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Service Innovation in Mexican Small Business

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Abstract

The concept of innovation is considered in the current literature, by various researchers and academics, not only as a fundamental variable that allow a significant growth and development of companies, mainly for small and medium enterprises, but also as a business strategy that allow survival of businesses. However, innovation in the service sector is a topic not widely analysed and discussed in the current literature, even though at present time more researchers and academics are interested in innovation and are publishing more theoretical and empirical research about this area. In consequence, the main objective of this empirical investigation is to analyse innovation activities in services, processes and management systems for services. The results obtained demonstrated that services innovation, processes innovation and management systems innovations are appropriate factors to measure service innovation activities in small and medium enterprises.

JEL classification numbers: M310
Keywords: Service innovation, innovation, small business.

1 Introduction

The economy globalization and the high level of competitiveness in the national and international markets have triggered serious transformations in customers' behaviour. This is mainly because changes in their tastes and needs change provoke more complexity for businesses in meeting customers' requirements,

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which is particularly more difficult for small and medium-sized enterprises (SMEs). Therefore, innovation in products only is not sufficient anymore, but innovation in services is now required (Jacob & Ulaga, 2008). In consequence, enterprises have to implement actions for better services innovations, because a combination of innovations in products and in services can help to satisfy a great deal of the various clients and customers' tastes and needs, by continually tailoring the required products and services (Lightfoot & Gebauer, 2011).

In this sense, innovation in services is a topic not widely explored in the research conducted, but it has an incremental relevance among researchers and academics, because they consider that SMEs acting on services innovations will have more opportunities to wide its market share (Wise & Baumgartner, 1999). Hence, managers should consider services innovation not only as an extension of the business but also as a contribution from services to successful manufacturing products. Moreover, companies should consider service innovation as a business opportunity in the current market (Lightfoot & Gebauer, 2011).

Nevertheless, only a small percentage of companies, in the services sector, are adopting and implementing innovation activities as a formal way to achieve success and increase business growth, mainly because these do not have the necessary knowledge about services innovation, its advantages and implementation processes (Belz *et al.*, 1997; Freitag *et al.*, 2003; Homburg *et al.*, 2003). At the same time, the success of services innovation should not only be considered on existing or new services in the market but also on processes, management and commercialization of the new services (Lightfoot & Gebauer, 2011), because these innovation activities are fundamental for firms' success.

In the current literature, it is frequent to find that a reason for an inefficient commercialization in services innovation is because customers do not know about the improvements or changes made to services, so they are not willing to pay higher prices, so it provokes in the end a reduction of profits, and as consequence, companies significantly reduce activities focused on services innovation and its well provision (Coyne, 1989; Belz *et al.*, 1997; Neely, 2007). For that reason, Alam (2011), Lightffot and Gebauer (2012), Ettlie and Rosenthal (2012) and Hua (2012) suggest that it is necessary to increment theoretical and empirical investigations on services innovation, particularly in SMEs. Thus, in this paper innovation activities in SMEs are analysed in a context of an emerging country, like Mexico. For the analysis of innovation activities in Mexican SMEs previous authors' suggestions will be followed to contribute to more theoretical and empirical researches that analyse services innovation. Hence, the main contribution of this paper is the analysis of innovation activities in SMEs in the service sector in an emergent country.

2 Preliminary Notes

The importance of services innovation can be considered as recent phenomena analysed in the current literature in the area of business and management, mainly because previously services were not considered as an innovative activity, it has been only reduced to the adoption and use of information technology (Morrar, 2014). Therefore, the research that has been happening was only orientated to innovation in the manufacturing sector, to the development of new products with high technology content and processes innovation, but letting aside services innovation. This new type of innovation includes innovation activities that are completely invisible to customers and clients, opposite to a visible innovation that occurred in manufacturing products (Gallouj & Savona, 2009).

