

A process innovation based on activities, types and characteristics

Un proceso de innovación basado en actividades, tipos y características

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ABSTRACT:

This paper aims the innovation at services in commercial textiles companies and health care services. The project reviews the types of innovation and the characteristics present at the both sectors. The results establish the textile trade and health care services have low dynamism in innovation activities. This work proposes a cyclical process for the development of innovation at services: analysis, focus goals, equipment, partnerships, project tracking, feedback, deployment and implementation; supported in the organizational culture. This work proposes a management tool for companies inspired by the theoretical study of characteristics of innovation and the empirical study at the service sector.

Keywords: Process innovation in services, innovation activities, types of innovation in services, characteristics of innovation in services.

RESUMEN:

El artículo analiza la innovación en servicios en empresas de comercio textil y de servicios de salud. El proyecto revisa los tipos de innovación y las características presentes en ambos sectores. Los resultados establecen que el comercio textil y los servicios de salud tienen un bajo dinamismo en las actividades de innovación. Este trabajo propone un proceso cíclico para el desarrollo de la innovación en los servicios: análisis, foco de la innovación, objetivos, equipos, alianzas, definición de proyectos, seguimiento, retroalimentación, estrategia de lanzamiento e implementación; apoyado en la cultura organizacional. Este trabajo propone una herramienta de gestión para empresas inspiradas en el estudio teórico de las características de la innovación y el estudio empírico en el sector servicios.

Palabras clave: Innovación de procesos en servicios, actividades de innovación, tipos de innovación en servicios, características de innovación en servicios.

1. Introduction

The innovation in services refers to a new or considerable change in the concepts of services or supply processes, which it add value to the customer because they provide novel methods for solving problems (Tidd, 2003). Tacsir (2011) argues that innovation in services is a continuous,

widespread and collaborative activity. The innovation changes products and processes inside the companies, while they develop working modalities, that do not necessarily rely on activities of research and development (R & D) (p.10).

Similarly, Küpper (2001) defines innovation in services as the result of a change process and as the process itself, with products characterized by a high degree of immateriality, the need for synchronized contact between supplier and consumer; and high need for personal input.

According to the Oslo Manual of the Organization for Economic Co-operation and Development and the Statistical Office of the European Communities (OECD and Eurostat, 2005) corresponds to "a generally continuous process consisting of a series of modifications progressively introduced into products and processes "(P.48).

Innovation in services is the process of systematically implementing new services, or improvements in the aspects associated with their delivery, reflected in products, processes, market or organization. This process is directed to the generation of added value, in order to satisfy the expectations of the stakeholders and the strengthening of the capacities to improve the competitive position of the organization. On the other hand, one of the peculiarities of innovation in services is "the distinction between products and processes is often unclear, because production and consumption occur simultaneously". (OECD and Eurostat, 2005, p.47). although, "in service companies, R & D is not always organized as formally as in manufacturing firms" (OECD, 2003, p.51).

"The dynamics of innovation are not homogeneous in the various services, considering that some are more knowledge intensive, with greater investment in R & D, and higher levels of qualification of the labor force "(Garrido, 2009, p.8). In the innovative activity of small and medium-sized service enterprises, "it is of the utmost importance to interact efficiently with other R & D companies and public research establishments, in the exchange of knowledge and in marketing activities" (OECD and Eurostat, 2005, p.48).

1.1. Theoretical framework

This section presents the literature review related to innovation in services, specifically the activities associated with the innovative process, types and characteristics.

1.1.1. Activities associated with innovation in services

Innovation activities include, first, the acquisition of knowledge abroad: R & D, patents, inventions, licenses, dissemination of know-how and design study. Second, the acquisition of machinery, equipment and capital goods needed to innovate. Third, preparations for innovations: planning and development activities, testing and evaluation and modifications to the computer procedures or service rendering processes. Fourth, the market preparation for innovation. And, Fifth, training, considered a knowledge management practice (OECD and Eurostat, 2005).

1.1.2. Types of innovation in services

According to the Bilderbeek, Hertog, Marklund and Miles (1998), service innovation takes place in four dimensions: service concepts, customer interfaces, provisioning processes and technological options. Ayneto (2010) retakes the model of the authors in mention, and includes the dimension of technological options, innovations in the infrastructures of knowledge, the materials and the organizational ones. The same author adds a new dimension associated with the elements of strategic/operational marketing.

1.1.2.1. New service concepts

A service concept is a way of organizing a solution to make it available to the customer (Gadrey, 1991). Thus, it is possible to innovate by structuring aggregate offers, recombination services, introducing elements, or changes in the business model because "any service provision must generate benefits to the company that provides it. However, the way of obtaining them can be very variable "(Ayneto, 2010, p.4).

1.1.2.2. New interfaces with the client

The interface, understood as the contact structure between the client and the organization, has a direct impact on the service's evaluation, representing a key dimension for innovation and customer loyalty (Ayneto, 2010). Consequently, this dimension is associated with innovations in: customer waiting time, the duration of the service or the incorporation of services to relax the wait, customer service through staff changes, the use of digital interfaces, as well as the flexibility and personalization of the service (Ayneto, 2010). In this dimension it is necessary to realize market intelligence (ISEA S.Coop and Ministry of Industry, Tourism and Commerce of Spain, 2008).

1.1.2.3. New processes of production of services

Innovations in the processes of service delivery introduce significant advantages. As a result, companies innovate in: cost, quality, answer time and service flexibility. As well as, through changes in activities, staff and customer participation in the service (Ayneto, 2010).

1.1.2.4. New support infrastructures

(Ayneto, 2010, p. 5) states that "infrastructures can be a source of innovation or constitute a tool for innovation in other dimensions." The main support infrastructures for innovation in services are: technological, material related to physical, knowledge and organizational elements.

1.1.2.5. New strategic and operational marketing elements

One of the factors directly affecting the differentiation of companies is marketing activities (Ayneto, 2010, p.2). Thus, it is possible to innovate through the implementation of elements of strategic marketing: segmentation and positioning. And operational: price and service intermediation.

