Strategic fit between innovation strategies and supply chain strategies: a conceptual study

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Abstract: Considering the importance of innovation and supply chain (SC) management for firms' competitiveness and the growing interest for the relationship between these two areas, this conceptual paper aims to answer the following research question: how does the fit between the different innovation strategies and SC strategies influence business performance? A literature review was conducted as the basis for developing a conceptual framework, using the principles of resource-based view and contingency theory. Different innovation and SC strategies are studied and discussed with respect to the expected effects of fit on business performance. Five propositions and a conceptual framework are presented showing the complexity of the relationship between both strategies. The conceptual model put forward helps to advance research in the area allowing for an interrelationship between innovation and SC strategies, something that has not been adequately researched, and provides insights for managers who are seeking substantive improvement of business performance.

Keywords: innovation strategies; supply chain strategies; conceptual study; strategic fit.

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1 Introduction

Corporate strategies are recognised to be very important in the search for competitive advantage. Strategies cover a wide range of areas within any business, including operations, marketing and finance. Commonly, they also include concepts related to innovation and supply chain (SC) management, two areas of great importance to business competitiveness. At the same time, many of the problems and difficulties associated with the management of innovation (Anthony et al., 2006; Pisano, 2015) and the SC (Fisher, 1997; Qi et al., 2009) stem from the lack of clear strategies that define the objectives of these processes.

The importance of strategic fit, or just fit, is one of the oldest ideas in strategic management (Porter, 1996; Venkatraman and Camillus, 1984). Porter (1996) highlights the importance of fit for the success of a firm's strategies, stating that a lack of fit between activities leads to a failure to differentiate the strategy. If operational efficiency leads to the individual excellence of activities, strategies refer to the fit or combination of

these activities. Competitive advantage arises from the ability to align strategies and activities and the mutual reinforcement between the two. In turn, the difficulty of achieving a good fit comes from the need to integrate decisions and actions internally – across areas, functions, processes, units or independent strategies, or externally – with suppliers, customers or other partners. Fit is the adjustment of one variable in relation to another, in such a way that the combination gives rise to the best results (Donaldson, 1987; Venkatraman, 1989; Venkatraman and Camillus, 1984; Wu et al., 2014). This concept is associated with what Venkatraman (1989) defines as 'fit as matching'.

In the literature on innovation there is growing agreement that the combination of internal and external sources of knowledge is a fundamental factor in the success of innovation strategies (Veugelers and Cassiman, 1999; Luo et al., 2010; Hazen et al., 2012; Lasch, 2016; Kim et al., 2017). This study is based on the principle that both innovation and SC strategies must be aligned with the requirements of the overall corporate strategy, as well as market demands, customer profile, technology and resources. Considering the important relationship between innovation and SC management, SC strategies need also to embrace the overall corporate goal into account. Accordingly, the study of fit between the two functional strategies should clarify which combinations of the different innovation and SC strategies tend to lead to better business performance. As such, this paper addresses the following research question: how does the fit between the different innovation and SC strategies influence business performance? In order to answer this question, a literature review is carried out and a conceptual framework is proposed.

Although the relationship between innovation and SCs is relatively strict and has attracted considerable attention from researchers in recent years, the relationship between innovation and SC strategies is a subject that has not yet been extensively explored in the literature (Zimmermann et al., 2016). In understanding the effects of fit (as matching) between the different types of innovation and SC strategies on business performance, the paper can bring a new perspective to the topic and makes several key contributions to the literature. First, by focusing on the strategic view of SC and innovation management, the study enhances the understanding of the strategic importance of the two areas – and their relationship – for business performance. According to Zimmermann et al. (2016), prior studies have focused on a more operational perspective and have been looking at the different forms of the relationship between the focal firm and its SC:

1 partnerships for specific purposes (Bruce, 1999; Moreira and Karachun, 2014)
2 project coordination by the client company (Kim, 2000; McIvor and Humphreys, 2004; Wang et al., 2011)
3 integration of the new product development process amongst actors in the SC (Petersen et al., 2005; Roy and Sivakumar, 2010; Salvador and Villena, 2013)
4 strategic alignment between actors of the SC (Lau et al., 2007; Wagner and Bode, 2014)
5 open innovation strategy (Chesbrough, 2003; Antikainen et al., 2010; Billington and Davidson, 2013).