Such traditional vision about services seems to be radically changing during the last two decades, researchers and academics are noticing the inconsistency that exists in this sector dynamic. Services' importance and contribution to the growth and development of any country's economy is well recognized now, as this sector provide around 70% of the gross domestic product and employment in countries members of the Organization for Economic Co-operation and Development (OECD, 2005). Therefore, analysis and discussion about the adoption and implementation of services innovation in the services sector has been expanded further than the traditional perspective of technology (Morrar, 2014).

At the same time, in the current literature there are publications with an increase number of theoretical and empirical studies that analyse the importance of services innovation, essentially in SMEs, which goes further than only adopting technology (Gallouj & Weinstein, 1997; Sundbo & Gallouj, 1999; Tether, 2005). Moreover, a substantial percentage of these studies have considered the own characteristics of services, such as, intangibility, production nature and immediate consumption, which allow not only to make changes and improvements to services but also to create new services in the market, facilitating the definition of services innovation (Morrar, 2014).

In this sense, companies in the services sector maintain a continual interaction with its clients. Thus, incremental socialization with other SMEs in the services sector, which permit not only to innovate on the most demanded services (Freeman & Soete, 1997), but also to have a direct participation with suppliers, so to have the possibility to innovate more services process (Smith & Fischbacher, 2005). In consequence, generally, the development and innovation of services are associated with processes innovations that are required in the continuous interaction between services and manufacturing products (Hua, 2012), mainly because manufacturing products require a gradual increment of services elements, but also these services require being more innovative in a regular way (Howells, 2006).

Services innovation refers also to the essential development of innovation in processes and management systems in companies within the services sector (Wei & Hu, 2007) because clients can observe clearer the internal processes than innovation (Sundbo & Gallouj, 1998). Furthermore, various companies and

individuals need to participate in services innovation, as detailed in the current literature on some empirical researches that define this participation of companies, suppliers and customers in the development and innovation of services as crucial (Lu, 2010), more the participation of customers is basic in services innovation in order to tailor services according to their tastes and needs (Peters & Saidin, 2000; Li *et al.*, 2009), and because only like this it is possible to increase the level of efficiency in services (Davies, 2003, 2004).

Furthermore, in the current literature presents a strong paradigm in terms of services innovation and organization systems innovation, establishing that it cannot be implemented in SMEs, and even less to be consider as a business strategy (Hua, 2012). But there are also important insights about services innovations. For example, Pavitt (1984) defines four possible type of services innovation: 1) the one related to supplier's capabilities or domain 2) supplier's specialization 3) based on science and 4) based on intensive information. Whereas Barcet *et al.* (1987) considered that services innovation could be divided into industrialization, joint professionalization and management systems. After, Gallouj and Weinstein (1997) added a proposal made by Barcet *et al.* (1987) to divide services innovation in three elements, such as, new industry, entrepreneur innovation and traditional innovation.

Besides, services innovation is understood as an inherent part of the own company and it can be considered as a source of growth and evolution of processes (Hua, 2012). In this sense, Tidd and Hull (2003) classified services innovation into four basic types: reception and delivery of services, bureaucratic mechanisms, hybrid mechanisms and technology use, being precisely the use of technology where more services innovation can be developed, followed by bureaucratic mechanisms in which it is possible to reduce costs to make services more efficient. Then, the hybrid mechanism can generate a greater level of business performance and finally reception and delivery that can improve services time. However, Robertson and Swan (2004) concluded that companies should have a more flexible structure in its hierarchical organization, this way services innovation activities can be supported.

In this sense, theoretical and empirical researches, in the current literature on business and management sciences, present a combination of process and systems innovation (Lundvall & Johnson, 1994; Wei & Hu, 2007). Services innovation is broadly also a management systems innovation. This is because usually management is the way in which services are projected and processes involve all departments and areas of the company (Edvardsson *et al.*, 1995). For that reason, Wei and Hu (2007) define that the organizational structure has an important impact on innovation activities with other companies as well as with management innovation and organization innovation together.

