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## Service innovation and its impact: What do we know about?



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### ABSTRACT

Despite the growing body of literature concentrating on service innovation, empirical research focusing on measuring its impact, mainly at firm-level, remains scarce. Adopting the perspective that the ability to monitor the service innovation process and to assess its impact is a pre-condition to properly manage it, we conduct a literature review of recent empirical studies on the measurement of service innovation to ascertain our current body of knowledge. We restrict our review to the period covering 2006 to 2014, as previous research has been extensively covered by Adams, Bessant, and Phelps (2006) and concentrate on published empirical academic articles which clearly examine “service innovation” and its impact on performance. Relying on several inclusion and exclusion criteria, thirteen empirical studies were retained and are discussed in this paper. Although this study does not claim to be exhaustive, it shows that knowledge on the relationship between service innovation and performance is limited and that this area of research deserves further scrutiny. We conclude with some avenues for further research, in view of stimulating more research in this promising yet emerging field.

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## Innovación en servicios y su impacto: ¿qué es lo que sabemos?

### RESUMEN

Si bien la literatura centrada en la innovación de servicios ha ido en aumento, la investigación empírica centrada en su impacto, sobre todo en el ámbito empresarial, sigue siendo escasa. Desde la perspectiva de que la capacidad para controlar el proceso de innovación en servicios y la evaluación del impacto son requisitos para su correcta gestión realizamos un análisis de la literatura sobre estudios empíricos recientes. Acercamos de la medida de la innovación en servicios para comprobar nuestros conocimientos actuales. Restrinximos este análisis al período entre 2006 y 2014, pues Adams, Bessant y Phelps (2006) ya investigaron ampliamente las etapas anteriores, y nos concentramos en las publicaciones académicas empíricas que examinen de una manera clara la “innovación en servicios” y su impacto en el rendimiento. Conforme a varios criterios de inclusión y exclusión, se seleccionaron trece artículos, los cuales se examinan en este escrito. A pesar de que este estudio no pretende ser exhaustivo, revela que los conocimientos de la relación entre la innovación en servicios y el rendimiento son limitados y que este ámbito merece ser estudiado más a fondo. Concluimos con posibles vías de investigación con el fin de poder estimular más el trabajo sobre este ámbito tan prometedor y emergente.

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## 1. Introduction

Service innovation can provide an effective way to create sustained competitive advantage for a company. Turning to or assuming service strategies may help organizations to overcome

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the problem of growth maintenance in saturated markets as well as the problem caused by the circumstance of commoditization (Reinartz & Ulaga, 2008). Firms can benefit from a service-based strategy in many ways. For example, adopting a service-based strategy can help to excel in service offerings, cost structure, delivery system, and technology (Grönroos, 2007). Additionally, policy makers as well as researchers have become increasingly intrigued by service innovation, because they have grown intensely in many industrial economies, and are expected to have a positive effect on the whole economy (Miles, 2005; Tipu, 2011).

Since services are mainly intangible or knowledge products, a discussion on service innovation can benefit from conceptualizations of innovations stepping back from product-based definitions. For example, services are often highly tailored products to customer needs, and consequently, the traditional product-based innovation view and the measurements it employs for assessing the value of innovations are not suitable for services and the businesses behind. Indeed, very few service firms rely on traditional R&D with regard to their innovation activities (Miles, 2008). If a firm wants to adopt a service-based strategy, it will be crucial to be able to assess the value of this type of innovation, i.e., its impact on company performance. Even though there is a mass of contributions discussing the relevance of innovation management in general, the opposite seems to be true when we consider the aspect of innovation measurement, there is a lack of research. This situation can be assessed as unsatisfactory as it prevents organizations from monitoring the success or failure of (service) innovation projects and, thus, disturbs the optimal allocation of their scarce resources. Additionally, it complicates obtaining a better understanding of innovation and its influence on achieving or sustaining a competitive advantage, an outcome often linked to innovation (e.g., Lengnick-Hall, 1992). Similarly, in the context of innovation measurement, the conceptualization of innovation strongly follows the dominant logic of tangible, technological innovation preventing a necessary formation of measurements for service innovation (e.g., Vargo & Lusch, 2004).

