

## **Effects of Illusion of Control in Innovation? – A “looking forward” approach**

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### **Abstract**

The attempt to understand the future has been frequent in organizations in recent years. The possibility of anticipating disruptive situations leads companies to a state of alert, in which they seek to understand the main threats and opportunities arising from the external organizational environment. One of the most recurrent approaches in the literature is known as corporate foresight, which refers to an institutionalized process that seeks to search for information from the external environment in order to increase the performance of organizational innovation, and thereby increase the organizational performance. However, the individual and informal approach to these practices is still very recurrent, which may suffer from individual biases, including the illusion of control, which impacts on two main aspects: overconfidence and underestimate risks. The main objective of this research is to explore the effects of illusion of control in innovation processes in organizations taking into account the processes of "corporate foresight" as sources of information for innovation. To reach this objective, a case study was conducted. As main results, it could be observed that, in the studied case, executives have more confidence on their own methods and standards than in those proposed in a systematic and oriented way.

**Keywords:** Illusion of Control; Innovation; Foresight

## **1. Introduction**

Innovation is a very broad concept that has been increasingly in vogue in organizational environments, both for its relevance from the point of view of meeting the needs of customers and from the perspective of efficiency gains in organizational processes. According to broad concepts of the term, defined by Schumpeter (1934), innovation can be identified as the introduction of a new products or a new quality of a product; the introduction of a new method for providing a product, such as a new way of delivering; the opening up of a new market; the acquisition of a new source of raw material or intermediate inputs; the establishment of a new form of organization of a certain industry where the company we are analyzing operates.

All the cases mentioned by Schumpeter (1934) are of general scope and are not limited to a specific sector. It is clear, however, that there are clear differentiations in the approaches that involve the concept of innovation, especially in approaches that represent industry and services since, while innovation is evident in the industry, given the modification of a given product, services isolate product and process, which means that when referring to what would be the product of the service, process of elaboration of the service, or even provision of the service, we are dealing with the same set of procedures and protocols. (Sundbo and Gallouj, 1998).

A series of researches have been developed regarding the theme of "foresight" and its relation with innovation management in organizations. Strategic foresight is frequently presented as a managerial function and competence (Mackay & Burt 2014; McKelvey & Boisot 2010), which enables organisations to “penetrate and transgress established boundaries and seize the opportunities otherwise overlooked by others” (Chia 2008,p.27). Rohrbeck (2011) proposes a model that establishes direct relations between practices of environmental scanning and the performance of organizational innovation. Hence, corporate foresight can be understood as an overarching futures orientation of an organization and is, therefore, considered a part of strategic innovation management (Heiko, Vennemann & Darkow 2010 apud Gruber & Venter, 2006). According to Agdebile et.al (2017) strategic foresight directly results in innovation and tend to influence it since gives form to innovation management tools, and future-oriented knowledge creation, which drive innovation performance.

Although some studies reinforce the importance of this connection between foresight processes and the organizational and innovation strategy (Neef, Daheim, 2005) it is very

recurrent in the literature the allusion to environmental scanning processes that occur in an exclusively individual way, usually under the responsibility of top executives and specialists (Rohrbeck et al., 2015). The assumption that CEOs are responsible for predicting or anticipating the future of the organization and making decisions about it is quite recurrent in research on the subject (Ahuja et al., 2005; Gabriel, 1995).

The effects on individuals can be seen from the behavioral point of view. Isolated and individual action allows the interpretation of information to interfere with the bias of each professional (Choudhury, Katz, & Sampler, 1997; Graefe, Luckner, & Weinhardt, 2010), while an institutionalized process manages to generate collective knowledge. Likewise, this individual bias, when tied to positions of power, can generate an overconfidence in the professional, which, evidently, reduces its criteria for interpretation and accuracy in forecasts and decision making (Fast, Sivanathan, & Mayer, 2012).

The illusion of control describes the tendency of decision makers to overestimate their influence over casual events (Langer, 1975). It is understood that the illusion of control weakens the analytical reasoning of the individual, which is a relevant part of the decision-making process. It leads professionals to think in terms of certainties, preventing them from working properly with complex situations, which directly impacts organizational strategic planning. In everyday situations, there is evidence that people are deluded about their ability. Svenson (1981) has shown that most drivers consider themselves to be more skilled than the average driver. In the strategy process, the illusion of control has been shown to reduce perceived risk (Simon et al., 2000) and executive predictability (Durand, 2003), thus reducing the overall quality of the decisions obtained (Duhaime & Schwenk, 1985). Sivanathan et al (2008) demonstrates that power influences individuals to the point of losing their ability to interact with and adapt to the real world.