Additionally, in the current literature many studies establish that success in services innovation depend on multiple factors (Alam, 2011) two of the most important factors considered in investigations are the processes in services innovation and the type of new services developed by businesses, in the services

sector (Edgett & Parkinson, 1994; de Brentani, 2001); mainly because these two factors are directly related to business growth and business performance (Baker & Sinkula, 2005). Moreover, some recently published theoretical and empirical studies have also considered the typology of the innovation process as a fundamental element for services innovation (Droege *et al.*, 2009).

Such typology of services innovation is basically related to the level of novelty in new services created by companies, and generally these are considered radical or incremental innovation. Managers in SMEs should understand this typology of services innovation because it allows them to properly plan innovation activities and therefore, to obtain economic, financial and human resources for to develop new services (Alam, 2011). In consequence, the types of services innovation support the development of strategic visions of businesses, and therefore to understand not only tastes and needs of customers but also what kind of innovation is required in certain provided services (Heskett, 1986).

Moreover, in the literature it is possible to find various taxonomies of services innovation, one of the most important is define by Gadrey *et al.* (1995) using four types of financial services innovation: 1) services innovation, 2) financial architecture innovation, 3) modifications in the business portfolio and 4) processes and management innovation. Also, Gallouj and Weinstein (1997) define services innovation in six elemental types, such as, radical, incremental, of improvement, combined, formalized and custom-made. Similarly, Chan *et al.* (1998) classified services innovation in three main types: 1) progressive, 2) distinctive, 3) incremental.

Likewise, Oke (2007) establishes that services innovation could be divided into three main categories: 1) incremental, 2) personalized and 3) radical. Whereas, Avlonitis *et al.* (2001) from its exhaustive analysis of published work about products and services innovation defined six general types of financial services innovation: 1) radical innovation, 2) incremental innovation, 3) improvement on innovation, 4) combination of innovation, 5) formalized innovation 6) tailored innovation.

Finally, a more recent typology is studied by Madrid-Guijarro *et al.* (2009), who considered that products and/or services innovation could be classified into three categories, 1) products and services innovation, 2) processes innovation and 3) management innovation. This typology has been used in this empirical research. Correspondingly, and even though the importance that services SMEs have in the economy of both emergent and developed countries, a great deal of research in management and business sciences only analyse innovation and new products development (Booz-Allen & Hamilton, 1982; Cooper, 1993). Though, there are different arguments in the literature establishing that innovation and development of products could not be applied in services innovation, mostly because services have totally different characteristics from products and therefore, these require a different creation process (Zeithaml & Bitner, 2000).

In this sense, there are still discussions about the main differences between products and services innovation, in its adoption and implementation (Gallouj &

Weinstein, 1997; Stevens & Dimitriadis, 2004; Hipp & Grupp, 2005). Accordingly, there is sufficient empirical evidence that a high number of companies in the services sector do not adopt a systematic process to implement innovation (Kelly & Storey, 2000; Smith *et al.*, 2007). Therefore, various authors agree that services innovation is important, such as Edgett (1994), Edgett and Parkinson (1994), Cooper and Edgett (1996), Storey and Easingwood (1996), John and Storey (1998), De Jong and Vermeulen (2003) and Droege *et al.* (2009). In consequence, it is possible to establish the following research hypothesis:

H1: The higher level of services innovation, the higher innovation activity of SMEs in the services sector.

H2: The higher level of processes innovation, the higher level of innovation activity of SMEs in the services sector.

H3: The higher level of management systems innovation, the higher level of innovation activity of SMEs in the services sector.

In order to respond to the established hypotheses, an empirical research was conducted in SMEs operating in the services sector, in the context of Aguascalientes region, in Mexico; this considering as a reference the Enterprise Directory 2013, from the National Systems of Information for Aguascalientes companies, which presented a total of 1,334 companies operating in the services sector and region, with a range of 5-250 workers each. The size sample was 400 SMEs, considering 95% of confidentiality and a maximum level error of 4.5%, through random sampling. The surveys were applied conducting directed interviews to managers of the 400 selected SMEs in the services sector, specifically carried out from September to November same year.