1.1.3. Characteristics of innovation in services

The innovation in services is a recent area of research. It is product of the innovative phenomena amplitude at the sector and the industrial theories approaches (Elche, 2005). Regardless of this, the literature establishes the characteristics of innovation in this sector.

1.1.3.1 Formalization and systematization dependent on economic activity

In services a new approach to innovation is registered, because the companies are more aware of the need to innovate and organize their innovation system. They try to formalize and systematize the innovation system. However, the degree of formalization depends on the activity. The generalized form of innovation in services is an informal and flexible process, combining individual efforts and formalized teams by projects (Elche, 2005).

1.1.3.2 Difficulty in differentiating between product and process innovations

Services are characterized by their immaterial nature. It is difficult to differentiate between production process, product generated, and type of innovation (Elche, 2005, p.106). This activity is easy at the goods production (Evangelista and Sirilli, 1998). Thus, it is difficult to change the output of a service company without changing its production process (Sundbo, 1994, Sundbo and Gallouj, 1998, Sundbo and Gallouj, 2000).

1.1.3.3 Organizational Innovations vs. Technology

Dursta, Mentionb and Poutanenc (2014) argue "one of the reasons for underdevelopment in understanding the concept of innovation in services is cause the domination of the industrial and technological approach to innovation" (p.67). In services, organizational innovation predominates because of the relevance of human factors. Thus, innovation corresponds to the creation of knowledge, or ways of managing resources (Sundbo and Gallouj, 2000). However, "the development of Information and communications technology (ICT) allows a greater number of service companies to adopt higher quality innovations " (Gomez, Zurbano and Etxebarria, 2009,

1.1.3.4 Difficulty in protecting innovations

The intellectual property rights in services are protected by copyright and trademarks, rather than patents. This is due to the ease of imitation of innovations, which are not hidden discoveries, but rather, in obvious changes at behavior in individuals (Elche, 2005). Thus, "patents are not generally used to protect intellectual property in many service activities, with firms leaning more on copyright or trade secrecy" (Gomez et al., 2009, p. 123).

1.1.3.5 Incremental and flexible character

Service innovations are less radical than at the industry. It consist in recombination of services, the inclusion of elements, or changes in provision, responding to small changes that do not change their essential function. The innovation system in services is more flexible than in the industry, and in this the informal contributions of the collaborators are relevant, without neglecting the formalized groups (Elche, 2005).

1.1.3.6 Origin concentrated in the market

Innovations in services originate more in the market, than in internal research, by the intervention of consumers. In this context, "the most important information source for innovation are consumers. Followed by sales staff and other employees" (Elche, 2005, p109). Thus, innovation in services applies the "demand pull" integrated in business strategy, not the "science push", adopted in manufacturing (Elche, 2005). Consequently, the time to innovate is relatively short compared to industry (Sundbo and Gallouj, 2000).

2. Methodology

This research is descriptive, with a field design, non-experimental, transactional, focused on three dimensions of innovation in services: activities, types and characteristics. The study uses a population census, which analyzed fifteen (15) small and medium enterprises (SMEs) in the textile trade sector (Table 1). As well as, nine (9) companies in the health sector (Table 2). The quantitative study of the dimensions is done through the application of an instrument, direct observation and interviews with managers, in order to serve as a basis for the proposed process.

Table 1

Textile companies in Valledupar, Colombia, 2016.

Source: Own elaboration from the Valledupar Chamber of Commerce (2017).

Small companies		
Nº	Business name	Total active
1	Vitrinas de Impacto S.A.S.	\$ 352.000.000
2	Montes Zuluaga Gloria Elena	\$ 370.108.345
3	Mhanna de Sajin Youmana Mohamad	\$ 392.066.067
4	Acosta de Peinado Carmelita	\$ 550.899.740
5	Kilómetros Valledupar S.A.S	\$ 600.000.000
6	Valledupar 82 S.A.S	\$ 654.700.000
7	Sajim El Azal Wissan Kamal	\$ 675.914.937

8	Inversiones Alta Moda Calidad y Precio S.A.S.	\$ 920.873.117
9	Inversiones May's & Cia S.En.C.	\$ 1.081.775.358
10	Almacenes Progreso S.A.S.	\$ 1.138.160.164
11	Inversiones Tierra Santa y Cía. S.A.S.	\$ 1.761.787.991
12	Ortiz Ramon Heli	\$ 2.240.706.235
13	Daza Nurys María	\$ 1.457.130.479
Medium businesses		
14	Lindatex y cia. Limitada	\$ 3.384.521.097
15	Ropero Hermanos S.A.	\$ 4.164.529.003

Table 2

Health companies at Valledupar, Colombia, 2016.

Source: Own elaboration from the Valledupar Chamber of Commerce (2017).

Big businesses		
Nº	Business name	Total active
1	Clínica Valledupar S.A	\$ 26.533.314.293
2	Clínica del Cesar S.A	\$ 26.337.242.134
3	Clínica Laura Daniela S.A	\$ 55.053.037.139
4	Clínica Médicos S.A	\$ 24.916.803.342
5	Organización Medica Santa Isabel S.A.S.	\$ 29.704.319.311
6	Hospital Rosario Pumarejo de López E.S.E.	No disponible
Medium businesses		
7	Clínica Erasmo Ltda.	\$ 15.044.373.027
Microenterprise		
8	Clínica Buenos Aires S.A.S	\$ 55.000.000
9	Clínica Santo Tomas C.T.A	No disponible

Table 3 describes the methodological aspects of the research:

Table 3
Methodological Aspects of Research. Source: Own elaboration (2017).

