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DYNAMIC CAPABILITIES AND INNOVATION IN HEALTH SERVICES

CAPACIDADES DINÂMICAS E CAPACIDADE DE INOVAÇÃO EM SERVIÇOS DE SAÚDE

CAPACIDADES DINÁMICAS E INNOVACIÓN EN SERVICIOS DE SALUD

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ABSTRACT

The work aims at understanding the capacity of innovation in health services in light of the microfoundations of dynamic capabilities. The study adopted the framework by Teece (2007), which presents three dynamic capabilities: (a) the ability to identify the environment context (sensing); (b) the ability to seize opportunities (seizing); and (c) the ability to manage threats and transformations (reconfiguring). For this research, a qualitative case study with exploratory and descriptive characteristics was carried out in a private hospital located in the city of Porto Alegre, Brazil. The main results show that the understanding routines and processes through microfuses facilitates the visualisation and understanding of the dynamic sensing, seizing and reconfiguring capabilities.

Keywords: Innovation Capacity; Dynamic Capabilities; Microfoundations; Innovation; Health Services.

RESUMO

O trabalho visa compreender a capacidade de inovação em serviços de saúde à luz dos microfundamentos das capacidades dinâmicas. O estudo adotou o framework de Teece (2007) que apresenta três capacidades dinâmicas: (a) capacidade de identificar o contexto do ambiente (sensing); (b) capacidade de aproveitar as oportunidades (seizing); e (c) capacidade de gerenciar ameaças e transformações (reconfiguring). Para essa pesquisa foi realizado um estudo de caso qualitativo exploratório e descritivo em um hospital privado situado em Porto Alegre-RS. Os principais resultados mostram que a compreensão das rotinas e de processos por meio dos microfundamentos facilita a visualização e o entendimento das capacidades dinâmicas sensing, seizing e reconfiguring em contextos de saúde.

Palavras-chave: Capacidade de Inovação; Capacidades Dinâmicas; Microfundamentos; Inovação; Serviços de Saúde.

RESUMEN

El trabajo tiene como objetivo comprender la capacidad de innovación en los servicios de salud a la luz de los micro fundamentos de las capacidades dinámicas. El estudio adoptó el marco Teece (2007) que tiene tres capacidades dinámicas: (a) la capacidad de identificar el contexto del entorno (detección); (b) capacidad de aprovechar oportunidades (aprovechar); y (c) la capacidad de gestionar amenazas y transformaciones (reconfiguración). Para esta investigación, se realizó un estudio de caso cualitativo exploratorio y descriptivo en un hospital privado ubicado en Porto Alegre-RS. Los principales resultados muestran que comprender las rutinas y los procesos a través de microfundamentos facilita la visualización y la comprensión de las capacidades de detección dinámica, captura y reconfiguración en contextos de salud.

Palabras clave: Capacidad de innovación; Capacidades dinâmicas; Microfundaciones; Innovación; Servicios de salud.

1 INTRODUCTION

The dynamic capabilities' approach is criticised by the conception that is considered as vague and tautological. Tautology can be caused by the fact that concept is more theoretical and harder to operate. The ambiguity is presented in the definitions and there are misunderstandings among the concepts due to the different terms linked to it, such as capabilities, skills, competencies, etc. (MOSAKOWSKI; MCKELVEY, 1997; PRIEM; BUTLER, 2001; AREND; BROMILEY, 2009)

However, in order to respond to the reviews, Teece (2007) published the article Explicating dynamic capabilities: the nature and microfoundations of enterprise performance, in 2007. In this article, the author presented a framework with the objective to integrate the approaches of strategy and innovation. The framework presents three dynamic capabilities, called (a) the ability to identify the environment context (sensing), (b) the ability to seize / incorporate opportunities (seizing), and (c) the ability to manage threats and transformations (reconfiguring). Each ability has microfoundations that enable their operationalisation and are seen as processes and routines that facilitate the development and operationalisation of the dynamic capabilities (TEECE, 2007). Moreover, according to Kindström, Kowalkowski and Sandberg (2012), the microfoundations are considered as fundamentally important in the construction of dynamic capabilities and significantly affect the innovation's success or failure, which happens through the processual variation that concerns the dynamic capabilities' development basis (PASIAN; SANKARAN; BOYDELL, 2012).

