



# Outsourcing of IT and Absorptive Capacity: A Multiple Case Study in the Brazilian Insurance Sector

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## ABSTRACT

Sources of external knowledge are critical to the implementation of strategies to achieve innovation, especially in the case of information technology. The concept of absorptive capacity reflects the ability of firms to obtain, assimilate, combine, and extract advantages from external knowledge to generate innovations. The objective of this multiple case study was to investigate how outsourcing of IT can influence the absorptive and innovative capacity of organizations, focused on the insurance sector. The results of comparing four insurers with different degrees of innovation and adoption of IT outsourcing indicate that the connections between the strategy of relationship with suppliers and the stance of the IT area of the client company, and its previous activity and level of knowledge, are essential to determine the absorptive and innovative capacity. Besides this, companies that neglect outsourcing of IT to leverage their absorptive and innovative capacity can suffer significant harm regarding the use of resources, agility, and competitiveness.

## KEYWORDS

Outsourcing of IT, Absorptive Capacity, Innovation, Insurance

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## 1. INTRODUCTION

Information technology (IT) is a critical factor for the development of innovations in the insurance ecosystem, as revealed by the emergence of *insurtechs* (Cappiello, 2018). These innovations are potent accelerators of diversification of the offer of new products, increased competitiveness and better pricing, among other aspects, generating potential benefits for insurers and insureds alike.

The rapid convergence and diffusion of information and communication technologies and the generation of digital content have been enhancing the absorptive capacity of organizations (Roberts, Galluch, Dinger, & Grover, 2012). Absorptive capacity (AC) can be defined as the capacity to detect and absorb relevant knowledge from the external environment and take advantage of it to innovate (Cohen & Levinthal, 1990). Information systems (ISs) exert a direct influence on an organization's AC by facilitating the transfer of knowledge (Iyengar, Sweeney, & Montealegre, 2015), reducing the efforts needed to identify, assimilate and use new knowledge internally (Carlo, Lyytinen, & Rose, 2012) we adopt the lens of absorptive capacity (ACAP).

In recent decades, organizations throughout the world have outsourced IT processes and equipment with the objective of reducing costs, increasing agility and flexibility, gaining access to global markets and concentrating their efforts in the capabilities considered most valuable (core capabilities) (Lee, 2017; Trantopoulos, Krogh, Wallin, & Woerter, 2017). The outsourcing of IT consists of contracting out the performance of specialized tasks, generally not related to the company's main business areas, to improve the provision of services related to these tasks (Lee, 2017). The IT services that can be outsourced include development and support of applications, integration of data systems and data centers, management of telecommunication networks, and distributed computing services (Lacity, 2017). With the development of new digital technologies (e.g., cloud computing, artificial intelligence, machine learning, IoT), the opportunities to outsource IT are increasing, including through the formation of strategic partnerships with suppliers of these services (David et al., 2018; Overby, 2017).

Recent studies suggest that outsourcing of IT can provide firms with access to relevant external knowledge that helps them increase their innovative capacity (Bertrand & Mol, 2013; Carlo et al., 2012; Lacity, 2017). An important aspect is that the service provision firms can establish close relations with other companies and clients in various sectors (Weeks & Feeny, 2008). On the other hand, outsourcing can have the opposite effect, since it typically results in a reduced stock of knowledge and skills related to IT, which are essential to innovation these days (Devece, Palacios-Marqués, Galindo-Martín, & Llopis-Albert, 2017; Saldanha, Mithas, & Krishnan, 2017).

The objective of this multiple case study was to investigate under what conditions and how IT outsourcing can influence (positively or negatively) the AC of organizations, and hence their innovative capacity. For that purpose, we analyzed four insurance companies in Brazil that outsource IT services to differing extents, to address multiple priorities (often conflicting) related to cost, efficiency, quality, and innovation (Jogani, Pande, & Shirdade, 2017).

## 2. THEORETICAL FRAMEWORK

### 2.1. ABSORPTIVE CAPACITY (AC)

AC can be defined as the ability of an organization to identify valuable external knowledge, assimilate or transform this knowledge, integrating it in its existing knowledge base, and applying this new knowledge by means of innovation and actions to enhance competitiveness (Cohen & Levinthal, 1990; Roberts et al., 2012). Over the past few decades, studies in diverse areas, such as

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interorganizational learning, mergers and acquisitions, and new product development, to name a few, suggest that AC is essential for firms to generate competitive advantage as it enhances their innovation capability (Cooper & Molla, 2017; Lane, 2006).


