Uncertainty can be positive or negative; positive can be seen as opportunities and negative as threats (Loch, De Meyer & Pich, 2006; Perminova, Gustafsson & Wikström, 2008).

"Leaders are confronting global industry shifts. They must generate and implement organizational and managerial innovations, both internally and within their ecosystems, to capture opportunities, overcome challenges, mitigate risks and achieve and sustain competitiveness" (Shuen, Feiler & Teece, 2014, p. 10). This work will present evidence from Chesf that indicates that managers' perceptions of uncertainty could enhance the dynamic capability framework. The role that top managers play in shaping dynamic capabilities has been noted previously, but there is not any strong evidence of this inclusion in the dynamic capabilities' framework. In this way, the main contribution of this paper will be the proposal of a reviewed framework.

Dynamic Capabilities

Dynamic capabilities are described as a firm's processes that use resources - specifically the process of integrating, reconfiguring, obtaining, and disposing of resources - to meet or even create change in the market. Dynamic capabilities, thus, are the organizational and strategic routines by which firms reach new resource configurations when the market emerges, collides, divides, evolves and dies (Eisenhardt & Martin, 2000).

The perspective of dynamic capabilities gained theoretical and managerial prominence, postulating that organizational success requires companies to have superior skills in organizational, managerial and technological processes, in order to identify and seize new opportunities (Kretschmer & Garrido, 2017). "The view of dynamic capabilities helps to explain how heterogeneity between companies occurs, using concepts from both the economy and strategic management" (Teece, 2017, p. 695).

It is important to highlight that dynamic capabilities have developed characteristics within the organization and arise from learning, the combination of resources and the leverage of complementary assets (Teece & Pisano, 1994). As Teece (2017, p.699) highlights "Ordinary capabilities can be purchased; dynamic capabilities must be 'created' through investment processes in discovery, knowledge generation and learning".

"The dynamic capabilities framework endeavors to capture the key variables and relationships that need to be 'manipulated' to create, protect, and leverage intangible assets so as to achieve superior enterprise performance and avoid the zero-profit trap"

(Teece, 2007, p.1341). The dynamic capabilities framework was presented by Teece (2007) and can be used to organize strategic monitoring around three groups of activities: (a) Sensing involves knowledge about the external and internal environment and making decisions about strategic direction. It covers gaining knowledge about competitors, exploring technological opportunities, researching markets, listening to customers or suppliers and improving new products and services, along with researching other elements of the business ecosystem; (b) Seizing is about mobilizing and inspiring the organization to develop organizational and ecosystem readiness to capture the opportunity. This activity involves a set of capabilities focused on capturing an opportunity and reducing risk. Filling gaps by strengthening ordinary capacities and establishing best practices can strengthen readiness; and (c) Managing Threats/Transformation are the routines developed to sustain strategic relevance in dynamic markets through the alignment and realignment of tangible and intangible assets. Also essential in the transformation process are the "words and actions" of leaders who mobilize, motivate, and inspire people to change. Figure 1, below, presents Teece framework.

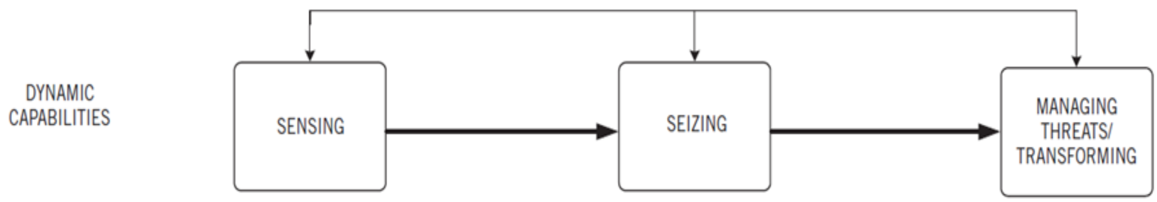

Figure 1. Titulo da Figura 1.
Source: (Teece, 2007).

Teece (2007, p. 1347) stated that “the managerial skills needed to sense are quite different from those needed to seize and those needed to reconfigure”. The next session will discuss this managers’ perceptions in this context.