Moreover, in order to measure the innovation activities managers were asked to declare if they have implemented innovation activities during the past two years. To measure the importance of innovation activities, managers were asked to evaluate its services innovation, processes innovation and management systems innovation. Such scale was adapted from Zahra and Covin (1993), Kalantaridis and Pheby (1999), Frishammar and Hörte (2005), and Madrid-Guijarro *et al.* (2009). The items of the scale were established with a 5-points Likert scale, where limits were defined a 1 = not important and 5 = very important. Besides, these variables were used to measure services innovation, because in the literature managers' attitude was considered as an important factor to improve innovation (West & Anderson, 1996; Lefebvre *et al.*, 1997; Storey, 2000; Madrid-Guijarro *et al.*, 2009).

Additionally, the scale's reliability and validity were evaluated through Confirmatory Factor Analsys (CFA), with the maximum likelihood method and using the software EQS 6.1 (Bentler, 2005; Byrne, 2006; Brown, 2006). Also, the scale's reliability was evaluated through the Cronbach' Alpha coefficient and the Composite Reliability Index (CRI) defined by Bagozzi and Yi (1988). All index values of the scale were superior of the recommendation, which is not less than

0.7 for the Cronbach' Alpha coefficient and CRI. In consequence, there is sufficient evidence of scale's reliability and internal reliability (Nunally & Bernstein, 1994; Hair *et al.*, 1995). At the same time, the adjustment indexes used were *NFI*, *NNFI*, *CFI* and *RMSEA* (Bentler & Bonnet, 1980; Byrne, 1989; Bentler, 1990; Hair *et al.*, 1995; Chau, 1997; Heck, 1998).

The results obtained in the CFA, shown in Table 1, suggest that the theoretical model of the innovation activities in services have a good adjustment of data ($S\text{-}BX^2$ = 711.962; *df* = 224; *p* = 0.000; *NFI* = 0.854; *NNFI* = 0.881; *CFI* = 0.894; and *RMSEA* = 0.074). As evidence of convergent validity, the results of the CFA indicate that all items from factors related are significant ($p < 0.01$), the size of all standardized factor loads are superior to the recommended value of 0.60 (Bagozzi & Yi, 1988), and Extracted Variance Index (EVI) from each pair of constructs of the theoretical model, have a higher value of 0.5 as recommended by Fornell and Larcker (1981), thus it is possible to argue that the theoretical model has a good adjustment of data.

Table 1: Internal consistence and convergent validity evidence of the theoretical model

Variable	Indicator	Load Factor	Robust-t value	Cronbach's Alpha	CRI	EVI
Services Innovation	INS1	0.918***	1.000[a]	0.836	0.837	0.822
	INS2	0.775***	20.078			
Processes Innovation	INP1	0.842***	1.000[a]	0.761	0.762	0.617
	INP2	0.724***	19.437			
Management Systems Innovation	ISG1	0.711***	1.000[a]	0.843	0.844	0.646
	ISG2	0.804***	16.696			
	ISG3	0.886***	18.755			
$S\text{-}BX^2$ (df = 11) = 16.714; p < 0.000; NFI = 0.996; NNFI = 0.997; CFI = 0.999; RMSEA = 0.036						

[a] = Constrained parameters to such value in the identification process.

*** = $p < 0.01$

In relation to this evidence of discriminant validity the measurement its measurement process is given by two main tests, presented in Table 2. First, with 95% as interval of confidentiality, none of the individual elements from the latent factors in the correlation matrix have a value equal to unity (Anderson & Gerbing, 1988). Second, the EVI from each pair of constructs is higher that its corresponding EVI (Fornell & Larcker, 1981). Thus, it is possible to conclude that the evaluations made show sufficient evidence of feasibility and both validity, convergent and discriminant.