Kind of investigation	Descriptive
Population	Textile trade sector: 15 SMEs Health sector: 9 large, small and medium enterprises
Sample	Population census (key informants: managers)
Techniques of data collection	Poll
Data collection tool	Questionnaire
Data Analysis Technique	Descriptive statistics
Number of items	Fifty-two (52) (Annexed 1)
Measuring range	Likert scale five (5) response options: 1. Strongly Disagree 2. Disagree 3. Neutral (neither agree nor disagree) 4. Agree 5. Strongly Agree
Reliability	Alpha coefficient of Cronbach, Hernandez and others (2010) (0.99: the instrument is highly reliable, with a high level of internal consistency)
Validity	Expert judgment (Hernandez, Fernandez and Baptista, 2010)
Dimensions	Innovation activities in services (17 items) Types of innovation in services (23 items) Characteristics of innovation in services (12 items)

For the interpretation of the data, a scale of the average of the textile trade sector (Table 4) and of the standard deviation (Table 5) is established. At the same time, for the health sector a similar scale is designed for the analysis of the average (Table 6) and one referring to the standard deviation (Table 7).

Table 4
Analysis of the average of the indicator in the textile trade sector.
Source: Own elaboration (2017).

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Interval [Ii Is>	Categories (presence)
4,09 a 4,87	Very high
3,32 a 4,09	high
2,55 a 3,32	Intermediate
1,77 a 2,55	Low
1,00 a 1,77	Absent

Table 5

Baremo analysis of the standard deviation in the textile trade sector.
Source: Own elaboration (2017).

Interval [Ii Is>	Categories (level of dispersion)
1,33 a 1,67	Very high
1,00 a 1,33	high
0,67 a 1,00	Intermediate
0,33 a 0,67	Low
0,00 a 0,33	Absent

Table 6

Analysis of the average of the indicator in the health sector.
Source: Own elaboration (2017).

Interval [Ii Is>	Categories (presence)
4,20 a 5,00	Very high
3,40 a 4,20	high
2,60 a 3,40	Intermediate
1,80 a 2,60	Low
1,00 a 1,80	Absent

Table 7

Scale analysis of the standard deviation in the health sector.
Source: Own elaboration (2017).

Interval [Ii Is>	Categories (level of dispersion)
1,55 a 1,94	Very high
1,17 a 1,55	high
0,78 a 1,17	Intermediate
0,39 a 0,78	Low
0,00 a 0,39	Absent

3. Results

The results of the innovation dimensions in services are presented below, which form the basis for the construction of the process.

Table 8

Statistical parameters for the innovation activities dimension in services in the textile trade sector.
Source: Own elaboration (2017).

Dimension	Indicator	LIKERT SCALE										Total		X	S
		TDA (5)		DA (4)		N (3)		ED (2)		TED (1)					
		Fa	%	Fa	%	Fa	%	Fa	%	Fa	%	Fa	%		
Activities	Acquisition of knowledge abroad	2	13,33	1	6,67	0	0,00	2	13,33	10	66,67	15	100	1,93	1,48
	Acquisition of machinery, equipment and other capital goods	4	26,67	3	20,00	0	0,00	5	33,33	3	20,00	15	100	3,11	1,58
	Preparations for innovations	0	0,00	2	13,33	1	6,67	3	20,00	9	60,00	15	100	1,82	1,21

	Preparing the market for innovations	1	6,67	5	33,33	0	0,00	4	26,67	5	33,33	15	100	2,57	1,48
	Training for the introduction of innovation	1	6,67	6	40,00	0	0,00	5	33,33	3	20,00	15	100	2,80	1,37
Average		2	10,67	3	22,67	0	1,33	4	25,33	6	40,00	15	100	2,445	1,43

Table 9

Statistical parameters for the dimension of innovation activities in services in the health sector.

Source: Own elaboration (2017).

Dimension	Indicator	LIKERT SCALE										Total		X	S
		TDA (5)		DA (4)		N (3)		ED (2)		TED (1)					
		Fa	%	Fa	%	Fa	%	Fa	%	Fa	%	Fa	%		
Activities	Acquisition of knowledge abroad	2	23,19	0	4,35	0	2,90	1	11,59	5	57,97	9	100	2,33	1,70
	Acquisition of machinery, equipment and other capital goods	4	44,44	2	22,22	0	3,70	1	11,11	2	18,52	9	100	3,56	1,63
	Preparations for innovations	1	11,54	0	0,00	0	0,00	1	11,54	7	76,92	9	100	1,59	1,28
	Preparing the market for innovations	1	11,11	1	5,56	1	5,56	2	16,67	6	61,11	9	100	1,89	1,41
	Training	0	0,00	0	0,00	0	0,00	4	44,44	5	55,56	9	100	1,44	0,53
Average		2	18,06	1	6,43	0	2,43	2	19,07	5	54,02	9	100	2,163	1,31

Tables 8 and 9 present the results of the dimension of innovation activities in services. These

indicate a low achievement of innovative activities in the trade and health sectors. In the same way, a very high dispersion is obtained in the trade sector, and a high dispersion of the health sector. These sectors only carry out some innovation activities such as the acquisition of machinery and training.

First, in the commerce sector, there is an intermediate presence in the acquisition of machinery, equipment and other capital goods, such as land, buildings, tools and information systems; Obtaining a very high dispersion. The sector carries out with high presence the acquisition of land and buildings, associated with innovations in the material support infrastructures. However, there are cases of companies with vertical integration, a segment that stimulates investment in machines, tools and information systems.

On the other hand, the prevalence of innovation in the health sector is associated with the acquisition of machines, equipment and capital goods, evidencing a high presence, however, a very high dispersion is obtained, indicating that the investment in assets for innovation is not a widespread trend in the sector. In contrast with OECD and Eurostat (2005) state that innovation activities involve the acquisition of capital goods, both those that provide improvements in technological performance and those that are necessary for the introduction of products in the market.

Second, in the commerce sector, there is an intermediate presence in training for the introduction of innovation, with a very high dispersion, which shows that training is not a relevant activity in all the companies analyzed. This result disagrees with the (OECD and Eurostat, 2005) theory that training is considered a fundamental part of the innovation process in services and a knowledge management practice.

