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Analysis of technology services growth: an innovation capabilities approach

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Abstract

Services have been playing a crucial role on world's economy, especially with the widespread usage on ICT throughout business sectors. There is a need for strong dynamic capabilities that drive firms' growth and superior performance. However, innovation studies traditionally have paid attention on manufactured goods and technological advancement, including innovation capabilities theory. Thus, this paper aims to collect empirical evidence of what sustains technology service firms' growth and how innovation capabilities impact firm's performance. Two technology service firms were selected for a case study. They are small firms and operate in an emerging country. To evaluate these firms we used an innovation capabilities model (Zawislak et al., 2012) based on four capabilities: development (DC), operations (OC), management (MC) and transaction (TC). It became clear that "development areas" of these firms actually involve a group of activities that are related to OC, which is an ordinary capability. In fact, MC and TC are considered dynamic capabilities and are able to drive service firms growth trajectories, along with DC. In terms of scholar contributions, this paper turns evident the necessity of a service innovation capabilities framework that addresses service innovation specificities. For practitioners, this paper presents insightful information on how to sustain growth on software firms. Superior performance and competitive advantages are essentially enhanced by DC, MC and TC.

Keywords

Service, Innovation capabilities, Firm Growth, High-tech firms.

1 Introduction

In many modern economies, the advance of global competition has moved from capital-intensive towards knowledge-intensive activities as the main promoter of sustainable competitive advantage and improving firm's performance. Not only the creation of knowledge can be a source of value for the firm, but also the capacity of decoding knowledge from the environment influences the ability of solving complex problems. As stated by Godin (2006), knowledge is more quantitatively and qualitatively important than before, whilst applications of information and communication technologies (ICT) are the drivers of the new economy.

Modern economies are in transition as production is increasingly based on knowledge and information which are the new drivers of productivity and economic growth. Corona-Trevino

(2015), for example, shows that developing countries lag behind on high-tech industries of goods production, but also in knowledge-intensive service sectors. Increasing employment rate in service industries are directly correlated to GDP growth for developed countries. Many studies of innovation have focused on the technological aspects of firms, paying special attention to the development or improvement of manufactured products. But, with ICTs being adopted and transforming businesses and customers behaviors, service industries have never been in most evidence before. Innovation, at the convergence of technology, economy and socio-institutional context, is essentially dynamic and, in it, the basic concept is that of a trajectory or paradigm which represents the rhythm and the direction of change in a given technology (Perez, 2010). Technology services thus contribute for economic development and better life standards, being even more relevant on the case of developing countries.

However, there is little information about the details of the innovation capabilities of firms in service industries in order to define what stimulates or limits its growth on the long run. In addition, as knowledge economy rises, there is a lack of studies covering innovation in services and also what are the different drivers of competitive advantage that not only technical capabilities. As we discuss further, there are other capabilities that contribute for growth and thrive of services on the market. Also, little is known about the strategies adopted by technology service firms in developing countries for sustaining growth and competitiveness.

Thus, the aim of this paper is to identify how firms in service industries sustain growth and which strategies they employ to achieve it. To further explore the subject, two technology service firms located in Brazil were selected for exploratory study, which results are described as follows.

It became clear that there is a misleading understanding of the conceptualization of some activities performed in such firms, especially those that involve operations. Also, we provide empirical data on the importance of non-technical capabilities as drivers of technology service firms growth. Finally, we discuss the influence of customers on constraining resource allocation and operations management.

In terms of implications for the literature of service innovation, we argue that a complete service innovation capabilities model should take into consideration those aspects mentioned above. For practitioners, we provide key strategic insights. New features of a software are actually part of firm's operations, thus an ordinary capability. Marketing and management can act as growth drivers, but on a limited rate because of its only incremental role on innovation. The lack of development capabilities for creating new deliveries for customers may constrain firm's growth on the long run.