The majority of the literature in the IS area adopts a definition of AC that groups the learning processes and routines regarding innovation into four distinct and complementary dimensions: *acquisition*, *assimilation*, *transformation*, and *exploitation* of external knowledge (Roberts et al., 2012; Zahra & George, 2002). The *acquisition* dimension refers to the ability of an organization to identify and evaluate relevant knowledge in the external environment, as well as to understand the efforts necessary to obtain this knowledge (Backmann, Hoegl, & Cordery, 2015; Zahra & George, 2002). The *assimilation* dimension is related to the organization's ability to analyze, process, learn, and understand the new knowledge acquired from external sources (Backmann et al., 2015). After the knowledge has been acquired and assimilated, changes need to be made internally so that it can be transformed and exploited in the form of innovative solutions (Cepeda-Carrion, Cegarra-Navarro, & Jimenez-Jimenez, 2012). The *transformation* dimension refers to the ability of the organization to develop new routines and refine existing ones that facilitate the combination of its previous knowledge with the new external knowledge acquired and assimilated in its internal routines and practices (Gluch, Gustafsson, & Thuvander, 2009; Zahra & George, 2002). Finally, *exploitation* is associated with the organization's ability to refine, extend and leverage its current competencies or develop new competencies based on the knowledge acquired, assimilated and transformed, to improve its competitive advantages (Backmann et al., 2015; Zahra & George, 2002)2015; Zahra & George, 2002.

Prior knowledge is a fundamental enabler of AC (Cohen & Levinthal, 1990; Lane, 2006). The existing stock of knowledge in an organization allows it to evaluate the importance and value of new external knowledge, increasing the pace of learning and precision of the estimates of the commercial potential of an innovation (Huang, Bhattacharjee, & Wong, 2018). In reality, external knowledge is assimilated, learned, and applied based on its association with previous knowledge (Iyengar et al., 2015).

According to Nelson and Winter (1982), the locus of a firm's learning capacity is not its individuals per se, but rather the mosaic of individual resources existing in the organization. The connections of this mosaic depend on the interaction of individuals who have different knowledge structures. The strengthening of this mosaic increases the ability to create new connections and innovative associations. In a scenario of uncertainty, the diversity of an organization's stock of knowledge is essential to stimulate the generation of new ideas and increase the exposure of its members to new knowledge. Hence, AC is a function both of the depth and breadth of the firm's knowledge structures (Cohen & Levinthal, 1990; Lane, 2006; Roberts et al., 2012). Researchers such as Roberts et al. (2012) also suggest that information technology can positively influence a firm's AC by promoting intra and interorganizational knowledge sharing.

## 2.2. OUTSOURCING OF INFORMATION TECHNOLOGY

Outsourcing occurs when a company contracts another company to carry out specialized tasks, generally not related to the client's main business, to improve the production and service associated with these tasks (Lee, 2017). According to Lacity (2017), the outsourcing of IT includes services such as development and support of applications, integration of systems, management of data, networks, and telecommunications, and distributed computing. Reduction of costs, increase of agility and flexibility, access to markets, and focus on core competencies are the typical reasons to outsource IT (Lee, 2017; Trantopoulos et al., 2017).



Against a backdrop of rapid changes in the business environment, IT outsourcing has become an option to form strategic partnerships for the absorption of external knowledge and facilitation of innovation (Teo & Bhattacharjee, 2014; Trantopoulos et al., 2017; Weeks & Feeny, 2008). In this context, outsourcing is seen as a tool to help organizations to change, either radically or incrementally, the main elements of their information systems (Hirschheim, Heinzl, & Dibbern, 2014).

The offering and acquisition of commoditized activities is the first phase of the process of implementing a successful outsourcing arrangement (Fan, Xiao, Shun, & Ji, 2007). Many researchers have suggested that organizations use their service providers as sources of external knowledge that positively influences their AC, and consequently the generation of innovations (Bahli, Wettenberg, Borgman, & Heier, 2013; Gonçalves, 2016; Lacity, 2017; Liang, Wang, Xue, & Cui, 2016; Weeks & Feeny, 2008). However, the success of broad outsourcing arrangements requires the service provider and client to share knowledge, based on trust, an open communication and relationship, strong commitment to the partnership, and effective relational governance, mainly in complex settings with high uncertainty and difficulty of measuring results (Bertrand & Mol, 2013; Lacity, 2017).

In the context of IT services, the capabilities mastered both by the service provider and client are determining factors for the result of outsourcing. As framed by Lacity (2017), service providers with strong technical and methodological capability, management of human resources, experience in the client's business segment, and management of clients in general, produce better results for clients. Furthermore, clients with robust technical and methodological controls, ability to manage suppliers, transition administration, and AC tend to obtain better results from outsourcing.

