Predictors of performance: the relation of innovative dynamic capability and the services differentiation in retail

Preditores de desempenho: a relação entre a capacidade dinâmica inovadora e a diferenciação de serviços no retalho

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Abstract

This scientific investigation studied the precedents of organizational performance, researching the relation between Innovative Capabilities and its relationship with Performance, and this relation with the mediation of Services Differentiation. For the qualitative methodology, aiming to identify the control items of the Service Differentiation measurement scale in the

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supermarket context. For the quantitative stage, the techniques of multivariate data analysis were used, such as Exploratory Factor Analysis, Confirmatory Factor Analysis, and Structural Equation Modeling, to assess the proposed model. The results found regarding the hypothesis tests demonstrated that the 1º hypothesis - Innovative capabilities have a positive relation with Services Differentiation was supported. 2º Hypothesis - Differentiation has a positive and significant relationship with performance, and it is therefore supported. 3º Hypothesis - Service Differentiation mediates the relationship between Innovative Capability and Performance - was supported.

Keywords: Innovative Capability. Services Differentiation. Santa Catarina Supermarkets.

Resumo

Esta investigação científica estudou os precedentes do desempenho organizacional, investigando a relação entre as Capacidades Inovadoras e a sua relação com o Desempenho, e esta relação com a mediação da Diferenciação de Serviços. Para a metodologia qualitativa, visando identificar os itens de controlo da escala de medição da Diferenciação de Serviços no contexto dos supermercados. Para a fase quantitativa, foram utilizadas as técnicas de análise de dados multivariados, tais como Análise Exploratória de Factores, Análise Confirmativa de Factores, e Modelação de Equações Estruturais, para avaliar o modelo proposto. Os resultados encontrados relativamente aos testes de hipóteses demonstraram que a 1º hipótese - Capacidades inovadoras têm uma relação positiva com a Diferenciação de Serviços foi apoiada. 2º Hipótese - A Diferenciação tem uma relação positiva e significativa com o desempenho, pelo que é suportada. 3º Hipótese - A Diferenciação de Serviços medeia a relação entre a Capacidade Inovadora e o Desempenho - foi apoiada.

Palavras-chave: Capacidade Inovadora. Diferenciação de Serviços. Supermercados de Santa Catarina.

Introduction

The Brazilian supermarket sector represents about 5.2% of the Brazilian GDP (Gross Domestic Product), considering its revenues in 2019 (ABRAS — Brazilian Supermarket Association, 2020). The supermarket sector reported revenues of 378.3 billion in Brazilian currency in 2019, which corresponds to a nominal growth of 6.4% in comparison with 2018, according to the ABRAS/SuperHiper Ranking. This scenario, besides the sector's participation in the Brazilian GDP, shows to the society its impact on the economy and in the

income and employment generation, therefore, its direct and indirect participation. The reason for it is the advance in a complex environment of the sector's competitiveness, which is in constant change with supermarket sales has shown growth in recent years.

The value-added stages to the services split into a) recognizing b) interpreting and, c) implementing the strategies, coordinating the organization to the regarded changes stages that get assigned to the managers' capabilities who seek to keep the competitive benefits of their organizations (Castro, Silveira-Martins, Miura, & Abreu, 2020).

In this way, the challenge of differentiation maximizes itself for service companies to differentiate their offers from those offered by others. In other words, the service depends on previous experience or consumer confidence. The finding of services and service differentiation through the service compound, developed by Booms and Bitner (1981), and validated in Zeithaml and Bitner (2003) research and studies carried in Brazil by Castro et al. (2020). To sum up, the delivery of service differentiation, because of its characteristics, can be given by People, Process and Physical Environment (or a piece of noticeable evidence) in the studied sector — store environment.

Such organizations are embedded in a munificent, complex, and dynamic environment. In the past, one or more resources could give a competitive advantage. However, because of the more dynamic environment, the organizations that can predict the threats and opportunities of markets and better adapt their resources to this context will achieve a better performance than their competitors. (Herrmann & Becker, 2016).

In the organizational strategy research area, the studies of dynamic capabilities, particularly the Innovative Capability, as stated by Escobar (2012), Cabral, Coelho, Coelho and Costa (2015), and Vicente, Abrantes, and Teixeira (2015). – This is a field that still under-researched and in seek of consolidation and with no used model that can simplify in various scenarios.

So, it is suggested that the Innovative Capabilities and the elements of Services Differentiation allow the retail businesses to compete and develop their competitive advantage. Therefore, enabling them to achieve superior performance (Castro, Gonçalo, & Rossetto, 2014).

Consequently, the company that manages to employ its stored knowledge and developed skills intending to become up to date may enhance its performance. In this way, this study contributes to the field of business strategy applied in supermarkets in the state of Santa Catarina – Brazil once the variables of Services Differentiation were identified and the development of a very own scale and its relation to the performance of supermarkets to assist in new theoretical models. The study was conducted of the mediation of the Services

Differentiation, into the relation Innovative Capability and Performance, sought to address gaps in the theory that have not yet been evaluated.

Therefore, the research seeks a strategic model that enables better performance, especially for supermarkets. This pattern is structured on the assumption that the link between the Innovative Capability and Services Differentiation may produce a higher performance for this sector of the economy. Considering these questions, the following question that had conducted in this research is: What is the link between the Innovative Capabilities, Services Differentiation and Performance in supermarkets in the state of Santa Catarina – BR?