Against this background, the purpose of our paper is to review extant literature to identify empirical studies discussing service innovation measurement and the kind of new knowledge that has been produced about the measurement of innovation since the literature review by Adams, Bessant, and Phelps (2006). Given the authors' comprehensive analysis and our topic's novelty, we believe this approach is justified. More precisely, we are interested in the current body of empirical knowledge regarding the impact of service innovation. According to the study's aim, the following research questions are formulated:

- (1) Which empirical studies have been conducted that focus on the impact of service innovation?
- (2) What were the main findings of these studies?
- (3) Which methods were used?

The paper is organized as follows. The literature related to the research purpose is briefly discussed in the next section. Then the method employed to come close to the research problem is described. Afterwards, the results are presented and the conclusions of the study are laid out in the final section.

## 2. What is service innovation?

"Service innovation" has become a term referring to innovation taking place in the various contexts of services, including the introduction of new services or incremental improvements of existing services. Whilst service innovation can take place in the service sector, it does not necessarily need to. New and improved services

can also be provided by non-services sectors, such as by manufacturing firms that aim at enlarging their supply portfolio with value adding services. Similarly, service innovation is intrinsically different from a "product", as it usually lacks the tangible nature of product innovations. Services may be highly tailored according to the client/customer needs, and include many different stakeholders. Especially, in the knowledge-intensive sector, where service innovation plays an important role, the concept of service innovation is likely to differ radically from that of a product innovation. For instance, the focus on technological advancements and the concentration of the innovation activities around the R&D departments does not describe service innovation adequately (e.g., Miles, 2008; Sundbo, 2009).

Various attempts have been made to define service innovation. For example, Den Hertog (2000) has presented the "four dimensional model of service innovation", which captures the idea of service innovation in a knowledge-based economy. The model consists of the following dimensions (pp. 494–498):

- (1) *Service concept*, which is a new service in the market,
- (2) *Client interface*, which refers to new ways as to which clients are involved in the service production,
- (3) *Service delivery system*, which encompasses new ways the actual services are delivered to the customers,
- (4) *Technology*, which has to make sure that the services can be provided efficiently.

Besides the multidimensional character of service innovation, there are several ways as to how the service innovation process may take place. Toivonen and Tuominen (2009), for example, identified five service innovation processes in relation to their degree of collaboration and formality. In the sequence from less to more formal processes, these processes are: (1) internal processes without a specific project (i.e., unintentional and incremental innovations regarding existing service); (2) internal innovation projects (i.e., deliberate projects focusing on improvements of service production systems and their content); (3) innovation projects with pilot customers (i.e., new ideas are tested with a customer); (4) innovation projects tailored for a customer (i.e., the service provider strives at solving a specific customer problem); and (5) externally funded innovation projects (i.e., research-oriented collaborations focusing on the generation of new service concepts and/or platforms).

In the literature, however, service innovation is an ambiguous term. It can be considered both an intangible product and a process (Grönroos, 2007). For example, a manufacturing firm can sell a service agreement to its customers to its tangible products, whereas a service firm may introduce new service products. Both are, however, innovative in the context of services. Therefore, service innovation may simultaneously refer to innovation in service industries, whatever form the novelties may take, and to new services, irrespective of their degree of novelty and of the industry in which the innovation occurs. Aside from this ambiguity issue, research concentrating on innovation in services and on service innovation has hitherto been relatively scarce, which is a paradox considering the increasing weight of services in economies, in terms of both employment and added value. Over the last four decades, the contribution of value added to GDP from service activities rose by about 18 percentage points in the Organization for Economic Cooperation and Development (OECD) countries and reached 73% in 2008 (OECD). Service industries are nowadays responsible for the majority of employment in the OECD countries. Despite being widely recognized as an engine of growth and competitiveness, service industries remain under-investigated and knowledge on the actual effect of innovation in services is lagging behind, compared to the research and knowledge on the

impact of innovation in the manufacturing sector (Aas & Pedersen, 2011; Den Hertog, 2000; Page & Schirr, 2008; Thakur & Hale, 2013).