The dynamic capabilities' approach is defined as the ability to integrate, build, combine, protect and reconfigure resources, capabilities and the organisation's tangible and intangible assets as a response to environmental changes (TEECE; PISANO; SHUEN, 1997; TEECE, 2007). This theoretical view is meant for the organisational strategy study, associated to the context of change and innovation, and is characterised by the continuous mobilisation of resources and capabilities in this sense to meet the business strategies according to the environment's dynamism. Due to these characteristics, the approach matches the innovation capability's nature in order to generate business renewal opportunities. Lawson and Samson (2001) emphasise that the organisations with dynamic capabilities influence and shape the

market through innovation capability and are more likely to adapt to and meet the market's demands.

Dodgson, Gann and Salter (2008) define innovation as an organisational skill for the formulation and planning of innovation strategies, for it involves the ability to create, expand or modify the resources used for innovation. Therefore, innovation capability enables the transformation of knowledge and learning into new products, services and processes, and introduces radical and incremental innovations to the market. Tidd, Bessand and Pavitt (2008) reinforce this argument and state that, although innovation is seen as a way to build and support the competitive advantage more and more, it doesn't guarantee this advantage. Thus, innovation depends on the way how all this process is conducted, that is, it depends on its resources, routines, processes and managing ability. Accordingly, Reichert, Camboin and Zawislak (2015) emphasise the organisations as the result of continuous knowledge transformed into technology, and operational and commercial routines which reflect a superior performance. This way, the dynamic capabilities' theoretical view is seen as a fundamental and relevant axis for the innovation capability development.

Therefore, this study tries to answer the following question: Can innovation capability in health services be developed through dynamic capabilities' microfoundations? Thus, the objective of this research was to analyse the innovation capabilities in health services in light of the dynamic capabilities' microfoundations.

For this issue, a case study was carried out with exploratory and descriptive characteristics in a private hospital in the city of Porto Alegre, Brazil. The data were collected through documents and nine semi-structured interviews, and analysed through qualitative content analysis. It is worth saying there are situations where the single-case study can be led as an introduction to a deeper study. However, it can't be seen as a whole study *per se* (YIN, 2005). Yet, as emphasised by Easterby-Smith, Lyles and Peteraf (2009), the research's qualitative approaches that involve the dynamic capacities' theme give more detailed descriptions of the processes involved, the management role and the interaction with the environment by giving more precise definitions.

This way, it is possible to identify an opportunity for new studies on this theme which set a relationship between theoretical and managerial aspects as highlighted by Araújo, Pedron and Bitencourt (2018). It can be stated that, both theoretically and empirically, there is the need for new studies on the theme. This research's main contribution lies on the presentation of routines and innovation processes associated to the dynamic capabilities' microfoundations.

2 INNOVATION CAPABILITY

Innovation capability concerns the systematic effort to acquire technological knowledge for improvements in the company through learning (KATZ, 1976). It can be defined as the internal potential for the generation of ideas, the identification of new market opportunities and the development of an innovation turned to commerce based on the organisation's resources (NEELY; HII, 1999). Thus, according to research by Reichert, Camboim and Zawislak (2015), innovation capability is the result of four capabilities that are present in the following basic functions: development, operations, management and commercialisation. In other words, they are related to the skills and routines that are needed in order to put the necessary changes into practice upon increasing and/or maintaining the competitiveness. These organisational skills and routines are mobilised with the objective to reach higher levels of technical-economic efficiency, improvement in the productive efficiency at the lower cost possible, a continuous guarantee of processes, practices and competencies' internal efficiency, besides the projection and the relationship with stakeholders (LIAO; FEI; CHEN, 2007; REICHERT; CAMBOIM; ZAWISLAK, 2015; FORÉS; CAMISÓN, 2011).

Lawson and Samson (2001) emphasise that the notion of capability is important in this sense to apply innovation, since the capacity to innovate facilitates the development of people and the organisation's behaviour for the systematic activities and routines on innovation in the company. Therefore, innovation capability presents the requirements a company needs to support the innovation process, thus speeding up the adoption of new processes, the development and the introduction of new products and services. The requirements are related to the ability to mobilise and manage resources and routines (BALAN; LINDSAY, 2007).