This paper is structured as follows. Our discussion begins presenting innovation as a growth enabler and its specificities in service studies. Also, we argue that there are other growth mechanism rather than technological advancements. We explain this by the lens of an innovation capabilities framework (Zawislak, Alves, Tello-Gamarra, Barbieux, & Reichert, 2012). Then, we explain the research methodology that gives rise to this article and the firms searched. In sequence, section 4 presents the results found. Section 5 addresses the discussion of the main findings of this research, as well as the implications and limitations of this paper.

2 Literature review

Innovation as growth enabler of firms

Innovation is the engine of economic development (Schumpeter, 1934) at a national level, but also permits competitiveness at a firm level. Innovative firms are able to deliver value-added solutions into the market, which in turn enables Schumpeterian Profits. The undeniable importance of innovation for contemporary companies justifies the increasing interest that researchers are taking in it (Becheikh, Landry & Amara, 2006). In this sense, innovation as means for the firm's success and survival is an issue that has already been taken for granted in the academic discourse, with most research on innovation being focused on product and processes technological innovations (Zawislak, Tello-Gamarra, Alves, Barbieux, & Reichert, 2014).

Because of the current pace of market changes, firms need to constantly create and leverage new technologies into the market, generally called radical innovation. This kind of innovation are "projects whose objectives are to create new to the world offerings and, concomitantly, whole new lines of business for companies" (O'Connor & Mcdermott, 2004, p. 11). But "once a new technological paradigm has become established, an organization's attention tends to shift to the sorts of incremental and modular innovations which drive performance and cost improvement within that paradigm" (Christensen & Rosenbloom, 1995, p. 236). It is important to recognize, though, that radical and incremental innovation are both means of firm's performance improvements and growth.

However, "to remain successful over long periods, managers and organizations must be ambidextrous – able to implement both incremental and revolutionary change" (Tushman & O'Reilly, 1996, p. 8). Following the familiar S-curve (Foster, 1986; Utterback, 1994), incumbent firms must stretch its incremental innovations while still profit from increasing returns, and launch new offerings as the returns start to decrease. Frequently, new firms tend to entry market with totally radical innovations. "These phenomena support the widespread observation that technical progress is largely path dependent – that established firms are more likely to search in zones that are closely related to their existing skills and technologies" (Christensen & Rosenbloom, 1995, p. 237) and which do not require such capabilities to be exercised. For that reason, incumbent firms are likely to lag in the development of technologies. Such innovative processes are complex because their value and application are uncertain, according to the criteria used by incumbent firms (Christensen & Rosenbloom, 1995). Chandy & Tellis (2000, p. 3) explain: "the theory of S-curves suggests three reasons incumbents may be reluctant to introduce radical innovations: perceived incentives, organizational filters, and organizational routines".

Innovation in services

The literature of innovation have been developed around firms on manufacturing industrial sectors (Sundbo, 1997). Innovation studies focus on product (i.e. goods) and process (i.e. production systems) innovation, largely ignoring service innovation and its inherent opportunities. This narrow focus stems from a traditional view of services as activities with low innovative frequency, and the product-centric orientation of the innovation literature that reflects a setting in which manufacturing was the primary economic driver. However, in developed economies, the service sector now dominates their gross domestic products, and its share continues to grow (Carlborg,

Kindström, & Kowalkowski, 2014). While these businesses are unified in their characteristics of being knowledge- (rather than capital-) intensive, they have differences in both their propensity to innovate (as conventionally measured), and with differences in their approach to innovation (Pina & Tether, 2016).

One of the major features of service activities is undoubtedly the fact that the technologies involved usually take the form of knowledge and skills embodied in individuals (or teams) and implemented directly when each transaction occurs, rather than in physical plant or equipment (Gallouj & Weinstein, 1997). Overall, there is a classic product/process dichotomy. Indeed, most of the studies in the service innovation topic relate to the notion that a sharp delineation between the product and the process parts of a service is hardly possible (Droege, Hildebrand, & Forcada, 2009).

