

WHEN PURCHASING PROFESSIONAL SERVICES SUPPORTS INNOVATION

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ABSTRACT

The objective of this article is to explore the extent to which purchasing KIBS may stimulate innovation at the buying firm. With this aim we integrate the results of a systematic literature review on purchasing KIBS with literatures respectively on purchasing and KIBS contribution to innovation. Based on the outcomes of our extensive study of the literature, we provide a theoretical framework, which proposes to observe the KIBS service triad configurations, its antecedents and characteristics in order to understand what could boost innovation outcomes. Our contribution to extant literature is threefold. First, we move beyond the debate on the involvement of purchasing in new product development and show a broader domain in which purchasing can contribute to the development of innovation in the buying organization. Secondly, we provide insights on how firms buying KIBS can use their purchasing resources to effectively buy KIBS and innovate more. Lastly, this research identifies a series of research opportunities in the literature that can serve as “food for thought” in future works. Purchasing managers and KIBS providers could also use the insights of this paper to better understand the impacts of their actions on innovation and to guide their strategies to foster innovation.

Keywords: KIBS, Professional services, Purchasing, Integration, Innovation
Track: Innovation: exploring new challenges for purchasing and sourcing
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INTRODUCTION

The world today has changed. We live in an era marked by globalization, the raise of new technologies, outsourcing, and intercontinental operations (McCarthy et al., 2013). Although companies have always used resources outside the boundaries of the firm to innovate, these changes have led companies to adopt a more outward looking innovation approach (Huizingh, 2010). Companies are increasingly moving out of a model where knowledge, technologies and competencies are developed based on internal R&D and obtaining them from a network of collaborating partners (Chesbrough, 2003). Increasing attention is also being dedicated to the public procurement of innovation (PPI) (Rolfstam, 2012) and the fact that public organisations can create demand for innovation by procuring the development of new products and services, or the final innovative products and services that have been developed by suppliers (Yeow & Edler, 2012).

These trends have drawn attention to the role of purchasing in innovation. Studies have shown that sourcing innovation or innovation inputs improve the effectiveness of firms' innovation processes (Huizingh, 2010). The integration of the purchasing functions in the new product and service development project can have positive effects on the success of the innovation (e.g. Mendez & Pearson, 1994; McGinnis & Vallopra, 1999, 2001; Tracey, 2004). Researchers also argue that public authorities can stimulate economic growth and influence the development of leading technologies through their purchasing efforts (Edquist & Zabala-Iturriagoitia, 2012). Attention has also been dedicated to the role played by knowledge-intensive business services (KIBS), like engineering, R&D, or software development, in stimulating innovation.

KIBS are offerings in which service providers use their knowledge to diagnose customers' problems and design customized solutions (Mills & Moshavi, 1999) that meet customers' needs. KIBS firms recombine existing knowledge bases with new ones to reach solutions (Muller & Zenker, 2001). In delivering solutions, KIBS firms pass on knowledge to customers that will be used in their innovation processes, and help customers develop new products and services (Miles et al., 1995; Hertog, 2000). As such, these firms carry innovation and ideas developed in one sector or company to other sectors and/or companies (Hertog, 2000). Purchasing KIBS can therefore improve the effectiveness of firms' innovation processes.

However, the literature on the role of KIBS in innovation is usually concerned with economic aspects, such as knowledge spillovers across sectors, contributions to local and national innovation systems or the number and type of KIBS firms needed in a particular location to stimulate innovation in the local economies. Less attention is dedicated to the ways in which the actual process of purchasing KIBS can promote innovation at the firm level. A more comprehensive understanding of how and when the purchase of KIBS can support innovation at the buying firm is thus missing. As KIBS can be a key source of innovation, knowing how to effectively buy KIBS can increase innovation returns for firms.

To give an initial step in this direction, we decided to integrate the results of a systematic literature review on purchasing KIBS with literatures respectively on purchasing and KIBS contribution to innovation. Through this extensive study of the literature we aimed to answer two research questions: *RQ1: What aspects of the KIBS purchasing process can influence the innovation generated with the acquisition?* *RQ2: Under what conditions does the purchase of KIBS support innovation in the buying firm?* In posing these questions we looked specifically for the innovation generated at the firm level – namely the buying firm level. However, we did not look for a specific form of innovation generated in the process of purchasing KIBS rather we looked for its contribution to different forms of innovation as defined by Tidd and Bessant (2013). As suggested by these scholars, we referred to established classifications of innovation such as the ones between radical and incremental innovation and between component and architecture innovation. Moreover, still based on Tidd and Bessant (2013), we considered in addition to the classical product and process innovation types, the “position” and “paradigm” innovation types; the first involving changes in the context where products/services are introduced and the latter referring to changes in the underlying mental models which frame what the organisation does. Finally, we looked for the four different phases of innovation process identified by the same authors: 1) scan and search potential innovation triggers; 2) select those which the organisation will commit resources to doing; 3) implement the innovation, and 4) capture the value generated from efforts at innovation.

We conducted our systematic literature review considering combinations of the three topics, i.e. KIBS, purchasing and innovation. Knowledge obtained on the purchase of innovation and on the role of KIBS in innovation systems was used to build a list of categories of analysis associated with the research questions. These categories were then used to systematically analyse the literature on the purchase of KIBS.

Based on the outcomes of our study, we propose a theoretical framework to represent the contribution of KIBS purchase for innovation. The framework shows the factors that need to be considered, during the KIBS delivery process, in order to generate innovation. It proposes to observe the KIBS service triad configurations, its antecedents and characteristics in order to understand what could boost innovation outcomes. Our work contributes to the current knowledge on the role of purchasing in innovation in three ways. First, it integrates purchasing literature to the KIBS literature, two streams which have been long separated in academic studies fragmenting knowledge on how purchasing KIBS may contribute to innovation. In doing so, it moves beyond the debate on the involvement of purchasing in manufacturing and new product development projects and shows broader contexts in which purchasing can contribute to the development of innovation in the buying organization. Secondly, it creates insights on how firms buying KIBS can use their purchasing resources to effectively buy KIBS and generate different forms of innovation and influence at different levels of the innovation process (Tidd and Bessant, 2013).. Lastly, this research identifies a series of research opportunities in the literature that can serve as “food for thought” in future works. Purchasing managers and KIBS providers could also use the insights of this paper to better understand the impacts of their action on innovation and to guide their strategies to foster innovation.

This paper is organized as follows: next section explains the research method adopted to achieve our research objectives and to answer our research questions. Then, the outcomes of the analysis

of the literature are presented and are followed by a discussion on the main implications of our analysis. In the final section conclusions and suggestions for future research are proposed.