The second theoretical contribution lies in the understanding of interactions between those two strategies and how they impact business performance. Given the link between strategies, it is important to understand their relationship.

This conceptual paper seeks to contribute to theory building. Ketchen and Hult (2011) highlight the importance of using theory building in SC management research, and claim that theory provides, not just scholarly value, but also practical value. For Rindova (2011, p.19), the challenge is to "connect stand-alone ideas into a network of concepts and relationships among them, which constitute theory." According to Lynhan (2002), theory building is a research method that involves different research paradigms and does not use a single model. In this study, the method used is conceptual theory building, which "generates and presents theory, defined as a system of abstract concepts and the relationship between them" [Skilton, (2011), p.23].

Finally, this paper also offers practical implications for firms seeking substantive improvement in their overall performance through innovation and SC. In doing so, this study highlights the importance of aligning both strategies.

This paper is divided into six sections. The introduction identifies the research gap and presents the research question. Section 2 addresses the theoretical foundations of the paper and discusses the current state of the literature regarding the concept of fit. Section 3 evaluates how the fit between the functional areas of innovation and SC has been addressed in the literature. Section 4 presents a classification of innovation and SC strategies in order to understand the effect their fit has on business performance. Following from this, the conceptual framework and the propositions are presented in Section 5 and, finally, the results and implications are discussed in Section 6.

2 Theoretical foundations and the concept of fit

The study is developed based on two theories: resource-based view (RBV) and contingency theory. According to the RBV, firms can conceive and implement strategies that improve their efficiency and effectiveness (Barney, 1991). In practice, the definition of innovation and SC strategies reflects the resources available and the same characteristics, or resources, can influence both strategies. Consequently, the same resources can exert an influence on the fit between the strategies. In this study, the use of a RBV-based approach underpins the understanding of the dynamics of the relationship linking the two strategies, based on the resources that influence them.

In addition, according to the RBV, firms have unique sets of resources and capabilities – valuable, rare, inimitable and non-substitutable – that can provide sustainable competitive advantage (Barney, 1991; Hong et al., 2011; Laosirihongthong et al., 2014; Prajogo, 2016). According to Prajogo (2016), a range of studies use this theory as a theoretical base to demonstrate the benefits of innovation strategies for the performance of firms. The RBV defends the view that successful innovation strategies can generate improvements in performance, depending on the extent to which the innovations resulting from those strategies:

1 add value for the customers through differentiation from the competition

2 produce results which are hard to imitate

3 create products or services which are not substitutable (Barney, 1991; Prajogo, 2016).

According to Hong et al. (2011), firms with more resources are more likely to have improved chances of maintaining their competitive advantage. Finally, the RBV theory is a theoretical perspective that has been used to explain the differences between the performance of firms (Laosirihongthong et al., 2014), which is also a central concern of the present study.

The contingency theory looks at how the fit between context, structure and processes influences performance (Drazin and Van de Ven, 1985). This theory, frequently used as a basis for studying fit (Acur et al., 2012), suggests that organisational outcomes, such as performance, are dependent on the level of internal fit among key organisational elements, such as strategy, and structure (Eva et al., 2018). In a contingency approach, the conditional association of two or more independent variables can be studied (in this case innovation and SC strategies) together with the influence they exert on a dependent variable (in this case business performance) (Prajogo, 2016). Finally, from the perspective of contingency theory, there are no universally superior strategies. The context and structure should be adjusted to benefit the performance of the organisation (Drazin and Van de Ven, 1985).