In fact, authors argue (Vargo & Lusch, 2004; Nijssen, Hillebrand, Vermeulen, Ron, Kemp, 2006) that this difficulty to differentiate product and process is due to services specificities. Production and consumption occur simultaneously during a service provision, giving rise to the characteristics of intangibility, heterogeneity, inseparability, and perishability (Lovelock & Gummesson, 2004; Moeller, 2010). This characteristics suggest that service innovation “means more than simply being consumer oriented; it means collaborating with and learning from customers and being adaptive to their individual and dynamic needs” (Vargo & Lusch, 2004, p. 6). A service-centered innovation perspective implies that value is defined by and co-created with the consumer rather than embedded in output.

Den Hertog (2000) proposes mapping innovation in services according to a multidimensional model which takes into account the interrelated nature of innovation in services. His proposition consider more abstract dimensions when analyzing innovation, such as new service concept, new client interface, and new service delivery system. This characteristics will guide innovation and growth trajectories of the firms studied, as we present in the following sections.

Innovation capabilities

Innovation studies are tied to an evolutionary theory of economic change (Nelson & Winter, 1982). Evolutionary processes have demonstrated remarkable power to advance the capabilities of a firm or a technology and to create effective new ones (Nelson, 1990). There is a shift of understanding of market behavior that is partly the result of a growing awareness that standard neoclassical theory cannot deal adequately with the disequilibrium dynamics involved in the kind of competition one observes in industries or, more broadly, with the processes of economic growth driven by technological change (Nelson & Winter, 2002).

In fact, innovation capabilities are tacit and correlated closely with interior experiences and experimental acquirement, making them the ability to quickly introduce new products and to adopt new processes (Guan & Ma, 2003; Yam, Guan, Pun, & Tang, 2004). In this sense, some authors become too broad and try to cover different aspects of innovation capabilities when they develop an integrated framework. Also, technological capabilities (Lall, 1992; Bell & Pavitt, 1995) as conceptual roots for innovation capabilities, are not sufficient for leveraging new products and processes. Thus, “innovation may be the result of a complex process and depend on a set of capabilities that, although often dispersed throughout the company’s structure, can still be aligned with its strategic requirements. This set of capabilities form a meta-capability known as innovation

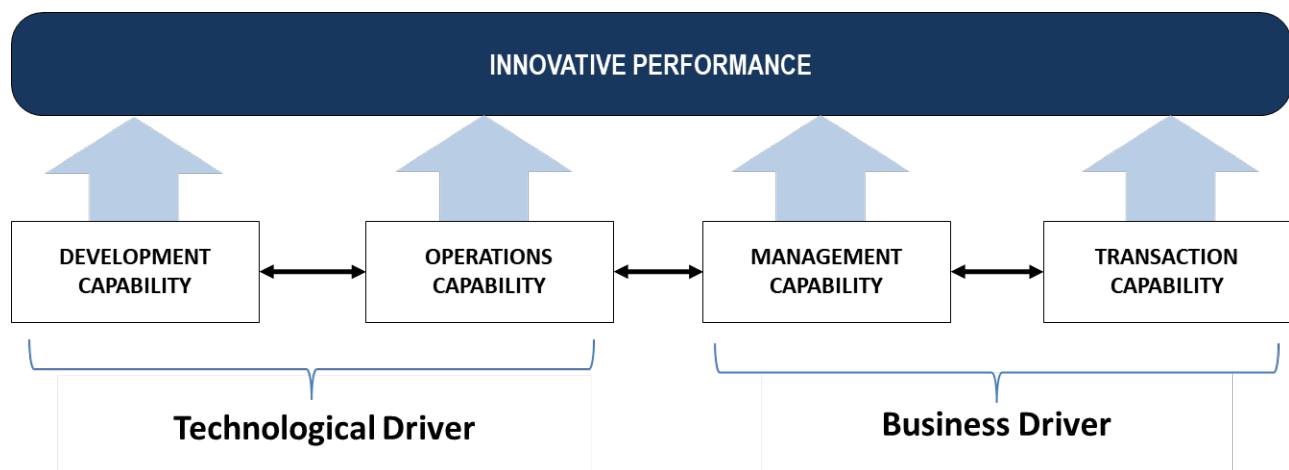
capability” (Zawislak, Fracasso, & Tello-Gamarra, 2018, p. 192).