In contrast, in the health sector the activity with the second order of prevalence is the acquisition of knowledge abroad, with low presence and very high dispersion, this sector acquires knowledge through licenses and links with other organizations. In this regard, Oslo and Eurostat (2005) argue "for the development and introduction of innovations, in addition to R & D, companies can acquire technologies and know-how in a variety of ways and from a multiplicity of sources" (p.107). Added to this, according to Tacsir (2011), innovation in services is based on "new working modalities that do not necessarily rely on R + D activities or expenditures" (p10).

The lower prevalence in commerce is associated with the preparations for the innovations, obtaining a low presence in front of the accomplishment of the internal activities of planning, tests, tests, and configurations in processes and software. A finding that disagrees with OECD and Eurostat (2005), which states that "innovation involves the development of a series of internal activities, which include both the post-development phases and the introduction of it". On the other hand, the lower prevalence in the health sector corresponds to training for the introduction of innovations, which is absent and with low dispersion.

Table 10

Statistical parameters for the types of innovation in services in the trade sector
Source: Own elaboration (2017).

Dimension	Indicator	LIKERT SCALE										Total		X	S
		TDA (5)		DA (4)		N (3)		ED (2)		TED (1)					
		Fa	%	Fa	%	Fa	%	Fa	%	Fa	%	Fa	%		
	New service concepts	4	26,67	3	20,00	1	6,67	3	20,00	4	26,67	15	100	3,02	1,66
	New interfaces with the client	2	13,33	1	6,67	1	6,67	5	33,33	6	40,00	15	100	2,28	1,46

Types	New processes of production of services	0	0,00	1	6,67	0	0,00	5	33,33	9	60,00	15	100	1,62	0,89
	New support infrastructures	3	20,00	3	20,00	2	13,33	2	13,33	5	33,33	15	100	2,77	1,58
	New elements of strategic / operational marketing	2	13,33	2	13,33	2	13,33	3	20,00	6	40,00	15	100	2,58	1,56
Average		2	14,67	2	13,33	1	8,00	4	24,00	6	40,0	15	100	2,45	1,43

Table 11

Statistical parameters for the types of innovation in services in the health sector.
Source: Own elaboration (2017).

Dimension	Indicator	LIKERT SCALE										Total		X	S
		TDA (5)		DA (4)		N (3)		ED (2)		TED (1)		Fa	%		
		Fa	%	Fa	%	Fa	%	Fa	%	Fa	%				
Types	New service concepts	2	22,22	2	22,22	0	0,0	2	22,22	3	33,33	9	100	2,78	1,64
	New interfaces with the client	0	0,00	0	0,00	0	0,0	1	11,54	8	88,46	9	100	1,24	0,73
	New processes of production of services	1	5,45	2	21,82	0	0,0	2	18,18	5	54,55	9	100	1,96	1,36
	New support infrastructures	2	20,0	1	11,43	0	0,0	2	22,86	4	45,71	9	100	2,39	1,61
	New elements of strategic / operational marketing	0	0,00	1	11,11	0	0,0	1	11,11	7	77,78	9	100	1,56	1,09
Average		1	9,54	1	13,32	0	0,0	2	17,18	5	59,97	9	100	1,98	1,28

Tables 10 and 11 present the results of the types dimension of innovation in services. These show a low presence of the dimension in the two sectors; A very high dispersion is obtained in

the trade sector, and a high dispersion in the health sector. First, in both sectors, the prevalence in the types of innovation corresponds to the new concepts of service, obtaining an intermediate presence and a very high dispersion. The trade sector innovates through additional services, such as fashion and craft consultancies. This result supports the fact that "the multiplicity of aspects to be covered in order to solve a real problem makes it more appropriate to speak of an offer of aggregate services than of a single service" (Ayneto, 2010, p.3).

Second, in the commerce sector, there is evidence of an intermediate presence of new support infrastructures, with a very high dispersion. Innovations in the material infrastructures for the provision of the service through changes in the commercial premises, and in the organizational infrastructures are evidenced, through strategic alliances.

In the health sector, the typology with the second order of prevalence corresponds to the new support infrastructures, with low presence and very high dispersion. This result disagrees with Ayneto (2010) establishes a new infrastructure contributes to offer a better service to the clients or to differentiate themselves from the competitors.

The lower level of prevalence in commerce corresponds to the new processes of production of services, typology which is absent, with an intermediate dispersion. This differs from Ayneto (2010) who indicates that the introduction of innovations in the processes of service delivery introduces significant business advantages. In contrast, the lower level of prevalence in the health sector is associated with new interfaces with the client, a typology that is absent and with low dispersion. In contrast, Ayneto (2010) states that a very relevant dimension of the provision of a service is the interaction with the client.

Table 12

Statistical parameters for the characteristic dimension of innovation in services

Source: Own elaboration (2017).

Dimension	Indicator	LIKERT SCALE										Total		X	S
		TDA (5)		DA (4)		N (3)		ED (2)		TED (1)					
		Fa	%	Fa	%	Fa	%	Fa	%	Fa	%	Fa	%		
characteristics	Formalization and systematization dependent on economic activity	0	0,00	0	0,00	1	6,67	1	6,67	13	86,67	15	100	1,23	0,68
	Difficulty in differentiating between product and process innovations	10	66,67	5	33,33	0	0,00	0	0,00	0	0,00	15	100	4,67	0,49
	Organizational Innovations Technological Vs.	7	46,67	8	53,33	0	0,00	0	0,00	0	0,00	15	100	4,47	0,52
	Difficulty in protecting	12	80,00	3	20,00	0	0,00	0	0,00	0	0,00	15	100	4,80	0,41

	concentrated in the market	3	33,33	2	22,22	0	0,00	2	22,22	2	22,22	9	100	2,75	1,66
Average		2	26,85	1	12,04	0	1,85	2	21,30	3	37,96	9	100	3,28	1,14

Tables 12 and 13 present the results of the characteristic dimension of innovation in services. In the commerce sector, a high presence of the dimension was obtained, with an intermediate dispersion. On the other hand, in the health one, an intermediate presence and dispersion is evidenced.