Innovation capability is a formulation and implementation skill of innovation strategies, for it involves creation capability, expansion and modification of resources used for the innovation of new developments (DODGSON; GANN; SALTER, 2008). Bell (2009) complements that innovation capability is necessary to imagine, develop and implement new configurations of product technologies, services and processes, and to bring improvements to the technologies that are being used. From the concepts presented, innovation capability can be understood as an alignment of innovation practices with organisational practices. This usually happens deliberately and systematically. This way, it transforms knowledge and learning into radical and incremental innovations. The authors emphasise that innovation is a process and not an isolated event, so it must be managed dynamically and integrally, that is, managing or developing skills in some areas solely is not enough. Innovation can be conducted in a structured way. For such, routines that can be described as steps to provide it are necessary.

3 DYNAMIC CAPABILITIES

The dynamic capabilities' approach hit the spotlights in the 1990's, with the publication of the article "Dynamic Capabilities and Strategic Management", by Teece, Pisano and Shuen (1997), in the Strategic Management Journal. In this article, the authors specify the concept of dynamic capabilities, such as the capacity to perceive and seize new opportunities, to reconfigure and protect knowledge assets or resources, complementary competencies and assets or resources with the objective to reach a sustainable competitive advantage.

The researches on dynamic capabilities are seen as an affluent theoretical view about studies on strategic management, organisational changes, innovation and competitive advantage. This way, the dynamic capabilities' approach focuses on "how the companies can change their value by creating resources and capabilities overtime, so as to reach congruence with the ever-changing environment" (GÜTTEL; KONLECHNER; MÜLLER, 2011, p. 4).

Upon analysing the concepts about the dynamic capabilities' approach, it is possible to see that the concept was spread by Teece, Pisano and Shuen (1997), and the other concepts were designed with the objective to complement the initial concept. It is possible to see that some authors stated that dynamic capability is a process (EISENHARDT; MARTIN, 2000), others

emphasise that dynamic capability is a skill (TEECE; PISANO; SHUEN, 1997; ZAHRA; SAPIENZA; DAVIDSON, 2006), and other authors state that dynamic capability can be defined as a capacity (TEECE, 2007; HELFAT et al., 2007; AUGIER; TEECE, 2008; MCKELVIE; DAVIDSON, 2009). This way, the dynamic capabilities can be the processes, skills or abilities to integrate, combine, build, reconfigure and transform the organisation's resources and routines in order to generate changes and obtain a competitive advantage.

Since then, there have been several theoretical efforts turned to developing the concept, especially from its operationalisational point of view. Vivas-López (2013) highlights dynamic capability as the capacity of the company and of its managers to continuously modify its resources in a flexible and adaptable way, emphasising the dynamic processes of resources' adaptation, remodelling and reconfiguration, including imitation barriers.

In order to guide the objective analyses, the framework by Teece (2007) presents three dynamic capabilities, and each one of them has microfoundations that enable their operationalisation. Microfoundations are seen as routines and processes that facilitate the dynamic capabilities' development and operationalisation (TEECE, 2007; VIVAS-LÓPEZ, 2013). The dynamic capabilities and their microfoundations are presented in Table 1.

Table 1 – Dynamic capabilities and their microfoundations

Dynamic Capability	Microfoundations
Ability to identify the environment context (sensing)	(1) Processes to guide internal works of research and development; (2) Processes for partnerships with suppliers in this sense to complement the organisation's innovations; (3) Processes to explore exogenous scientific and technological developments; and (4) Processes to identify the sectors in the target market, the clients' needs and the generation of innovations which might interest the clients.
Ability to seize / incorporate opportunities (seizing)	(1) Solutions for clients and the business model (selection of the target client, value delivery and capture; selection of technologies, client's guidance); (2) Selection of organisational borders (definition of the activities' coverage scope – definition of norms and limits which allow first movers' advantage, even in the presence of imitators); (3) Routines for selecting decision-taking protocols (such as allocating resources, investment portfolio balance); (4) Routines to build loyalty and commitment (innovation culture alignment in order to guarantee the employees' loyalty and commitment).
Ability to manage threats and transformations (reconfiguring)	(1) Decentralisation and decomposition (decisions' decentralisation facilitates response swiftness and capability in relation to meeting the clients' demands and the new technologies that may be acquired); (2) Co-specialisation (collective use of assets, considered private, which are not easily identified by competitors and generate value – especially the manager's ability to identify and use this combination); (3) Administration and knowledge management (development of integration processes of external and internal knowledge, and of learning, creation of alliances and joint ventures to facilitate the administration of technology transfer and intellectual property).