Although many innovation studies are focused on technological innovations, those in the services are often combined with organizational innovations, in which technologies are only one vector among several others (Sundbo, 1997; Gallouj & Weinstein, 1997). It is the same argument used by Zawislak et al. (2012), when they define their innovation capabilities. In their words, “the innovation capability can be seen as an overall capability encompassing the ability to absorb, to adapt and to transform a given technology into specific management, operations and transaction routines that can lead one firm to Schumpeterian profits, i.e., innovation” (p. 15). The innovation capabilities model is presented on Figure 1 (Zawislak et al., 2012; Alves, Barbieux, Reichert, Tello-Gamarra, & Zawislak, 2017).

The model was conceived from the understanding that a firm is inserted in an industry environment with a given technology as a technological standard, that is, with elements that give a certain homogeneity to the participants of the market. However, what makes the difference to a firm that stands out despite the others are not those elements that are commonly shared, but precisely what the company can do differently, and this is the arrangement of innovation capabilities of the firm. The settings of different capabilities enables innovation, whether in product, process, management, or marketing. There is a capability for each of these aspects, i.e. development capability (DC), operations capability (OC), management capability (MC), and transactional capability (TC).

The model presented by Zawislak et al. (2012) becomes relevant because of its integration of both organization and firm. It comprehends the necessity of a coordinator-entrepreneur that is able to create new value propositions, leveraging it to fill an unsatisfied market need, but also to organize its resources in an efficient and profitable way. It is that ability that makes a firm capable of constantly change itself to respond to market necessities, which is aligned with Schumpeter’s (1934) seminal definition of innovation, i.e. the introduction of new products, new methods of production, opening new markets, and so on.

Figure 1. Innovation capabilities model



Source: Adapted from Zawislak et al. (2012) and Alves et al. (2017).

Alves et al. (2017) define DC and OC as the technological driver of a firm. They are collectively responsible for offering technical solutions to potential markets and encompass the capabilities the firm use to decide what to efficiently conduct in-house, and what it will outsource to the market, from both its supplier and clients, for example. Moreover, every firm also needs a business driver (MC and TC) to transport technical solutions to the market (Alves et al., 2017) and organize the resources available in an efficient way on the one hand, and a value creation way on the other. It is the convergence on those capabilities that leads the firm's innovative performance.

It is important to note that Alves et al. (2017) have also identified important characteristics of innovation capability model proposed by Zawislak et al. (2012) when testing the framework empirically. They have found it is not the OC that will differentiate one firm from another. While OC is an ordinary capability, the MC, DC, and TC define the firm's dynamic capabilities (Alves et al., 2017).

As Teece, Pisano and Shuen (1997) proposed: "the term 'dynamic' refers to the capacity to renew competences so as to achieve congruence with the changing business environment; certain innovative responses are required when time-to-market and timing are critical, the rate of technological change is rapid, and the nature of future competition and markets difficult to determine" (p. 515). Similarly, every firm (including those on service industries) has a certain operations level that arises from the selection of competitive priorities to exploit low costs, quality, delivery times, responsiveness, and flexibility. However, while important, OC is not often considered a dynamic capability (Alves et al., 2017).

3 Method

To achieve the aim of understanding growth determinants on service firms, we explore what drives their growth strategies. Case study is our research method because it contributes to the knowledge of individuals, groups and organizations as an empirical investigation of a phenomenon in its real-life context, when the boundaries between phenomenon and context are not evident yet (Yin, 2010).