Since IT is an enabler of innovation (Trantopoulos et al., 2017; Weeks & Feeny, 2008), IT outsourcing can provide access to external knowledge that helps companies to increase their innovative capability (Bertrand & Mol, 2013; Carlo et al., 2012; Lacity, 2017). This access is possible due to the diversity and depth of the relations that the service provider maintains with other suppliers and clients (Weeks & Feeny, 2008). The motivation of the client to obtain knowledge and the willingness of the supplier to share knowledge are essential antecedents of its transfer in IT outsourcing arrangements, and hence of the generation of innovations from these arrangements (Teo & Bhattacharjee, 2014).

### 3. RESEARCH METHOD

We adopted an exploratory and qualitative approach in this multiple case study. We investigated four insurance companies in Brazil, with the objective of understanding how and under what conditions the outsourcing of IT can influence the absorptive capacity of organizations, and thus their innovative capacity. Since the processes related to the absorptive and innovative capacities of an organization require relatively long time frames to show results, we selected three cases where the IT services are contracted on an ongoing rather than episodic basis. To provide a base for comparison, we selected an additional case of an insurance company that preferred not to outsource its IT-related activities.

Besides this, to better identify the factors and conditions relevant to the phenomena studied, we tried to choose insurers with reputations for being more or less innovative, and that adopt different levels of outsourcing IT services. To identify potentially innovative companies, we considered the winners of recent awards for innovation in insurance given by the National Confederation

of General Insurance, Private Pension and Life, Supplementary Health and Capitalization\* Companies (CNseg). Afterward, during the conversations with managers of the participating companies, we sought to assess to what extent the selected insurers indeed generate innovations and their outsourcing strategy.

The information about the insurers included in the study is presented in Chart 1. The data on gross revenue was obtained from their annual reports of financial information disclosed publicly. The information on innovation and outsourcing was inferred from the data obtained in the interviews and other documents collected.

### Chart 1

#### *Companies Participating in the Study*

Case	Gross Revenue (R\$ billion)	Activity	Innovation	Outsourcing
A	1.36 <sup>a</sup>	National scope; Dental insurance segment.	Received the IT Innovation Award in 2018; e-commerce platform for automated capture of images and electronic patient records.	Has outsourced computational infrastructure and systems for more than 10 years, seeking financial efficiency and expertise.
B	2.5 <sup>b</sup>	National scope; Insurance of damages and life in all modalities or forms.	Competed recently for innovation awards; optimized processes by implementing a digital platform.	Has outsourced computational infrastructure and systems for more than 10 years, seeking financial efficiency and expertise.
C	70 <sup>a</sup>	National scope; Insurance, capitalization and open complementary pension plans.	Received the IT Innovation Award in 2017; developed new services for monitoring infrastructure and IT systems that improved availability and performance.	Outsources the service for monitoring its digital platform, seeking financial efficiency and expertise.
D	3.4 <sup>a</sup>	National scope; Insurance, capitalization and open complementary pension plans.	Competed recently for innovation awards; updated programming languages and improved integration technologies to implement a digital platform.	Usually does not outsource IT services.

*Note.* <sup>a</sup> Values for 2016. <sup>b</sup> Values for 2015.

*Source:* Prepared by the authors.

The primary data collection method was semi-structured interviews. The protocol developed included a script with questions formulated based on the constructs extracted from the theoretical framework on AC and its dimensions (*acquisition, assimilation, transformation, and exploitation*), and the outsourcing of IT services. The questions aimed to discover the degree, conditions, and forms in which IT outsourcing was associated with the AC of each insurer. To attain a broader

\* “Capitalization” (*capitalização*) refers to the offer of raffle-linked savings plans. Under these plans, savers are eligible for prizes in products or cash, distributed through periodic drawings, in return for a lower yield on their savings. There is also generally a penalty for early redemption of the amount deposited before the maturity date (date of each drawing). The deposit is made by the purchase of “savings tickets” (*títulos de capitalização*), typically with automatic roll-over with each drawing unless the customer opts out. Virtually all commercial banks offer this savings product, through subsidiary “capitalization” companies. Because of the element of chance, these companies are classified as being in the insurance sector. *Translator’s Note*

vision of the themes of interest, for each company we tried to interview a representative manager in the IT area, a manager of one of the main business areas (internal IT client) and a manager of the IT service provider. Since the IT outsourcing practices of Insurer D virtually did not exist, we chose not to interview a representative of outsourced firms.

Chart 2 identifies the profiles of the people interviewed. The column “Code” indicates the code used to identify the passages from the interviews cited later in the text.