### 2.1. The impact of service innovation

One of the reasons behind the underdeveloped understanding of service innovation may still be assigned to the dominance of the industrial and technological approach to innovation. According to Djellal and Gallouj (2010), the persistent dominance of the industrialist approach to explore innovation in services leads to a double gap: an innovation gap and a productivity gap. The authors view the innovation gap as a measure of the difference between the reality of innovation in a service economy and innovation as it is captured and measured by the traditional indicators. This observation resonates with the conclusions of Salter and Tether (2006), according to whom, one reason why services did not receive due credit for their innovativeness is related to their low level of R&D intensity and patenting. More generally, it can be argued that the traditional science and technology lenses lead to an overlook of innovation in services. According to Djellal and Gallouj (2010) “the service economy probably innovates more than these indicators would suggest and that consequently there is hidden or invisible innovation in service economies that has, if possible, to be identified and supported by appropriate public policies” (p. 6).

The performance or productivity gap “reflects the difference between the reality of performance in a service economy and performance as measured by the traditional economic tools (i.e., productivity and growth)” (Djellal & Gallouj, 2010, p. 8). According to these authors, this performance gap finds its roots in economics thought and, more precisely, in the work of Smith who “compared the productive work involved in manufacturing with the unproductive work involved in services, which vanished at the very moment they are produced” (Djellal & Gallouj, 2010, p. 8). This view emphasizes the intangible features of services, which render their measurement more challenging when compared to traditional, tangible outputs such as goods. According to Vargo and Lusch (2004), this disregard of innovation in services by academics is attributable to the traditional good-centred dominant logic, concentrating on tangible resources, transactions and production processes, which remain predominant in economics and business thinking. Conversely, the dominant logic of service-dominated economies should be focused on intangible resources, relationships, and production processes that co-create value through performance (Chesbrough, 2011; Vargo & Lusch, 2004).

Furthermore, a “one-size-fits-all” approach may not be appropriate to explore innovation in services, as services embrace a wide variety of sub-innovations, which differ according to e.g., the degree of knowledge-intensiveness that they require to operate. In their empirical study using CIS3 across European countries and some associated states, Vence and Trigo (2009) shed light on the main discrepancies among innovation patterns across service sector firms. Their analysis indicates that the ratio of personnel engaged in R&D activities as a share of total employment ranges from relatively low in wholesale trade and commission trade to very high in the business services subsector. Only 2% of personnel are engaged in R&D activities in innovative firms belonging to the financial intermediation subsector. Furthermore, innovation and R&D expenditures, which mostly consist of acquisition of machinery, software and equipment, to total turnover are estimated as very low (Vence & Trigo, 2009). This observation is in contrast with the undeniable innovative character of this subsector. Business services, which are highly innovative, tend to have high innovation expenditures, conduct massively intramural R&D and mobilize a significant share of their highly qualified employees for R&D activities. Their study also shows that service firms in general have a higher propensity to cooperate in the innovation process than their manufacturing

counterparts, and this is particularly true for business and financial intermediation subsectors. These debates and figures further ignore the servitization of manufacturing industries, which refers to the increasing trend of manufacturing firms to deliver offerings that are bundles of products and services. In his recent contribution entitled “Open Services innovation”, Chesbrough (2011) further stresses the need for manufacturing firms to shift from a product-oriented business model towards a service-mindset to escape the commodity trap and maintain their competitiveness. Although numerous case studies support this evidence of joint product and service offerings and exemplify it (e.g., the Xerox case in Chesbrough, 2011), data regarding new business models embracing bundles of products and services are scarce, if at all existing.