Thus, two firms were selected for semi-structured interviews. The firms selection followed three requirements. First, they have grown in the last three years, so their strategies for sustaining growth could be evaluated. Second, both firms belong to the technology industry, which, as mentioned before, is a sector based on knowledge applications there are transforming the production of goods and services (Carlborg, Kindström, & Kowalkowski, 2014; Pina & Tether, 2016). These investments in knowledge are characterized by increasing (rather than decreasing) returns, which are key to long-term economic growth (OECD, 1996) on a macro level and for sustainable competitive advantage on micro level. Third, these two companies are typical examples of Brazilian firms, which are characterized by its small size and cost-optimization focus (Reichert, Camboim, & Zawislak, 2015).

Moreover, it is relevant to mention that most studies analyze innovation and growth from the point of view of firms in already prosperous economies, such as Germany (Almus & Nerlinger, 1999), Sweden (Delmar, Davidsson, & Gartner, 2003), or Finland (Kyläheiko, Jantunen, Puumalainen, Saarenketo, & Tuppurä, 2011), which present less obstacles to the success of a firm endeavor. Firms in these countries have a high knowledge base, relatively easy access to investments and

qualified labor, and so on. Nonetheless, it is also important to evaluate the innovative behavior of technology service firms in a context of high pressure of international competition for software quality, along with little technological capability nationwide, such as an emergent economy in Latin America, which is the case of Brazil.

Interviews were conducted in November 2018 with founders of software firms, which also play C-level roles at their organizations. Each interview followed a questionnaire that considered aspects relative to the context into which the firm is embed (e.g. operating market, customers profile, services offered, organizational structure), innovation process (e.g. how the firms follows technological trends, how innovation is managed), and strategic management (how strategy is defined, which capabilities sustain competitive advantage, growth strategies). The interviews lasted about fifty minutes and were recorded for previous transcription. Information collected was systematized in a way that all interviews could be analyzed jointly. Additionally, to corroborate or complement some information given by interviewees, we analyzed secondary data such as firms' websites, reports and industry association websites. Table 1 presents a briefly description of the investigated firms.

Table 1. Firm's description

Characteristics	Firm 1	Firm 2
Interviewee role	Chief Executive Officer	Chief Research Officer
Number of founders and their average age	3 founders; 34	5 founders; 31
Founders gender	3 male	5 male
Founders instruction	1 PhD, 2 masters	4 bachelor, 1 masters
Founders background	Computer science	Information systems and Business
Firm size	Micro	Small
Revenue	R\$ 180k	R\$ 18m
Number of employees	4	160
Number of clients	20	440
Year of foundation	2012	2009
International presence	Canada	Latin America (except Venezuela), Portugal, Angola

Source: The Authors.

Firm 1 is a micro company founded in 2012. They have three founders that met on the university during their undergrad years studying Computer Science. They had worked together on a research laboratory at the university and created the firm in response to an opportunity of developing a software for a large organization. This way, they got into the Education market and run a product targeted to language schools that applies artificial intelligence on students learning process. Besides the partners, they have only one employee and hire freelance developers when a demand peak is up.

Firm 2 is a larger organization than Firm 1. The firm operates since 2009 and they have 160 employees distributed in their own headquarter building and a dedicated sales office located in Sao Paulo. The five founders also met during university period and started the business as a “software house”. After a demand of a client for developing a product that had never been used by him, they

decided to put effort on selling the asset they had created. By doing this, they got into the Trade Marketing practice, monitoring routes of field teams and managing point of sales for consumer goods.

In order to achieve a higher precision on the results that follows, the cases were presented and discussed in classes. Also, results obtained from the analysis were thoroughly reviewed by the researchers during several meetings. Next section addresses all these results, paying special attention on finding determinants of services growth and innovation.

4 Results

The analysis of those two cases of technology service firms draws conclusions about both technical and business capabilities of firms that contribute to a growth trajectory. We use the innovation capabilities model proposed in Zawislak et al. (2012) to guide our perspective of the results. This way, we first describe the insights derived from the technology driver of firm’s capabilities, disjoining a common misconception on the behalf of development in software firms. Next, we verify that service firms business driver (management and transaction capabilities) is actually most relevant for growth. Finally, it became clear that customer interaction is primal to capability building on service firms and is not present on traditional frameworks of innovation capabilities currently on academic literature.