Theoretical Frameworks

2.1 Innovative Capability

The term innovation is conceptualized as the process that delineates what is going to be new, which has the sense of changing, modernizing, restoring, and creating, focusing on the acceptance and proper use by society (Farah, 1999, Costa & Nunez, 2016).

When it comes to the innovation, it refers to the economic development which is under control for manufacturing through implemented innovation. Whether by the instrumentalization of a process due to the eager dynamics of the society for a new task or disruptive technologies that can overcome the longstanding technologies and no longer so efficient, in which it is identified and named as creative or creative destruction (Schumpeter, 1997, Theis & Schreiber, 2017).

Lacerda and Machado (2019) state what they call as factors that enabled innovation in the market at the bottom of the pyramid: i) Organizational Environment, ii) Human Element, iii) Resources, and iv) Managing Aspects. And in that way asserting, that all groups want innovative products and services.

As time goes on, Innovative Capability is translated as the process of developing new items and also the development of processes. The study approaches the Innovative Capability by considering some sectoral levels such as geographical region, company sizes, as well as at their project levels. In competitiveness, the product life cycles are becoming shorter and shorter, increasing the value added by the research and development of products and the ease of replicating innovative organizations as a way to ensure competitiveness and survivability in the medium and long term (Chadha, 2009, Escobar, 2012, Wu & Sivalogathasan, 2013).

Therefore, as companies with innovative capabilities can obtain a piece of knowledge that is not yet available in their internal environment and may enhance the internal learning

process, which is the basis of innovation that peaks in the best global performance (Yam, Lo, Tang, & Lau, 2010, Golovko & Valentini, 2011).

Yesil, Koska and Büyükbese (2013) explored the correlation between the Innovative Capability and the Innovative Performance of companies. Based on Liao, Wu, Hu, and Tsuei (2009), the research approached the possible success rate of the Innovative Capability at achieving global improvement of its effectiveness.

The model proposed by Liao, Fei, and Chen (2007) presents data that shows innovation, is often described as in conditions of changes, in other words, when an organization offers the world both innovative products and services and also the way they develop and offer their new brand. Recapitulating the classifications of Innovative Capability in previous studies, this study classifies: a) the technical aspects of innovation and, b) the aspects of innovation management (Figure 1).
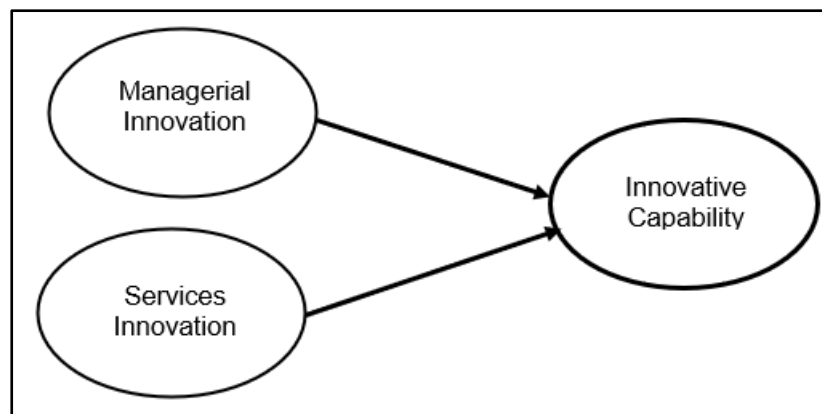
Figure 1: Innovative Capacity Model by Liao, Fei and Chen (2007)
Source: Liao, Fei, & Chen (2007).

The Liao, Fei, and Chen (2007) scale have been assessed and validated by several researchers, including Escobar (2012), Wu and Sivalogathasan (2013), Yesil, Koska, and Büyükbese (2013). As a result, Innovative Capability accepted as a concept is the ability to keep transforming knowledge and ideas into new products and techniques. It is the ability to organize two paradigms of operation, resource management, and performance, which depends on a diversity of reconfiguration emphasizing the Services Differentiation.

2.2 Services Differentiation

There is an abundant scientific literature on the Importance of Service Differentiation for the strategy of organizations brings out the dialogue on how to measure of Differentiation in Services (Castro, Gonçalo, & Rossetto, 2014, Castro et al, 2020).

Differentiation can be made through the service quality. As a result of this understanding, the service sector can concentrate its efforts on considering the requirements of consumers. The services set that meet the needs and expectations of customers/clients of services (Lovelock, 1983, Parassuraman, Zeithaml, & Berry, 1985, 1988, 1991, Bitner, Booms, & Tetreault, 1990, Cronin & Taylor, 1992, Grönroos, 1998, 2003).

Highlights the importance of the tripod developed by the authors, in which these three dimensions are responsible for the quality of the service provided. Validating the theory of Booms and Bitner (1981), Zeithaml and Bitner (2003) assert that the traditional "4 Ps" of the marketing mix, Product, Price, Place and Promotion (communication mix), are not enough for the service sector, i.e., to enable the Services Differentiation. The expanded service mix is presented in Table 1.

People	Physical Evidence (Environment)	Process
Staff	Facilities Design	Itinerary of activities
Recruitment	Equipment	Standardization
Training	Signaling	Customization
Motivation	Staff Clothing	Customer Evolvement
Rewards	Other Tangible	Number of steps
Teamwork	Reports	Simple
Customers	Calling Card	Complex
Education	Statements	
Training	Guarantee	

Table 1: Expanded Composed Services
Source: Adapted from Zeithaml & Bitner (2003).