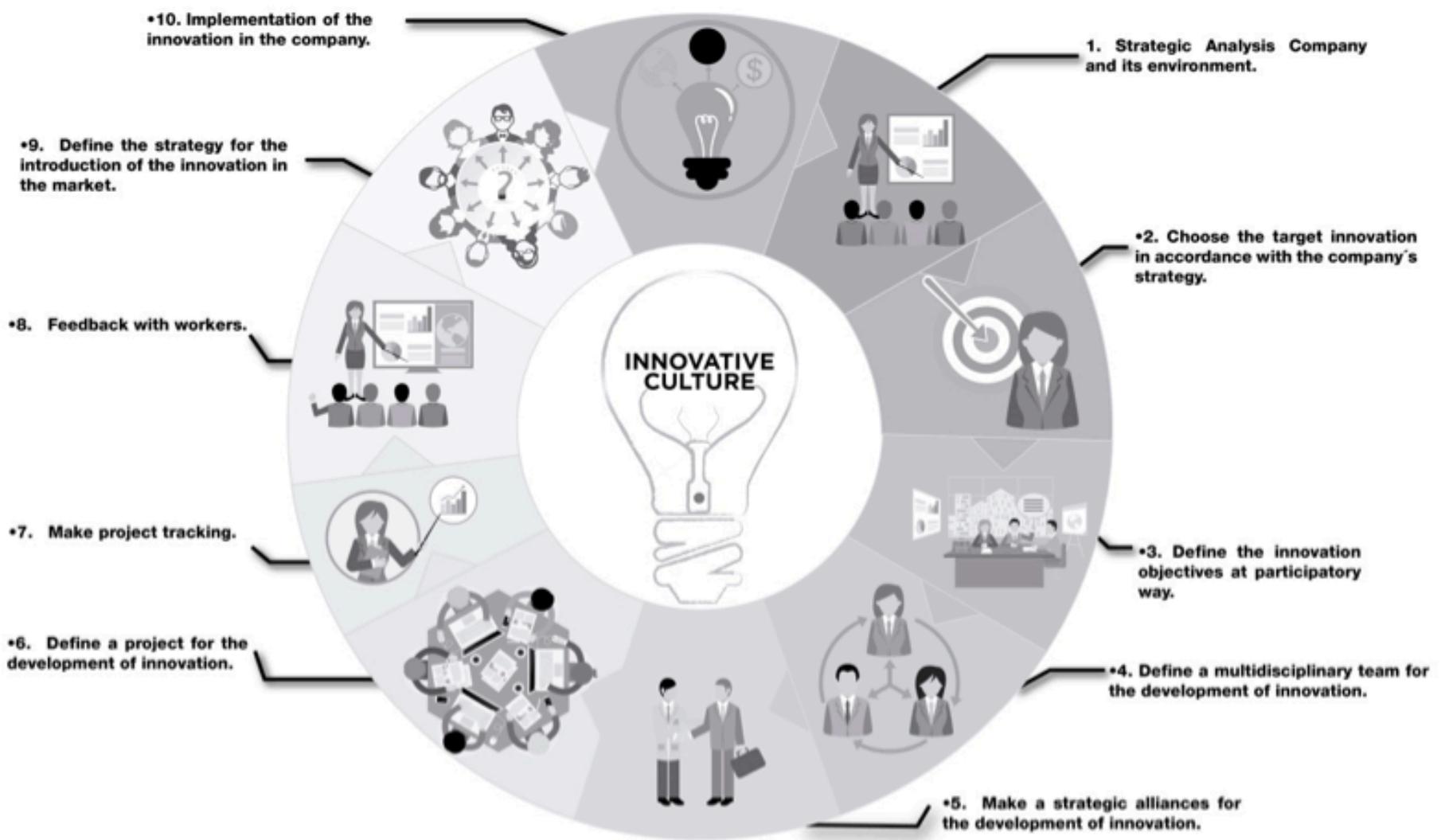
First, in both sectors the prevalent characteristic is the difficulty of protecting innovations, with a very high presence. In the commerce sector a low dispersion is evident, whereas in the health sector the dispersion is absent. Results indicate that in services, it is difficult to protect innovations and therefore, are easily imitated by other companies. In the same sense, Elche (2005) states that a problem of services is the difficulty to protect their innovations.

Second, the difficulty in differentiating between product and process innovations as a characteristic of innovation, with a low dispersion, is very highly present in trade, which shows that in this sector changes in Activities performed for their provision; A result that supports what was put forward by Evangelista and Sirilli (1998); OECD and Eurostat (2005), who associate this characteristic with the simultaneity between production and consumption.

On the other hand, in the health sector the characteristic with the second order of prevalence corresponds to the organizational innovations vs technological, with high presence and intermediate dispersion. This result coincides with Elche (2005), who concludes that in services, organizational innovation predominates due to the relevance of organizational factors.

Finally, in both sectors the lower prevalence corresponds to the lack of formalization and systematization of the innovative system. In this regard, Sundbo and Gallouj (2000) argue that there is a system of innovation in services, however, this is very weak and has not been consolidated; Validated conclusion Elche (2007) when affirming that "there is a system of innovation in services" (p.9). The COTEC Foundation (2004) also concludes that service companies do not have a structured innovation process, with the exception of financial and technology-based ones. The above results describe the situation of innovation in services in the sectors analyzed. The proposed innovation process is shown below (Figure 1).

Figure 1
 Innovation process in services
 Source: Own elaboration (2017).