**Chart 2**  
*Participants in the Study*

Case	Sector	Position	Schooling level	Experience in the sector	Time working for the insurer	Code
A	IT	IT Director	Postgraduate Specialization	20 years	3 years	A-IT
A	Business	Commercial Director	Bachelor’s Degree	32 years	5 years	A-BUS
A	Outsourcing	VP for Business Affairs	Bachelor’s Degree	35 years	5 years	A-SP
B	IT	IT Director	Bachelor’s Degree	17 years	10 years	B-IT
B	Business	Manager of Customer Response	Bachelor’s Degree	29 years	20 years	B-BUS
B	Service Provider	Technical Director	Bachelor’s Degree	34 years	10 years	B-SP
C	IT	IT Manager	Bachelor’s Degree	20 years	16 years	C-IT
C	Business	Product Manager	Bachelor’s Degree	15 years	3 years	C-BUS
C	Service Provider	Technical Coordinator	Postgraduate Student	25 years	3 years	C-SP
D	IT	IT Superintendent	Bachelor’s Degree	30 years	17 years	D-IT
D	Business	Marketing Manager	Bachelor’s Degree	15 years	10 years	D-BUS

*Source:* Prepared by the authors.

All the interviews were conducted in person. Only the two participants of Insurer D did not authorize the recording of their interviews. In these two cases, a detailed description of the narrative was prepared just after the interview. The recorded interviews were transcribed in full. In line with the qualitative approach, codes were included in the transcriptions to describe the non-verbal attitudes observed in the interviews, such as the use of irony or expression of anxiety.

Besides the interviews, we collected relevant information in documents and news reports about the companies investigated. The documents (in the public domain) used were the financial statements of the insurers, posted at their respective websites, and articles in magazines specialized in the insurance sector. The financial statements were used to assess the financial performance of the companies and the relevance of IT to their business, in the view of shareholders and other stakeholders. For example, sometimes the notes of the financial statements mentioned innovations in the IT area that contributed to the financial result obtained. The news reports served as a source of information about economic innovation trends in the insurance sector.

Supported by social constructivism philosophy, which seeks to understand the reality in which people live, and works with subjective meanings and comprehensions (Creswell, 2010), the qualitative data was analyzed by the NCT method (Friese, 2014). The codes and families initially used in the data analysis process were created in advance, based on the literature review

on AC and IT outsourcing. Besides this, during the data analysis, free codes were generated inductively to enable capturing elements of the narratives and the phenomena of interest not contemplated in the literature. The transcriptions, field notes, documents, and news items were analyzed with the support of the Atlas.ti 8 software.

To increase the reliability of the results, we triangulated the information supplied by the respondents from each company. In case of a conflict of opinions, we contacted the respondents involved to resolve discrepancies, review interpretations, or ratify divergences. Besides this, we prepared a summarized report of each interview and submitted it to each respondent for validation to eliminate alternative interpretation and produce reliable analytic conclusions (Yin, 2015). The participants did not identify any points that needed to be revised in the analysis. Finally, two independent senior researchers, with experience in qualitative surveys, reviewed the analysis, and ratified our interpretations and conclusions.

## 4. RESULTS

Despite the economic crisis starting in 2014, the insurance sector in Brazil has been growing consistently (L.S., 2017). According to Rio (2017), to sustain this growth, insurers have been evolving at a fast pace, both in the process of contracting insurance and paying claims. Besides this, the effective oversight by the Superintendency of Private Insurance (SUSEP) has been assuring increasing both the robustness and the reliability of the sector. Lubiato (2017) reported that insurers have been investing heavily in research to achieve technological innovation, in order to improve efficacy, efficiency, and quality of their products and services, in compliance with the regulations of the sector.

Below we compare the results generated from analysis of the data, organized according to the dimensions of AC.

### 4.1. ACQUISITION

We identified, in the four cases investigated, the same mechanisms for access to new knowledge, namely: participation in congresses and other events in the insurance and IT sectors; contracting presentations and workshops; forming relationships with consultants that study the strategic directions of the insurance sector; and analysis of reports of trends in the insurance and IT markets, such as the annual report of the company Gartner.

All the IT representatives interviewed stressed the difficulty of shifting resources from routine activities to search for new relevant knowledge in the external environment: “To innovate with agility, you need partners. It’s the best way to accelerate” [C-IT]. However, the participants of insurers A, B and C recognized that service providers reduce the intensity of this effort by using connections with other clients and the IT market, mainly their partnerships with manufacturers of hardware and developers of software, to offer new relevant knowledge to the insurers. Besides this, the service providers used had certifications and in-depth, specific technical knowledge that are relevant to the insurance business.

Thus, when you’re in a company, you have a limited vision. You do what you are used to doing. The maximum that will happen is that you will have contact, at some symposium, some congress [...] These suppliers who serve us work for various companies. So we manage to learn good practices of some companies, validate these practices, and bring something tested here inside. [A-IT]

In Insurer A, the service provider had installations in Silicon Valley, giving it a commercial differential. This provided greater agility and assertiveness to the IT area in the search for new

relevant knowledge for the insurance business. Since the service provider knew the company's business and was involved in problems that the IT area faced, it identified and selected in advance new knowledge that would probably be of interest to the IT and business areas. The importance of its role in the acquisition of knowledge was recognized by the respondents, with a clear influence on the AC of these areas.