Authors such as Lehtinen and Lehtinen (1991), Watson, Pitt and Kavan (1998), Nielsen and Host (2000), Sheppard (2003), Lee (2005), Ibáñez, Hartmann and Calvo (2006), Castro, Gonçalo and Rossetto (2014), Castro et al. (2020) related that the three dimensions of service differentiation are: i) physical quality (store environment), ii) interactive quality and communication (people), and iii) process quality, related to the companies' superior performance.

In the retail sector, in particular the supermarkets, often one of the ways to stand out from the competition is through customer service and services. In other words, as well as developing an own good relationship between the retailer and its consumer this aspect is

fundamental to differentiate an organization from its competitors (Zeithaml, Parasuraman, & Berry, 1990, Brown & Lam, 2008, Dunne, Lusch, & Carver, 2011).

In supermarkets, this image is perceived by observing the market position when making decisions and defining the following points - a) Which existing segments are available? b) In which sector there is the possibility of applying the study? c) the way to understand this possibility is not by selling a product but by selling the company, and d) The store itself becomes the brand. In this way, the personality of the retail business is looking for a clear setting as a way to contribute to the success of the retail company (Ries & Trout, 2002).

Among the different service levels, Kunz (1998) highlights many types of self-service, which end up being differential strategies. In the case of supermarkets, it is different when it comes to the opening hours, checkouts, packaging, home deliveries, employee role, in-store shopping process, exchanges and returns, employee training, and special services.

After it comes to differentiation and quality of services, they state that during the process, extreme attention is fundamental because these two features that are necessary for the Services Differentiation. In this way, increases the possibility of achieving advantages over competitors. During the processes, the consumers test their expectations on the service, aiming the desired service by contrasting it with the provided services of the competitors. Standardization and normalization into the services, execution pattern, process time, process effectiveness, and service design planning are taken as worth adding elements for service differentiation. In this way, the process is understood as a differential in service provision (Chang, 2008, Barrutia, Charterina, & Gilsanz, 2009).

Dunne, Lusch and Carver (2011), Parente and Barki (2014) highlight the process of a marketing information system in order to better manage performance indicators of retail business as one of the critical factors of differentiation and retail business success. They highlight the automation in retail information systems, bar code electronic technology, commercial automation, and radiofrequency electronic technology to illustrate differentiation factors of the retail offer in their processes.

The environment, besides providing the execution of the services makes the service evident in the eyes of the end user, who may realize the differentiation among their competitors (Watson, Pitt, & Kavan, 1998). Therefore, the clarity dimension (store environment) is clearly identified by customers, and is preceded by the empathy dimension, being in that way the environment is the main dimension used by consumers to differentiate their service providers (Llosa, Chandon, & Orsingher, 1998). In Table 2, the internal elements and functions in the store atmosphere are presented.

Stimulating the 5 stars	Facilitating the communication/purchasing process	Providing comfort
Colors	Visual Communication	Width of corridoes
Lighting set	Pricing	Floors
Perfumes and Smells	Merchandise	Temperature
Walls	Exhibition equipment	Vertical transport
Appeal to tact	Technology	Providers
Sound	Staff and Employees	Cashiers location
Appeal to the taste		Maintenance and cleaning

Table 2: Elements that influence the internal presentation of the store
Source: Parente & Barki (2014, p. 284).

Consequently, the concept for Service Differentiation is assumed as the act of presenting a range of aspects that creates better expectations and which convey significant aspects to facilitate how the consumer will notice to differentiate the service provided by a company from the services provided by the competitors with greater added value.

From the theoretical bases presented, three hypotheses were formulated.

H1: Innovative Capabilities has a positive relation with service differentiation.

H2: Services Differentiation has a positive relation with Performance.

H3: Services Differentiationguide the relation between Innovative Capacities and Performance.

Based on the theoretical scenario the following conceptual model was developed. Figure 2 graphically presents the statistically tested relations by the proposed methodology.
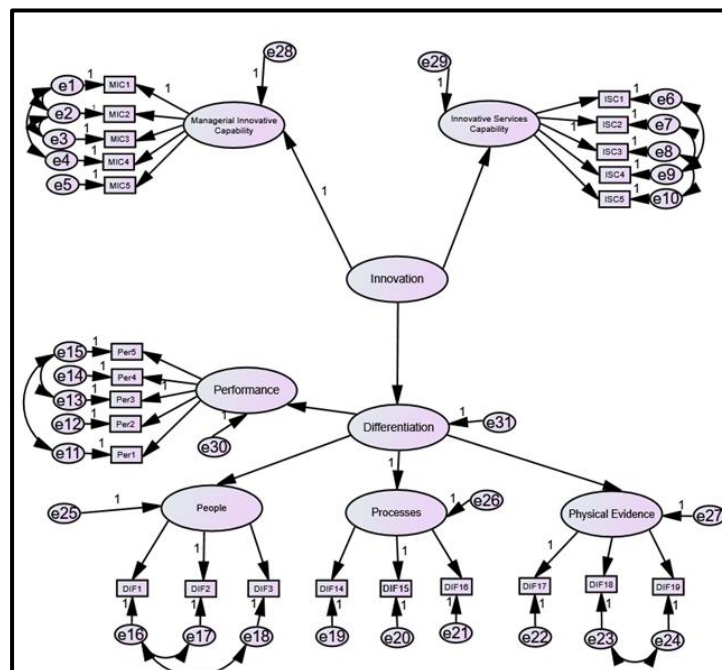
Figure 2: Initial Concept Model
SOURCE: ELABORATED BY THE AUTHOR (2017).

Methodology

According to Creswell (2010), research strategies in qualitative approach models provide specific directions and different procedures in a research project. In the qualitative approach, there have been interviews with specialists from the supermarket sector to identify the control items for the measurement scale of service differentiation in the supermarket context.