Table 2: Discriminant validity measuring of the theoretical model

Variables	Services Innovation	Processes Innovation	Management Systems Innovation
Services Innovation	**0.722**	0.493	0.213
Processes Innovation	0.638 - 0.766	**0.617**	0.237
Management Systems Innovation	0.389 - 0.513	0.413 - 0.561	**0.646**

The diagonal represents the Extracted Variance Index (EVI), whereas above the diagonal the variance is presented (squared correlation). Below diagonal, the estimated correlation of factors is presented with 95% confidence interval.

3 Main Results

To test the three research hypotheses the theoretical model of the services innovation activities, the Structural Equations Modelling (SEM) with software EQS 6.1 (Bentler, 2005; Byrne, 2006; Brown, 2006), and the nomological validity of the theoretical model was analysed through the Chi-squared test, so the results obtained from the theoretical model and the measurement model were compared, obtaining statistical results not significant between Chi-squared on both models, which permit to explain of such relationships among constructs of latent variables from two models (Anderson & Gerbing, 1988; Hatcher, 1994). The results found by SEM are better detailed on table 3.

Table 3: SEM results from the theoretical model

Hypothesis	Structural relation	Standardized coefficient	Robust-t Value
H1**:** The higher level of services innovation, the higher level of innovation activity	Services → Innovation	0.364***	24.762
H2: The higher level of processes innovation, the higher level of innovation activity of SMEs in the services sector.	Process → Innovation	0.334***	19.437
H3: The higher level of management systems innovation, the higher level of innovation activity of SMEs in the services sector	Management→Innovation	0.282***	16.696
$S\text{-}BX^2$ (df = 7) = 10.636; p < 0.000; NFI = 0.997; NNFI = 0.997; CFI = 0.999; RMSEA = 0.036			

*** = P < 0.01

In regards to the first hypothesis $\mathbf{H_1}$, shown in Table 3, the results obtained are $\beta = 0.364$ $p < 0.01$, these denote that services innovation have a positive and significant effect on SMEs' innovation activities. In relation to the second hypothesis $\mathbf{H_2}$ the results obtained, $\beta = 0.334$ $p < 0.01$, show that processes innovation has significant impact on innovation activities of SMEs in the services sector. Finally, in regard to third hypothesis $\mathbf{H_3}$, the results obtained, $\beta = 0.282$ $p < 0.01$, show that innovation in management systems have positive and significant effects on innovation activities of SMEs in the services sector. In summary, it is possible to corroborate that services innovation, processes innovation and management systems innovation have positive and significant effects on innovation activities in SMEs in the services sector, which indicates good insights to measure the innovation activity.

5 Conclusion

From the results obtained, we attempted to conclude on three main aspects in regard to services innovation. First, services innovation is the principal innovation activity done by SMEs in the services sector in an emergent country, like Mexico. In other words, this type of companies make changes or improvements to existing

services that are offered to customers and consumes according to requirements and needs itself. Therefore, SMEs in the services sector are adopting and implementing more operation that allow these to innovate services in order to adjust such services to market demands that are incrementally and globally competitive. This has the main objective not only to obtain major competitive advantages in relation to its main competitors, but also to remain and survive in the market where they participate.

Second, SMEs of the services sector are slightly less focused on services' generation and provision than on services innovation, which allow to conclude that imperative that SMEs adopt and implement not only services innovation but also process innovation. These two types of innovation are required not only for the generation and offering itself of both services, on process and already innovated. Thus, SMEs in the services sector that carry out innovation activities in its production processes are becoming adaptive to changes required by the business environment, which offer better opportunities of profits and success in innovation activities.

Third, it is also important for companies in this services sector to be orientated in the development of activities that allow innovations in its management systems, because it is not only important to innovate services and processes that are required for such systems, but it is also necessary to innovate on management activities related to new services but to the company has a whole. Therefore, the implementation of a new way to manage services will help companies not only to significantly reduce costs in the services processes but also to efficient services provision, reducing times and improving quality of services, by being more adjusted to customer's tastes, needs and specific requirements.