Managers’ Perceptions of Uncertainty

“Managers must articulate goals, help and evaluate opportunities, set culture, build the trust, and play a critical role in key strategic decisions. Managers plays a key role in achieving asset selection and the “coordination” of economic activity, particularly when complementary assets must be assembled” (Auguer & Teece, 2009, p. 417). “Although some elements of dynamic capabilities may be embedded in the organization, the capability for evaluating and prescribing changes to the configuration of assets (both within and external to the organization) rests on the shoulders of top management" (Teece, 2012, p. 1397).

Companies that respond inappropriately to environmental changes and the associated uncertainty generate poor results due to the inconsistency of their strategic orientation and the instability of their operations (Miles et al., 1978). "Managerial sensitivity to strategy must be proportional to the company's environmental instability" (Ansoff, 1973, p. 19).

"Environmental pressures are being called 'turbulence' because of their relative speed and unpredictability" (Glasner, 1994, p.31). It is not the change itself, or even the large number of changes, that creates uncertainty about the environment, rather, it is the unpredictable change that will be associated with the type of uncertainty. The type of uncertainty will be influenced by the type of information that the manager perceives to be missing (Milliken, 1987).

According to Milliken (1987) there are three types of uncertainty perceptions: (a) Perceived Environmental Uncertainty: managers experience this state of uncertainty when they perceive an organization's environment, or a component, as unpredictable. They do not understand how the components of the environment can change, which can derive from incompetence in understanding the interrelationships between elements in the environment; (b) Effects Uncertainty: This is related to an individual's ability to predict the impact of an event or environmental change on the organization. There is uncertainty as to the nature, severity and time of impact. It involves the inability to understand cause- effect relationships. Unlike the previous uncertainty that a future state of the environment is not known, the uncertainty of effects involves uncertainty about the implications of a given state or event that is known; and (c) Response Uncertainty: This is associated with attempts to understand what response options are available to the organization and what value and utility each can have. It is the lack of knowledge of response options or an inability to predict the likelihood of the consequences of the chosen alternative. This uncertainty is experienced when there is a need to make quick decisions.

Whittington et al. (2015) argue that top managers are better able to adapt to high levels of environmental turbulence, decentralizing organizationally and balancing analytically. In the dynamic capabilities framework, management plays distinctive roles in sensing opportunities, in making investment choices, in orchestrating nontradable assets into combinations that yield economies of scope and in bringing about continuous organizational development (Auguer & Teece, 2008, p. 1198). These assets and competences reflect both individual skills and experiences as well as distinctive ways of doing things inside firms (Auguer & Teece, 2008).

Methodology

"Although managerial dynamic capabilities can to some extent be traced by using large datasets, they can best be analyzed through in-depth qualitative research" (Teece, 2012, p. 1400). So, this study was outlined in the qualitative perspective which is an umbrella concept that covers various forms of questioning and helps to explain the meaning of social phenomena (Merrian, 1998).

This work aims to examine the perceptions of uncertainty of dynamic capabilities in an energy company - Chesf. It is also part of a case study typology because it is a holistic description of a single entity or system that seeks to understand the situation and the meaning for those involved (Merrian, 1998).

We first conducted an extensive search and review of the literature regarding dynamic capabilities and uncertainty perceptions. This review revealed a gap in studies that apply these themes to public or mixed economy companies. After this review a semi-structured interview script was developed and the corpus was defined by Chesf's CEO e directors. They were chosen based on their homogeneous characteristic regarding educational achievement and work experience and influenced by Eisenhardt (1989) recommendation to involve between 4 to 10 "extreme" corpus.

The interviewees represented the Board of Directors and their decisions are referred to the Administration Board, which is just one governance level below the shareholders. "It is commonly accepted that the size of the corpus is a less relevant issue, while representativeness deserves more attention" (Bauer & Aarts, 2002, p. 50). In this research, the selection of interviewees was quite relevant since they are the main ones involved with the topics covered in the study and are a very difficult group of people to obtain access, acceptance to participate to any study and time availability to be interviewed. To obtain the interviewees' cooperation, we followed Poupart's (2008) suggestion to use social networks and reciprocity/professional bonds to access them.