Once the relationships between innovation management and foresight are addressed, it is necessary to understand how an individual approach could affect the results obtained once the individual biases of the illusion of control have been portrayed.

## **2. Foresight and Innovation Management**

According to Gallouj (1997), it is important to emphasize the importance of institutional or organizational innovations, defined as "changes in rules governing the modes of interaction between individuals in a firm or organization" (p.27). These institutional innovations would give rise to institutional or organizational trajectories that, although not directly associated

with any technological innovation, are related to the current techno-economic paradigm. The combination and evolution of these trajectories are unique, according to the options that the firms establish.

Corporate foresight is defined here as an ability that includes any structural or cultural element that enables the company to detect discontinuous change early, interpret the consequences for the company, and formulate effective responses to ensure the long-term survival and success of the company (Rohrbeck & Gemünden, 2011). According to Gruber and Venter (2006) corporate foresight can be understood as an overarching futures orientation of an organization and is, therefore, considered a part of strategic innovation management. Van Der Duin (2004) states that there are two different situations where corporate foresight can contribute to the innovation process: before the idea is born and when the idea is already established. In the first situation, corporate foresight is applied as a concept to inspire and create new ideas for innovation. Daheim and Uerz (2006) conducted an empirical study amongst 152 large European companies. The results show that 57.5% of the respondents perceive corporate foresight as an improvement of the innovation process. Cunha et al. (2006) view foresight less as a technical and analytic process, but as “a human process permeated by a dialectic between the need to know and the fear of knowing”. Tang (2016) explored environmental scanning and social capital building in 226 hotels in Taiwan and confirmed that environmental scanning and social capital fully mediate the relationship between proactive personality of managers and capacity for service innovation as well as service improvement.

Rohrbeck and Gemünden (2011) sought to understand the role of foresight in maximizing the capacity for innovation in organizations. In this sense, they identified three roles that corporate foresight should play: the strategist role, the initiator role and the opponent role. Rohrbeck (2011) proposes a model that seeks to integrate strategic organizational management, business development, strategic control and innovation management as being relevant parts of what the author calls "corporate foresight". According to the model proposed by Rohrbeck (2011), this corporate foresight directly influences the organization's innovation performance, which, in turn, increases its performance. Still Rohrbeck (2012) argues that this process called "corporate foresight" collaborates with organizational performance as:

- Identifies relevant changes in the environment
- Promotes innovation initiatives
- Challenges the development of innovation

- Contributes to the overcoming of dominant mental models
- Moderate strategic discussions
- Supports the search, development and acquisition of strategic resources

Taking into account the theoretical relationship between the corporate foresight processes and the organizational results in terms of innovation, a deeper understanding of how executives make their decisions in the midst of these processes is best explored in the following session.

### **3. Individual decision making and Illusion of Control**

Biases are particularly common in situations of high uncertainty, such as the strategic decision-making of executives (Das & Teng, 1999; Kahneman & Klein, 2009). In one of the seminal papers on biases in forecasting processes, Schwenk (1984) distinguishes two main simplification processes in the prediction phase of strategic decision making: illusion of control and attention problems. In making strategic decisions under uncertainty, executives are subject to cognitive bias that systematically limit the quality of the decision obtained in the strategy process (Bazerman & Moore, 2008; Kahneman & Lovallo, 1993).

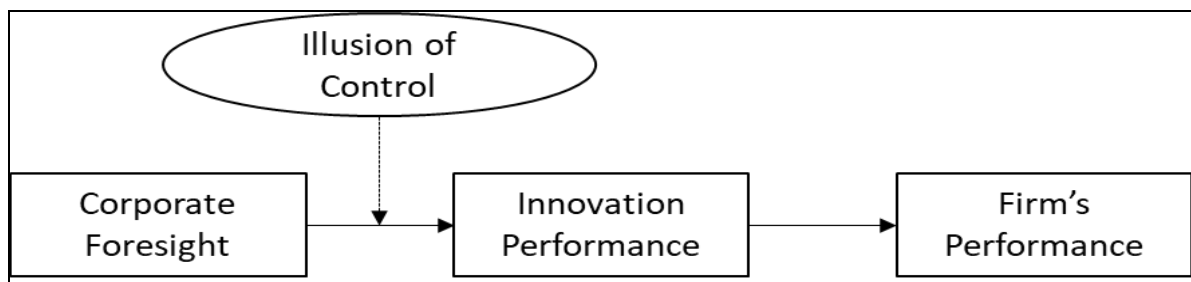
Especially, it has been found that the illusion of control is important in this context (Barnes, 1984; Schwenk, 1984). The illusion of control describes the tendency of decision makers to overestimate their influence over casual events (Langer, 1975). It is understood that the illusion of control weakens the analytical reasoning of the individual, which is a relevant part of the decision-making process. It leads professionals to think in terms of certainties, preventing them from working properly with complex situations, which directly impacts organizational strategic planning.