RESEARCH METHOD

The systematic literature review and qualitative content analysis methods were used to answer our research questions. The former method was employed to collect texts published on the purchase of KIBS and innovation in an extensive and systematic way (c.f. Tranfield, Denyer, & Smart, 2003; Wolf, 2008). We searched for texts in five widely used databases: EBSCO, Emerald, JSTOR, Proquest and Science Direct. In order to obtain texts relevant to this research, we first defined the words related to the main topics in focus, i.e. KIBS, purchasing and innovation. These terms were the following: “Innovation”; “KIBS”, “Professional Services”, “Solution”, and “Business Services”; “Purchasing”, “Procurement”, “Sourcing” and “Buying”. Then, we conducted three sets of searches using combinations of these words, as listed below:

- KIBS” OR “Professional Services” OR “Solution” OR “Business Services” AND “Purchasing” OR “Procurement” OR “Sourcing” OR “Buying”
- KIBS” OR “Professional Services” OR “Solution” OR “Business Services” AND “Innovation”
- “Purchasing” OR “Procurement” OR “Sourcing” OR “Buying” AND “Innovation”

The searches were limited to full-texts in English, but not time frame restrictions were applied. Based on the results of these initial searches and on the amount of papers resulting from the searches on purchasing and innovation, we decided to do a final search combining the words “Customer”, “Supplier”, “Buyer”, “Seller” with “Innovation”. During the searches, the abstracts of the papers were carefully read and only papers relating to KIBS and purchasing, KIBS and innovation and innovation and purchasing were selected. The process described lead to the selection of 228 papers.

Each author then read a sample of 10 papers and used the categories listed in Table 1 to understand how the papers could be organized. Based on this initial analysis and on our research questions, we decided to classify the papers into three groups, depending on the main objective of the study in question. The groups were: 1) the role of KIBS in innovation systems; 2) the purchase of innovation; 3) the purchase of KIBS. When it was not possible to classify the paper just based on the abstract, the introduction and the methodology sections were also considered to classify the paper. If the paper did not fit into one of these three groups, it was classified as “others” and excluded from the analysis. Finally, papers with no impact factor and ranked 2 or less in the ABS rank were excluded. After this screening process, 108 papers remained in the sample to be analysed. The group on the role of KIBS in innovation systems counted with 8 papers; the one on the purchase of innovation with 24 and the one on the purchase of KIBS with 74 papers.

Table 1 - Analysis grid 1: example of the initial information collected for each paper

Name Author /Year	Journal	Type of Paper	Type of KIBS	Industry of Buyers	Country of Buyers	Obj. of Paper	Aspects Covered	Unit of Analysis	Theory of Ref.	Contribution of Paper
E.g.: Castaldi et al. 2013	Title of Journal	Qualitative / Quantitative / Conceptual	<i>p-KIBS / t-KIBS</i>	E.g. manufacturing	E.g. Netherlands	E.g.: Understanding and the ability of knowledge intensive business firms (KIBS) to engage	KIBS + Innovation / KIBS + purchasing / Innovation+Purchasing / Other	Firm / Dyad / Network	E.g. Knowledge-based perspective	E.g.: the ability of KIBS to co-innovate crucially depends upon both their accumulated knowledge resources and their learning capability

We then analysed the papers in each group. The papers on the role of KIBS in innovation systems and on the purchase of innovation were reviewed with the objective of identifying important topics related to the relationship between “purchasing and innovation” and “KIBS and innovation”. This analysis led to the selection of 15 criteria considered important to answer the research questions (Table 2). We then used these criteria in a qualitative content analysis to systematically analyse the 74 papers on the purchase of KIBS. Qualitative content analysis involves the codification of textual material and the qualitative interpretation of the categories created (Abbasi & Nilsson, 2012) and was used to identify whether this literature could reveal when and how the purchase of KIBS can support innovation.

Table 2 - Analysis grid 2: categories used to analyse final sample of papers.

Variable	Definition
Authors	Name of Author(s)
Year	Year of publication
Profile of purchaser	What aspect of purchasing was considered, e.g. life-cycle sourcing, advanced sourcing, purchasing department, buying centres Main activities executed by the purchasing function Evaluating costs / benefits of suppliers Identifying the problem to be solved Evaluating method proposed Evaluating suppliers reputation
Activity(ies) of Purchasing	Evaluate the capabilities of the service firm via success story Evaluate knowledge and skill of sellers

Level of Contribution	In which level of activity was the purchasing function involved, i.e. Project management, Product Management, Supplier interface management, Development Management (Based on Wynstra, Weggeman & Weele, 2003)
Processes of Purchasing	Type of process purchasing is involved, i.e. Prioritizing, Mobilizing, Coordinating, Informing, Timing (Based on Wynstra et al., 2003)
Supplier profile	New supplier to customer or extant supplier to customer
Type of KIBS	p-KIBS / t-KIBS
Type of B-S interaction	Description of how buyers and customers interacted during the service provision
Main Purchasing contribution identified	Description of the outcomes generated due to the involvement of the purchasing function
Process of innovation generation	Description of how suppliers contributed to innovation process, i.e. by bringing innovation, by helping in the development of innovation, by sharing knowledge
Kind of innovation generated	Product innovation / process innovation/position innovation/paradigm innovation (based on Tidd and Bessant 2013)
Level of innovation process concerned	Scan and search/select/implement/capture value (based on Tidd and Bessant 2013)
Actors affected by innovation generated	Who benefitted from the innovation: buyer, supplier, both, or the network
Performance of Innovation	Measure of innovation outcome generated, e.g. lower development costs or time-to-market
Dimensions of Innovation	Radical / Incremental, Component/Architectural (based on Tidd and Bessant 2013)
Geographical location	Importance of the co-location of buyers and supplier

The 74 papers selected were then divided in two sets and each researcher classified 37 papers. During the classification process, we further eliminated 27 papers. This occurred either because the paper was not specifically about purchasing processes or because it focused on related but not central themes such as web-based auctions or outsourcing and offshoring. At the same time, new articles were identified from the references of the articles selected. The final classification grid contained data on 54 papers, which covered at least some aspects of KIBS purchase. We then proceeded to the data analysis. Throughout the overall process, authors exchanged their classifications and analysis in order to compare their results and solve eventual doubts.

ANALYSIS OF THE LITERATURE

HOW PURCHASING AND KIBS CONTRIBUTE TO INNOVATION

In this section, we provide an overview of the literatures exploring the role that Purchasing and KIBS, separately, play in fostering innovation. In the following section, we then explore what is known on purchasing of KIBS as a unique process and its relationship to different forms innovation generated at the buying firm level. Integrating the knowledge provided by these streams of research, we propose a framework providing insights on when and how purchasing KIBS can contribute to innovation.

Purchasing and its role in innovation

Purchasing has evolved from a clerical and cost-oriented function into a critical and strategic priority for companies (Ellram & Carr, 1994). The potential contribution of purchasing to innovation has been identified since the earliest acknowledgments of its strategic role: occupying a boundary-spanning position, purchasing gains visibility over the business environment, acquires knowledge about cost, availability and reliability of new potential technologies and suppliers in the market, and redistributes these information across different functions in the buying company (Mogge & Bean, 1976; Burt & Soukup, 1985; Williams & Smith, 1990).