Source: Adapted from Teece (2007).

Teece (2007) ranked these dynamic capabilities after studies that were carried out with the objective to integrate innovation with organisational strategy. This study is based on the discussion about the dynamic capabilities suggested by Teece (2007), whose framework influenced other authors (ELLONEN; WIKSTRÖM; JANTUNEN, 2009; KATKALO; PITELIS; TEECE, 2010; KINDSTRÖM; KOWALKOWSKI; SANDBERG, 2012; PASIAN; SANKARAN; BOYDELL, 2012; TEECE; PETERAF; LEIH, 2016; DAY; SCHOEMAKER, 2016).

Therefore, it can be inferred that the dynamic capabilities integrate organisational learning themes and approach based on knowledge and they become essential for the development of resources based on knowledge, representing sources of competitive advantages in markets with different environments. The dynamic capability's premise comprises the use, renewal and reconfiguration of organisational resources for the support of a competitive advantage in changing environments, and it is solidified as a key factor for the company's innovation and optimisation of strategic resources.

4 RESEARCH METHODOLOGY

This study was performed through a qualitative case study with exploratory and descriptive characteristics in a private hospital from the city of Porto Alegre, in the state of Rio Grande do Sul, Brazil. The qualitative research analyses concrete situations in their temporal and local aspects, from personnel expressions and their context activities. The qualitative research involves the interpretation of an organisational phenomenon which cannot be strictly measured in terms of quantity, frequency or intensity (FLICK, 2004). The case study represents a way of investigating an empiric topic that studies a contemporary phenomenon within its context in real life (YIN, 2005). The choice of the method can be justified for being the one suitable for a deep analysis in study units, when the researcher aims at the detailed examination of environments, individuals or at a specific issue.

The criteria used, and which justify the case study in this company, are detailed as follows: a) the technological development is contemplated in the mission, and the innovative management is about a principle; b) the hospital is recognised by its innovative management model; c) there are publications related to innovation in social balances. For data collection, a semi-structured interview guide was designed. The first contact with the hospital was done

with the Personnel Management Director via e-mail. The research's project was submitted to the hospital's ethical committee for approval. The list with the individuals' names for research was informed by the hospital's human resources, which pointed out to collaborators who hold knowledge on the research's topic and who work innovatively.

Nine semi-structured interviews were performed in depth, in person, and with the research's individuals. Table 2 presents the interviewees' profiling. All the interviews were recorded with a portable recorder under the interviewees' due consent and, then, transcribed for further analysis. The interviewees were coded I1, I2 and so on in the section which presents the results.

Table 2 – Individuals interviewed in the hospital

Position/Role	Time in Company	Schooling
Innovation Project Manager	1 ½ year	Master's in Strategic Design. Specialist in Marketing. Major in Publicity and Marketing.
Administrative Technical Consultant	10 years	Master's in Production Engineering. Specialist in Project Management. Major in Administration.
Facility Security Coordinator	4 years	Master's in Biomedical Engineering. Major in Electrical Engineering.
Maintenance Coordinator	3 years	Major in Electrical Engineering.
Personnel Management Director	5 years	Master's in Production Engineering. Specialist in Finances. Major in Production Engineering.
Technical Nursing Manager	20 years	Master's in Entrepreneurial Management. Major in Nursing.
Private Hospital Health System Supervisor	15 years	Specialist in Hospital Administration. Major in Accounting.
Medical Practices Director	10 years	Master's and Doctor's in Medicine. Major in Medicine.
Technical Assistance of the Institutional Relations' Superintendence	7 years	Master's in Sustainable Development. Specialist in Health Management. Major in Philosophy.

Source: Elaborated by the authors.