With regard to the measurement of service innovation, a process-approach may be promising. The measurement of this type of innovation as an “outcome” often found with product innovations can be considered insufficient, as it does not take into consideration the intangible character of service innovation and the process by which the actual service is provided in some type of collaboration with the client. The shift from a single act of selling (tangible) products to customers to an ongoing process of customer involvement influences the ways innovation and “competitive profile” of a firm are understood (Howells, 2000; Miles, 2008).

### 3. Methodology

In the review process, the authors adopted the principles of a systematic review as recommended by Jesson, Matheson, and Lacey (2011) namely: (1) Mapping the field through a scoping review, (2) Comprehensive search, (3) Quality assessment, (4) Data extraction, (5) Synthesis, and (6) Write-up.

First, a research plan was developed comprising the research questions of interest, the keywords, and a set of inclusion and exclusion criteria. The paper's aim was to determine the current status of empirical research on service innovation measurement.

Articles that included the keyword combinations “service innovation” and “impact”, “service innovation” and “measuring” and “service innovation” and performance” in the abstract were included. The inclusion criteria were: publications in the period 2006–2014, peer-reviewed empirical academic papers, English language, and the databases ABI/INFORM and Web of Science. Papers published prior to 2006; grey literature such as reports, books and non-academic research; other languages than English, and other databases than ABI/INFORM and Web of Science represented exclusion criteria. Moreover, an excel data sheet was produced consisting of key aspects related to the research aim. In the given case these were: name of author(s), year of publication, research aim/objectives, theoretical perspective/framework, method, main findings, and name of the journal.

Second, once all relevant issues had been specified, two of the authors accessed ABI/INFORM and looked for suitable articles. The search took place on October 23, 2012. Another search was conducted on March 24, 2014.

The third step consisted of two procedures. Firstly, the two authors jointly worked through the abstracts to make sure that they actually covered the pre-defined scope. This procedure yielded a final selection of 16 articles. Secondly, the 16 papers were divided between the two authors; thus each author read 8 papers. Subsequently the two authors entered the relevant data regarding the research purpose in the excel sheet. Then both authors jointly went through each data entry and discussed the content. In the case of possible reservations on the part of the author who had not read the article, both authors went through the article in question. This procedure resulted in a further reduction of the number of papers.

**Table 1**

Overview of empirical papers involved in the literature review.

Author(s)	Year	Research aim/objectives	Method (empirical/theoretical)	Main findings	Journal
Song, Song and Di Benedetto	2009	To develop and empirically test a new staged service innovation model (SIM).	Involved four in-depth case studies conducted in service development teams of four well-known companies and a survey approach which addressed five service industries.	Results suggest that performance is boosted if the new service provider both (i) follows a staged traditional NSD process and (ii) provides prelaunch SERVQUAL training. The authors found an unexpected significant negative relationship between proficiency of business and market opportunity analysis and idea screening, service design, and service testing. Call for alternative metrics. These metrics should meet four criteria – accuracy, longevity, comparability and ease of collection (NESTA, 2007). Any new metrics need to be used sensitively, so that they do not distort policy.	Decision Sciences
Abreu Grinevich, Kitson and Savona	2010	To analyze what innovation in services means and how it can be measured.	Using the Fourth UK Community Innovation Survey (CIS4) data and the results of a case study analysis.	The findings suggest that competencies can be measured as a five-dimensional construct consisting of industry-specific, product-related, market-related, technology-related, and organization-related.	Research Policy
Ko and Lu	2010	To gain insight into firms' innovation competencies and to develop an instrument to examine the key innovation competencies that contribute to integrated services.	Survey approach; initially disseminated among 120 individuals from Taiwan (who worked in communications-related companies and were responsible for developing innovative services) who attended a forum of innovative services. Later, more questionnaires were distributed within the organizations of the individuals.	Study shows a positive effect of innovativeness on OE (operating effectiveness) and CE (cost efficiency). The results reveal that a favourable combination of CE (i.e., greater productivity) and OE (i.e., superior service quality) produces a better performance, gaining higher profit goal achievement, sales goal achievement and ROI achievement.	Journal of Service Management
Tajeddini	2011	To examine potential influences of innovativeness on effectiveness and efficiency and their subsequent effects on restaurant business performance.	Questionnaire approach; personal interviews with owner of 211 Iranian restaurants.	Firms focusing on service innovation have significantly higher productivity (sales revenue per employee) growth than firms not focusing on service innovation. The increased sales revenues resulting from service innovation in service firms seem to be neutralized by increased costs, meaning that these firms are unable to benefit financially, in terms of operating result growth, from their innovation activities. Their findings also indicate that profitability, defined as the operating result divided by asset, is not influenced by firms' focus on service innovation activities.	Education, Business and Society: Contemporary Middle Eastern Issues
Aas and Pedersen	2011	To investigate if firms focusing on service innovation perform better financially than firms not focusing on service innovation. Two research questions posed: Do firms in (1) the service industries and (2) the manufacturing industries focusing on service innovation activities in the period 2004–2006 perform better financially in the following year (2007) than firms not focusing on such activities?	Data from Community Innovation Survey (CIS2006) from Norway and a set of economic accounting data from the Norwegian Register of Company Accounts.		The Service Industries Journal