We have an area now for innovation, including with activity in Silicon Valley [to] have interaction with startups, with various startups, with ideas, and with this, we manage to bring to our clients [...] manage to form this link, and translate it into a benefit to the business [of clients]. Therefore, we have been discussing ideas like blockchain, chatbot, robot automation and other subjects, precisely to contribute to this concept in various clients. [A-SP]

In case C, we noted that the service provider, at its own initiative, sought new knowledge in the external environment to resolve problems in the insurer's IT area, even though this was not within the scope of the contracted services. Its importance in the acquisition of new knowledge was also recognized by the representative of the IT area.

Cases B, C, and D were marked by a reactive posture of the IT area, which positioned itself as a mere internal provider of services to the business areas. In general, the business areas sought new solutions individually for their problems, only calling on support from the IT area after identifying and assimilating the new knowledge, and when its transformation and exploitation involved a computational system: "We try to find [in the external environment], resolve [the problem], write, design what we want, and then the IT area has to execute and implement it" [B-BUS]. In those three insurers, the involvement of the IT area only started during the *transformation* phase.

It can thus be concluded that while in Insurer A the actions of the service provider promoted the acquisition of new external knowledge both by the IT area and business areas, in insurers B and C, only the IT area was involved in AC. Furthermore, in case D, in which the insurer practically did not outsource IT, we observed a greater effort by the IT area to try to conciliate the operational demands and the acquisition of new knowledge.

#### 4.2. ASSIMILATION

In cases A, B, and C, we found evidence of the influence of outsourcing on the *assimilation* dimension. The representatives of the respective service providers expressed the belief that they had contributed to increasing the diversity and depth of the stock of knowledge of the insurers based on actions outside the scope of the contracted services. In other words, the actions related to *assimilation* were offered to the client companies in addition to those formally contracted. Some examples are given below:

- In Insurer A, the service provider promoted workshops about design thinking as support to generate new ideas. Both the IT and commercial area teams took part in these workshops.
- In Insurer B, the service provider reported holding workshops to improve awareness of the development teams of the best practices in using relational databases. That action increased the ability of the IT area to solve problems, generating a reduction in the downtime of systems: "But for the Development Area, we try to convey the best way to use the database [...] I take pleasure in teaching!" (B-SP).
- In Insurer C, the service provider sought to assimilate knowledge about new technologies for use by the client's IT area to resolve problems and present adequate solutions to its business context.



In case C, the IT representative stressed that the trust and synergy in the relationship with service providers were fundamental to increasing the knowledge in this area, indicating the importance of the *assimilation* dimension.

Because the main suppliers, the main partners, are here from day to day and understand a bit of our pain. It's necessary to have synergy in this relationship. [C-IT]

In the same line, the participants from the IT areas of insurers A and B identified an attitude of superiority of the members of the company's team (employees of the IT area) in relation to the service provider's team as a barrier to assimilation of new knowledge: "The guy says, 'I'm good; I don't want, I won't share.'" [B-IT]. This attitude tended to result in concealment of information and hampered the establishment of a relationship of trust between the parties.

We had a problem with a person because he had a stance less of shared decision and more of his decision. And this wound up not pleasing the group [...] And now, as the digital treadmill expands, we are squeezing people, thinking a lot about this, and contracting thinking of this. [A-IT]

In Insurer D, the assimilation of external knowledge occurred based on formal actions and interactions, in the context of projects carried out with specialized suppliers. The representative of the company's IT area also mentioned that the area contracted a consultancy to provide training in the concepts of design thinking as a method to support the generation of ideas. In general, the IT area combined its previous knowledge with knowledge of the consultancy to generate ideas to meet previously specified business needs.

As mentioned previously, the business areas of insurers B, C and D only involved the IT area in the search for external knowledge and innovative solutions in the transformation process, i.e., after the external knowledge had been identified and assimilated. Given the evidence presented in this section, we can conclude that for insurers B and C, outsourcing had an important influence on the assimilation dimensions of the IT area's AC, but not on that of the business areas. In contrast, for Insurer A, the outsourcing worked to enable both the AC of the IT area and the various business areas. Finally, Insurer D also contracted service providers to obtain and assimilate knowledge, but only occasionally, when the IT area deemed it necessary.

### 4.3. TRANSFORMATION

In the interviews related to cases A, B, and C, we identified the participation of service providers in formal and informal routines aiming at transforming the external knowledge acquired and assimilated by the insurers.

In Insurer A, the technical leaders of the IT area and the team of the service provider had established a specific form of bilateral transfer of knowledge, supported by constant communication between the parties and a relationship of trust. This promoted the agile combination of previous knowledge with recently assimilated knowledge, increasing the diversity and depth of the stock of knowledge of the IT area.