Secondary data were collected from Social Balances with the objective to carry out a data convergence in this sense to show relevant indications for the study (YIN, 2005). The participant observation happened together with the interviews through field visits, which aimed at searching for a better understanding of the activities' dynamics, as well as understanding innovation capability from the dynamic capabilities' theme.

It is also worth mentioning that the data collected were triangular in the search for the research's strict preservation. By crossing the distinct sources of collected data, it was possible to integrate the different perspectives that come from the data sources about the topic

researched, so as to provide a higher level of reliability to the research (FLICK, 2004). The following data were triangled: (i) interviews; (ii) documents; and (iii) participant observation. The first level of triangulation was among the interviewees in the search for similar answers. Then, the interview's findings were crossed with the collected documents and the participant observation.

The data that were collected through interviews and documents were analysed by the qualitative analysis content, which, according to Flick (2004), is one of the classical procedures to analyse the textual material. "One of its essential aspects is the employment of categories of theoretical models, which are frequently obtained" (FLICK, 2004, p. 201). The defined category analyses the innovation ability in the light of the dynamic capabilities. The category encompasses the three dynamic capabilities and their respective microfoundations. The three dynamic capabilities are: the ability to identify the environment context (sensing), the ability to seize / incorporate opportunities (seizing), and the ability to manage threats and transformations (reconfiguring), suggested by Teece (2007).

5 INNOVATION CAPABILITY IN THE LIGHT OF DYNAMIC CAPABILITIES

The first dynamic capability analysed refers to the ability to identify the environment context (sensing) and presents the following microfoundations: processes to guide internal works of research and development; processes for partnerships with suppliers in order to complement the organisation's innovations; processes to explore exogenous scientific and technological developments; and processes to identify the sectors in the target market, the clients' needs and the generation of innovations which might interest the clients (TEECE, 2007).

In relation to the processes to guide internal R&D works, it can be stated that the health area doesn't have an R&D department. Interviewee 1 stated that "the research in the hospital is clinical, it is not research and development (R&D) turned to innovation". In order to coordinate the clinical research, a committee of science and technology that meets to discuss health researches was called out. Every year, researches are carried out to identify the trends in epidemiologies. The projects office can be mentioned, for it implemented a methodology for project management and is carrying out researches and calling out meetings

to define an innovation methodology which meets the assistance and administrative areas (INTERVIEWEE 8).

This organisational logic for research is founded on its functional department by medical expertise. The hospital is organised into Medical Institutes, in which related medical specialisations are gathered, with an operation based on assistance, teaching and research that are forced to contribute to teaching and research activities for knowledge and assistance certification. As a consequence, each institute has a Research Centre organised to lead the research projects that are revised by a Research Ethics Committee (REC) in the Institution itself. This microfoundation can be adapted to "processes to guide internal works of Science and Technology". The second microfoundation deals with the processes for partnerships with suppliers in order to complement the organisation's innovations. The hospital keeps partnerships with suppliers for the development of technologies. The partnerships are also kept with universities and research laboratories. The development of new technologies is in progress, such as the electronic promptuary. Interviewee 3 stated that "the hospital is in search of partners for the development of this technology".

Moreover, the partnerships with pharmaceutical laboratories are mentioned, especially the one with the hospital's Medical Institutes, which pioneered in the state of Rio Grande do Sul with the development of clinical researches that are inserted in the private hospital organisation. The profile of the clinical studies carried out from 2002 to 2012 pointed out that 90% of the total of 35 studies performed was sponsored by the pharmaceutical industry with a multicentre profile. The Research Centre has been audited twice by international sponsors and searches for excellence by adopting a strict policy of adhesion both to the local rules and to the international standards, applicable to the clinical research's conduct. Besides, it works on the handling of research projects for the oncology and hematology areas, but, since 2012, it has developed research projects in the rheumatology area, expanding its work scope and market trend. The centre has a structure of processes through Standard Operational Procedures that are specific for the procedures developed by clinical research.

The search for partnerships with suppliers is turned to the development and acquisition of machinery with cutting-edge technology, that is, the hospital identifies the need

and searches for suppliers who may develop machines and therapies. Partnerships are not only kept with suppliers in order to generate innovations, but also with universities and companies.