In everyday situations, there is evidence that people are deluded about their ability. Svenson (1981) has shown that most drivers consider themselves to be more skilled than the average driver. In the strategy process, the illusion of control has been shown to reduce perceived risk (Simon et al., 2000) and executive predictability (Durand, 2003), thus reducing the overall quality of the decisions obtained (Duhaime & Schwenk, 1985). Sivanathan et al (2008) demonstrates that power influences individuals to the point of losing their ability to interact with and adapt to the real world. According to the conclusions of the study, environments that have greater establishment of power relations tend to be more propitious for the realization of the illusion of control, as well as the attainment of this power can serve as a trigger for such. A professional who is promoted, for example, may act and make decisions differently, according to the power that was granted to him in the new position. In this way, by providing

an illusion of personal control, power can lead people to lose touch with reality in ways that lead to decisions based on overconfidence. Generally, individuals affected by the illusion of control tend to believe that they control the future as well.

The effects on individuals can be seen from the behavioral point of view. Isolated and individual action allows the interpretation of information to interfere with the bias of each professional (Choudhury, Katz, & Sampler, 1997; Graefe, Luckner, & Weinhardt, 2010), while an institutionalized process manages to generate collective knowledge. Likewise, this individual bias, when tied to positions of power, can generate an overconfidence in the professional, which, evidently, reduces its criteria for interpretation and accuracy in forecasts and decision making (Fast, Sivanathan, & Mayer, 2012).

The approximation of these concepts raises the question of how they can influence one over the other. If on the one hand Rorhbek (2010) presents a model that links innovation performance and firm performance to corporate foresight practices, on the other hand we see how an individual approach in decision making can be critical to this proposed model as a result of the illusion of control.



**Figure 1 - Conceptual Framework**

Figure 1 demonstrates this relationship between the concepts, presenting the main proposal of this work, which is exactly to investigate the effects of the illusion of control on the innovation performance of organizations.

#### **4. Methodology**

The scientific method refers to the choice of systematic procedures, which should enable the description or explanation of the situation studied (Fachin, 2003). The criteria used to make the selection of these procedures adequate are based on the nature of the objective and the purpose of the study itself. This research was conducted to understand how the illusion of control can represent a constraint to the implementation of innovation in services organizations. Based on the proposed research question, which seeks to interpret and

understand the phenomenon, we opted for an exploratory study that could collaborate with future studies (Petty; Thomson; Stew, 2012). Moreover, since the context of the study involves complex and needs answers to questions such as "how" and why ", the qualitative approach constitutes an appropriate research alternative (Benbasat, Goldstein & Mead, 1987). The option adopted in this study was to proceed with a case study, focusing on the individual, considering data collection performed through semi-structured interviews. For Yin (2003) the case study can be conducted for one of three basic purposes: explore, describe or even explain. Yin (2003, p. 32) argues that the case study "is an empirical investigation that studies a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly defined." Also with regard to the objectives of the case studies, Guba and Lincoln (1994) consider the possibilities of:

- a) report or record the facts as they happened;
- b) describe the situations or facts;
- c) provide knowledge about the phenomenon studied; and
- d) prove or contrast the effects and relations of the case.

The option for the case study is reinforced, since, through it, "it is possible to have a detailed view of a phenomenon, including its context" (Goldoni, Maçada & Oliveira, 2009, p.36). The data collected are, therefore, primary, collected through communication, since they are obtained through the statements of the respondents (Mattar, 2003).

In an attempt to conceptualize and define what we understand as a "case", Brewer and Hunter (1989) propose some categories that can be studied in this concept: individuals; attributes of individuals; actions and interactions; acts of behavior; environments, incidents and events; and still collectivities. For Yin (2003), in a case study, the exact "case" is examined in detail, in depth, in its natural context. Another relevant aspect regarding the choice of method is the fact that exploring the phenomenon - contemporary and still little explored - can bring evidences that were not previously thought, requiring a greater comprehension in the experiment (Yin, 2003).