Marconi and Lakatos (2010) present the study characteristics by the positivist paradigm, of quantitative approach, which is the case of descriptive research, defined as quantitative-descriptive, while the study verified hypotheses.

The study focuses on the supermarket managers in Santa Catarina (Brazil). The classification made by Parente and Barki was adopted in independent supermarkets and networks in order to structure this study research. For Farias and Santos (2000), as well as Brei and Liberali (2006), by trial and error one should vary between 5 and 10 respondents per parameter in the model.

The data collection occurred through the survey method with managers of supermarkets operating in Santa Catarina. First of all, 50 questionnaires were collected for the realization of the Exploratory Factor Analysis while waiting for the questionnaire to remain defined. After That, following the teachings of Hair, Black, Babin and Anderson (2014), and Brei and Liberali (2006), few questionnaires were collected.

In the sample size, 318 of 325 interviews collected were validated. The exclusion occurred due to erasures and alternatives marked in duplicity and or incomplete.

The psychometric scale developed for Services Differentiation in supermarkets in Santa Catarina followed the teachings of and Castro (2013). The chosen model is one adapted from Liao, Fei, and Chen (2007) in order to identify the variables that supported the measurement of the Innovative Capabilities construction.

To measure the construct a scale of Likert type of seven points was used in which the number one takes the value as "disagree" and the number seven as "agree."

The Exploratory Factor Analysis for the Services Differentiation construct evaluated the one-dimensionality of each construct. Thus, it was possible to verify if each construct variable relates itself to a single factor. The variables with one-dimensional behavior and accepted in the other tests remained submitted to Confirmatory Factor Analysis.

As far as Exploratory Factorial Analysis is concerned, Table 03 presents the models and the minimum adjustment indices to validate each variable.

MEASURES	MINIMUM EXPECTED VALUES
Communalities	**0,50**
Factor loading (up to 200)	**0,70**
Sample Adequacy Measure (MSA)	**0,50**
KMO	**0,50**
Bartlett sphericity test	**p ≤ 0,05**
Cronbach's Alpha	**0,70**
Inter-item correlation	**0,30**
Item-total correlation	**0,50**

Table 3: Measures and expected values.
Source: Hair et al (2014).

Confirmatory Factor Analysis verified if the observed variables were significant to measure the construct by the model adjustment indexes (FIT), i.e., the following analyses: Qui² (x²), Qui²/FD (x²/FD), CFI, NFI, and TLI. Table 4 shows the expected results for each of the model adjustment assesses.

MEASURES	MINIMUM EXPECTED VALUES
X² (Qui²)	P > α
X² / Degree of Freedom (Qui²/FD)	< 3,000
P	> 0,050
RMSEA	< 0,100
CFI	> 0,900
TLI	> 0,900
NFI	> 0,900

Table 4: Expected results in model adjustment tests.
Source: Adapted from Hair et al. (2014).

Data Analysis

The data collected through a self-report questionnaire were arranged, encrypted, and processed using an Excel® spreadsheet made by SPSS® 24 (Statistical Package for the Social Science) software and the AMOS™ 24 (Analysis of Moment Structures) software.

By the evaluation of the component matrix, in Table 5 is possible to affirm that the variables of each construction and dimension are single-dimensional.

Components Matrix	Component 1
MCI 1	0,810
MCI 2	0,813
MCI 3	0,772
MCI 4	0,705
MCI 5	0,760
ISC 1	0,808
ISC 2	0,864
ISC 3	0,866
ISC 4	0,837
ISC 5	0,740
DIF 1 (People)	0,802

DIF 2 (People)	0,832
DIF 3 (People)	0,674
DIF 9 (People)	0,801
DIF 10 (Process)	0,781
DIF 14 (Process)	0,782
DIF 15 (Process)	0,744
DIF 17 (Environment)	0,883
DIF 18 (Environment)	0,761
DIF 19 (Environment)	0,651
PER 1	0,934
PER 2	0,938
PER 3	0,941
PER 4	0,935
PER 5	0,870

Table 5: Component Matrix Test Result
Source: Research Data (2017).

4.1 Exploratory Factor Analysis - EFA

For Hair Júnior et al. (2009), the factor loading is the correlation between the initial variables and the factors with acceptance of the minimum value of **0.7**. The variable MCI4 was one of the lowest values among the indicator variables on the Innovative Capability and, the Managerial Innovation dimension has a result equal to **0.705**. Yet, on the Innovative Capability construct, dimension Service Innovation, the variable with the lowest value was ISC5 representing the value of **0.740**. All the outcomes for commonality are over **0,5** the variables were approved.

The DIF3 variable was one with the lowest values indicating the fluctuations in the people dimension of the Services Differentiation with values equal to **0.674**. The DIF15 variable was one of the lowest values indicating the fluctuations in the dimension of process in the Services Differentiation with values equal to **0.744.** The variable DIF19 was one with the lowest values indicating fluctuations in the dimension of people in the Innovative Capability with values equal to **0.651**, with rounded off remaining at 0.**7**. All results for commonality are above **0.5,** and all variables are approved.

The measured outcomes for the construct Performance regarding the factor load show that **PER1, PER2, PER3, PER4** and, **PER5** fluctuations are above the minimum value. The variable **PER5** presents the lowest value, with **0.870** standing above the <u>minimum expected, 0.7</u>. The other results for the commonality and factor load of the constructs in their dimensions are presented in Table 6.