The third microfoundation concerns the processes to explore exogenous scientific and technological developments. For such, either the doctors take part of national and international fairs and congresses or the suppliers present the technologies to the hospital. Interviewee 2 stated that "the doctors who are in charge of the institutes are part of the councils of medical specialties and have access to advanced information and knowledge in their areas of work". Moreover, the hospital has a Corporate University whose work is based on the creation, management, dissemination and perpetuation of knowledge by offering services such as trainings, consultancies, post-graduation and extension programs (in partnerships with teaching institutions), medical residence, clinical research and scientific events.

The last microfoundation on the ability to identify the environment context concerns the processes to identify the target market sectors, the clients' needs and the generation of innovations that might interest the clients. In order to identify the target market sectors and the clients' needs, the hospital conducts an analysis of scenarios coordinated by the managers group, and researches of epidemiologies and health that are coordinated by the committee of science and technology and by the medical groups (INTERVIEWEE 7). Then, the hospital analyses which machinery is necessary to meet this demand. According to interviewee 1, "the hospital has a leadership in some areas of medical knowledge, like oncology, for example. This is because it has technologies to serve this area of knowledge that other hospitals don't have". The analysis of these microfoundations showed that this dynamic capability is related to the acquisition of machinery to offer new services to the clients or to improve the existing ones.

Subsequently, there is the reflection upon the second dynamic capability suggested by Teece (2007), named the capability to seize / incorporate opportunities (seizing), which refers to the guidance of the opportunities identified for the development of new products, processes, services and business models through the creation of organisational structures and the development of routines. Teece (2007) presents four microfoundations that encompass this capability, which are solutions for clients and the business model, selection of

organisational borders, routines for selecting decision-taking protocols, and routines to build loyalty and commitment, explained below.

The first microfoundation concerns the clients' solutions and the business model. From the data, it was possible to see that the needs of medical and management attraction and retention demanded two organisational innovations in the management's structure and model (INTERVIEWEE 1). This way, these innovations are associated to the needs demanded by the environment instead of the opportunities identified in it.

The innovation in organisational structure, which concerns the health institutes' organisation, favoured the matrix management for the improvement of services. For example, the hospital's structure offers several services to the institutes, such as diagnosis, hospitalisation, surgery ward, intensive care centre and intensive care unit, besides administrative support. For interviewee 8, "[…] this is an innovative model; the institutes relate to the organisational structure by using the services offered by the institution. Management is matricial and not pyramidal. This structure attracts doctors, which is a strategic resource and brings the patient into the hospital".

Innovation in the management model concerns the constitution of a hospital chain, for the hospitals and the remaining facilities mutually contribute to offering better assistance services to their users. This chain includes government partnerships. "In the hospital area, this model of chain management is not common; it can be stated that it is an innovation in the management model" (I4).

As an example of the opportunity identified, the Hospital Corporate University, introduced in 2004, can be mentioned. "[…] it was the first one in Brazil in the health area" (INTERVIEWEE 5). In 2010, the University became a self-sustainable business unit. Partnered with an institution of higher education, the Higher School of Health opened up in December 2010, offering programs of graduation, specialisation and professional master's degree (INTERVIEWEE 5). Moreover, it is also responsible for the programs of internal training and classes that are open to the market. "There was a transition in the Corporate University that only met the internal needs of training and development for the Higher School of Health which, besides meeting the internal needs, expands its operation into the market". The second

microfoundation concerns the selection of organisational borders, which is evident due to government partnership, which is managed by the directors for public management. Also, partnerships with universities and research laboratories managed by the science and technology committee and by the projects office, which promote the organisation's learning processes (SOCIAL BALANCE, 2017).

The third microfoundation concerns the routines for selecting the decision-taking protocols. These routines are meetings for assessing the feasibility of acquiring new technologies along with the administrative area (economic feasibility), and the assistance area (safety feasibility and assistance quality), according to statement by Interviewee 3. The investments in technologies are measured through the return on investment indicators (ROI), which analyses how long it takes to be paid off and the generation of more or less qualified revenues, and through the analysis of the security matrix indicators, which check the service quality and the assistance security for risk prevention (INTERVIEWEE 6).