The shift toward the open innovation paradigm has drawn further attention to the role of purchasing in innovation (Chesbrough, 2003). Indeed, within an environment characterised by open innovation, companies move out of a model where technologies and competencies are developed internally in protected laboratories, and decide to obtain them from a network of collaborating partners. Since suppliers are re-framed as critical sources for innovation, the role of purchasers changed to one in which selecting and managing the relations with suppliers is crucial.

Involvement in new product development (NPD) project is the only context in which the literature considers purchasers' contributions to innovation (to our knowledge the only exception is the work of Wynstra et al., 2003). In this context, the integration of purchasing in the NPD team has proved to have positive effects on the success of the innovation (Mendez & Pearson, 1994; McGinnis & Vallopra, 1999, 2001; Nijssen et al., 2002; Tracey, 2004; Luzzini et al., 2015). Moreover, when suppliers need to be involved at an early stage in NPD projects, an early purchasing involvement (EPI) is also needed (McGinnis & Vallopra, 1999; Wynstra *et al.*, 2000; Lakemond *et al.*, 2001; Dröge et al. 2004).

Areas of purchasing contribution to NPD have been distinguished into operational and strategic aspects. This reflects the way the purchasing function itself is organised in most innovative firms where a 'life-cycle sourcing' team exists along with an 'advanced sourcing' team (Schiele, 2010). The 'life-cycle sourcing' team usually consists of purchasers with a strong commercial focus and specialists in a particular commodity; integrated into all NPD projects, this team intervenes in the production phase managing relations with suppliers. On the other hand, the 'advanced sourcing' team is a distinct organisational unit composed of engineers or purchasers who have developed a strong technical background over time; this team then focuses on developing relationships with new rather than extant suppliers.

Among the purchasing contribution to operational aspects of NPD, the interfacing role has been particularly spotlighted, since this facilitates the buyer-supplier relationship that is of pivotal importance for the exchange of knowledge and the development of innovation (Nijssen et al., 2002; Luzzini et al., 2015). Also, overall operation project assistance has been cited among other purchasing contributions (Nijssen et al., 2002).

The effectiveness of purchasing across these contributions depends on aspects of the purchasing function maturity, such as its knowledge (i.e. knowledge of the external supplier environment, of the internal customer's environment, and of the firm's strategic goals) and skills (i.e. analytical, communication, and general management skills), the resources available to purchasing, and the integration of purchasing with other functions inside the firm (Castaldi et al., 2011; Luzzini et al.,

2015). Moreover, it has been pinpointed that in contexts of technological uncertainty and immaturity of the industry, suppliers' involvement in NPD is less appropriate and the relevance of extant long-term suppliers' relationships decreases (Johnsen et al., 2006, 2009), therefore, in these situations also the relevance of the purchasing role in NPD diminishes.

Wynstra et al. (2003), provide a comprehensive classification of the purchasing's roles in NPD identified in literature. The *rationalization* role allows the firm to get competitive advantage minimizing total costs of production; the *structuring* role concerns purchasing influence over the structure of the supplier network, for instance balancing in terms of dependence on suppliers and inclusion of newly established suppliers along with old ones; the *development* role relates to the technological alignment between the firm and the supplier network, so to favour exploitation of suppliers' technical competencies and generate suppliers' interest in developing products corresponding to firm's internal needs.

Moreover, Wynstra et al. (2003) have the merit of proposing to shift from a short-term NPD project perspective to a long-term and strategic NPD process view, elaborating a framework that broadens the palette of purchasing contributions in product development. Far from being limited to managing supplier involvement in single development projects, the model encompasses various purchasing key processes, activities and areas of integration (see Table 3). The framework moves from ex-post project-based measures of purchasing integration value (e.g. reducing product and development costs, reducing development time, increasing product quality) to a tool that allows to identify ex-ante the required level of purchasing integration according to its potential contribution to the process.

Table 3 - Purchasing involvement in NPD: a framework of levels, activities and processes (Wynstra et al., 2003).

Levels	Activity	Embodied key processes
Development management	• Determining which technologies to keep/develop in-house and which ones to outsource to suppliers	Prioritizing
	• Formulating policies for the involvement of suppliers	Coordinating, timing
	• Formulating policies for purchasing-related activities of internal departments	Coordinating, timing
	• Communicating policies and procedures internally and externally	Informing
Supplier interface management	• Monitoring supplier markets for technical developments	Informing
	• Preselecting suppliers for product development collaboration	Prioritizing
	• Motivating suppliers to build up/maintain specific knowledge or develop certain products	Mobilizing, coordinating
	• Leveraging the technical capabilities of suppliers	Coordinating, timing
	• Encapsulating suppliers' development performance	Informing
Project management	Planning:	
	• Determining specific develop-or-buy solutions • Selecting suppliers for involvement in the development project	Prioritizing Prioritizing, mobilizing coordinating, timing Prioritizing, coordinating

	<ul style="list-style-type: none"> • Determining the extent ('workload') of supplier involvement 	Prioritizing, timing	
	<ul style="list-style-type: none"> • Determining the moment of supplier involvement 		
	Execution:	Coordinating, informing	timing,
	<ul style="list-style-type: none"> • Integrating development activities between suppliers and manufacturers 	Coordinating, informing	timing,
	<ul style="list-style-type: none"> • Integrating development activities between different first tiers suppliers 	Coordinating, informing	timing,
	<ul style="list-style-type: none"> • Integrating development activities between first tier suppliers and second tier suppliers 		
Product management	Extending activities:	Informing	
	<ul style="list-style-type: none"> • Providing information on new products and technologies being developed or already available in supplier markets 	Prioritizing, informing	mobilizing,
	<ul style="list-style-type: none"> • Suggesting alternative suppliers, products, and technologies that can result in higher quality of the final product 		
	Restrictive activities:	Informing	
	<ul style="list-style-type: none"> • Evaluating product designs in terms of part availability, makeability, lead time, quality, and costs 	Prioritizing, informing	mobilizing,
	<ul style="list-style-type: none"> • Promoting standardization and simplifications of designs and parts 		

Public procurement represents another stream of research where increased interest on the purchasing contribution to innovation has recently developed. “Public procurement of innovation” is the term currently used in this stream of literature to identify “purchasing activities carried out by public agencies that lead to innovation” (Rolfstam, 2012, p. 303).