The development misconception

Services have the inherent characteristic of never being delivered the same because its natural specificity of heterogeneity (Lovelock & Gummesson, 2004). It means that changes on the execution of the service that do not modify its core settings (i.e. incremental innovations) cannot be defined as a “development” activity, as in common R&D vocabulary. In essence, developing new features are not the development of new products, they are part of business operations.

In the case of technology service firms it becomes more evident. Table 2 reinforces this misconception with data provided by the two cases studied. The firms were asked about traditional R&D indicators and all have answered they launch new products every month. Instead, what is actually developed are not new products, but new features that are implemented into their existent product, characterizing them as incremental features of the software. The number of people engaged in R&D activities and the percentage on R&D expenditures are also determined on the assumption that new features are new products development.

Table 2. Firm’s description

Characteristics	Firm 1	Firm 2
Number of employees	4	160
People engaged in R&D	1	22
Number of patents	1	0
R&D expenditure (%)	20	10
New products launched	2 new features per month	20 new features per month
Products in portfolio	7	4

Government grant	Yes	Yes
University spin-off	No	No
Fund raising (incubation, acceleration, angel, seed, series A, series B)	Yes	No

Source: The Authors.

Despite a large amount of software companies nowadays with strong development capabilities and ability to create new solutions for complex problems and disrupting entire markets or business models, traditional tech firms operate on another pace of technological development (Cavusgil & Knight, 2015). Even in a high tech environment and possessing a high tech product, service firms with traditional business models are more likely to keep growing by investing on other capabilities rather than innovating through R&D (Carman & Langeard, 1980). These firms have a “development team” allocated on coding “new” functionalities that only hadn’t been applied before in their product. By doing this, they are able to keep a growth trajectory especially because they are capable of attend current customers immediate needs through increasing peripheral service bundles. In fact, this is what the respondents from both firms explain:

Firm 1: Because we have been receiving a lot of customer demand, it is very difficult to define what will happen in the next two weeks. Regularly we try to release a new version of the app and it is very hard for us to make it from our own ideas. We really have a lot of customer demand. We have not been able to start a new process for a long time. Customer requests are a priority.

Firm 2: We consider innovation everything the customer perceives differently in the product, which does not mean that it will be a great feature. We work on one or two larger features a year. Minor improvements are around twenty a month, for example a button on the screen that exports a report. [...] With the structuring of our Product area we started to look with a more innovative look, really looking at customer problems and analyzing if the solution we had was really the best way to solve them. A more proactive posture. This strategy is very effective for incremental innovation.

In essence, we notice that what firms would define as a development capability (DC), according to Zawislak et al. (2012), actually consists on a group of activities and routines that suit on operations capability (OC). As described by the cases studied, those activities consist on system maintenance, collecting feedback from customers, defining which new features to implement, technological support, bugs correction, and other tasks alike.

Those operations capabilities (OC) are processes that are customer focused, which means these firms do not, necessarily, create the concept of what has to be programmed into the software as functionality. In other words, what is called “innovation process” is, in fact, incremental changes that adapt the existing product to the needs of the clients. Firms manage their resources in order to make the product fit smoothly to customers’ processes.

Actual development capabilities (DC) for technology firms would be the creation of an entire new software, maybe combined with a proprietary hardware as well. An example is the Wide Area

Display (WAD), an equipment used in aeronautical industry produced by AEL Sistemas¹, a company in Southern Brazil. The WAD is a high resolution widescreen smart system that is capable of receiving multifunction key inputs. It promises to be the main source of all flight information and mission in the cockpit of an aircraft.

These results show light into the fact that firm size is an important variable for consideration in the relation of resource allocation. The smallest the firm, the more dependent of customer's impositions it is. In that situation, small-sized firms are under pressure of a stakeholder (customers) that impose firms resource allocation and constrains strategic decision making. To change that situation and keep a growth trajectory, firms need to add value on building new capabilities, which require the application of knowledge. This can be done as a result of scope or scale economies (Capar & Kotabe, 2003). For instance, scope economies would be enhancing core product value deliveries, developing new products, acquiring or partnering with other firms for creating new services, and so on. Larger firms tend to be more independent on their development process. On the other hand, scale economies would be achieved with business model changes, reducing customer contact and customized software development, thus obtaining greater operational performance (Salegna & Fazel, 2013). Such actions tend to shift the dependency relation at the pace of firm's growth.