Four interviews of approximately one-hour each were conducted with Chesf's CEO and three directors. The interviews were made in their office, on different days, between February 22 and 26 in 2018. It was not possible to schedule an interview with only one of the directors due to his travels and schedule changes. Transcripts were generated from the written notes and audio recordings of the discussions.

As most of important decisions at Chesf are made by the board (CEO and four directors) this corpus can be considered very representative. That's a singular characteristic of the company, the Directors usually do not take decisions by themselves, they take all the information they can get and take to the board looking for a group decision.

Data analysis included the description and interpretation of the interviews. Recurring themes were highlighted aiming at the construction of categories that captured the essence of the meanings given by the interviewees through content analysis (Merriam, 1998; Souza-Leão et al., 2020). Please note that the names of the interviewees were not presented to maintain confidentiality and to ensure that the analysis and understanding of the interviews were not unduly influenced by the identity of the focal interviewee.

The energy sector and the case company (CHESF)

The year 2016 was marked by considerable changes in the political landscape and in the economic policy of Brazil, with the main highlights being related to Operation Lava Jato (Carwash Operation – where federal justice found corruption and money laundering that involved contractors, Petrobras' employees, financial operators and politicians) and the arrests and subsequent plea-bargains that affected all sectors of infrastructure in Brazil, businessmen and the political class of Brazil (Eletrobras, 2018). This situation culminated in the impeachment of the president (Dilma Rousseff), in arresting the former president (Lula) and in the adoption of new policies by the incoming president (Michel Temer). As such the substantial political and economic uncertainties that the managers of publicly traded companies in Brazil had and continue to experience are certainly noteworthy.

Especially at the case company, São Francisco Hydroelectric Company (Chesf), as a result of some of this instability, there were seven CEOs in the last eight years. This meant different perspectives on how to deal with the environmental turbulence. Another important issue is the privatization projects that have been widely discussed in Congress. In Brazil to privatize a mixed economy company like Eletrobras and it's subsidiaries the government have to propose to Congress a new law to change the ones that created some of the Eletrobras' subsidiaries and to indicate how the rivers should be used to attend public interests (as most of the power generation comes from hydroelectric plants). If the Congress approve the new law, managers would have to deal with a very different environment, one that Chesf or any Eletrobras' companies have never experienced.

In the context of Chesf others important aspects must be highlighted. The company is considered a mixed-capital and publicly held corporation. The case company is subject to certain rules that limit its indebtedness and investments. It must submit its annual budget proposal to the Ministry of Planning, Budget and Management for approval, and get approval from the National Congress (Chesf, 2016). In addition, Eletrobras has its shares traded on the São Paulo and New York Stock Exchanges, which means it and its subsidiaries must meet various requirements, like any company listed on these exchanges.

Thus, the company must meet Market and Government requirements, as though it is predominantly governmental, it also has shares on stock exchanges and private shareholders. That is, at the same time that it seeks to provide welfare to society, the company must respond to various expectations of its investors, carry out projects to present specific reports, and ensure that its shares are trading at good prices on the stock exchanges.

Analysis

Seven categories were identified in the content analysis. The first one referred to Perceived Environmental Uncertainty. All the interviewees saw the context of the electric generation and transmission sector as being unpredictable. Managers could not understand how the components of the environment could change and there was an inability to predict what would happen in the long run. However, the interviewees seem to know the impact if certain events occurred and what kind of decisions they could make. So, the Effect and Response Uncertainties were not considered as categories. Table 1, below, illustrates the first category identified.

Category: **Perceived environmental uncertainty**	1.1 "has observed in the last years what I can call volatility".
	1.2 "I see great uncertainty that makes it very difficult for companies that generate power to make strategic plans".
	1.3 "The company privatization [...] also generated great insecurity about the company's strategic planning".
	1.4 "This uncertainty creates difficulty in strategic planning".
	1.5 "We are today in an environment of uncertainty. Whether or not to privatize Eletrobras, it will obviously have an impact on Chesf, right?".
	1.6 "There is always a perception, one eye on Chesf and another on the world. [...] If you look at the isolated board it may even seem to have a small impact, but if you look at the change, in business terms, we have great impact by the external environment. It influences Chesf a lot as a whole".
	1.7 "The electricity sector remains unstable".