**Table 1** (Continued)

Author(s)	Year	Research aim/objectives	Method (empirical/theoretical)	Main findings	Journal
Den Hertog, Gallouj and Segers	2011	Attempts to measure technological and nontechnological innovation, organizational aspects of the innovation process in the Dutch hospitality industry and their link to firm performance.	Based on 12 expert interviews and a telephone survey.	Innovation in most service industries is less formalized, less explicitly managed and less often budgeted as compared with innovative manufacturing firms. In terms of firm performance, it is signalled that the impact of innovation should be perceived more widely and also include nonfinancial impacts.	The Service Industries Journal
Gotsch and Hipp	2012	To explore how trademarks could be established as an additional indicator for service innovation.	Data from the German section of the 'Community Innovation Survey' are used, and a survey with 278 participating firms is conducted.	Trademarks contribute to explaining KI(B)S innovation and seem to be a suitable innovation indicator for these types of firms. The findings further indicate that trademark registration is an adequate innovation indicator in KIBS industries, at least for product innovations.	The Service Industries Journal
Steinicke, Wallenburg and Schmoltzi	2012	How can governance mechanisms be utilized to foster innovativeness in horizontal service cooperations in order to enhance cooperation performance?	Collected primary data from service companies via a key informant approach (Web-based survey).	Both formal and relational governance help to promote coordination and mitigate opportunism among cooperation partners to create the setting necessary for innovation. The authors were able to confirm the proposed predominant role of relational governance in service cooperations. This is a differentiating aspect between the service and manufacturing sectors, in the sense that formal governance is assumed to be of higher importance in cooperations of product companies.	Journal of Service Management
Thakur and Hale	2013	To understand and compare managerial perceptions about the enabler and barriers of service innovation within and between the U.S. and Indian companies.	Online survey disseminated among U.S. and Indian managers of four service industries (financial, medical, food and hospitality, and communication).	Findings suggest that service innovation is positively related to financial and non-financial performances in both U.S. and Indian service industries.	Journal of Business Research
Coutelle-Brillet, Riviere and des Garets	2014	To analyze the nature of the perceived value of service innovation in the B2B context by investigating the components of Holbrook's framework.	A two-stage qualitative study.	The paper highlights the diversity of components of service innovation value (not only economic and functional components but also emotional, symbolic, altruistic, and interactional components of value).	Journal of Business & Industrial Marketing
Wu	2014	To study the impacts of service innovation on consumer loyalty in the digiservice context.	Online survey in Taiwan.	The findings suggest that technology leadership, service leadership, brand equity, and customization are the main determinants of loyalty.	Journal of Business Research