To understand the relationship between innovation and SC strategies, with the objective of developing a guiding framework, both in terms of theory and practice, this study is based around the concept of fit, which has gained ground in the literature over the last few years (Acur et al., 2012; Wu et al., 2014; Gumusluoglu and Acur, 2016; Gligor, 2017).

The concept of fit is a fundamental element for constructing theory in a wide range of different areas, including strategic management (Venkatraman, 1989; Prajogo, 2016; Miles and Van Clieaf, 2017). Naman and Slevin (1993) state that understanding the concept of fit is fundamental for understanding the difference between the field of strategic management and other fields, such as finance, human resources and marketing.

Venkatraman (1989) describes fit as an adjustment between two or more variables or components. Although the way in which the fit takes place can vary depending on the context and the methods used, the final objective is always the search for the best results by varying the variables under analysis (Prajogo, 2016; Eva et al., 2018).

In this study, fit is understood to be the adjustment of one or more variables – activities, strategies, business areas or organisations – to others, so that the combination leads to improved results (Donaldson, 1987; Venkatraman, 1989; Venkatraman and Camillus, 1984; Wu et al., 2014). This concept is reflected in what Venkatraman (1989, p.431) defines as *fit as matching*: "this perspective is invoked for strategy concepts in which fit is a theoretically defined match between two related variables."

3 Innovation and supply chain strategies

Strategy is the creation of a unique and valuable position, involving a set of activities, which can be understood as the creation of alignment among the different activities of the business (Porter, 1996). Strategic positioning is based on carrying out different activities from those of your competitors or carrying out similar activities in a different way. A strategy is a commitment to a set of activities, policies and behaviours which are coherent and mutually supportive, seeking to achieve objectives that contribute to the competitiveness of the business. For Pisano (2015), good strategies encourage alignment

between the different groups in the organisation, clarify objectives and help maintain the focus on the stated priorities.

External factors for companies, such as technological change or a change in the behaviour of competitors, are often seen as the main threats to strategies. However, although external changes are relevant, the main threats to strategies normally come from inside the company (Porter, 1996). Consequently, the search for sustainable competitive advantage should be primarily focused on that which is within the sphere of influence of the firm, and has attainable results – in other words, the firm's activities. However, by itself, the operational efficiency of the different activities of the firm is not enough to ensure success (Porter, 1996). The activities should be aligned with each other and they should reflect the defined corporate strategies.

Moreover, strategy can be understood as the act of combining the different elements that make up the strategic mix of the company – some of which are internal, such as skills and resources, and others external, such as opportunities and threats. Such a combination is often known as fit (Venkatraman and Camilus, 1984).

3.1 Innovation strategies

Confronted with increasing competition in their target markets, firms from different sectors and with different styles typically include objectives linked to innovation in their strategic plans (Veugelers and Cassiman, 1999). However, adopting innovation strategies is not yet common practice in companies (Anthony et al., 2006; Guan et al., 2009; Pisano, 2015) and receives relatively little attention in the academic world.

Because of its complexity, the management approach to innovation varies depending on the needs of the company. The innovation process includes management and decision making activities at the organisational and individual level. The ability of the company to manage its day-to-day tasks and invest resources in complex and uncertain environments determines how, and to what degree, innovative products and processes will be generated (Ferreira et al., 2015).

Successfully maintaining or developing the innovation capacity of companies depends on the objectives laid down and the defined innovation strategy (Bowonder et al., 2010; Guan et al., 2009). This is the basis that allows for conscious and coherent decision making, with a view to achieving the best performance for the process (Adner, 2006; Clausen et al., 2012; Ferreira et al., 2015; Pisano, 2015; Veugelers and Cassiman, 1999). In other words, it considers the development of new products, processes or business models, or a significant improvement in the current ones, which are tailored to the needs of customers, and, as a result, helps improve the results for the firm as a whole. Innovation strategies guide decision making for the firm with respect to innovation and serve as a stimulus motivating workers to participate in the process in a synergistic way.