While in business purchasing literature the focus is mainly on the effects that purchasing generates on innovation for buyers, in public procurement literature the focus is on the effects of purchasing on innovation for the industry and networks. Based on earlier studies illustrating that the state often acts as a lead user in stimulating innovation (Dalpé et al., 1992), the central idea is that demand from public organizations can be used as an engine for the development and diffusion of innovations, even if the primary objective is not to enhance the development of new products, but to target functions that satisfy human needs or solve societal problems (Edquist and Zabala Iturriagagoitia, 2012). Drawing on previous relevant literature on the theme (Edler, 2009; Hommen & Rolfstam, 2009; Uyarra & Flanagan, 2010), Edquist & Zabala Iturriagagoitia (2012) propose a taxonomy to classify innovation procurement based on two dimensions: (1) the user of the resulting product and (2) the character of the innovation. According to the first dimension innovation procurement is *direct* when the procuring organization is also the end user or *catalytic* when the procuring agency acts as a “buyer” for the benefit of a third end-user. According to the second dimension, three types of innovation procurement are identified: *pre-commercial*, when (expected) research results are procured and no product is involved in the purchasing (it may however involve the development of a product prototype); *adaptive*, when the product or system procured is new only to the geographical area of procurement, so that innovation concerns incremental adaptation to the specific local conditions; *developmental*, when completely new to the world products or systems are created as a result of the procurement process.

Knowledge Intensive Business Services and their role in innovation systems

Knowledge-intensive business services (KIBS) are offerings that have knowledge as the main input and are supplied to private and public organizations (Muller & Doloreux, 2009). In these services, humans use their knowledge to diagnose customers' problems and needs, design solutions (Mills & Moshavi, 1999) and, if the case, implement them (Bettencourt, Ostrom, Brown, & Roundtree, 2002). Professional services are a type of KIBS in which the main knowledge base is standardized and shared between professionals of a similar kind; these professionals have to follow specific codes of conduct and ethics and are accredited and regulated by the relevant authorities (Lowendahl, Revang, & Fosstenlokken, 2001). Miles et al. (1995) use the term t-KIBS (technology-based KIBS) to refer to services that create and use technical knowledge of various kinds and p-KIBS (professional KIBS) to refer to the KIBS delivered by professionals.

KIBS, it has been argued, play a vital role in regional and national innovation systems, as they act as facilitators, carriers and sources of innovation (Miles et al., 1995; Hertog, 2000). According to these authors, KIBS can carry innovation developed in one sector or company to other sectors and/or companies. They can also support customers in their innovation efforts, by helping out with the introduction of new products, services and technologies or with the implementation of new organizational models. KIBS firms can also be sources of innovative efforts when customers and providers combine their knowledge and experience to create an original solution (Gadrey & Gallouj, 1998). For example, the provider of solutions for call centres solutions designs and implements a call centre operation for the customer (Hertog, 2000) or a consulting company develops and implements, together with the food retailer, the e-commerce side of the business.

Furthermore, KIBS can be sources of new knowledge and ideas for customers, and knowledge is a key input of innovation (Hertog, 2000; Muller & Zenker, 2001; He & Wong, 2009). This happens because of the nature of the delivery process of KIBS firms. In order to define and implement solutions, KIBS providers use their existing knowledge bases. However, they may have to acquire knowledge that is not owned by the firm or its employees (Muller & Zenker, 2001). Providers may learn new methods and processes (Nachum, 1999) and/or hire individuals with knowledge on a new area. KIBS providers also absorb knowledge on customers' businesses by interacting with them (Hertog, 2000). During the service delivery, new and existent knowledge bases are then combined and applied to solve the problem of the customer and, though the interaction between customers and providers, knowledge is partially transferred to customers (Muller & Zenker, 2001).

KIBS can also help customers get access to new sources of information and develop capabilities that are relevant for the development of new products, services and organizational processes. For instance, Lau and Lo (2015) identified that business units buying KIBS have more interaction with other branches, their headquarters and third parties (e.g. customers) to acquire new knowledge. Yam, Lo, Tang and Lau (2011) also showed that the use of KIBS stimulates buying companies to use technical reports, patent databases, and scientific publications as additional sources of information and knowledge. Still according to these authors, KIBS firms help their customers develop the capability to allocate human resources and money efficiently to innovation activities, which in turn improves the sales performance of technological innovations. KIBS firms also enable knowledge to spill over across economic sectors (Windrum & Tomlinson, 1999).

However, the ability of KIBS providers to foster innovation in regional and national innovation systems seems to depend on certain conditions. For instance, Doloreux and Sheamur (2013) show

that the use of KIBS can lead to more fruitful innovation outcomes; however, the type of KIBS and the extent to which customers use KIBS plays an important role in determining these outcomes. Furthermore, KIBS firms depend considerably on their geographical proximity with customers to deliver good quality services and to get established in the market (Koch & Stahlecker, 2006), as co-location with customers enables face-to-face interaction and facilitates knowledge transfer (Huggins, 2011).

PURCHASING KIBS: ANY CONTRIBUTION TO INNOVATION?

The purchasing literature has explored potential contribution of purchasing to innovation. It has been specifically concerned, so far, with the involvement of purchasing departments into NPD projects with scant focus on long-term and strategic processes of innovation (Wynstra et al., 2003). Despite the limited focus, these studies highlight that purchasing involvement can generate innovation for the buying firm, by reducing development costs, by managing the actual buyer-supplier relationships and developing new ones. Moreover, purchasing may offer more strategic contributions to innovation processes not only in the areas of development and supplier interface management, but also in areas of project and product management (Wynstra et al., 2003). Studies on public procurement have also highlighted that procurement can generate innovation, but, differently from business purchasing literature, they have specifically focused on the impacts on the industry and networks innovation. None of these studies refers to KIBS.

The innovation literature that is concerned about the role of KIBS in innovation systems, in its turn, does not consider how aspects of the purchasing process of KIBS can influence the extent to which KIBS providers enable or cause innovation to happen at buying firms. Furthermore, this literature still offers little guidance on possible contingencies of this relationship. The studies of Doloreux and Sheamur (2013), Koch and Stahlecker, (2006) and Huggins (2011) suggest that geographical proximity, level of interaction with customers and type of KIBS may influence the extent to which KIBS can actually act as sources, carriers or facilitators of innovation for buying firms. However, further understanding of which are these contingencies and of their importance is needed.

In spite of the limitations of these bodies of knowledge, there is evidence that both purchasing and KIBS can contribute to different forms of innovation. We therefore explored the specific literature on purchasing KIBS as a unique process expecting to find more detailed insights on how the process of purchasing KIBS affects innovation. The results of the qualitative content analysis, however, produced surprising results and showed that this literature dedicates little attention to the generation of innovation. Most of the papers focus mainly on the KIBS purchasing process without any explicit reference to effects on innovation. Two main themes are covered: (1) KIBS selection; (2) purchasing function involvement.

KIBS selection

Due to the credence/experience nature of KIBS services, most of the literature mainly focuses on the risks and transactional costs linked to their purchasing and, therefore, identifies in the establishment of formal and simple purchasing selection procedures a way for reducing

uncertainties and limiting these risks and costs (Geisler & Hoang, 1992; Day & Barksdale, 1994; Wittreich, 1996). Mainly t-KIBS are the object of these studies so that the decision making process identified should concern phases related to the definition of the need and of the internal client, decisions concerning the technology selection and, finally, decisions concerning the supplier selection (Geisler & Hoang, 1992). However, most of the literature has specifically focused on this latter point.