**Table 1** (Continued)

Author(s)	Year	Research aim/objectives	Method (empirical/theoretical)	Main findings	Journal
Yang, Yang and Chen	2014	To examine the effects of service innovation on financial performance of proprietorship audit firms in Taiwan.	Data from the 1989–2009 Survey Report of Audit Firms in Taiwan.	The findings demonstrate that proprietorship firms only providing management advisory services (MAS) (non-conventional firms) financially outperform those providing both traditional practices and MAS (general firms), and the latter financially outperforms those only offering traditional practices (conventional firms).	The International Journal of Business and Finance Research
Yang, Weng and Hsiao	2014	To develop a measurement instrument for assessing blog service innovation.	Mixed methods approach (i.e., qualitative research questionnaire and survey) conducted on undergraduates from Taiwan.	The study highlights three attributes of innovation-oriented service innovation related to content creation and information service capabilities, including information sharing, completeness, and professionalization, providing bloggers with a competitive and correct direction for developing new blog services.	Internet Research

In the end, the authors reached a final selection of eight articles which fulfilled the criteria set and thus represented the basis for analysis. This approach helped to alleviate the risk of any inconsistency in the analysis and the conclusion drawn from there. The second search which followed the same procedure as described above yielded five additional papers. So the basis of analysis was expanded to 13 articles.

Fourth, the final excel sheet was jointly discussed involving all authors. This discussion enabled the authors to categorize the findings under themes which, in turn, helped to clarify what is known about the measurement of service innovation and to which areas the body of knowledge is limited. Fifth, the final stage of the review process was devoted to writing up the findings.

#### 4. Presentation of findings

##### 4.1. Studies involved

The thirteen papers that formed the basis for our analysis are summarized in [Table 1](#). The oldest publication is from 2009 and the most recent ones are from 2014. One can see that 2014 has already produced a higher number of papers regarding the topic compared to prior years indicating rising empirical research activities and outputs.

##### 4.2. Observations

With regard to the methodology, the reviewed studies make use of a broad range of methods. Some authors used a survey approach (e.g., [Ko & Lu, 2010](#); [Steinicke, Wallenburg, & Schmoltzi, 2012](#); [Wu, 2014](#)), some based their study on secondary data sources (i.e., [Aas & Pedersen, 2011](#); [Yang, Yang, & Chen, 2014](#)), and some employed qualitative approaches (i.e., [Coutelle-Brillet, Riviere, & des Garets, 2014](#); [Tajeddini, 2011](#)). What is striking is the number of papers that used mixed methods approaches (e.g., [Abreu, Grinevich, Kitson, & Savona, 2010](#); [Den Hertog, Gallouj, & Segers, 2011](#); [Gotsch & Hipp,](#)

[2012](#); [Song, Song, & Di Benedetto, 2009](#); [Yang, Weng, & Hsiao, 2014](#)). Yet, these methods are considered to better address the process character of service innovation.

As regards the measurement of service innovation, [Abreu et al. \(2010\)](#) highlighted the need to think of alternative measures, clearly indicating that traditional metrics developed for product innovation cannot be directly transferred to service innovation. The authors further stressed the significance of considering the aim that different metrics should fulfil to make sure that they actually comply with expectations. In the same line, [Den Hertog et al. \(2011\)](#) argued that in the context of measurement the impact of innovations one needs to take into account any non-financial impact as well. Indeed, the findings by [Thakur and Hale \(2013\)](#) show the impact of service innovation on both financial and non-financial performance. This clearly demonstrates that a one-sided perspective on financial impacts limits our way to develop new and deeper knowledge of innovation measurement in general and service innovation measurement in particular. This finding echoes those of [Mention \(2011a, 2011b\)](#), who contended that adopting an intellectual capital perspective to capture the peculiarities of innovation in services may provide interesting insights to illuminate the firm-level effects of innovation in services.

Some findings (e.g., [Aas & Pedersen, 2011](#); [Yang, Yang, et al., 2014](#)) demonstrate as to how service innovation can help organizations to differentiate from their competitors and help them to increase customer loyalty ([Wu, 2014](#)). [Ko and Lu \(2010\)](#) propose a five-dimensional construct to be used for the measurement of key competencies needed for the development of integrated services.