In this sense, it is possible to conclude that innovation in services, processes innovation on services production and innovation in systems to manage services are good indicators of innovation activity in SMEs in the services sector. Therefore, SMEs in services that adopt and implement these three innovation activities may not be considered as the more innovative companies but these may have better opportunities to achieve higher competitive advantages to competitors but also higher levels of growth and development.

Also, these results have multiple implications for both managers and SMEs itself, in the services sector. Thus, if it is considered the research occurred in the area of innovation, every change or improvement in existing services in companies then it is possible to assure that SMEs in the services sector in Mexico that have made these changes or improvements have a certain level of innovation, even though it is not possible to assure these companies are totally innovative it is possible to define that SMEs in the services sector changing and improving its services, processes and management systems have a higher percentage of possibilities to improve its innovation activities, which allow them in a near future to develop new non-existing services in the market.

Additionally, these results provide essential information for those managers in SMEs operating in the services sector because they may have better

decision making, not only in regards to designing new actions to improve innovation in existing services, but to implement business strategies in which innovation activities are considered as routing activities in the whole company. Thus, the adoption and implementation of innovation activities in services require managers to design and to implement efficient systems for the control and management of services. Also, these mechanisms should stimulate, motivate workers to participate in the improvement and development of new services, processes and management systems, which allow SMEs in the services sector to increment in a significant manner its level of innovation.

The success of services innovation and its benefits depends on how managers in services SMEs directly participate in both the design and implementation of innovation activities carried out in the company. Besides, managers have to implement various training schemes and financial support, perhaps from government institutions that help for the development and innovation of SMEs, or even public and private research centres. This is important to be considered to significantly improve innovation activities in companies, because the success of innovation activities depend much on financial bases, as well as the survival of the company in the current competitive market.

Moreover, the results obtained in this empirical study can be a great opportunity of improvement for officials working in government institutions linked with small enterprises because this paper's insights may help to design and development public policies focused to enhance innovation, especially in services SMEs. Accordingly, government policies should focus on securing improvement of all activities related to innovation in companies, especially in the services, if these aim better competitive levels. At the same time, government authorities should develop an adequate infrastructure for SMEs, so these are capable to compete in this globally competitive market.

Finally, the results presented in this paper also show that services innovation, processes innovation and management systems innovation are beneficial for SMEs in the services sector. Therefore, managers and workers in companies should adopt a more positive attitude to innovation activities, eliminating resistance attitude to changes required by the current market. This is possible by adopting an innovation culture and aligning such culture to the general strategies of the company, which could not only generate better results but also higher levels of growth in SMEs operating in the services sector (Madrid-Guijarro *et al.*, 2009).

One of the limitations of this research is that the sample only considered SMEs with a range of 5 to 250 workers. Thus, future research should consider companies with less than 5 workers, as these represent more than 60% of the existing companies in Mexico, in this case; also, to corroborate these presented results. A second limitation is that the survey was applied exclusively to SMEs in the services sector in the Aguascalientes region, for which future research will be necessary to apply this investigation in other regions and country to evaluate congruency of data.

A third limitation of this study can be the scales used to measure the innovation activities, because it has only seven items to measure innovation. For this, in order to corroborate results, future research would be necessary to add other scales. In this regard, a fourth limitation is that only qualitative variables were used to measure innovation activities, therefore further research should consider the use of quantitative variables, perhaps with the number of innovation or investment to research and innovation activities, so differences from this research results can be identified.

A fifth limitation is that the survey applied was only applied to manager in services SMEs, with the assumption that they had wide knowledge about their company's innovation activities. Therefore, to corroborate present results any further research should consider apply the same survey to a wider sample, to workers, customers and suppliers. Lastly, an important number of services SMEs managers considered some of the information requested as confidential, therefore the results presented in this paper may be not necessary a reflection of the reality of SMEs in the services sector, in Mexico, in relation to innovation activities.

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