Wide attention to the reduction of risks in the selection phase has been devoted by Mitchell (1995) who specifically studies public procurement of planning consulting services and identifies three main types of risks associated to the purchasing of these services, namely: time, financial and psycho-social. The author also reveals that risk perception is higher in pre-purchase phase/new supplier condition and that, therefore, information provided by suppliers, checklists to help evaluations and also suppliers' physical proximity might represent valuable strategies to reduce risk perceptions (Mitchell, 1998b). Great attention has been also given to the criteria used to select the providers, in order to ensure an effective purchasing. The main relevant criteria identified are related to price/competitive fees, project management competence/quality of service provided, suppliers' industry knowledge and variety of services offered, prior experience with the supplier, and reputation/image of the supplier (Supphellen & Gronhaug, 2003; Scott & van der Walt, 1995). Many contingency factors influence the employment of the one or the other criterion in the selection phase: buyers' risk propensity (Mitchell, 1998a), the strategic relevance and complexity of the service bought (Devlin, 1998; Fitzsimmons et al., 1998), the frequency of the purchasing (Sharma, 1994; Dawes et al., 1992).

Across these studies, clear selection criteria have not only the role of guiding buyers in decision making, but also the function of informing suppliers in order to get commercial efficiency, that is stabilising requirements to avoid inaccuracies in specifications and communication problems (Pena-Siles et al., 2012). Overall, formalising the purchasing processes is highlighted as crucial and can be executed by either the establishment of purchasing policies or the setting up of preferred supplier agreements. The opportunity of employing the first or the latter depends on the company size, repetition of the purchasing in time, as well as on culture dimensions such as uncertainty avoidance and masculinity–femininity (Pemer et al., 2014a, 2014b).

Despite the formalising efforts, which attempt to include objective criteria, soft affective and relational criteria such as “personal chemistry”, trust and commitment with the supplier emerge also as highly discriminant (Fitzsimmons et al., 1998; Day & Barksdale, 2003; Garry, 2008; Lian & Liang 2007). These soft aspects seem to be more relevant especially when an innovation goal is involved. However, given the limited focus on the KIBS selection phase, little is said in this literature about the subsequent phases of relationship development and, therefore, few implications for innovation are provided.

Purchasing function involvement

First, purchasing in itself is identified as one of the many possible strategies to access external knowledge, alternative to cooperation or external information acquisition (Vega-Jurado et al., 2009; Vilijama, 2011; Kang & Kang, 2014).

The literature strongly pinpoints that when the company decides to acquire KIBS by purchasing, however, this often excludes any involvement of the purchasing department or of purchasing professionals inside the buying firm (Sonmez & Moorhouse, 2010). In the case of KIBS purchasing, indeed, the final users, who are managers from other departments than the purchasing one, directly establish a relationship with external professionals and engage in the purchasing process (Fitzsimmons et al., 1998; Werr & Perner, 2007; O'Mahoney, 2010; Sieweke et al., 2012). Despite an increase is registered in the involvement of the purchasing department in buying KIBS (Bäcklund & Werr, 2005; Freedman & Stinson, 2004; Mohe, 2005; Werr & Perner, 2007), still conflicting positions exist concerning the benefits of this inclusion.

On one hand, some authors stress that, due to different works of formalisation, the involvement of purchasing professionals commodifies management knowledge and limits the exchange value of that knowledge, interfering with the external professional-manager relation. It is noticed, for instance, that the maturity of the consulting service makes the service itself more easily understood by purchasers and managers: this facilitates the cooperation between them, but can increase the political usage of management consulting by managers, who resist to formalised purchasing procedures. These tensions would not depend on the type of consulting service rather on the client-consultant relation (Werr & Perner, 2007).

On the other hand, other authors (Sieweke et al., 2012) have found that the centralisation of the purchasing process reduces transaction costs without affecting, contrary to the critics, the selection criteria, which still are based also on relational aspects. The role that the purchasing department should assume in this context (West, 1977; Sieweke et al., 2012) only resides in facilitating the selection phase and reducing transaction costs, with effects on efficiency rather than effectiveness of the service bought (i.e. respectively advertising and management consulting). Managers still have to keep the control over the purchasing process (Sieweke et al., 2012) and purchasing intervenes only when the external professional-internal manager relation is not too strong (West, 1977).

Werr and Perner (2007), who have studied barriers and enablers of purchasing involvement in purchasing of consultancy services, have identified three possible levels of involvement: decentralised, coordinated decentralisation, and purchasing coordination. Decentralisation is the lowest level of involvement and consists of an occasional and transactional oriented intervention on the management initiative. Coordinated decentralisation corresponds to the role assigned to purchasing by the other authors cited earlier (West, 1977; Sieweke et al., 2012), and consists in achieving convenient commercial agreements and facilitating the purchasing process offering procedures and templates to support managers. Finally, purchasing coordination implies a centralisation of the purchasing process with purchasers highly expert in the domain, internally integrated and with high managerial capabilities. Actively involved in all the purchasing steps, they do not establish a lot of procedures and templates and do not focus on the commercial aspect; rather their aim is to identify potential value creation. The authors identify several factors influencing the purchasing involvement such as: top management commitment, status of the purchasing function, managerial use of and attitude towards consultants, framing of management consulting and of purchasing situation (e.g. as a regular purchase or a competence acquisition requiring HR involvement), implementation strategy (e.g. internal rules for compliance; control and follow-up systems), and persistence by the purchasing function. Similar procurement

involvement models are also depicted in the context of public procurement of professional services (Schiele, 2005; Schiele & McCue, 2006).

In line with the necessity of a progressive inclusion of purchasing in buying KIBS, some scholars (Sieweke et al., 2012) propose that future studies should look at the service triad, involving purchasing professionals, managers, and consultants (see e.g., Choi & Wu, 2009; van derValk & van Iwaarden, 2011). This might explain the purchasers' lack of control over the service delivery and service quality (mainly in the hands of managers), due to their detachment from the service; at the same time this explains the complexity of the service delivery due to the fact that the service provider has two "principals" who generally pursue different goals.

Adopting the same interaction-based perspective, a limited group of studies have shifted focus from the sole initial selection phase to the production/consumption of business services, which also include KIBS (Wynstra et al. 2006; van der Valk et al. 2008; van der Valk et al. 2009). These studies propose that buyer-supplier interactions patterns are different depending on the type of usage that it is made of the business service. These studies propose that interaction patterns can be described in terms of the key objectives, buyer and supplier capabilities, buyer and supplier representatives involved and communication (van der Valk et al. 2009). According to these models, purchasers should be involved in buyer-supplier interaction patterns involving component and consumption services, the first being services that are transferred to customers of the customer without any intervention and the latter consisting of a large variety of items including less expensive and more routine-like services. This would imply that if KIBS purchasing correspond to one of these two usages, the inclusion of professional purchasers into the buyer-seller relationship should be considered.