The matrix management was appointed by the interviewees as a facilitator in the taking of decision. They were organised into groups for the specialisations which covered representatives of all the hospital units. This step enabled the flow of information and the taking of decision. It should be mentioned that, in order to take decisions, the certifications of the National Accreditation Organisation (NAO) and of the Joint Commission International (JCI) are taken into account as a methodology for assistance security (INTERNAL JOURNAL, 2017).

The fourth microfoundation concerns the routines to build loyalty and commitment. As for this microfoundation, Interviewee 9 emphasises that "the social balance is disclosed and the strategies and results are displayed annually to all the employees".

In order to help the development of innovations in progress, approximately 10 groups of fixed improvements that have performed since 2003 in the assistance area were created. These groups are composed of multidisciplinary teams, such as nurses, nutritionists, doctors, etc., who search for the best practices and discuss incremental innovations which may improve the processes in this sense to guarantee excellence services to the clients. The meetings are held weekly or fortnightly to discuss actions, indicators, planning, strategies and needs for trainings (SOCIAL BALANCE, 2017).

As for the administrative area, there is no formalised process for the promotion of innovation that encourages people's commitment. The incremental innovations in processes happen from the employees' ideas and they are shared with their superiors, who evaluate and decide on implementation. "The processes for innovation generation in the administrative area are informal, and there is a harder strictness in the assistance area that is followed by the science and technology committee in order to avoid risks to patients' safety" (INTERVIEWEE 8).

The last dynamic capability pointed by Teece (2007) concerns the management of threats and transformations (reconfiguring). It is composed of the following microfoundations: decentralisation and decomposition, co-specialisation, administration and knowledge management. The first microfoundation, decentralisation and decomposition, can be associated to the matrix management that favours the taking of decision, to the constitution of the science and technology committee and the projects office, and to the management of institutes as business units.

The second microfoundation concerns co-specialisation. Since hospital innovation is more evident in the acquisition of technologies, it can be stated that this is easily copied. Co-specialisation can be related to knowing the human resources that are responsible for the unsystematic practices in innovation in the case studied.

The third and last microfoundation deals with administration and knowledge management. The technical knowledge prevails in the hospital, according to Interviewee 9, and it is centred by knowledge areas in the assistance area. In other words, each institute and their respective specialisation manage the knowledge that is necessary for the practice of medicine.

Thus, it is clear that the process of idea generation in the hospital is not formalised, that is, there are no structured mechanisms of idea generation encouragement. However, all the interviewees in the operational level emphasised that the hospital encourages the creation of ideas, even if this process is not formalised or structured.

As for the organisation promoting or encouraging an environment of tension for the collaborators to seek new ways of thinking, this has not been identified. The approach used

among the areas researched was the demand of information that is not part of the operational daily life. This information was requested by peers, doctors and managers, and makes them interact with the external environment in the search for answers to their questions.

All the interviewees were unanimous to state that the hospital doesn't use any tool that may label and facilitate the access to information in order to face the challenges in the hospital environment in a safer way. The hospital holds specialisation meetings that are already structured, and lots of knowledge is generated within the organisation. However, there isn't any tool which may systematise and provide this knowledge, the ideas generated, and the solutions to the problems found for a specific area. This available knowledge could help solve the problems in other areas. From mapping the practices' innovation related to the microfoundations, it can be stated that the three dynamic capabilities suggested by Teece (2007) are in progress in the hospital through the construction and consolidation of routines and managerial and organisational processes.

Thus, by observing the perspective that is decentralised by the functional department, the logic of knowledge articulation and identification reflects on the managerial decisions in each place. This local perspective of learning and performance construction in the solution of problems helps the innovation capability of each institute by maximising the development process (REICHERT; CAMBOIM; ZAWISLAK, 2015; EASTERBY-SMITH; LYLES; PETERAF*,* 2009, PASIAN; SANKARAN; BOYDELL, 2012, KINDSTRÖM; KOWALKOWSKI; SANDBERG, 2012).

The organisational and routine processes, in partnerships with institutions, maximise the articulation and incorporation of new scientific knowledge, besides the efficient use of essential technologies for the innovation capability, by involving the combination and learning capabilities and the knowledge absorption capability that are present in the dynamic capabilities' approach (FORÉS; CAMISÓN, 2011; VIVAS-LÓPEZ, 2013; REICHERT; CAMBOIM; ZAWISLAK, 2015).