Table 1. Perceived environmental uncertainty.
Source: developed by the authors.

The second category identified was Sensing. The interviewees revealed that skills were being developed and there was a learning concern to make possible to identify new ways to deal with the environment. "Sensing (and shaping) new opportunities is very much a scanning, creation, learning, and interpretive activity" (Teece, 2007, p. 1322). Table 2 presents some quotes that exemplify this perception.

"Once a new (technological or market) opportunity is sensed, it must be addressed through new products, processes, or services. This almost always requires investments in development and commercialization activity" (Teece, 2007, p. 1326). Seizing is the third category, the interviewees said they made several decisions to standardize best practices and process to reduce risks and capture opportunities. Table 3 below provides some exemplary quotes from this category.

Category: Sensing	1.1 "So this moment of transition is going to be a very strong learning experience".
	1.2 "What I see as a change that will be new to us is this implementation of the CSC*. That's something, because we didn't operate like that. There are companies that operate and work, we know that the model is good. But for us here at Chesf, we don't have that experience yet".
	1.3 "In 2017, we tele-assisted 17 installations. Chesf today has 134 substations, we will end 2018 with 139, of which 89 will be tele-assisted and 50 will not (…) We have to invent some things like that in order to continue providing services properly".
	1.4 "The demands of the environment are also guiding the needs for the development of new skills and the strengthening of those that are already there".
	1.5 "In environments such as the energy sector, the ability to integrate, change and build internal and external skills is important to deal with rapid changes in the environment".
	1.6 "And what we have observed is that there are many decisions or many actions that can be taken, whether it is private or public. [...] I think that this was already a learning experience".

Table 2. Sensing.
Source: developed by the authors.
Note: the term CSC refers to the acronym of the Shared Services Center (CSC).

Another category identified was Managing Threats/Transforming. As Teece (2007, p. 1335) explains "Reconfiguration is needed to maintain evolutionary fitness (…) periodic if not continuous asset orchestration—involving achieving asset alignment, coalignment, realignment, and redeployment - is necessary to minimize internal conflict and to maximize complementarities and productive exchange inside the enterprise". Table 4 provides some evidence of this category.

It is important to highlight that dynamic capabilities have some characteristics that are developed within the organization, which arise from learning, the combination of resources and the leverage of complementary assets (Teece; Pisano, 1994). "Ordinary capabilities can be purchased; dynamic capabilities must be 'created' through processes of investment in discovery, knowledge generation and learning"

(Teece, 2017, p.699). A "Learning" category was verified, and some evidence presented below in Table 5.

Note: CRESP is an implemented R&D project and means Reference Center for Solar Energy Research. It has a site in the countryside to test different kinds of solar energy technologies to find out, between other goals, which one is more suitable to Brazilian environment.

Category: Seizing	1.1 "Improvement needs are written down in the corporate education plan".
	1.2 "We, at Chesf, did an organizational restructuring, we are implementing a CSC in order to standardize processes and improve business efficiency ".
	1.3 "Constant changes in the external environment lead us to develop new capabilities to respond to these changes without losing quality and this could be supported with a more defined strategic plan".
	1.4 "Make operational 59 projects".
	1.5 "We have already quantified values for everything [...]. So, we are also focusing on improving processes".
	1.6 "We think that with the implementation of SAP, CSC and a voluntary dismissal plan, we can optimize this process, we will have to optimize the processes and we will have to do more with less".

Table 3. Seizing.
Source: developed by the authors

"Top management holds the key to unlocking the firm's innovation. […]. The dynamic capabilities framework stresses the importance of enterprise-level entrepreneurship, innovation, learning and good strategy" (Teece, 2017, p. 713-714). Table 6 presents some quotes from the interviews that stresses this category.