INNOVATIVE CAPABILITIES - Managerial Innovation	MCI1	MCI2	MCI3	MCI4	MCI5
Commonality	,656	,661	,597	,497	,578
Factor loading (up to 200)	,810	,813	,772	,705	,760
INNOVATIVE CAPABILITIES - Service Innovation	ISC1	ISC2	ISC3	ISC4	ISC5
Commonality	,653	,746	,749	,699	,548
Factor loading (up to 200)	,808	,864	,866	,837	,740
SERVICES DIFFERENTIATION – People	DIF1	DIF2	DIF3		
Commonality	,643	,692	,461		
Factor loading (up to 200)	,802	,832	,664		
SERVICES DIFFERENTIATION – Processes	DIF14	DIF15	DIF16		
Commonality	,665	,758	,574		
Factor loading (up to 200)	,816	,871	,758		
SERVICES DIFFERENTIATION - Environment	DIF17	DIF18	DIF19		
Commonality	,694	,579	,454		
Factor loading (up to 200)	,883	,761	,651		
PERFORMANCE	PER1	PER2	PER3	PER4	PER5
Commonality	,876	,883	,893	,882	,766
Factor loading (up to 200)	,936	,939	,945	,939	,875

Table 6: Commonality and Factor loading
Source: Research Data

According to the presented outcomes for Sample Adequacy Measure (**MSA**) of Dynamic Innovative Capability construct, the data shows itself over the medium rates. Hair Junior et al. (2005) certifying the variables **MCI1, MCI2, MCI3, MCI4,** and **MCI5.** For the Service Innovation dimension, the variables **ISC1, ISC2, ISC3, ISC4,** and **ISC5** were approved. The construct Services Differentiation validated the variables **DIF1, DIF2,** and **DIF3** (People Dimension), the variables **DIF14, DIF15,** and **DIF16** (Process Dimension), and the variables **DIF17, DIF18,** and **DIF19** (Environment Dimension). When it comes to the construct performance the variables **PER1, PER2, PER3, PER4,** and **PER5** obey the guidelines such as excellent and were validated.

For Bartlett's sphericity test, the three constructs' results show a significance of **0.000**, as inferior to the measurement of **0.05** for all the indicators of both dimensions. It makes valid all the fluctuations assessed. So, for Kaiser, Meyer, and Olkin (KMO) MSA, all the constructs and their dimensions achieved their approved variables with higher performance than the minimum expected.

For Hair Júnior et al. (2009), the reliability measure of Cronbach's alpha must have a value equal to or greater than 0.7. All standardized test results were above the value of 0.700, with the approval of all the constructs for Cronbach's alpha reliability measurement.

Regarding the practical rule that the minimum inter-item correlation, according to Hair Junior et al. (2009), the value must be equal to or higher than **0.300**. Once more, all the constructs were approved, with a higher result than the minimum benchmark. Hair Junior et

al. (2009) also states as a practical rule for item-total correlation, and **0.500** is the minimum acceptable index.

All the constructs performed very well, staying above the minimum acceptable. To the construct Innovative Capability in the managerial innovation dimension, a single factor had an initial self-value of **2.988,** therefore, greater than 1, and explained by the construct that is **59.765%** exceeding the minimum of 50% proposed.

For the Innovative Capability construct, in the service innovation dimension, a single factor had an initial self-value of **3.396** and the fluctuation explained by the construct that is **67.915%** exceeding the minimum of 50% proposed demonstrating that there is a consistency of measurement in the Service Innovation dimension.

For the Services Differentiation in the People dimension, the value for the only one factor had an initial self-value of **1.776**. The fluctuation explained by the construct that is **59.197%**.

In the fluctuation test explained for the Services Differentiation construct in the process dimension it is verified that a single factor had an initial self-value of **1.998**. The fluctuation explained by the construct that is **66.601%**.

In the fluctuation test explained for the Store Environment dimension in the only factor had an initial self-value of **1.697**. The fluctuation explained by the construct that is **56.559%**.

It is verified the result of the fluctuation test explained for the Performance construct a single factor had an initial self-value of **4.418**. The fluctuation explained by the construct that is **88.363%** exceeding the minimum of 50% proposed demonstrating that there is consistency in the measurement. Therefore, the three constructs and their dimensions were approved.

Once these fluctuating are endorsed by the exploratory factorial analysis, to be tested in the confirmatory factorial analysis and their tests and modeling.

4.2 Confirmatory Factor Analysis - Cfa

4.2.1 CFA - Construct Innovative Capability

4.2.1.1 CFA - CONSTRUCT INNOVATIVE CAPABILITY - DIMENSION INNOVATION MANAGEMENT

Based on the indicators from Liao, Fei, and Chen (2007) the measurement model for innovative capability construct was created, according to Figure 3.
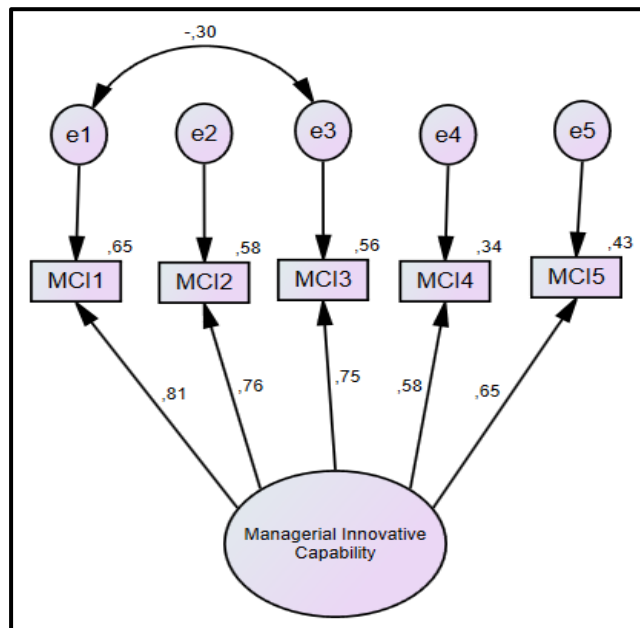
Figure 3: Construct model of Innovative Capability: Management I.C. dimension
Source: Research Data (2017).