Moreover, according to Fóres and Comisón (2011) the companies must recognise that, together with the development of the absorption capability, internal organisational learning improves the innovation capability by requesting a strong integration of internal systems and external capabilities of learning within the dynamic capabilities' perspective.

Therefore, it is possible to see in the dynamic capabilities' path the use, renewal and reconfiguration of organisational resources for the support of a competitive advantage by supplying the basis with the capability analysis of innovation that is represented by institutional changes. According to Easterby-Smith, Lyles and Peteraf (2009), the dynamic capabilities represent the ability to perform changes by keeping them unseen until they are practised and explored to their fullest.

Helfat et al. (2007, p. 4) define dynamic capabilities as "an organisation's purposeful ability to create, expand or change its resource basis". Upon considering the academic debates about the dynamic capabilities' nature and even effects and consequences (ARAÚJO; PEDRON; BITENCOURT, 2018), this research showed the possibility of innovation capabilities' theme integration in the light of the dynamic capabilities. As suggested by Teece (2007), even though an aligned systematisation of all the microfoundations has not been identified with this case study, it is possible to see a logical reasoning path in the practices, routines and mobilisation of tangible and intangible resources in the organisation that lead to the achievement, maintenance and development of competitive advantages in a dynamic environment such as health, thus contributing to the discussion of the topics (ALI; PETERS; LETTICE, 2012).

6 FINAL CONSIDERATIONS

This study tried to answer the following question: Can innovation capability in health services be developed through the dynamic capabilities' microfoundations? The objective of this research was to understand the innovation capabilities in health services in the light of the dynamic capabilities' microfoundations. The study adopted the framework by Teece (2007), which presents three dynamic capabilities that help with the development of the innovation capability: (a) the ability to identify the environment context (sensing); (b) the ability to seize / incorporate opportunities (seizing); and (c) the ability to manage threats and transformations (reconfiguring).

Concerning the hospital, it can be stated that the three dynamic capabilities suggested by Teece (2007) are in progress, since it was possible to associate routines and innovation processes to the microfoundations proposed. The comprehension of the routines and of the processes through microfoundations facilitates the visualisation and the understanding of the

dynamic capabilities named sensing, seizing and reconfiguring in health contexts. Investments for acquiring cutting-edge technology machinery to improve clients' services can be checked and this is, in fact, an existing practice in the hospital that meets the needs and presents managerial and organisational processes. This way, innovation is strongly related to the acquisition of technologies according to researches carried out by the Science and Technology Committee. The systematised innovations concentrate on the assistance area and focus on the acquisition of cutting-edge technologies, which trigger innovation practices in processes and improve or generate new services.

This study's contributions are related to (1) the presentation of routines and processes that are associated to the microfoundations of each dynamic capability with the objective to show how to operationalise them, (2) the microfoundation "processes to guide internal works of R&D" (sensing) can be adapted to "processes to guide internal works of Science and Technology" for the context of health services, (3) health services are highly volatile and dynamic, and, due to the alterations in therapeutical routines, the inclusion of technologies benefits from the analysis under the dynamic capabilities' view, since this approach favours the identification of intensive knowledge (common in these environments) as a resource of opportunity identification, and it is organised effectively and efficiently in order to capture them for the competitive advantage.

As a managerial contribution, here is a suggestion for the improvement of the organisational routines and processes related to the microfoundation "routines to build loyalty and commitment", from the dynamic capability seizing. The hospital's administrative area doesn't have a formalised process for promoting innovation which encourages people's commitment to innovate. The microfoundation "administration and knowledge management" from the dynamic capability reconfiguring must also be improved in the administrative area, for there were no routines for knowledge management in this context, only in the assistance area.

Finally, this study presents some limitations, highlighted as follows. This study cannot be taken generally, for it concerns a single-case study based on the perception of the employees themselves. However, this limitation reflects the possibility of expansion of different areas of health context analysis, from different levels of complexity, such as

hospitals, service stations and home assistance (tertiary level). Moreover, as a suggestion for future studies, here is a recommendation for analysing the dynamic capabilities' microfoundations in other industrial areas of service incorporation, in a portfolio operation in order to check the contributions for the development of the innovation capability.

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