Given that in many contexts the scientific aspect for research carried out using the case study method is still discussed (Mariotto; Zanni; Moares, 2013), we seek to work with a strategy that collaborates with the increase of accuracy with respect to validity internal, construct validity, external validity and reliability (Gibbert; Ruigrok, 2010; Yin, 2003).

The option for the open questions is given by the attempt of the study to capture spontaneous data and that have not been foreseen in the execution of the initial interview script (Freitas,

2000). Thus, this kind of interview can make information emerge more freely and the answers are not conditioned to a standardization of alternatives. For Manzini (2003), the semi-structured interview focuses on a subject on which we draw up a script with key questions. These questions are then supplemented by other questions regarding the circumstances of the interview.

The research universe was composed of 1 company that operates in the area of technology services. Data will be collected through semi-structured interviews with 5 members of the organization (CEO, CTO, Innovation Manager, Innovation Analyst and Innovation intern). There will still be data collection from reports and company documents related to plans and launches of new services, minutes of innovation meetings and internal controls of the area of innovation. All data will be analyzed through lexical analysis and content analysis

## **5. Results and discussion**

This research was carried out with the purpose of exploring the effects of the illusion of control in innovation results in the organizations. To complete this investigation, a case study was conducted in a company that works with technology services in the city of Porto Alegre, Rio Grande do Sul. Semi structured interviews were carried out with 5 members of the organization:

- CEO
- CTO
- Innovation Manager
- Innovation Analyst
- Innovation intern

Respondents were between the ages of 20 and 50, with only one being female. With the exception of the intern, all other respondents had at least 3 years of experience in in-company innovation activities that were used for the case study. In addition, documents and files related to the company's area of innovation were collected, adding more than 5 years of information, which effectively contributed to the comparison of the answers obtained and the documentary reality raised. The company analyzed is of medium size, operates in the area of technological services, which demands a great deal of attention to what happens in the external organizational environment, given the constant transformation and disruption reality through which this specific market passes, not only in Brazil, but all around the world.



The research instrument consisted of three main blocks of information. The first one dealt primarily with type of decision making in the innovation área. The second block sought to understand the source of these information, to understand how any of the respondents sought information on possible ideas and opportunities. The third block of questions seeks to understand the perceived continuity on the innovation projects inside the organization. Below we will deal specifically with the results obtained in each of the blocks of questions

### 5.1. Strategic Foresight, Innovation and Individual Decision Making

Given the importance of the type of decision-making in organizations, the first question asked to all respondents was about individual or collective decision-making within the organization. The intent of this question was to understand whether the decision maker, from his or her own point of view and from the point of view of his subordinates, made decisions about innovation processes unilaterally or on a shared basis. The results are exposed on Table 01.

**Table 1 - Type of Decision Making**

	<b>Related to subordinates</b>	<b>Related to superiors</b>
<b>CEO</b>	Collective	n/a
<b>CTO</b>	Collective	Individual
<b>Innovation Manager</b>	Individual	Individual
<b>Innovation Analyst</b>	n/a	Individual
<b>Innovation intern</b>	n/a	Individual

The results were quite different according to the respondent. While management positions understood that their decision-making was shared with their subordinates, the management and operation positions understood a unilateral decision-making by their superiors. It is also interesting to note that the organization's CTO understands that his decision-making is shared with his subordinates and also with his leader. However, in his understanding, the CEO – his superior - takes decisions unilaterally. This individual decision-making is a path for the illusion of control within organizations, since individual bias can prevail in the rationality of a decision-making process in situations of uncertainty (Das & Teng, 1999; Kahneman & Klein, 2009).

The second question asked the interviewees concerned the origin of the new ideas. Respondents were asked to respond to what were the main sources of "inspiration" for innovation within the organization. In this sense, specific professionals in the area of innovation have brought evidence of a series of practices carried out among them, such as:

brainstorming meetings, participation in events, reading periodicals specialized in the field and monitoring of the actions of the competition.

**Table 2 - Sources of Information**

	Brainstorming	Periodicals	Events	Informal contacts	Meetings
<b>CEO</b>	yes	no	yes	yes	yes
<b>CTO</b>	yes	yes	yes	yes	yes
<b>Innovation Manager</b>	yes	yes	yes	no	yes
<b>Innovation Analyst</b>	yes	yes	yes	no	no
<b>Innovation intern</b>	yes	no	yes	no	no

These processes, according to what was evidenced by the respondents, are carried out in a structured and methodical way, recognized and approved by the organization. This is the way in which, admittedly, the area of innovation seeks to identify and initially work new ideas within the organization.