We use the supplier a lot, also as a facilitator or intermediary for innovation here inside [...] We have our technical leaders, who know the systems, and the Head [leader] passes this knowledge to the company [service provider]. And the company also passes on knowledge to him [leader of the insurer]. And it winds up being a good trade for both sides. [A-IT]

In case B, the service provider, at its own initiative, promoted events to transfer knowledge to the IT teams of the insurer's development area.

We thus try to pass on the best ways to use the database. [...] so, if I help the guy to use the base better, to write better queries, I'll automatically reduce the number of incidents. [B-SP]

Besides improving the ability of the IT area to assimilate new external knowledge, those events enhanced its ability to transform their know-how, by promoting discussions of solutions to the problems the area faced. Like in Insurer A, the exchange and transformation of knowledge also occurred in informal daily interactions.

It's day-to-day and in projects [...] either in meetings, by conversations, or by telephone. It's like another member of the team. [...] part of the team. It's an arm of the team. Only that it's a company. [B-IT]

In case C, the representative of the IT area mentioned informally calling on the service provider, which, due to the ties of trust developed, accepted carrying out activities for transformation of knowledge, even though this was outside the scope of the contracted services. In some cases, the solution developed from the transformation of knowledge was later formalized in contractual addenda between the insurer and the service provider.

So, in this involvement, we go, we do a mapping, explain the process we want to implement, keep the area posted about this entire process, and then we return with a proposed agreement. [C-SP]

In the vision of the representative of the IT area of Insurer D, the formal routines that facilitate the combination of new and previous knowledge occur through planning meetings and monitoring of the execution of projects. However, according to the participant, the pressure from the company to conclude projects rapidly hampered the effective transfer of knowledge between the parties. Due to this situation, the obtainment and transformation of knowledge of the service providers required intense effort by the teams involved, principally the IT teams. The demands of Insurer D for the formalization of the relations with service providers prevented the transformation of knowledge obtained externally from occurring through informal routes.

In cases B, C and D, we noted a reactive posture of the IT area concerning obtaining new knowledge and generating innovative solutions for the business areas. In all three insurers, the business areas acted on their own initiative to obtain new knowledge in the external environment and then involved the IT areas only in the transformation step. Moreover, this occurred only when the solution to a problem or development of innovation involved changes in the company's computer systems.

This reactive posture of the IT area of the three insurers generated a mismatch between the business and IT activities, associated with the absorptive capacity dimensions. As a consequence, the deliveries of projects related to companies' computer systems tended to be slower, i.e., past the time frame considered ideal. In contrast, in Insurer A, both the business areas and the IT area participated actively in the activities related to the AC dimensions. The stance of the IT area as a business facilitator allowed the company to gain agility in the generation of innovations involving IT, and thus enhanced its competitiveness.

Today we have a very advanced technology platform in comparison with the market, with respect to control, firmly focused on quality. As a consequence of the quality control, we also have a better cost measurement, because the use of the technology enables you to have a better-adjusted level of utilization, with a lower level of expenditure. [A-BUS]

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#### 4.4. EXPLOITATION

During the interviews, it was possible to note concern over the digital transformation that is present in all cases. The four insurers employed considerable efforts to create and monitor technology platforms in order to allow exploiting the benefits of new digital technologies (e.g., artificial intelligence, machine learning, internet of things, cloud computing), nearly always counting on the formal and informal support of the service providers.

Insurer A implemented an e-commerce platform that helped improve its performance and competitiveness, with increased sales to individuals in the retail market. The technical knowledge obtained from the service providers was essential for the insurer's decision about the programming languages to be used to create and improve this platform, which included a digital tool for storing the clinical-operative history of the insureds, facilitating the predictive analysis and increasing the agility of the internal procedures, while at the same time assuring service to insureds in line with the legal requirements of the insurance sector.

The capture of images, electronic patient treatment records, the entire digital tool generates agility and also adds value by enabling us to assemble a rich database and a clinical-operative history. [A-BUS]

The platform improved the relationship with brokers in the entire supply chain, benefiting the company by reducing operating costs, mitigating risks, improving response to beneficiaries, reducing the time for payment of the providers of medical services, and improving transactional activities with brokers. At the time of the interview, the company was in the process of implementing and monitoring social media and automating the response via chatbot, with structured dialogs and artificial intelligence resources, to add new channels and promote closer ties with beneficiaries.

The evidence obtained indicates that Insurer A stood out from the rest because the representative of the business area interviewed recognized the IT area as a partner for innovation, by bringing relevant new knowledge to the company, acting as an enabler of new business competencies.