Management and marketing as drivers of growth

Especially at the beginning of their operations, technology service firms put a lot of effort and allocate their resources to create the product (technological driver). But growth and how to sustain it is much more related to organizational issues (business driver) in the case of such firms. Innovating in both management capabilities (MC) and transaction capabilities (TC) emerged as the main elements for firms to grow on the short run.

As already posit in the literature, innovations in services do not follow a technological trajectory (Sundbo, 1994, 1997; Gallouj & Weinstein, 1997). The capabilities needed to generate innovations derive from internal management efficiency and external resources access through relationships with other actors in the network (Kindström & Kowalkowski, 2014) and with customers (Kumar, & Reinartz, 2016).

In fact, one of the firms interviewed have mentioned that, in the case of software industry, it is very frequent that the competitors share the same features as other firms in the market. It means that technology (i.e. development capability DC) is not a key driver for growth. The respondent of Firm 2 mentions:

I don't see product innovation as the main reason for growth in our case. The product evolves and improves its quality, but you need to have good marketing and sales areas, so that people know you and feel the credibility of your brand. Sometimes you are competing against another player who has more or less the same features, so your issue is your company's brand, the trust you can transmit to customers. You may have the best technology in the world, but if it doesn't solve the problem and you're not selling to anyone, it's useless.

¹ More information about the company and its products are available at <http://www.ael.com.br>

In this sense, management (MC) and transaction (TC) capabilities are also responsible on improving firms' performance. Both firms have mentioned that what really generates competitive advantage for them was management issues, such as culture, strategic planning and performance indicators measurements, or marketing issues, like relationship with clients, networking, branding and sales operations. Firm 1 explains that:

Our main asset is especially the positioning that the brand has, which is an innovative positioning. People see startups very well and the businesses in our segment can't differentiate themselves in the market and prefer to collaborate with a startup to deliver a different product. This is the most constructive view in our case. In addition, our advantage is our network of relationships. Organically, without advertisement and doing nothing, we have had a lot of demand for services. I depend on indications.

Understanding how to coordinate the resources on a scalable way becomes fundamental on fostering technology service firms growth. It is not only about having a strong knowledge of the product and how to deliver it for the client, but more specifically, it is about on how the firm builds their capabilities for creating an internal environment that adapts to market and customer's needs.

It is also important to remember that development areas in technology service firms represent operations capabilities (OC), as mentioned before. Alves et al. (2017) suggest that OC are ordinary capabilities and appears to be the least dynamic of all with non-significant influence over innovation. It means that the development activities for software maintenance stimulates ordinary capabilities and, as mentioned by Teece (2014), they do not necessarily bring long run success for the firm. Thus, for creating sustainable competitive advantages and, the cases studied suggest that focus should be on firms' business driver (MC and TC).

The role of stakeholders on shaping firm's capabilities

Another topic of discussion that became clear through the analysis of these case studies was the relevance of customer interaction on firm's routines and how it in fact influences strategic choices and capability building. We now shift our analysis to a theoretical aspect, which has also contributions for practitioners on management decision making.

The firms presented in this study have all thoroughly mentioned customer engagement as an essential aspect of product adaptation and incremental innovation. Firm 1 has an informal contact with their clients for ongoing user issues, and its implementation process is totally customized for the customer needs in a hand in hand process. Firm 2, contrarily, has a more formal customer interaction, but still highly frequent. They have formalized processes of customer success management, customer needs recognition and co-creation of new features.