3.1. Innovation process in services

According to the conclusions of Barras (1986), Gadrey (1991), Gallouj and Weinstein (1997), Boden and Miles (2000), Metcalfe and Miles (2000), service innovation contributes significantly to the increase of efficiency and system. The following describes the activities of the process, inspired by the theoretical analysis and its implications in two economic sectors:

- A. Analysis: consists of carrying out a strategic analysis of the company and its environment, considering the following aspects: regulatory frameworks, trends, opportunities, competition, knowledge management tools and information of employees and customers.
- B. Focus: is to select the focus of innovation according to business strategy. Innovation can be focused on: the services offered, the interfaces with the clients, the processes for the provision of the service, or the support infrastructures of the services.
- C. Objectives: corresponds to the definition of the objectives of the innovation participatory. This promotes the collective nature of the process.
- D. Equipment: is associated with the definition of a multidisciplinary team to innovate; Through a committee led by employees from different areas. In addition, resources should be allocated to the innovative process, and incentives should be established to encourage employee engagement.
- E. Partnerships: Innovation requires the establishment of consolidated strategic alliances, in order to enrich the innovative process, share risks and reduce costs.
- F. Project: corresponds to the definition of a project for the development of innovation, in order to delimit the scope of the project, to plan the activities and to quantify the costs.
- G. Follow-up: Follow-up to projects, allows the detection of opportunities for improvement and deviations in the planning of innovation.
- H. Feedback: it consists of feedback the lessons learned from the innovative project with the collaborators, capturing the value of the process and strengthening learning and organizational knowledge.

I. Deployment: consists of defining the strategy of introduction of innovation in the market, considering aspects such as advertising, pilot testing and market testing according to the target segment.

J. Implementation: The implementation of the innovation involves configurations in the processes, and training of the personnel, guaranteeing the satisfaction of the client, the generation of value and the sustainability of the business strategy.

The proposed process is supported in the generation of an innovative culture as a mechanism to dynamize the business activity.

4. Conclusions

The textile and health sectors of Valledupar have a low dynamism in innovation activities. In the commerce sector these are associated with the acquisition of machines, equipment and capital goods, such as land, tools and information systems; As well as training and market preparation to innovate. However, there is a low acquisition of knowledge, made only by brands and technical services, rejecting R & D. Which agrees with Salter and Tether (2006) who assert that "one reason why services are thought to lag behind innovation is that official statistics report that they do relatively little formal R & D" (p.18). In addition, trade is characterized by the absence of internal planning for innovation.

In contrast, in the health sector, innovation activities are focused on the acquisition of machines, buildings and capital goods (Pertuz Peralta, Perez Orozco, & Bermudez Rojo, 2016)

. In addition, knowledge is acquired from abroad and the market is prepared to innovate, a result that supports Dursta, Mentionb and Poutanenc (2014) who state that "due to the multidimensional nature of service innovation, there are several ways in which That the process of service innovation can occur "(p.66). Likewise, the sector is characterized by the absence of training activities for the introduction of innovations, and of preparations for innovation.

In another vein, there is a low implementation of types of innovation. In both sectors the innovations are associated with new concepts of service, through additional services and with changes in material support infrastructures. In this regard, Wu (2014) argues that service companies can achieve a sustainable competitive advantage only by grouping novelties in goods with value-added services, which increase customer loyalty and retention. In a specific way, in the trade sector, innovations are evidenced in the elements of operational strategic marketing, in which Aas and Pedersen (2011); Yang, Yang and Chen (2014) argue that service innovation can help organizations differentiate themselves from their competitors; As well as increased customer loyalty (Wu, 2014).

On the other hand, the health sector does not innovate in the contact interfaces with the client and in the elements of strategic / operational marketing, a finding that disagrees with Ruiz, Ortega, Haro and Roldán (2014) who conclude that " The management of customer relations influences the achievement of a level of innovation superior to that of competition "(p.283). However, in the health sector there is a low implementation of innovations in the processes for the provision of the service.

However, the characteristics of innovation in services referenced in the literature are evidenced in the trade sector. There is a prevailing difficulty in protecting innovations, and hence the ability to be imitated by other companies; This result supports Elche, González, Martínez and Ruiz (2009) who argue that, due to the limitations of protection, "many service companies use informal methods based on strategic practices that are included within the company's own strategy" (P.8). In addition, the sector is characterized by the difficulty of differentiating between product and process innovations, the incremental and flexible nature and the predominance of organizational innovations.

Also, the innovations in the trade sector originate in the market, a result that supports Ruiz et al. (2014) who conclude that "customer expectations and needs for the design and development of new services are significant for service companies with a higher level of innovation than

competitors" (p.284). In the same way, the innovation process lacks formalization, systematization and collective character. This is in line with Den Hertog, Gallouj and Segers (2011), when it states that service innovation is less formalized, less explicitly managed and with less budget than in innovative manufacturing companies.

Otherwise, the health sector prevails as characteristics of the difficulty of protection, organizational innovations and the difficulty to differentiate innovations in product and process. However, the origin concentrated in the market, as well as the incremental and flexible nature do not correspond to generalized characteristics of the sector, it also lacks formalization and systematization of the innovative system.

Finally, the research generated an innovation process that provides a framework for SMEs to innovate in services and improve their productivity. This process is a reference to facilitate the development of projects.