On the other hand, it should be noted that the responses obtained by both the CTO and the CEO position, although aligned with the organizational model - once they mention the practices adopted by the innovation area - also bring evidence of practices search for new ideas and opportunities for innovation. In this case, both respondents also bring evidence of searching for "inspiration" for innovation from: peer and family perceptions, informal conversations with business stakeholders, insights from business meetings with other areas of the organization. In this way, the process gains a more individual character, being dependent on those who, in fact, execute these practices voluntarily, without any direct relation with the business processes.

Both professionals were asked in depth about these "individual sources of new ideas" and their continuity in the company. The intention of the question was to find out if there was any differentiation between the ideas coming from these sources and the ideas that came specifically in the area of innovation. In response, both brought examples of ideas that had come through these sources and, indeed, were applied in the organization. One of them, referring to a new service. Another one, referring to a specific improvement in a service that was already being worked on in the company.

It should be noted that many authors raise the question of information sources in strategic foresight processes. The main sources reported in the literature concerning these practices are clients and suppliers, Internet searches, fairs and exhibitions, specialized training, conferences and seminars, external consulting, universities and technology centers (Haase & Franco,

2011). In addition, Sawy (1985) already addressed the issue of individual information sources as part of the process of monitoring the external environment, which would serve to identify new ideas or enable the company to protect itself against possible threats from the external environment.

In the third question respondents are invited to reflect on the continuity (or not) of the innovation ideas that have emerged in the organization in recent times. The responses obtained were evaluated together with the organization's records regarding the development of new ideas and services.

First, they were asked to speak of the ideas that had been suggested by themselves. The intention was to understand if there was any difference from the point of view of hierarchy and continuity of the projects. Although the result seems obvious (and is), it is identified that the respondents' perception of the continuity of their ideas is totally linked to their hierarchical level. The higher the hierarchical level, the greater the perception of the continuity of innovation projects within the organization.

**Table 3 - Percieved Continuity of the Innovation Projects**

	Percieved Continuity (%)	If Not, reasons
<b>CEO</b>	70%	"Some of the projects I have suggested have proven to be unworkable when we attempt to do deeper studies on market acceptance and financial viability. So they did not move on."
<b>CTO</b>	60%	"Some projects suggested by me required a high investment and little guarantee of results in the market. We think it wiser not to push them forward."
<b>Innovation Manager</b>	30%	"The ideas and innovations that arise in the area of innovation need the approval of the director of technology and the director general. I can not explain exactly why some of them go forward while others are pushed aside."
<b>Innovation Analyst</b>	10%	"In general, my activity is focused on insights based on what I read, what I see from competitors and clients, and what I perceive at events and congresses. I do not usually follow the progress of this in the company after my reports are enraged, but I do not see much being forwarded, no."
<b>Innovation intern</b>	10%	"I do not usually receive feedback on ideas that have (or do not) continue within the organization. So far, only one suggestion for improvement of the development process has actually been made. The rest, I do not know why they were discarded."

Apparently, there are no clear reasons among tactical and operational respondents for the discontinuity of some ideas and opportunities within the processes of the area of innovation. On the other hand, in the perception of the directors, the financial question and the market acceptance justify the discontinuity of some projects suggested by them.

Attention is drawn to the fact that the ideas coming from the upper echelons of the organization have more adherence than those coming from tactical and operational levels. While on the one hand this may demonstrate greater preparation and a broader market view of

those performing positions of greater power, this may also represent a level of bias quite evident in the illusion of control theory, since the greater the power, the greater the probability of the individual believing to have control over events that, effectively, he does not have (Sivanathan et. al, 2008).

In this sense, the respondents were asked about their satisfaction with the continuity (or discontinuity) of the ideas launched, which demonstrates more clearly the illusion of control in established relationships. Operational level practitioners' perception is that some good suggestions for improvement and new services (some of them, even launched by competitors after being discontinued within the company) have been discontinued without obvious reason. In fact, in analyzing the documentation that brings the record, three different service incitions (including new technologies to service customer service) were discarded between 2014 and 2016 and were launched by more than one contributor in those same years. According to these respondents (operational level), these competitor innovations currently cause the company to lose a share of its market, as these new technologies promote a lower cost to the customer, who opt for these alternatives.