This type of innovation is always achieved together with the IT area. So, this is a strong integration of the product area, with our own high-tech people, and the IT area, which also meets the needs of the clients with whom we are dealing. [A-BUS]

In case B, based on the initiatives of the service provider to promote workshops to transfer knowledge about the best database management practices, it was possible to optimize the back-end processes (executed in the server) of sites integrated with the database via SQL, to reduce the number of incidents in the insurer's digital platform. This enabled the company to attain better service levels, with more agility in issuing cost estimates and policies. These improvements directly benefited its brokers and clients.

The big innovation that the business area achieved [...] was that as of the moment we migrated data to relational databases and databases that could generate web applications, we created closer ties with the brokers, something that didn't exist before. [B-SP]

In Insurer C, the initiatives of the service provider at its own behest aimed to solve specific problems related to the capacity and availability of the information systems. New knowledge assimilated and exploited by the service provider was operationalized by implementing a set of tools related to monitoring and simulating the experience of users. The tools automated the identification of the components of the infrastructure and applications, monitored these

components, reactively warned of the occurrence of incidents, and created predictive models of possible incidents based on machine learning algorithms. The initiatives provided benefits such as the increased volume of premium estimates processed, more agile issuance of policies, and more efficient operational processes.

Innovations that we implemented or contributed to in the sense of guaranteeing availability of the environment, whether by innovation in the form of monitoring or managing this digital platform, bringing solutions, methods and tools showing more objectively how this infrastructure is meeting the demand, in other words, whether or not my client is satisfied when trying to use the IT services. [C-IT]

The knowledge of its employees, and that obtained from IT suppliers, was essential for Insurer D to meet the objectives of the projects defined by the business areas. In recent years, the company had innovated to prepare for the digital transformation, with the adoption of new technologies and architecture based on cloud computing services. It also adopted design thinking practices and new methods of managing projects in the business and IT areas. These innovations not only generated benefits for the company's clients but also reduced operating expenses with the automation of processes. However, the representative of the IT area expressed worry about the support for the new technological solutions, since the commercial relationship with the suppliers always ended after delivery of the projects, and, as mentioned before, the pressure to meet tight deadlines hampered the assimilation of new knowledge.

## 5. DISCUSSION

The results of this study indicate that although the four insurance companies made efforts to create, improve, and monitor digital platforms to enable exploitation of the benefits of new technologies, their IT areas faced problems in shifting resources from operating routines and seeking new relevant knowledge in the external environment. In three of the insurers, outsourcing had emerged as an important alternative to leverage or even replace routines for acquisition, assimilation, transformation, and exploitation of external knowledge. This result goes beyond what has been reported so far in the literature on absorptive capacity, which has concentrated on the perspective of the service provider only as a provider of new knowledge (Bertrand & Mol, 2013; Carlo et al., 2012; Lacity, 2017; Un, 2017).

In line with the findings of Lee (2017) and Trantopoulos et al. (2017) the insurers that outsource IT services on an ongoing basis (cases A, B, and C) attained advantages in the search for new knowledge, such as more rapid access, reduced effort, and greater assertiveness. However, many times the work of the service provider went beyond what was stipulated in the outsourcing contracts, with the informal supply of services to leverage the absorptive capacity dimensions (e.g., workshops, help in identifying problems and proposing solutions, access to new technologies). For this to happen, it is essential to establish a relationship of respect, trust, and synergy between the company's and service providers' teams, i.e., build an environment propitious to the exchange of knowledge and collaboration, to help define common objectives and share risks and benefits. This point, although critical, has not been appropriately addressed in previous studies of absorptive capacity and outsourcing.

As observed regarding Insurer A, the ratio between the number of IT employees of the company and of the service provider should be managed carefully so that external knowledge can be obtained and retained in the company. According to Weeks and Thomason (2011), when this ratio is extremely large or small, the outsourcing relationship tends not to be effective regarding

the development of absorptive capacity. In Insurer A, the IT manager stated he managed this ratio in function of the level of retention desired for each type of external knowledge potentially obtained from the service provider.

The results also reveal the importance of informal relationships with service providers to strengthen the absorptive capacity of IT areas, which are typically strapped by small budgets and tight time frames, as was the case of the companies investigated. However, the degree to which this support translates into the effective generation of business innovations appears to depend on the level of alignment between the absorptive capacity processes of the IT area and the business areas of the organization. This alignment is associated with the posture of the IT area in its actions within the company.

In Insurer A, the IT area had a proactive stance, with full insertion in the business innovation processes. The IT and business areas acted together and in synchrony, with formal and informal support of the service provider, throughout the entire absorptive capacity cycle. This reduced the time and investment of resources necessary to generate innovations. This posture of the IT area is similar to what Henderson and Venkatraman (1993) define as the perspective of IT-business alignment in competitive potential. This involves exploiting emerging IT capabilities for reformulation and creation of products and services, delineation of strategic attributes of the business, and developing new forms of relationships.