Some authors classify innovation strategies based on characteristics that they consider important and differentiate them in this process. Whitley (2000) proposes that strategies be classified into: dependent; craft-based responsive; generic; complex and risky; and transformative. Guan et al. (2009) divide innovation strategies into: technology importer; defender; imitator; follower; and leader. Love et al. (2014) focus on the differences between the sources of knowledge for innovation and define four strategies: no R&D or external linkages (neither); no R&D but with external linkages (external); R&D but no external linkages (internal); and both R&D and external linkages (both).

Clausen et al. (2012) propose a typology that considers five strategies which represent what the authors understand to be the main differences among firms in the approach taken to the process: ad hoc; supplier-based; market-driven innovation; R&D intensive; and science-based innovation. These innovation strategies are based on data from the Community Innovation Survey (CIS), which reflects decades of research effort to understand the sources and effects of innovation in a broader context. These strategies are similar to those proposed previously in the literature, such as Pavitt (1984), Marsili and Verspagen (2002) and Castellacci (2008), but with the advantage of using data collected at firm level, as opposed at industry level. Finally, the strategies proposed by Clausen et al. (2012) reflect firms' internal characteristics and external relationships – encompassing supply and demand factors (where previous approaches have focused on product or process characteristics or on external relationships). As such, Clausen et al. (2012) model is aligned with the objectives of this paper since it represents the differences among firms regarding the characteristics of innovation and SC.

The main characteristics of each type of strategy are presented in Table 1.

Table 1 Characteristics of the different types of innovation strategies

Characteristic	*Ad hoc*	*Supplier-based*	*Market-driven innovation*	*R&D intensive*	*Science-based*
R&D investments	Low	Low	High	Very high	Very high
Sunk costs	Low	Low	High	High	High
Sources for innovation	Limited	Few	Some	Many	Many
Spectrum of goals	Limited	Limited	Broad	Broad	Broad
Persistent innovation	No	No	Yes	Yes	Yes
Absorptive capacity	Low	Medium	Medium/high	High	Very high

Source: Adapted from Clausen et al. (2012)

It is important to note that, just like the innovation process itself, the innovation strategy involves constant experimentation, learning and adaptation. This means that a strategy never reaches a point where it is definitively defined, with relevant internal and external aspects that require consideration undergoing constant change.

3.2 Supply chain strategies

SC management, like innovation management, is a common theme in the corporate strategic plans of many organisations. However, while it is recognised as a source of competitive advantage, firms do not always define their objectives with respect to the SC. The topic has received little attention in the academic world (Qi et al., 2009; Qrunfleh and Tarafdar, 2014; Sharifi et al., 2013; Simatupang et al., 2017; Wankhade and Kundu, 2018).

Effective management of the flow of material from the supply sources to the final customers represents a major challenge for managers. Companies need a clearly defined plan to be able to organise their activities, resources and communications for this

complex and complicated process (Qi et al., 2009). For Christopher (2000), followed by Lee (2002) and Qrunfleh and Tarafdar (2014), SC strategies reflect the nature of the SC and lay down its objectives and goals. Moreover, they should be aligned with the product characteristics, with the adopted competitive strategy and with the environment where the firm competes (Qi et al., 2009).

For Arora et al. (2016, p.206), "SC strategy describes a pattern of decisions related to sourcing products, capacity planning, conversion of raw materials, demand management, communication across the SC, and delivery of products and services and thereby links SCM strategy to business and corporate-level strategy."