From the provided information and the software AMOS™ 24, the construct measurement model was developed, taking as a counterpart the adjustment indexes of the primary model, according to Table 7. As the approved model.

Index	Final Model Values	Expected Values
X²	9,356 (FD=4)	
X² / FD	2,339	< 3,000
P	0,053	> 0,050
RMSEA	0,065	< 0,100
CFI	0,990	> 0,900
TLI	0,976	> 0,900
NFI	0,983	> 0,900

Table 7: Adjustment ratios of the wide-ranging measurement model
Source: Research Data (2017).

According to Hair et al., (2014), the lowest accepted value for regular loads is 0.500. The **MIC4** indicator fluctuation has an outcome equal to **0.584**, therefore, higher than the minimum expected for the indicator to be held as a reflective item of the construct. In this way, all indicators of the construct Innovative Capability, dimension of the Management Innovation, are accepted by the significance test and its standardized coefficients. See table 8.

	MIC1	MIC2	MIC3	MIC4	MIC5
Coefficient	0,809	0,765	0,749	0,584	0,652
P	0,000	0,000	0,000	0,000	0,000

Table 8: Standardized regression coefficients and significance test
Source: Research Data (2017).

Since approving the model of the Innovative Capability construct, the Management Innovation dimension, the Innovative Capability construct was assessed in its Service Innovation dimension.

4.2.1.2 CFA - INNOVATIVE CAPACITY CONSTRUCT - SERVICE INNOVATION DIMENSION

According to the indicators from Liao, Fei, and Chen (2007) the measurement model for innovative capability, Service Innovation dimension was created, according to Figure 4.
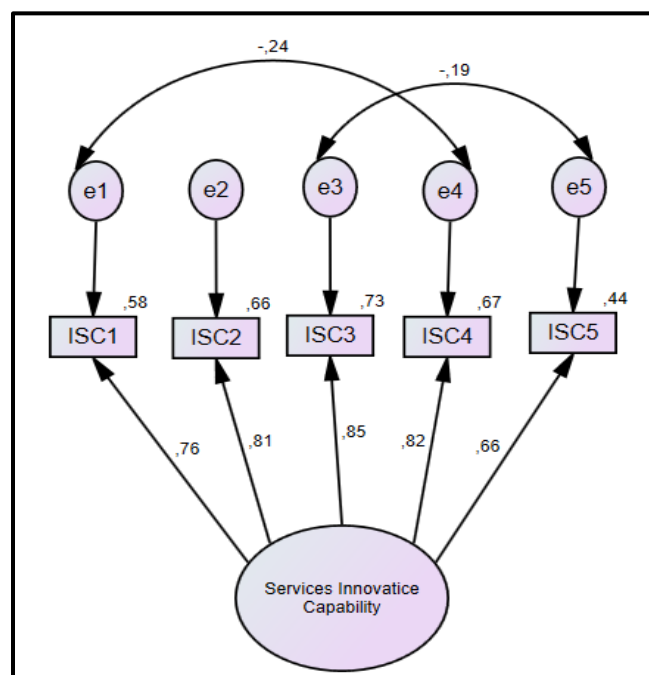
Figure 4: Construct Innovative Capability Model: I. C. Services dimension.
Source: Research Data (2017).

Using the provided information and the software AMOS™ 24, the construct measurement model was developed, taking as a counterpart the adjustment indexes of the primary model, according to Table 9. The model was assessed and approved.

Index	Final Model Values	Expected Values
X²	7,825 (FD=3)	
X² / FD	2,608	< 3,000
P	0,050	> 0,050
RMSEA	0,071	< 0,100
CFI	0,994	> 0,900
TLI	0,980	> 0,900
NFI	0,991	> 0,900

Table 9: Adjustment ratios of the general measurement model
Source: Research Data (2017).

The **ISC5** indicator fluctuation has a value equal to **0.665**, allowed by estimative with the indicator being kept as a reflective item of the construct. According to Table 10, the indicators of the Innovative Capability construct in its dimension of Services are allowed through the significance test and its regular coefficients.

	ISC1	ISC2	ISC3	ISC4	ISC5
Coefficient	0,762	0,812	0,855	0,821	0,665
P	0,000	0,000	0,000	0,000	0,00

**Table 10: Standardized regression coefficients and significance test**
Source: Research Data (2017).

When the Innovative Capability construct model was approved, in its two dimensions, the Services Differentiation construct was verified, in its three dimensions.