Effects on innovation

Only a small share of the papers reviewed explores the relationship between KIBS purchase and innovation. Among the 54 papers analysed, only eleven look at the innovation outcomes of the KIBS delivery process and, among these eleven, only five focus on how purchasing can contribute to the generation of innovation. These five papers contend that, in general, the purchase of KIBS can lead to product innovation for the buying organization (Kadefors, Bjorlingson & Karlsson, 2007; Linder, Jarvenpaa & Davenport, 2003; Love, Gunasekaran & Li, 1998; Töllner, Blut & Holzmüller, 2011; West, 1997). Kadefors et al (2007) also propose that the purchase of KIBS can increase the buying firm's overall willingness to change and implement new organizational routines. Concerning the purchasing process, the main insight provided is that collaborative attitudes and collaborative purchasing practices are required to favour innovation, since this establishes a development focus, involves local competences in both sides of the supplier-buyer dyad and builds selection and assessments on attitudes and teamwork potential of individuals rather than on past performance or image/reputation (Kadefors et al., 2007; Eriksson & Westerberg, 2011).

None of the papers explores or observes that the purchase of KIBS can benefit KIBS providers too or other partners in the network. All these papers consider customers purchasing technology based KIBS (t-KIBS), confirming the proposition of Miles et al (1995) that t-KIBS have the potential to generate innovation, while p-KIBS tend to support the adoption of innovation.

In addition, according to these papers, the purchasing function should mainly take over activities related to the project, i.e. selecting KIBS suppliers, negotiating with them, evaluating their performance and supervise the project (Kadefors, Bjorlingson & Karlsson, 2007; Love, Gunasekaran & Li, 1998; West, 1997). As such, the literature does not consider that the purchasing function can have a more engaged role. West (1997) and Töllner, Blut and Holzmüller (2011) even argue, respectively, that having top managers and buying centres involved can be important, as they will have more autonomy to make decision when it comes to these more complex purchases. However, Linder, Jarvenpaa and Davenport (2003) are the only that believe that purchasing could have a more strategic role. Although no specifically attributing this activity to the purchasing function, these authors claim that companies should have a function dedicated to establishing processes and templates to buy innovation, to define and create a fruitful cultural environment to source innovation, and to ensure that information and knowledge flows between the parties involved. This resonates with Werr and Perner (2007) who, even not referring directly to innovation effects, identify the possibility of a more strategic-coordinating role of purchasing professionals in buying KIBS. On the opposite side, O'Mahoney (2010) notes that purchasing involvement interferes with the professional-manager relation and, consequently, could hamper the ability to generate innovation.

Given the limited knowledge we could obtain from the literature on purchasing KIBS for innovation, we integrated the insights of the qualitative content analysis of literature on purchasing KIBS with literatures respectively on purchasing and KIBS contribution to innovation earlier examined. Based on these reflections, we identify some insights on how and when purchasing KIBS may generate innovation summed up in a conceptual framework that is presented in the next section.

HOW PURCHASING KIBS FOR INNOVATION

This section proposes a framework (Figure 1) to represent aspects of the contribution of KIBS purchase for innovation. First, it represents the KIBS delivery process and the interactions that take place between the actors involved in it. The framework proposes that, ideally, the KIBS provider, the purchasing function and the function buying the KIBS should be involved in the process and points out some aspects important to understand how the purchase of KIBS can influence innovation outcomes. Secondly, the framework presents several contingencies that can provide further understanding on when the purchase of KIBS can actually lead to innovation. As such, in Figure 1 it is possible to observe the KIBS service triad configurations, its antecedents (“Influence KIBS Service Triad Configuration”) and characteristics (“Influence Effects on Innovation”) in order to understand what could boost innovation outcomes the use of KIBS Next we explore these points in more details.

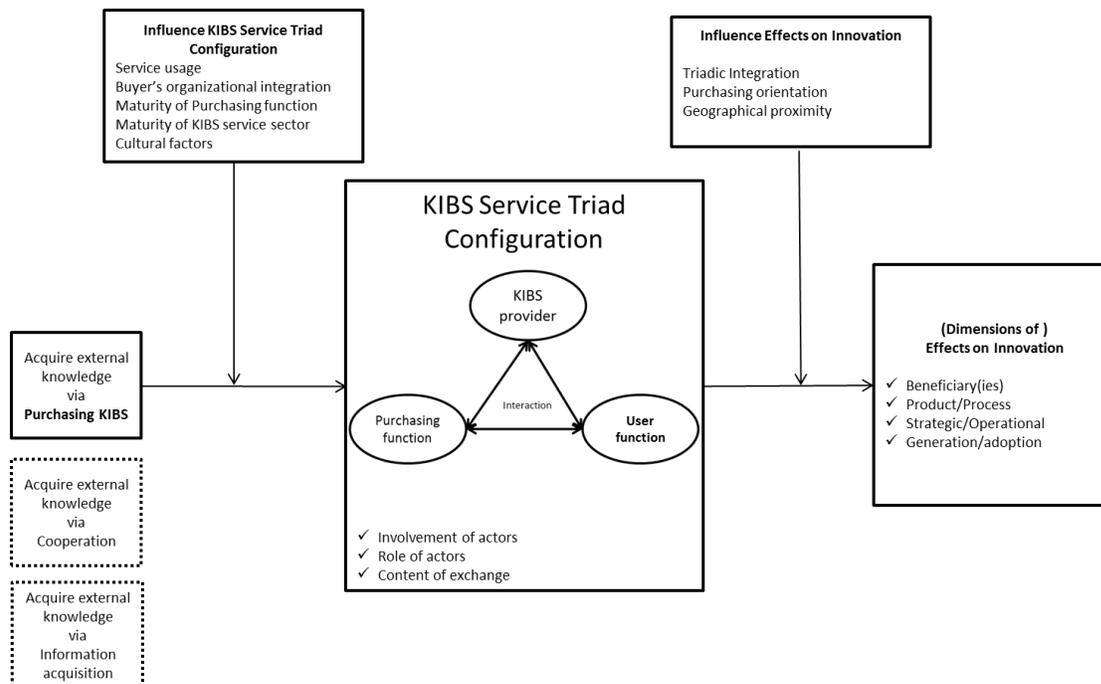


Figure 1 – Purchasing KIBS effects on Innovation: a conceptual framework.

KIBS Service Triad Configuration

As recently proposed by some authors (Sieweke et al., 2012), we suggest adopting a service triad approach and analyse the effects that purchasing KIBS can have on innovation taking in consideration the different configurations that this service triad can take. We identify at least three main reasons for adopting this perspective.