On the other hand, when asked about this situation, the CEO of the company understands that this is a lack of vision on the part of the competition, and that these innovations will soon be discontinued. So, besides expensive, they are solutions that should not thrive in the market for the next 5 years. When asked about the origin of his opinion on the subject, the professional argues his knowledge about the functioning of this market, without making reference to facts or evidences that prove his arguments.

## **5.2. Evidence of Illusion of Control in Innovation Processes**

According to what was raised in terms of theoretical research, the effects of the illusion of control can be observed under three different aspects: overconfidence, underestimate of risks and forecast bisases. In this chapter the main objective is to link the answers obtained in the interviews with these effects of the illusion of control, trying to understand if in fact they can be observed and how they influenced the processes of innovation within the research organization.

Firstly, with respect to overconfidence, it is understood that, mainly the professional with position of CEO demonstrates evidences of this behavior in relation to the activities of innovation. The defintion of overconfidence is the “overestimation of one’s actual ability, perfirmance, level of control, or chance of sucess” (Moore & Healy, 2008 p.1)

By discarding certain projects because they believe their market vision is complete, the executive is practicing a form of overconfidence. The possibility of seeing the fingerprints of these projects that have been discarded in market terms helps us to understand that decisions may not have been taken by evaluating the issue as a whole, but rather the vision of the decision-making executive, who, even the present moment, holds the same view on the subject.

Likewise, the belief that your ideas are good enough to be continued can be evidence of overconfidence. According to the information cross-referenced (between interview data and data in the documents), approximately 60% of the innovations suggested by the organization's directors were effectively implemented and were not successful and had to be discontinued. These innovations, for the most part, related to new business units, new forms of technological integration with customers and new formats of service delivery. Some of these have even required the restructuring of the company's development teams, which needed to be relocated after the failure.

The decision-making process itself in relation to these innovations is not clear in procedural terms. The documentation that was made available does not demonstrate the criteria used to decide the continuity of these projects. Likewise, when questioned about this, the directors say that it was a decision taken, in part, by a strategic leadership of the organization, while members of tactical and operational levels say they do not know what criteria were taken into account. The main argument raised by these professionals was that in some cases the investment was high, as well as the need for structural change - and the evidence of low return. However, these projects have continued within the organization, while others - raised through processes in the area of innovation - have been discontinued and today - according to these respondents - they are lacking in the company's portfolio of services.

## **6. Conclusions**

The main objective of this research was to explore the effects of illusion of control in innovation processes in organizations taking into account the processes of "corporate foresight" as sources of information for innovation. To reach this objective, a case study was conducted. Five semi structured interviews were carried out, with members of all organizational levels of the company.

Firstly, there were differences in decision-making regarding innovation. Members of the high organizational level understand that decisions are made jointly, while members of tactical and

operational levels see unilateral decision-making. Despite the distinct perceptions, there is no documentary evidence of a corporate decision-making, based on well-established processes, which opens up space for individual biases, especially from the direction management influence decision making.

This statement becomes clearer when assessing the percentage of continuity of innovation projects within the company. Most of the projects that have continued, come from life ideas of the organizational strategic level, and not of work sources of the innovation team. The sources of insights for these ideas were not formal sources, but rather, conversations and exchanges of ideas among these professionals, and friends, family, and stakeholders. Although this is understandable a higher rate of approval of projects from the organizational strategic level, it is difficult not to relate this evidence to the illusion of control, since there is clear demonstration of an overconfidence of these professionals with respect to their ideas and the market where they are inserted.

The very success rate of the projects carried out shows us how much these professionals may be wrong about their impressions, although, even with the evidence at hand, there is acceptance regarding these data.

In general, with respect to the process of innovation and its activities and tasks, it is possible to observe that the executives have more confidence in their own methods and standards than in those proposed in a systematic and oriented way. Certainly this vision poses as a barrier to the implementation of formal innovation processes. This does not necessarily mean that executives do not perceive value at specific steps in this process. However, despite considering some relevant stages, the process as a whole (formal, systematic, collective) still does not receive, in companies, the value it receives in the academic literature.

This study has as limitation the fact that it proposed one case study to an inexpressive number of respondents, exclusively with the intention to explore better the relation between the illusion of control and innovation processes and results in one organization. More expressive studies, with a greater number of respondents and that operate in different branches and markets, can produce more convincing results that can be generalized and better managed from the organizational point of view.

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