Table 2 The main characteristics of the lean and agile SC strategies

SC strategy	*Lean*	*Agile*
Objective	Focuses on cost reduction and incremental improvements for existing products. Focuses on elimination of waste and non-value-added activities across the SC.	Tracks and understands customer requirements by interacting closely with market. Aims to produce in any volume (and not just the optimal capacity utilisation volume) and deliver simultaneously to a wide variety of markets. Provide customised products as short lead times (i.e., focuses on responsiveness).
Inventory strategy	Generates high inventory turnover and minimises inventory through the SC.	Deploys significant stocks of parts to tide over unpredictable market requirements.
Lead time focus	Shortens lead-time only so long as doing so does not increase delivery or inventory costs.	Reduces lead times to customer specifications and requirements.
Manufacturing focus	Maintains high average capacity utilisation rate.	Deploys excess/buffer capacity to ensure that raw material/components are available to manufacture the product according to market requirements.
Product design strategy	Reduces the cost of production.	Produces to modular designs, by using a limited number of basic components and processes that can be assembled into different products.

Source: Qrunfleh and Tarafdar (2014)

The model proposed by Fisher (1997) in his important and influential article published in the *Harvard Business Review* in 1997 led many authors to adopt two types of SC strategy: lean – equivalent to Fisher's efficient strategy, and agile – equivalent to Fisher's market-responsive strategy (Christopher, 2000; Christopher and Towill, 2002; Qi et al., 2009, 2011; Qrunfleh and Tarafdar, 2014). For Christopher (2000), there are three critical dimensions that determine which approach – agile or lean – makes greatest sense for a company: variety, variability (or predictability) and volume. Agility is needed in less predictable environments where demand is volatile and the requirement for variety is high. On the other hand, lean works best in high volume, low variety and predictable environments.

Table 2 presents the main characteristics of the lean and agile strategies.

Some authors have adopted a lean and agile, or leagile strategy (Naylor et al., 1999; Bruce et al., 2004; Qi et al., 2009). Leagile is understood as the combination of the two

strategies and can operate, for example, cost-effectively in upstream activities of the SC and responsively to volatility in the market downstream (Bruce et al., 2004).

Finally, just as with innovation management, SC management is a process which goes through constant changes and, as a result, the choice of SC strategy is also a dynamic process. Differences between the products of a firm should also be taken into account, which means that an organisation can apply different strategies at the same time. As Christopher and Towill (2002) state, lean and agile are not opposing philosophies. It is just that they are better suited to different contexts.

Lee (2002) argues that a successful SC strategy depends on two factors:

1 The strategy should be designed in accordance with the needs of the customers.

2 A product with a stable demand and with reliable sources of supply does not need the same sort of management as a product with unpredictable demand and unreliable supply sources.

As Lee (2002, p.106) states "strategies that are based on a one-size-fits-all or try-everything mentality, will fail."

4 The fit between innovation and supply chain strategies – propositions and framework

From the aggregation of the theoretical foundations, the concept of fit, the study of fit between innovation and SC in the literature, and the characteristics of innovation and SC strategies, theoretical propositions and a conceptual framework are presented. The way firms manage innovation and their SCs, as well as the strategies they embrace, impact on business performance. The fit between different variables (activities, strategies or business areas) in the firm can be a driver for optimising results (Eva et al., 2018). This paper is based on the principle that the fit between the different types of strategies affects a firm's business performance in different ways and that some combinations of innovation and SC strategies are more likely than others to achieve better results for the firm.

According to Clausen et al. (2012), the firms that are part of the ad-hoc group invest little in research and development activities (or in other words, they avoid sunk costs[1]) and have no solid commitment to others (knowledge sources). These firms have slower learning paths and, given that this strategy produces relatively little innovation, the firms are less able to invest the profits from previous innovation in future rounds of innovative activity (Clausen et al., 2012).

The lean strategy seeks to create efficient SCs, in terms of costs, focusing on the reduction of lead times and the elimination of stock waste. This strategy fits well with stable and predictable demand and products that change little (Christopher and Towill, 2002; Qi et al., 2009, 2011; Qrunfleh and Tarafdar, 2014). The main objective of an SC lean strategy is to reduce costs and increase efficiency by eliminating waste, both in the internal processes and the external processes of the organisation (Qi et al., 2009).