Bibliographic references

- Aas, T. H. & Pedersen, P. E., 2011. The impact of service innovation on firm-level financial performance. *The Service Industries Journal*, Volumen 31.
- Ayneto, X., 2010. La practica de la innovacion en las empresas de servicios. pp. 1-7.
- Barras, R., 1986. Towards a theory of innovation in services: Research Policy.
- Bilderbeek, R., Hertog, P., Marklund, G. & Miles, I., 1998. "Services in innovation: Knowledge intensive business services (KIBS) as co-producers of innovation". SI4S Synthesis Paper, SI4S-S3-98, August: STEP Group (Studies in Technology, Innovation and Economic Policy).
- Boden, M. & Miles, I., 2000. *Services and the Knowledge-Based Economy*. London: s.n.
- Den Hertog, P., Gallouj, F. & Segers, J., 2011. Measuring innovation in a 'low-tech' service industry: The case of the Dutch hospitality industry. *The Service Industries Journal*, Issue 31, p. 1429-1449.
- Dursta, S., Mentionb, A.-L. & Poutanenc, P., 2014. Service innovation and its impact: What do we know about?. *Investigaciones Europeas de Dirección y Economía de la Empresa*, 13 Diciembre, Issue 21, p. 66.
- Elche, D., González, Á., Martínez, Á. & Ruiz, P., 2009. *Factores determinantes de la innovación en servicios estandarizados y personalizados*, Cuenca: Seminario permanente de ciencias sociales.
- Elche, M. D., 2005. *La innovación en los servicios: Analisis de la relacion entre el tipo de servicios-patron de innovacion y su incidencia en el resultado*, Cuenca: Ediciones de la Universidad de Castilla-La Mancha.
- Elche, M. D., 2007. Identificación de los patrones de innovación dominantes en los servicios.
- Evangelista & Sirilli, 1998. *Innovation in the service sector. Results from the Italian statistical survey*, s.l.: DEA Paper Series.
- Fundación COTEC para la Innovación Tecnológica, 2004. *INFORMES SOBRE EL SISTEMA ESPAÑOL DE INNOVACIÓN: ANÁLISIS DEL PROCESO DE INNOVACIÓN EN LAS EMPRESAS DE SERVICIOS*, Madrid, España: ISBN: 84-95336-41-3. Depósito Legal: M. 35.411-2004.
- Gadrey, J., 1991. Le service n'est pas un produit: quelques implications pour l'analyse économique et pour la gestion. *Politiques et Management Public*, Volumen 9 N° 1.
- Gallouj, F. & Weinstein, O., 1997. *Innovation in services*. s.l.:Research Policy, nº 26 (4-5).
- Garrido, C., 2009. *La innovación en los servicios: aspectos generales y los casos de los servicios de telecomunicaciones, turismo y bancario*, Santiago de Chile: Comisión Económica para América Latina y el Caribe (CEPAL).
- Gomez, M., Zurbano, M. & Etxebarria, G., 2009. Naturaleza y dinámica de la innovación en servicios notas para el caso español. *Revista Economía Industrial. Ejemplar dedicado a: Los servicios a empresas : situación y perspectivas*.

- Hernandez S, R., Fernandez, C. & Baptista, P., 2010. *Metodología de la investigación*. Mexico. D.F: Mc Graw Hill.
- ISEA S.Coop & Ministerio de Industria, Turismo y Comercio de España, 2008. *Análisis prospectivo sobre modelos de Innovacion en el sector servicios*, s.l.: s.n.
- küpper, C., 2001. *Service Innovation. A review of the state of the art*, University of Munich.: Institute for Innovation Research and Technology Management.
- Metcalfe, S. & Miles, I., 2000. *Innovation Systems in the Service Economy. Measurement and Case Study Analysis*. Boston: Kluwer.
- OCDE, 2003. *Manual de Frascati: Propuesta de Norma Práctica para Encuestas de Investigación y Desarrollo Experimental*, Paris: FECYT: Fundación Española Ciencia y Tecnología.
- OECD & Eurostat, 2005. *Manual de Oslo, Guía para la recogida e interpretación de datos sobre Innovación*, European Communities: Grupo Tragsa.
- Pertuz Peralta, V. P., Perez Orozco, A. B., & Bermudez Rojo, M. d. (2016). Characteristics of innovation in services at companies inside the textile sector and características de la innovación en servicios en compañías del sector textil. *International Journal of Applied Business and Economic Research, IJABER*, 14(14), 545-558.
- Ruiz, A., Ortega, T., Haro, C. & Roldán, M., 2014. El proceso de co-creación de valor y su impacto en la estrategia de innovación en empresas de servicios. *Intangible Capital*.
- Salter, A. & Tether, B. S., 2006. Innovation in services: Through the looking glass of innovation studies. *Research's Grand Challenge on Service Science*, 7 Abril.
- Sundbo, 1994. *Modulization of service production*, s.l.: Scandinavian Journal of Management.
- Sundbo, J. & Gallouj, F., 1998. "Innovation in services". s.l.:STEP Group (Studies in Technology, Innovation and Economic Policy).
- Sundbo, J. & Gallouj, F., 2000. Innovation as a loosely coupled system in services: *International Journal of Services Technology and Management*.
- Suñea, A., Bravo, E., Mundeta, J. & Herrera, L., 2012. Buenas prácticas de innovación, un estudio exploratorio de empresas tecnológicas en el sector audiovisual español. *Investigaciones europeas de Dirección y Economía de la empresa*, Volumen 18.
- Tacsir, E., 2011. *Innovación en los servicios: El difícil caso de América Latina y el Caribe. Presentado en el V Foro de Competitividad de las Américas para el Banco Interamericano de Desarrollo y el Compete Caribbean.*, Santo Domingo.: s.n.
- Tidd, J., 2003. *Service Innovation: Organizational Responses to Technological Opportunities and Market Imperatives*, London: Imperial College Press.
- Wu, C.-W., 2014. The study of service innovation for digiservice on loyalty. *Journal of Business Research*, Mayo, Volumen 67, p. 819–824.
- Yang, Y.-F., Yang, L. W. & Chen, Y.-S., 2014. Effects of service innovation on financial performance of small audit firms in Taiwan. *The International Journal of Business and Finance Research*, Volumen 8, p. 87–99.