The findings obtained are predominantly positive as regards the impact of service innovation on firm performance. Only [Song et al. \(2009\)](#) reported a negative relationship between opportunity analysis and idea screening, service design and service testing, thus addressing the stages regarding new service development. This positive point of view may be explained by the topic's novelty.

[Table 1](#) further underlines that regarding the journals involved, an emphasis on specialist journals is found. This is understandable against the novelty of the topic, and it is rather likely to assume

that in order to achieve a wider acceptance, a broader selection of journals will be followed in future.

## 5. Conclusions

The aim of this paper was to identify the body of scholarship regarding the impact of service innovation as found in peer-reviewed empirical academic papers. It is important to better understand what we know about this topic, given the influence of services on economic development. It also complies with the increasing attention that has been devoted to service innovation. Based on a systematic literature review, we identified thirteen empirical studies which fulfilled our selection criteria. The small number of articles indicates that our body of knowledge regarding this topic is poor and fragmented. However, the number of papers that has been published in 2014 suggests that the attention attributed to the topic is increasing. Current research in the area under investigation seems to be primarily driven by some researchers' personal interests, which is understandable given the topic's novelty and therefore underdeveloped knowledge basis. Given the assumed importance of service innovation this finding is promising but still unsatisfactory and makes us call for more intense research activities. Thereby the path adopted as regards research methods (i.e., application of mixed method approaches) should be maintained as this increases the chance of better understanding the entire process regarding service innovation. Following this would not only develop a certain body of knowledge but also help to underpin the legitimacy of service innovation as a research field on its own, and so to some extent, it provides some support to the willingness of establishing a new field of research, service science, which is defined as "the combination of technology innovation, business model innovation, social organizational innovation and demand innovation with the objective to improve existing service systems, create new value propositions and offerings or create new service systems" (University of Cambridge Institute, 2008). According to recent trends and reports on innovation across sectors, it is obvious that companies can achieve a sustainable competitive advantage only by bundling novelties in terms of goods, with added value services. Those services also enable companies to increase customer loyalty and retention (Wu, 2014), as they may also have the so-called lock-in effects, which have been explored in-depth in several service industries such as telecommunications and banking.

Consequently, based on our review one can conclude that the present situation clearly offers scholars a variety of research avenues. As other authors have already highlighted, we definitely need metrics that allows managers to measure the impact and outcome of service innovation. Considering the increasing relevance of services industries and their impact on economic growth (Maroto-Sánchez, 2012; Mention, 2011c; Tether & Tajar, 2008), these efforts are justified. Thereby the metrics must consider the particular nature of services. It is rather doubtful if metrics originally developed for product innovations can fulfil this requirement. Since the service sector is rather broad, which may lead to different needs regarding the metrics, researchers interested in developing the field should have this in mind. In addition to it, the metrics to be developed should be able to incorporate the different actors (i.e., partners, networks), e.g., organizations, entire industries, who contributed to the development of services. This would help to better understand the contributions of each actor to the service development, and which in turn would take into account the increasing interconnectivity of market actors. The growing use of social media can also be regarded as a good starting point for the development of metrics. Many consumers share their opinions and experiences regarding services with their social network. Organizations could build on this engagement by monitoring the success of the service.

Additionally, suitable metrics would help the individuals in charge of service innovation measurement by addressing those areas that need immediate actions. Djellal and Gallouj (2010) advocate for a multidimensional approach to performance, which should include multiple criteria referring to "commercial performance [...], civic performance [...], and relational performance [...]" (p. 10). Additionally, having suitable metrics at hand would also provide better insights into the contribution of service innovation to firms' overall goals, such as sustaining a competitive advantage. The concept of intellectual capital may also provide a strong basis to define metrics to capture the peculiarities of innovation in services and of service innovation (Mention, 2011b).

The present study is not without limitations. A complete coverage of all the empirical articles considering the impact of service innovation could not have been achieved, given the search proceeding chosen. So it may have left out papers that also addressed the topic but used a different language. Yet, it seems reasonable to assume that the review process covered a large proportion of the empirical studies available. Finally, this paper proposes some research directions which are not exhaustive but represent initial stages.

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