Based on these considerations, the first proposition is presented, considering the concept of fit and the characteristics of ad hoc innovation strategies and lean SC strategies:

RP1 Firms with ad hoc innovation strategies tend to obtain better business performance by adopting a lean SC strategy as opposed to an agile SC strategy.

Firms that rely mainly on their suppliers (especially of machinery and equipment) as a source of knowledge for innovation belong to the group of supplier-based strategy (Clausen et al., 2012). This strategy can be seen as a reactive and incremental approach to innovation where the firms do not heavily invest on innovative internal competencies, so that they do not incur sunk costs. This is consistent with lean SC strategies. Based on these considerations, the second proposition is presented:

RP2 Firms with supplier-based innovation strategies tend to achieve better business performance by adopting a lean SC strategy as opposed to an agile SC strategy.

On the other hand, firms that adopt a market-driven innovation strategy have their innovation focus centred on the customer and look for knowledge from industry sources, such as competitors and customers (Clausen et al., 2012). Such firms seek out this type of relationship and they invest highly in innovative activities, based on both incremental and radical innovation, with the objective of developing a sustainable competitive edge. High investment means that this strategy requires more long-term commitment than the two above mentioned strategies and an outward focused perspective.

An agile SC strategy seeks to guarantee the flexibility and adaptability of the SC given constant changes in both customer needs and the competitive environment, using fast, dynamic and continuous responses (Christopher and Towill, 2002; Qi et al., 2009; Qrunfleh and Tarafdar, 2014). The objective of this type of strategy is to devise customer-driven products, focused on customers with unique characteristics, so that the competitive advantage is retained in constantly changing environments. The shortening of product life cycles and rapidly changing customer requirements have increased the pressure throughout the SC to provide products and services in a quicker and more responsive manner (Qi et al., 2009). Following, from this, the third proposition in this study is:

RP3 Firms with market-driven innovation strategies tend to achieve better business performance by adopting an agile SC strategy as opposed to a lean SC strategy.

The R&D intensive strategy is adopted by firms that tend to have a wide range of objectives and innovation sources, while being especially focused on internal and external R&D processes (Clausen et al., 2012). This strategy favours the development of radical innovations and increases the learning capacity of the firm. The strong R&D capabilities lead firms to deploy brand new products and services to exploit market opportunities that other firms cannot exploit as they are not as technology-oriented as firms that have a R&D intensive strategy. This approach requires continual effort and attentiveness from the SC, which are characteristics associated with the agile strategy type, leading to the following proposition:

RP4 Firms with R&D intensive strategies tend to achieve better business performance by adopting an agile SC strategy as opposed to lean SC strategies.

Firms with science-based innovation strategies are highly dependent on scientific knowledge sources, such as patents, and the relationship with universities and research institutes as part of their innovation process. Firms in this group tend to be persistent innovators – measured by the number of innovations, given that they have greater ability

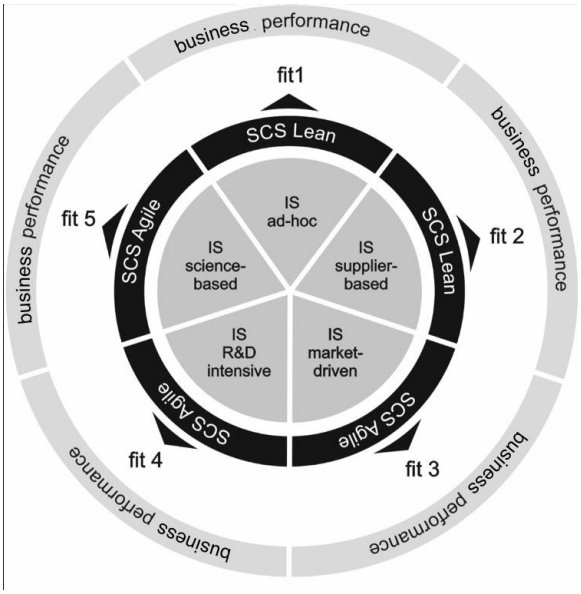
to innovate again in subsequent periods – with basic science offering great technological opportunities (Clausen et al., 2012). Science-based innovation strategies rely heavily on the firms' capabilities to create new technological knowledge and to explore scientific advances knowledge providers (Castellacci, 2008). This type of strategy also requires a systematic commitment from the SC to underpin the development of new products, which is associated with an agile SC strategy, leading to the fifth proposition of this study:

RP5 Firms with science-based innovation strategies achieve better business performance by adopting an agile SC strategy as opposed to a lean SC strategy.

Figure 1 shows the conceptual framework, which reflects the results of the joint use of different strategies.

The propositions shown here reveal the complexity of the relationship between the areas of innovation and SC, and especially between the corresponding strategies. On the one hand, the innovation strategy deployed by a firm defines the type of products/services it produces and influences the SC strategy it adopts. On the other hand, the nature of the SC exerts a strong influence on the innovation process and strategies adopted. The relationship between those functional strategies has a mutual influence on each other.

Figure 1 Conceptual framework



5 Implications and conclusions

The paper contributes for a strategic view of the relationship between innovation and SC, as prior studies have focused mainly on a more operational perspective (Zimmermann et al., 2016). The paper also provides some insights for both innovation and SC managers who are looking to improve the global performance of their organisations and highlights the importance of achieving an alignment between those strategies.

The propositions that have emerged from this paper contribute to theory providing a new perspective to the topic and have the potential to be used as a guide by managers for decision making in terms of adopting innovation and SC strategies, although empirical validation is needed. In addition, they can be used as a way to encourage alignment between these and other functional areas.

In this work we have identified possible combinations of innovation and SC strategies and have discussed the expected effects of these combinations on business performance. The discussion shows not only that the adoption of the various types of innovation strategies – which depend on a variety of aspects – influence business performance, but also support the alignment between innovation and SC strategies. As such, the paper contends that the innovation and SC functional areas may play an important role in business performance as they are more interrelated than originally thought. Moreover, it is also possible to contend that SC strategies may moderate the relationship between the innovation strategy deployed by the firm and business performance.

Several studies point to direct evidence that complementarily between internal activities of R&D and external access to knowledge is a fundamental factor for the innovation process (Love et al., 2014; Veugelers and Cassiman, 1999). Alignment between the innovation and SC strategies also leads to an improved fit between the internal activities of the firm and the activities of its partners throughout the SC. One possible explanation for this is the fact that the SC strategy steers the relationship with external suppliers and clients – information and knowledge exchange, inter-organisational innovation, collaborative product development, quality management activities, among others – that influence the way innovation activities with other actors of the SC really works, which end up influencing business performance.

We highlight the fact that corporate strategies are dynamic processes. Changes in the way innovation is carried out within the firm should always lead to a re-evaluation of the SC strategies. The opposite is also true; changes in the SC structure or in the SC strategies can lead to changes in the way the firm manages innovation.

Considering the uncertainty of the business context, the variety of firm's processes and products, we also conclude that different strategies can coexist in a single organisation – both in innovation and SC – depending on the types of markets the firm serves, and the types of products developed to match those market needs. It is also possible that a different alignment between the functional strategies would be necessary, to make the most efficient use of the relationship between the uncertainty of the demand (often associated with innovation) and the operational efficiency.

6 Limitations and future research

The main limitation of this paper is related to the nature of the work, namely carrying out a literature review with the goal of developing a conceptual paper. For future research, we recommend the test of the conceptual framework involving an empirical analysis and additionally to review the conceptual model to include the unpredictability of supply and the demand.

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Notes

1 'Sunk cost' is a term used in economics to describe costs that have already been realised and cannot be recovered, at least a significant part of them (Sutton, 1991). Investments in innovation (or R&D), which may or may not result in new and 'lucrative' products, cannot be recovered.