Besides customer interaction, the partnership with other firms to deliver superior services packages is also observable in technology service firms. For instance, Firm 2 has said that they are studying an integration of their software with a well-known Business Intelligence (BI) tool in order to help their clients extract more knowledge through the data they generate. The strategic decision here is whether developing a BI tool from scratch, or partnering with a established firm with a finished product ready to be implemented.

Both situations presented (customer interaction and new deliverables with business partners) are consistent with the service innovation definition by den Hertog, van der Aa and de Jong (2010) that was mentioned earlier. It implies an interactive organization of innovation rather than a linear organization (Djellal, Gallouj, & Miles, 2013), in which knowledge assimilation and codification demand dynamic innovation capabilities for effective internalization.

Thus, we argue that what lacks in a model of innovation capabilities for its application on services is the role of stakeholders in the process of innovation. The frameworks already disseminated in the literature, for instance the proposal of Zawislak et al. (2012), cover well the innovation capabilities for manufactured goods. However, not considering customers and other partners in the model make its applicability difficult for service firms because of the complexity of relations through the process.

Innovation capabilities have been studied widely by scholars (Guan & Ma, 2003; Yam et al., 2004; Wang et al., 2008; Forsman, 2011), but they have the attention paid on the production of new goods or technology-led innovation. We argue that there is still a need for more advanced service innovation capabilities frameworks that cover service specificities², not only because of higher relevance of services in changing market and firm's behavior, but also because it modifies academic approach on innovation studies.

5 Conclusions

There is still a need for more investigations on the topic of service innovation and this paper aimed at exploring some of those issues. The cases studied of technology service firms shed light on three important aspects on the topic. First, there is a misconception on practitioners definition of "development", which we have argued that this group of activities are actually operational routines. Understanding this lead us to our second evidence that management (MC) and transaction (TC) capabilities influence firm growth. Third, traditional innovation capabilities frameworks have emphasized product innovation and we suggest an adaptation that consider service specificities.

When the firm's output is tuned to what market desires, strong ordinary capabilities may be sufficient for competitive advantage, but only until conditions change (Teece, 2014). In a situation of rapid market rupture and new demands of customers, firms need to adapt their resources and competences in order to be able to keep competitiveness. Strong dynamic capabilities are, therefore, key at firm level for growth sustainability and positive performance on the long run, and this includes firms in service industries.

In terms of managerial implications, practitioners on technology service firms, specially SMBs, have insightful information on how to sustain growth. Organizing the resources in order to keep clients satisfaction with the software functionalities was described as an ordinary capability and do not promote success alone. Superior performance and competitive advantages are enhanced by dynamic capabilities, which are development, management, and transaction capabilities.

² Den Hertog, van der Aa and de Jong (2010) greatly attempt on relating dynamic innovation capabilities and services into an integrated framework.

The theoretical implications of this study add another group of evidence on the specificities of service innovation and lightens the necessity of a formalized model of service innovation capabilities that drive firms towards higher performance in the market (i.e. Schumpeterian profits). Innovation studies so far have helped understand technological and economics paths, but services represent a more dynamic and complex environment that all firms are embedded in. In our view, propositions for a service innovation capabilities framework comprehend: (1) the role of customers on services development and resource allocation; (2) how firms partner with other players to deliver superior value offerings; and (3) how service firms develop new technologies.

This study is limited by its sample of only two cases studied. Evidently it is not a large enough group of firms that permit assert ideas with precision, but with it we were able to recognize general patterns empirically that were already described theoretically. In addition, another limitation is that all firms have a small size and operate on technology sector, which is a B2B market. Probably service firms whose clients are final consumers behave different and apply other strategies for maintaining growth. Also, the firms studied are located in an emerging country, which may influence strategy adoption according to market's characteristics. A study with a cross-country sample may suggest other insights.

Because of the nature of the present study, interesting future researches would identify causal relations between the innovation capabilities described for keeping growth and economic performance on a time series. With that information, the dynamism of firm's change could be verified. Additionally, empirical evaluation of the impact of service innovation capabilities on firm's performance within different business sectors would generate relevant knowledge to form a general framework that covers service firms specificities.

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