Category: Managing Threats/ Transforming	1.1 "Another way is using all improved company's processes to tele-assist facilities, to do the operation with fewer operators, so in this way we are drying out expenses and, on the other hand, defining investments with profitability in transmission".
	1.2 "So we are also focusing on improving processes. We think that with the implementation of SAP, CSC and a voluntary dismissal plan, we can optimize this process, we will have to optimize the processes and we will have to do more with less".
	1.3 "We expect that in 2020 we will return to the public auctions and other projects that may be of generation and transmission or buying finished projects or investing in projects that are being developed at Chesf, in that way the prevision to grow again will be in 2019".
	1.4 "It is the maintenance personnel who can also operate the installations in some situations. [...]With this, you are allowed to significantly optimize the number of maintenance and operation personnel".

Table 4. Managing Threats/Transforming.
Source: developed by the authors

These evidences from Chesf indicate that managers' perceptions of uncertainty could enhance the dynamic capability framework adding Learning, Innovation and Process & Routines. A theorical and managerial contribution could be made as has been identified the filter from the top manager's perspective and the categories found in the study could expand the dynamic capability framework. These findings could be helpful for similar companies to develop dynamic capabilities.

Category: Learning	1.1 "Updating the team with participation in seminars and courses. We have to keep the team updated with the changes in the environment".
	1.2 "We have a corporative learning plan to develop new capabilities and to maintain the good ones that we already have".
	1.3 "CRESP* will enable us to learn about solar energy".
	1.4 "We learned in the crisis to make scenarios and continue planning to make the company better in the identified scenarios".
	1.5 "We are learning about the generation, operation and maintenance for solar energy generation".
	1.6 "We have trained the substation's operators and maintenance personnel to learn how to do some of each other's jobs, simpler ones".
	1.7 "Although we are a mixed economy company we are in a continuous process of improvement".
	1.8 "The regulatory law is changing a lot and we have to learn and adapt to it".

Table 5. Learning.
Source: developed by the authors

Manager Perception of Uncertainty Dynamic Capability

Teece (2012, p.1400) has indicated that "empirical literature is still at an early stage and opportunities abound to dig deeper, into the linkages between individual or small-group managerial actions of dynamic capabilities". The role that top managers seem to have in using dynamic capabilities framework when they perceive uncertain in the environment has been outlined in this paper. Has been indicated from the interviews that even when the industry is usually classified as stable, as the energy one, and top managers perceive it as uncertain, the dynamic capabilities framework could be used to help their effectiveness. In this way this paper contributes with an adapted dynamic capability framework for a better understanding of the theory.

Category: Innovation	1.1 "We are going to operate in a integrative way when we implement the CSC".
	1.2 "Investing in solar energy is the way to the future".
	1.3 "We are going to teleassist installations to operate with less people".
	1.4 "The solar project contains a distribute part - which includes to don't have energy bills in our substations when we allocate solar panels – and to generate energy from the sun".
	1.5 "The operator is doing some maintenance. We used to have two different team for this. We still have, but the operator does simple maintenances and in this way, we optimized the substation work. The reverse role works too – the substation maintenance can work as an operator in some cases".
	1.6 "I know we have to advance to teleassist substations, but we have a regulatory limitation that we are looking for a new way to overcome it".

Table 6. Innovation.
Source: developed by the authors

Has been argued that "management plays distinctive roles in selecting and/or developing routines, making investment choices, and in orchestrating non-tradable assets to achieve efficiencies and appropriate returns from innovation" (Auguer & Teece, 2009, p. 417). Dealing with uncertainty should be an ongoing process, it should require a change in focus for the company management to a continuous exploiting opportunity as well as mitigating risks. The elements of learning, processes & routines and innovation are viewed as depending on people. They have an important role because companies should involve the right people (with competence, experience, and attitude towards uncertainty management) in the process and routines to learn and to innovate. Top managers should understand and deal with uncertainty and give the directions to their employees choose adequate manners in their routines and process thought innovation. In other words, the employees should know how to deal with different routines and process thought learning and innovation according to the strategy developed from the top managers in an uncertainty environment. Figure 2 showed next represent these elements.