4.2.2 CFA - Construct Services Differentiation (Multi-dimensional)

4.2.2.1 CFA - CONSTRUCT SERVICES DIFFERENTIATION - PEOPLE DIMENSION

Based on the indicators from Deluca (2017), the measurement model for the Services Differentiation-People Dimension construct was created, according to Figure 5.
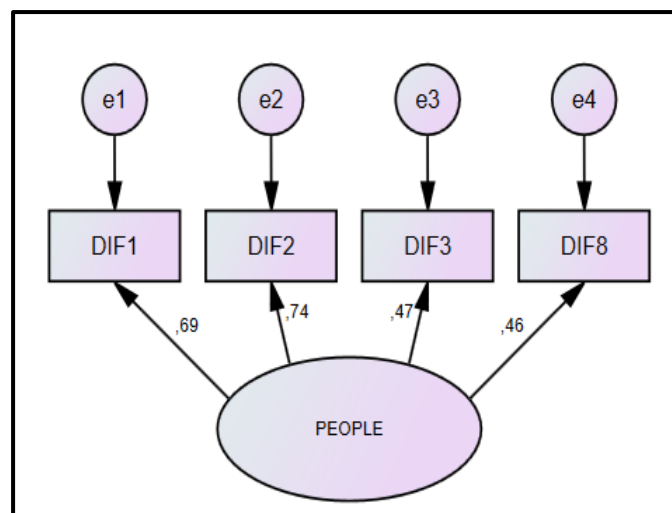
Figure 5: Construct Model Services Differentiation - Dimension People
Source: Research Data (2017).

After the analysis, it was verified that the results for the adjustment indices for absolute measures (chi-square values, chi-square divided by the degrees of freedom and the root of the mean square error approximation - RMSEA) and the adjustment indices for absolute

incremental measurements (CFI, NFI and, TLI) are well adjusted, and its expected values were higher than the minimum expected values. Table 11 shows the values of the survey outcome and the expected values. Validating the construct Services Differentiation - People Dimension. Model approved.

Index	Final Model Values	Expected Values
X^2	5,055 (FD=2)	
X^2 / FD	2,527	< 3,000
P	0,080	> 0,050
RMSEA	0,069	< 0,100
CFI	0,984	> 0,900
TLI	0,953	> 0,900
NFI	0,975	> 0,900

Table 11: Adjustment ratios of the general measurement model
Source: Research Data (2017).

According to Hair et al. (2014), 0.500 is considered the lowest acceptable value for regular loads. In Table 12, the load values of the items and their corresponding significance on the Services Differentiation People Dimension construct. The DIF8 indicator, with values equal to **0.464**, is the indicating with the lowest value found. Along with these results, all indicators were maintained since they are higher or equal to the minimum acceptable, in absolute value, or by rounding. Validating the construct Services Differentiation - Dimension People.

|	DIF1	DIF2	DIF3	DIF8
Coefficient	0,694	0,743	0,473	0,464
P	0,000	0,000	0,000	0,000

Table 12: Standardized regression coefficients and significance test
Source: Research Data (2017).

By approving the construct model, Services Differentiation Dimension People, began to be assessed on the same construct, dimension Processes.

4.2.2.2 CFA - CONSTRUCT SERVICES DIFFERENTIATION - DIMENSION PROCESSES

Based on the indicators from Deluca (2017), the measurement construct model for the Services Differentiation - Process Dimension was created, according to Figure 6.
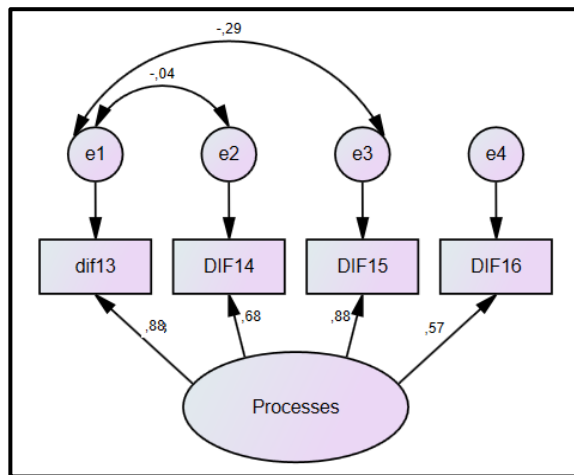
Figure 6: Services Differentiation Model Construct - Dimension Processes
Source: Research Data (2017).

From previous information and the software AMOS™ 24, the construct model measurement was designed, obtaining as a counterpart the adjustment indexes of the initial model, according to Table 13. Validating the model.

Index	Final Model Values	Expected Values
X²	1,543 (FD=1)	
X² / FD	1,543	< 3,000
P	0,214	> 0,050
RMSEA	0,069	< 0,100
CFI	0,992	> 0,900
TLI	0,951	> 0,900
NFI	0,979	> 0,900

Table 13: Adjustment ratios of the general measurement model
Source: Research Data (2017).

In Table 14, there are the load items values and their respective significance on the construct Services Differentiation - Dimension Process. The DIF16 indicator, with the value equal to **0.561**, is the indicator with the lowest value found. With these results, all indicators were maintained since they are higher than the minimum acceptable. Therefore, all indicators of the differentiation construct dimension process have gone through the significance test. Validating the construct Services Differentiation - Dimension Processes.

	DIF13	DIF14	DIF 15	DIF16
Coefficient	0,789	0,760	0,610	0,561
P	**0,000**	**0,000**	**0,000**	**0,000**

Table 14: Standardized regression coefficients and significance test
Source: Research Data (2017).

When the construct model of the Services Differentiation was approved, the dimension Processes, the same construct was assessed, the dimension Store Environment.