Annexes

Annexed 1

Instrument of data collection

ITEMS
In the company where you work:
INNOVATION ACTIVITIES IN SERVICES

1. Acquisition of knowledge abroad					
1. It has a department dedicated to the accomplishment of creative work regarding the products offered by the company.	1	2	3	4	5
2. Agreements are made with other companies to explore the possibility of creating and implementing new products or improving existing ones.	1	2	3	4	5
3. It has led the construction of prototypes of products or small-scale process plants for the creation of a new product or changes in existing ones.	1	2	3	4	5
4. Rights have been purchased to exploit a product developed by another company in order to implement changes in the products offered by the company.	1	2	3	4	5
5. Agreements have been made with other companies to acquire technology necessary for the implementation of new products or to make changes in them.	1	2	3	4	5
6. Participation in processes of dissemination of some useful knowledge for the implementation of new products or changes in existing ones.	1	2	3	4	5
7. Marks corresponding to other companies have been acquired for the implementation of new products or to make changes in them.	1	2	3	4	5
8. Technical services have been contracted to implement new products or to make changes to them.	1	2	3	4	5
2. Acquisition of machinery, equipment and other capital goods					
9. Land or buildings have been allocated directly to the implementation of new products or to the making of changes in them.	1	2	3	4	5
10. Machines, tools or equipment intended for the implementation of new products or the making of changes in them have been acquired.	1	2	3	4	5
11. Information systems aimed directly at the implementation of new products or the making of changes in them have been acquired.	1	2	3	4	5
3. Preparations for product innovations					
12. The objectives and activities necessary to implement or change products are defined internally.	1	2	3	4	5
13. Tests and tests have been carried out to evaluate the performance of the changes made to the products on offer.	1	2	3	4	5
14. Configurations have been made in the processes or in the computer applications after the implementation of improvements or significant changes in the products.	1	2	3	4	5
4. Market preparation for product innovations					
15. Studies have been conducted to determine market preferences for new or					

significantly improved products.	1	2	3	4	5
16. There have been publicity (fairs, events) around the launch of new or significantly modified products.	1	2	3	4	5
5. Training for the introduction of innovation					
1. 17. Specific training activities have been undertaken when a new product is implemented or changes are made.	1	2	3	4	5
TYPES OF INNOVATION IN SERVICES					
1. New concepts of service					
18. New services or improvements have been created by the recombination of existing capacities.	1	2	3	4	5
19. Additional services have been offered to increase the value of central services.	1	2	3	4	5
20. There have been developments or changes in the business model associated with the provision of the service.	1	2	3	4	5
21. They have concentrated on knowing clearly the characteristics of the services offered by the competition.	1	2	3	4	5
2. New interfaces with the client					
22. Changes have been made in the waiting times of the customer to receive the service or to give a response.	1	2	3	4	5
23. Changes have been made in the duration of the service	1	2	3	4	5
24. Added services have been added to make waiting for the client more enjoyable.	1	2	3	4	5
25. Changes have been made in the treatment of customer contact staff	1	2	3	4	5
26. Changes have been made in the usability, reliability and / or security of the digital interfaces with which the customer interacts.	1	2	3	4	5
27. Updates or changes have been made in how you contact and communicate with current and potential customers to know their characteristics and needs.					
3. New processes of production of services					
28. Changes have been implemented to achieve reduction in product cost.	1	2	3	4	5
29. Changes have been implemented to increase the quality and reliability of the service offered.	1	2	3	4	5

30. Modifications have been made in the activities performed for the provision of the service.	1	2	3	4	5
31. Changes have been made in the management of personnel involved in the service delivery process.	1	2	3	4	5
32. Changes or improvements have been made in the way the product offered or distributed by the organization is supplied or distributed.	1	2	3	4	5
33. Changes have been implemented to favor the participation of the customer in the production process of the service	1	2	3	4	5
4. New support infrastructures					
34. Changes have been made in technological infrastructures (ICT) for the provision of services.	1	2	3	4	5
35. Physical infrastructures associated with the physical elements (premises, equipment) involved in the provision of the service have been implemented.	1	2	3	4	5
36. Tools have been implemented that allow better knowledge management (databases, digital libraries, good practices) for the provision of the service.	1	2	3	4	5
37. Changes or innovations have been implemented in the organization to work more efficiently, internally or externally (create strategic alliances).	1	2	3	4	5
5. New strategic / operational marketing elements					
38. The group of customers to whom the product is directed have made changes or changes.	1	2	3	4	5
39. Updates or changes related to the customer's recall regarding the brand or the company's product have been implemented.	1	2	3	4	5
40. Modifications have been made to the product price.	1	2	3	4	5
CHARACTERISTICS OF INNOVATION IN SERVICES					
1. Formalization and systematization dependent on economic activity					
41. There is a group of people who work organized and formally in the implementation of new products or in the making of changes in them.	1	2	3	4	5
42. The realization of innovations or changes in the products arise from the joint work of all the collaborators of the company	1	2	3	4	5
2. Difficulty in differentiating between product and process innovations					
43. The realization of changes in the offered service, necessarily implies to change the activities realized for the provision of the same.	1	2	3	4	5

3. Organizational innovations vs. technological	1	2	3	4	5
44. Most changes relate to the internal structure and ways of relating to the organization's stakeholders	1	2	3	4	5
4. Difficulty in protecting innovations					
45. He finds it difficult to protect the new products offered, or the modifications made in them.	1	2	3	4	5
46. The new products offered or the changes in them, are easily imitated by other companies in the sector.	1	2	3	4	5
5. Incremental and flexible nature					
47. The innovations or modifications implemented in the products offered generally consist of small changes that do not modify the essential function of the same.	1	2	3	4	5
48. The implementation of new products or changes in existing ones responds to a flexible process.	1	2	3	4	5
6. Origin concentrated in the market					
49. The implementation of innovations or changes in the products offered mainly responds to the needs of the market.	1	2	3	4	5
50. The most important source for implementing innovations or changes in the products offered are its customers.	1	2	3	4	5
51. The most important source for implementing innovations or changes in the products offered are its collaborators.	1	2	3	4	5
52. The time to develop new products or to make changes in them is relatively short compared to the industrial sector.	1	2	3	4	5

1. Strongly Disagree
2. Disagree
3. Neutral (neither agree nor disagree)
4. Agree
5. Strongly Agree

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