In contrast, in insurers B, C, and D, the IT area assumed a reactive posture, concentrating on meeting demands of the business areas. This generated a lack of alignment between the processes of acquisition, assimilation, transformation, and exploitation of the two areas. As a consequence, those processes tended to be less efficient and effective, requiring a tremendous effort by the IT area and depending (in cases B and C) on strong informal actions of the service providers. Henderson and Venkatraman (1993) refer to this type of IT-business alignment as focus on strategy execution. According to the authors, and in line with what we observed in the three insurers, the performance criteria used to evaluate the IT areas tend to be based on purely financial parameters, with emphasis on costs.

Figure 1 contrasts the situations observed in case A with cases B, C, and D.

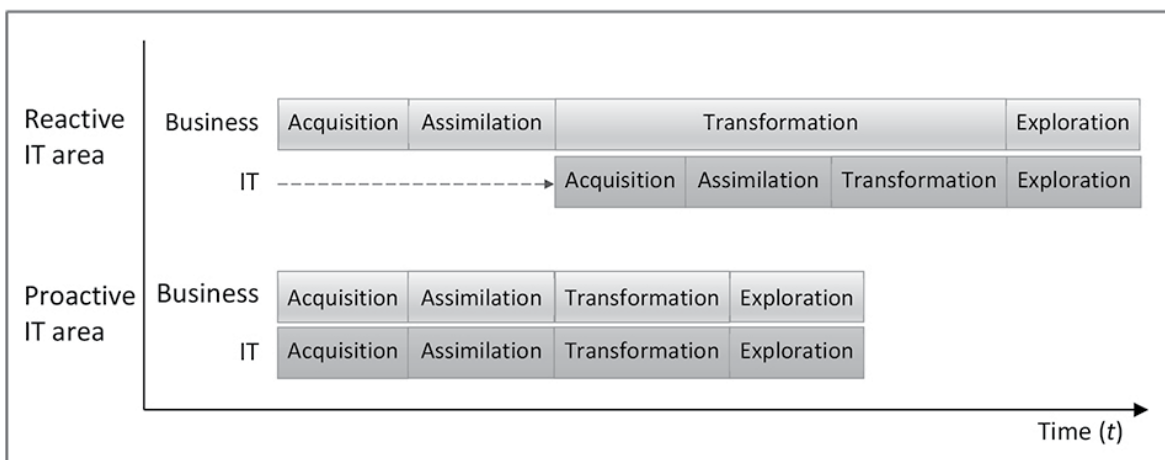


Figure 1. IT area posture and alignment of the dimensions of AC.

Source: Prepared by the authors.

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## 6. CONCLUSION

The objective of this multiple case study was to investigate how and under what conditions the outsourcing of IT services can influence the absorptive capacity (AC) of organizations, and thus their innovative capacity, by providing access to external sources of knowledge. For this purpose, we analyzed the dynamics associated with the four dimensions of AC (*acquisition, assimilation, transformation, and exploitation*) in four Brazilian insurance companies that use IT outsourcing to different degrees to address priorities related to cost, efficiency, quality, and innovation.

The results obtained suggest that organizations can benefit from IT outsourcing by the positive influence on their AC and the generation of business innovations. However, this effect depends on the way the service provider works, which in turn is affected by the relationship strategy (formal or informal) adopted by the client company. In this context, it is essential for the service provider to assume the role of an agent to guide the identification and evaluation of new external knowledge. Its effectiveness in this role is influenced by its level of previous knowledge of the insurance sector and the problems faced by the client's IT area, and the diversity of its connections with innovation clusters.

On the other hand, the results suggest that the adoption of IT strategies that do not take advantage of outsourcing can result in: (1) more intense efforts to conciliate routine operational demands and the pursuit of external knowledge and generation of innovations; (2) higher financial investment to contract consultancies to help generate ideas; (3) difficulty to transfer knowledge from the supplier to the insurer, due to the pressure exerted to conclude projects quickly; and (4) greater requirements for support after implementing solutions created based on new knowledge, since the commercial relationship with the supplier generally ends after delivery of the project. These results extend and complement the findings of previous studies.

The evidence and conclusions of this study, because it only investigated four cases in the Brazilian insurance sector, can only be generalized to similar business contexts. For future research, we suggest considering the effects of other types of outsourcing in organizations from different sectors, adopting qualitative and/or quantitative methods. Additionally, the conduction of longitudinal studies would permit a better evaluation of the evolution of the outsourcing relationship and its influence on absorptive capacity, as well as under what conditions positive results can be achieved, both for the client and service provider. In particular, we recommend analyzing the roles of the managers and leaders of the two organizations in establishing environments that stimulate the sharing of knowledge and collaboration, as well as other factors that can lead to an outsourcing strategy that is conducive or adverse to innovation.

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