The framework proposed - Manager perception of uncertainty in dynamic capability- see Figure 3 bellow, has the external environment and its context represented as a big blue box. The manager perception is represented by the thicker blue dashed box. Their box is dashed to indicate that managers filters the environment and perceive just part of it due to limited rationality and their perception of uncertainty. Finding out that they perceive the external environment as uncertain or dynamic, seems to open different tools opportunities to develop dynamic capabilities.

Category: Process and Routines	1.1 "We are constantly reviewing our process and norms".
	1.2 "The board of director changed their decision making process to consensus. It takes more time to make to a decision but works better".
	1.3 "Our focus is on our core business: to generate and transmit energy. If we are doing something else, we will have to get out of these businesses. We already have clear goals to achieve, valuation and deadlines".
	1.4 "The new management process implemented changed the buying process and the construction of sites. This gave agility and efficiency to do our projects".
	1.5 "The routine on how to generate and transmit energy is mostly defined by regulatory law to".
	1.6 "The results in improving our sites, and the good measures that we got from it, became a routine".

Table 7. Process and Routines.
Source: developed by the authors

The framework proposed - Manager perception of uncertainty in dynamic capability- see Figure 3 bellow, has the external environment and its context represented as a big blue box. The manager perception is represented by the thicker blue dashed box. Their box is dashed to indicate that managers filters the environment and perceive just part of it due to limited rationality and their perception of uncertainty. Finding out that they perceive the external environment as uncertain or dynamic, seems to open different tools opportunities to develop dynamic capabilities.

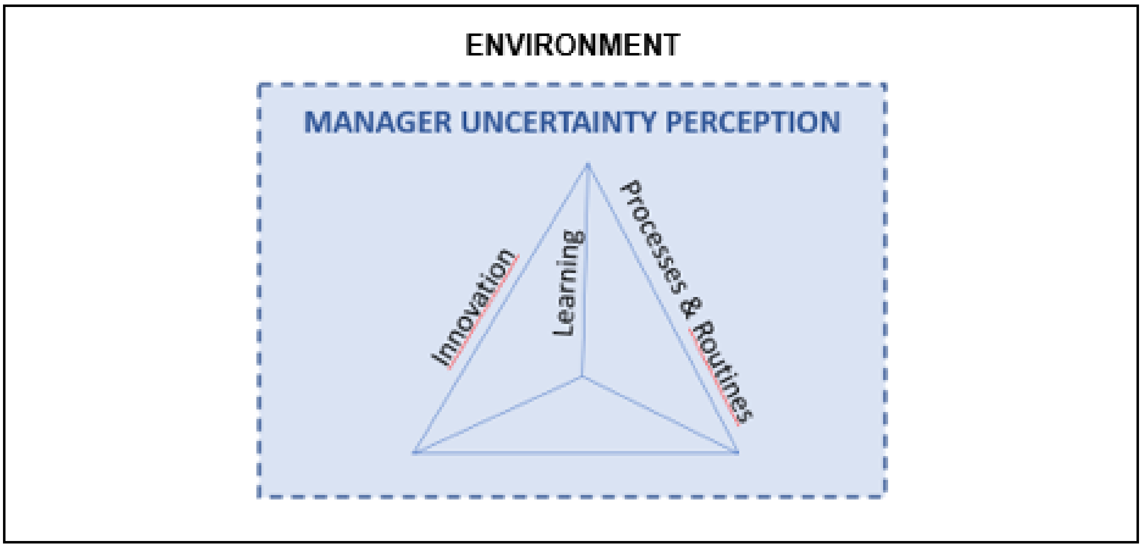

Figure 2. Manager perception of uncertainty and available tools.
Source: developed by the authors

The components available to top managers as they perceive the environment as uncertain or dynamic are represented as a pyramid. The base of the pyramid has the traditional dynamic capabilities elements (sensing, seizing and managing threats/transformation) they can hold what innovation, learning and processes & routines can offer to adapt the company to the uncertainty environment.