First, increasingly large companies involve purchasing professionals in buying KIBS (Bäcklund & Werr, 2005; Freedman & Stinson, 2004; Mohe, 2005; Werr & Perner, 2007). This trend is mainly due to an attempt in private businesses to emulate public sector procurement policy and control the costs of consultancy and similar services (Werr & Perner, 2007). Therefore, the KIBS service triad, including the KIBS provider, the purchasing function and the user function inside the buying firm are more and more a reality.

Second, while the KIBS provider-user relation has been traditionally acknowledged as being critical in the effectiveness of the service delivery, new insights suggest that different degrees of purchasing function involvement may also have potential benefits on the service delivery, from simply favouring the effectiveness of the interactions involved up to playing a strategic role in identifying internal needs and selecting suitable suppliers (Werr & Perner, 2007). It is precisely this strategic role that has been identified as relevant in increasing the contribution of purchasing to long-term processes of innovation inside the firm (Wynstra et al., 2003) and which, therefore, is interesting to study our focus here.

Third, the service triad perspective, which is based on an interaction approach proposed by the IMP group, is a valuable framework to examine issues of innovation (Freytag & Young, 2014) and allows to take a wider perspective on the innovation process, which goes beyond the simple transaction (i.e. selection) phase so far favoured in studies on KIBS purchasing.

According to this interaction perspective recent works from Wynstra et al. (2006), van der Valk et al. (2008) and van der Valk et al. (2009) propose different interaction configurations in the service delivery. Integrating these considerations with models proposing different levels of purchasing integration in NPD (Wynstra et al., 2003) and in KIBS purchasing (Werr & Perner, 2007), we identify the service triad configuration as a core element to be considered and identify three main aspects which define the triad configuration: (1) the involvement of different actors; (2) the role of actors; (3) the content exchanged in the interaction.

The first aspect is consistent with what is identified in the model of van der Valk et al. (2009) and previous versions as “supplier representatives” and “customer representatives”. In the KIBS service triad configuration, these “representatives” may belong to the KIBS supplier, the function making use of the service bought, and the purchasing function that may have different degrees of involvement in the interaction (c.f. Werr & Perner, 2007).

The second aspect relates to the role these actors take in the service triad and is consistent with what is identified in the model of van der Valk et al. (2009) and previous versions as “critical customer capabilities” and “critical supplier capabilities”. For instance, when the purchasing function only plays an ancillary role, it will engage with works based on its contractual, administrative and legal capabilities. Differently, when the purchasing function plays a commercial facilitator role, it will rely on mobilizing and prioritising capabilities to facilitate the selection and reduce transaction costs. Finally, when the purchasing function plays a more strategic role, it may mobilise its informing, formalizing, coordinating and timing capabilities to participate in the project and service management. These different roles will highlight different contributions of the purchasing KIBS to the innovation.

The third aspect, finally, relates to what is named as “communication” in the model of van der Valk et al. (2009) and concerns the content exchanged in the interaction, which can involve simple information, knowledge or the development of capabilities with different impacts on innovation. This classification is consistent with those reviewed in literature on KIBS contribution to innovation (Hertog, 2000; Muller & Zenker, 2001) and on public procurement contribution to innovation (Edquist & Zabala Iturriagagoitia, 2012).

Factors influencing KIBS service triad configuration

Several aspects may influence the way the KIBS service triad is configured. From the literature examined, we learn that the interactions established between the different parts depend on the usage made of the service delivered. This is in line with Wynstra et al. (2006), proposing that different interaction patterns are established in business services depending on the type of service usage. Similar considerations also appeared in our review of literature on how KIBS affect innovation (Koch & Stahlecker, 2006).

Another factor relates to the buyer's organizational integration. It is discussed, in fact, that the purchasing-internal client relation and the role the purchasing function will play in the KIBS purchasing depend on how different departments are used to coordinate and cooperate within the company (Santos & D'Antone, 2014). This will imply, for instance, that in companies where departments are more integrated, it will be more likely that the purchasing department will be involved in the KIBS purchasing, even on the initiative of the internal service user. Moreover, higher integration would imply an easier understanding and communication between the two "principals" of the triad, and should favour the alignment of their goals facilitating the identification of the need, the specification phase, the selection of the more adapted supplier and the interaction throughout the whole service delivery (West, 1977; Werr & Perner, 2007).

Linked to the previous aspect, also the overall maturity of the purchasing function may change its role in the service triad and the content of the exchanges it is involved in. A mature purchasing function may have a deeper involvement in the KIBS purchasing, seen that its status and integration within the firm will be higher. Moreover, the higher professionalization of its representatives, which is at the base of the notion of purchasing maturity (Schiele, 2006), may ensure a more strategic contribution to the KIBS purchasing process. This consideration is widely recognised in extant literature (Mendez & Pearson, 1994; McGinnis & Vallopra, 1999, 2001; Nijssen et al., 2002; Tracey, 2004; Luzzini et al., 2015).

The maturity of the industry has been identified as a factor, which could impact the involvement of external suppliers in knowledge acquisition (Johnsen et al., 2006, 2009). It is argued that when the technology or the industry are unstable and less mature, then the company would perceive as more risky to share ideas with the external context. Still, in these situations new suppliers might be contacted to explore new potential ideas. Similarly, also in studies on purchasing KIBS the maturity of the KIBS sector has been mentioned as a potential factor influencing the involvement of different actors. In this context it is argued that when the service sector is more developed it is also more understood by the purchasers and the users. However, it is not clear whether this might facilitate the inclusion or the exclusion of the purchasing function and the relation between the parties in the KIBS triad (Werr & Perner, 2007).

Finally, as from Perner et al. (2014b) culture dimensions such as uncertainty avoidance and masculinity-femininity may influence the adoption of formalised purchasing policies and, therefore, impact on the role this function may play in the KIBS service triad.

KIBS effects on Innovation

Based on the literature, it is possible to see at least four dimensions on the innovation outcomes of KIBS purchase. First, there is the issue of who benefits from the innovation resultant from KIBS purchase. In general, the literature reviewed points that customers (i.e. buying organizations) are the main beneficiary of the innovation that results from a KIBS purchase (Eriksson & Vaghult, 2000; Huang et al., 2009; Kang & Kang, 2014; Linder et al., 2003; Töllner et al., 2001). Kadefors et al. (2007) also argue that KIBS providers can benefit from the interaction with customers and innovation themselves. This is line with the KIBS innovation literature, which claims that knowledge flows both ways during the KIBS delivery process, i.e. from KIBS providers to customers and from customers to KIBS providers, and this enables KIBS firms to reuse the

knowledge absorbed from customers and create new offerings (Hertog, 2000). The literature on the role of KIBS in innovation systems as well as the one on public procurement claims that KIBS can actually spill over knowledge and innovation across firms and economic sectors (Windrum & Tomlinson, 1999; Rolfstam, 2012; Elder, 2009; Uyarra and Flanagan, 2010) and, thus, not only the KIBS providers and customers would benefit from innovation. However, this issue is only marginally covered in the literature.