Final Contributions

The role that top managers play at Chesf, at the energy industry, in shaping dynamic capabilities has been highlighted, evidenced, and included in the framework. In this way, this was the main contribution of this paper. Top managers from this study suggested that the environment should be classified as stable or uncertain depending on the manager perception and not on economists or strategic researchers. This means that top managers should give the last word on what tools can be used depending on what the perceive from the environment. If they perceive as uncertainty, the dynamic capabilities tools could be used as other ones, such as routines & processes, innovation, and learning.

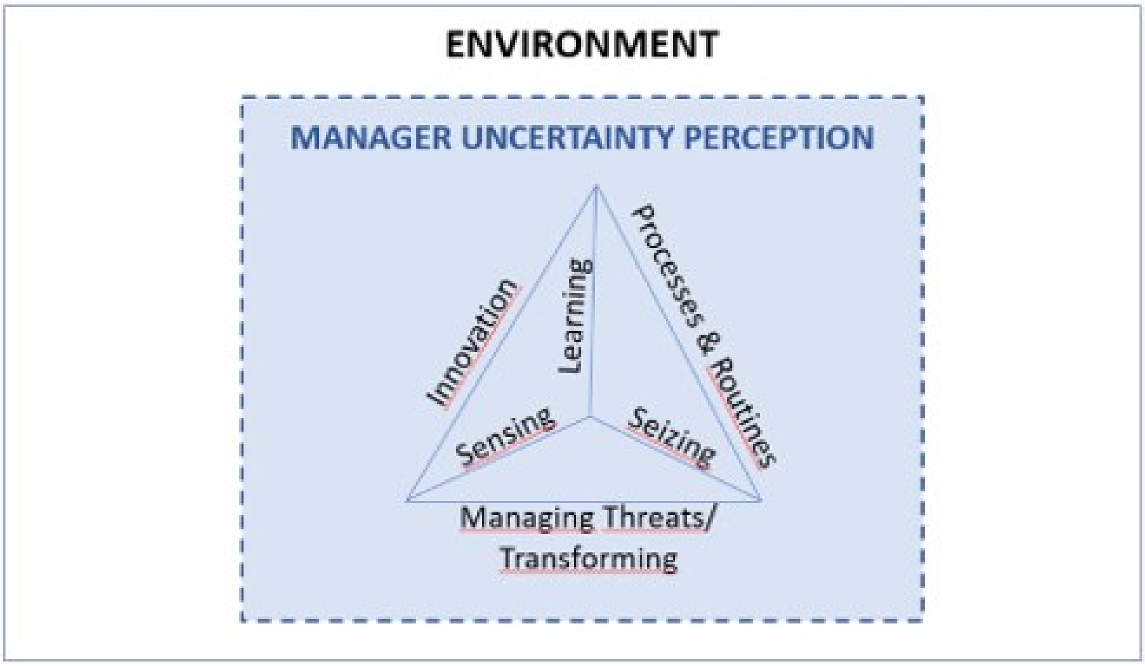

Figure 3. Manager perception of uncertainty in dynamic capability.
Source: developed by the authors

Has been indicated from the interviews that even when the industry is usually classified as stable, as the energy one, and top managers perceive it as uncertain, the dynamic capabilities framework could be used to help their effectiveness. The proposed framework explains a particular characteristic of the general business environment of a mixed-capital firm, in terms of uncertainty, and that dynamic capabilities theory can help top manager's decision on corporate strategy.

Finding out what are their perception seems to open different tools opportunities to be used and that could give managers "the last word" as we could see in the Figure 3. In consequence, Chesf uses dynamic capabilities to respond to their environment.

Finally, we can indicate several contributions in this paper: (i) we extracted from the literature and the case study elements to better understand the dynamic capability theory in a mixed-capital firm. This could allow other research to expand to others firms of public sector or make a multiple case study; (ii) we emphasized that dynamic capabilities could be used for firms which their top managers perceive the company's environment as uncertain or dynamic. We observed that each manager analyzes and judges according to what she/he perceives and belives; (iii) top managers should have an open mind to evaluate the utility dynamic capabilities tools in order to create strategies that give direction to their employee to innovate, learn and create new routines & process.

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