In addition, the literature suggests that KIBS purchase can lead to product and process innovation. Product innovation tends to result from the acquisition of solutions because in such KIBS, providers sell a combination of customized products and services that meet specific needs of customers (Töllner et al., 2001). Customers can also incur in product innovation when they source R&D services that develop products anew for them or increment existing products (Huang et al., 2009). Although much more attention has been dedicated to product innovation (Huang et al., 2009; Kadefors et al., 2007; Töllner et al., 2001; West, 1997), Eriksson and Vaghault (2000) also claim that KIBS are agents of change and can modify organizational processes and routines. In a similar vein, Kadefors et al. (2007) argue that, besides product innovation, KIBS can improve the work environment and the interaction between customers' employees. Although we could expect that firms would have higher motivation to look for innovation inputs outside the boundaries of the firms to support more strategic product and service developments, the work of Huang et al. (2009) shows that companies can rely on KIBS for more incremental/marginal innovation too. So, operational and strategic is another dimension to understand the types of innovation outcome. None of the studies reviewed focused on position and paradigm innovation or on component and architectural innovation. These are less well-established concepts outside the innovation management literature than the ones of radical and incremental product and process innovation. This could be one of the reasons why few studies on the purchase of KIBS tackle them. Using these concepts might however add interesting insights; for instance, consultants - in many cases - advise their customers to reposition their business in order to increase revenues. This could be seen as a position innovation. Future research could therefore explore these concepts further, as they can offer new insights on the role of KIBS in stimulating innovation at buying firms.

Finally, there is the need to consider whether the purchase of KIBS is generating innovation or simply leading to the adoption of innovation (Johnsen et al., 2009). In the literature, we observed that customers can acquire an innovative offering and, therefore, adopt an innovation created by the KIBS firm (Eriksson & Vaghault, 2000; Huang et al., 2009; Töllner et al., 2001), hire KIBS firms to support their innovation initiatives (Kadefors et al., 2007), or both (Linder et al., 2003; Kang & Kang, 2014; West, 1997). When firms hire KIBS providers to support their innovative efforts, KIBS play a more active role in designing the solution and helping customers implement them, like when a consultancy company helps the customer implement a new call centre unit (Hertog, 2000). Customers can also buy solution the R&D capability of KIBS firms and, thus, buying firms are adopting innovation. However, in adopting a new product developed by the KIBS provider, the buying firm may have to change internal processes or/and adapt business models (Muller & Doloreux, 2009).

Factors influencing KIBS effects on innovation

The framework also proposes that there are three aspects that influence the relationship between the KIBS service configuration and the innovation outcomes. One of the aspects relates to the level of integration between the KIBS provider, the purchasing function and the user of the KIBS. Integration relates to how parties coordinate their processes as well as the extent to which they cooperate to achieve common objectives (Santos & D'Antone, 2014). This enables knowledge to be transferred between the parties (Huggins, 2011) and increases the trustworthiness, commitment, and openness of the parties. These features are vital to guarantee the successful implementation of the KIBS and the expected innovation outcomes (Eriksson & Vaghault, 2000; Love et al., 1997; Kadefors et al., 2007). Another important aspect is linked with the co-location of the actors of the KIBS services triad. Koch and Stahkecker (2006) argue that KIBS firms depend considerably on their geographical proximity with customers to deliver good quality services because the proximity enables face-to-face interaction (Huggins, 2011) and the establishment of social bonds. This then further enhances the integration between the KIBS triad. Therefore, we could expect that, under greater levels of integration and co-location in the service triad, parties can expect to obtain better innovation returns.

A final point that deserves attention is the purchasing orientation. The papers reviewed suggest that the involvement of the purchasing function in KIBS acquisition can increase efficiency and reduce the risks of KIBS delivery processes (e.g. Mitchell, 1995, 1998 a/ b; Perner et al., 2014; Werr & Perner, 2007). However, it has also been argued that this efficiency-oriented view of purchasing could affect negatively the extent to which the parties tend to be creative and innovative (O'Mahoney, 2010). On the other hand, some authors claim that purchasing should be oriented to obtain innovation outcomes. Wynstra et al, (2003), for instance, contend that purchasing should act in the sense of mobilizing and coordinating resources that will enable more innovation. Similarly, Linder et al., (2003) suggest that purchasing should establish processes and templates to buy innovation and ensure information and knowledge exchange between the parties involved. If the purchasing function has a greater orientation towards innovation, we could expect that a more fruitful environment would exist to source innovation and firms would be able to generate new forms of innovation. This would probably be also true if KIBS providers and the function buying the KIBS were also more oriented towards innovation, but the literature reviewed does not focus on it.

CONCLUSION AND FUTURE RESEARCH

In this paper, we integrate the existing literature on purchasing innovation and on purchasing KIBS in order to identify when and how the purchase of KIBS can actually lead to innovation. Based on a structured review of the literature on KIBS, purchasing and innovation, we selected papers that talked about three main topics: the purchase of KIBS, the purchase of innovation and the role of purchasing KIBS in innovation. These papers were analysed carefully and, based on their knowledge, we were able to propose a framework that explores the factors that need to be considered, during the KIBS acquisition and delivery process, in order to generate innovation. This involves the role of the functions involved in the delivery process as well as the issues that influence the dynamics of KIBS delivery processes and the extent to which KIBS purchase can lead to innovation. Our work contributes to the current knowledge on the role of purchasing in innovation in some ways. First, it integrates this literature to the KIBS literature. In doing so, our work integrates important streams of the literature that talk about correlated matters but completely

ignore how they can benefit from each other. In addition, our framework offers more specific insights on how firms can buy KIBS more effectively to boost innovation. So far, the innovation literature had mainly argued that KIBS would spread innovation in the economy, but dedicated little attention to how KIBS actually achieve that and to the contingencies involved in it. Managers can use this framework to identify gaps in their day-to-day operations and devise action plans.

The outcomes of this research also open several avenues for future research. The first would be to further explore one or more of the relationships portrayed in the framework. Most of these relationships have been only marginally studied. Similarly, it would be interesting to see case studies on the relationships between the members of the KIBS triad. There is an increasing body of research concerned with service triads (see Wynstra, Spring & Schoenherr, 2014), their configurations and dynamics. Future research could use insights from this literature to further understand KIBS triads. Furthermore, although it has been argued that KIBS can spread innovation across sectors, research has been mainly concerned with the innovation gains that buying firms can accrue. As such, it would be interesting to see how the purchase of KIBS can have wider impacts in the economy. Another avenue for research would be looking more closely at the purchasing function orientation towards innovation. So far, mainly theoretical papers have dedicated attention to this issue. In a similar line, if the orientation of the purchasing function can matter, then the orientation of the other members of the KIBS triad can also play a role and this should also be considered by authors in the future. Finally, future studies could look at how the purchase of KIBS can lead to position and paradigm innovation or influence component and architectural innovation.

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