4.2.2.3 CFA - CONSTRUCT SERVICES DIFFERENTIATION - DIMENSION STORE ENVIRONMENT

Based on Deluca (2017) indicators, the measurement model for the Services Differentiation - Store Environment construct was created, according to Figure 7.
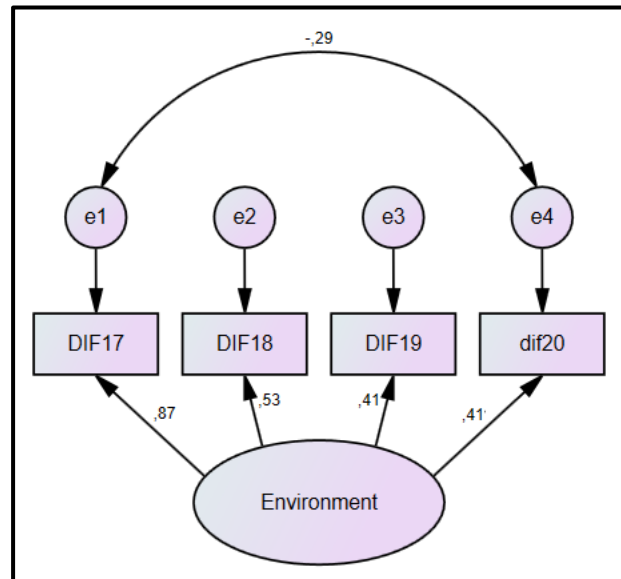
Figure 7: Construct Model Services Differentiation - Dimension Store Environment
Source: Research Data (2017).

From previous information and the software AMOS™ 24, the construct measurement model was developed, obtaining as a counterpart the adjustment indexes of the primary model, as shown in Table 15. The research values result, and the expected values are presented. Validating the Construct Services Differentiation - Dimension Store Environment.

Index	Final Model Values	Expected Values
X^2	2,099 (FD=2)	
X^2 / FD	1,050	< 3,000
P	0,350	> 0,050
RMSEA	0,021	< 0,100
CFI	0,999	> 0,900
TLI	0,997	> 0,900
NFI	0,980	> 0,900

Table 15: Adjustment ratios of general measurement model
Source: Research Data (2017).

In Table 16, the load items values and their respective significance on the construct Services Differentiation - Dimension Process are shown. The DIF20 indicator, with a value equal to **0.221**, it is the indicator with the lowest value found. Being excluded in the final model. Validating the Services Differentiation - Store Environment Dimension.

	DIF17	DIF18	DIF19	DIF20
Coefficient	0,804	0,583	0,434	*0,221*
P	0,000	0,000	0,000	*0,000*

Table 16: Standardized regression coefficients and significance test
Source: Research Data (2017).

When the construct Services Differentiation model was accepted, in its three dimensions, the Performance construct began to be evaluated.

4.3 CFA - Construct Performance

According to the indicators designed by **Parente and Barki (2014)** and **Abras (2017),** the construct measurement model for Performance was developed, according to Figure 8.
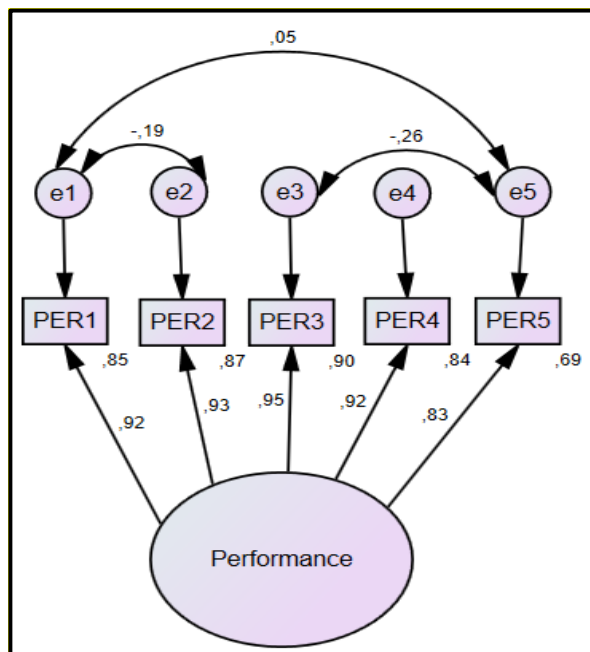
Figure 8: Construct Model Performance
Source: Research Data (2017).

According to the previous information and the software AMOS™ 24, the measurement model for construct Performance was developed, obtaining as a counterpart the adjustment indexes of initial model, according to Table 17. Validating the model.

Index	Final Model Values	Expected Values
X²	3,509 (FD=2)	
X² / FD	1,755	< 3,000
P	0,173	> 0,050
RMSEA	0,049	< 0,100
CFI	0,999	> 0,900
TLI	0,996	> 0,900
NFI	0,998	> 0,900

Table 17: Adjustment ratios of general measurement model
Source: Research Data (2017).

In Table 18, the load items values and their respective significance on the indicator fluctuation **PER5** has a value equal to **0.832**, being higher than the minimum expected for the indicator to be held as a reflective item of the construct. Thus, all the indicators of the performance construct are accepted by the significance test and their standardized coefficients.

|	PER 1	PER 2	PER 3	PER 4	PER 5
Coefficient	0,924	0,932	0948	0,919	0,833
P	0,000	0,000	0,000	0,000	0,000

Table 18: Standardized regression coefficients and significance test
Source: Research Data (2017).

Since all the constructs and their dimensions were approved in the Exploratory Factorial Analysis tests, and in the Confirmatory Factorial Analysis, the Structural Equations Modeling of the theoretical-empirical model was performed.

4.4 Structural Model

The structural initial model, scientifically based, was evaluated by being accepted in the Exploratory Factorial Analysis tests and in the Confirmatory Factorial Analysis tests, and there were no identification or adjustment problems.
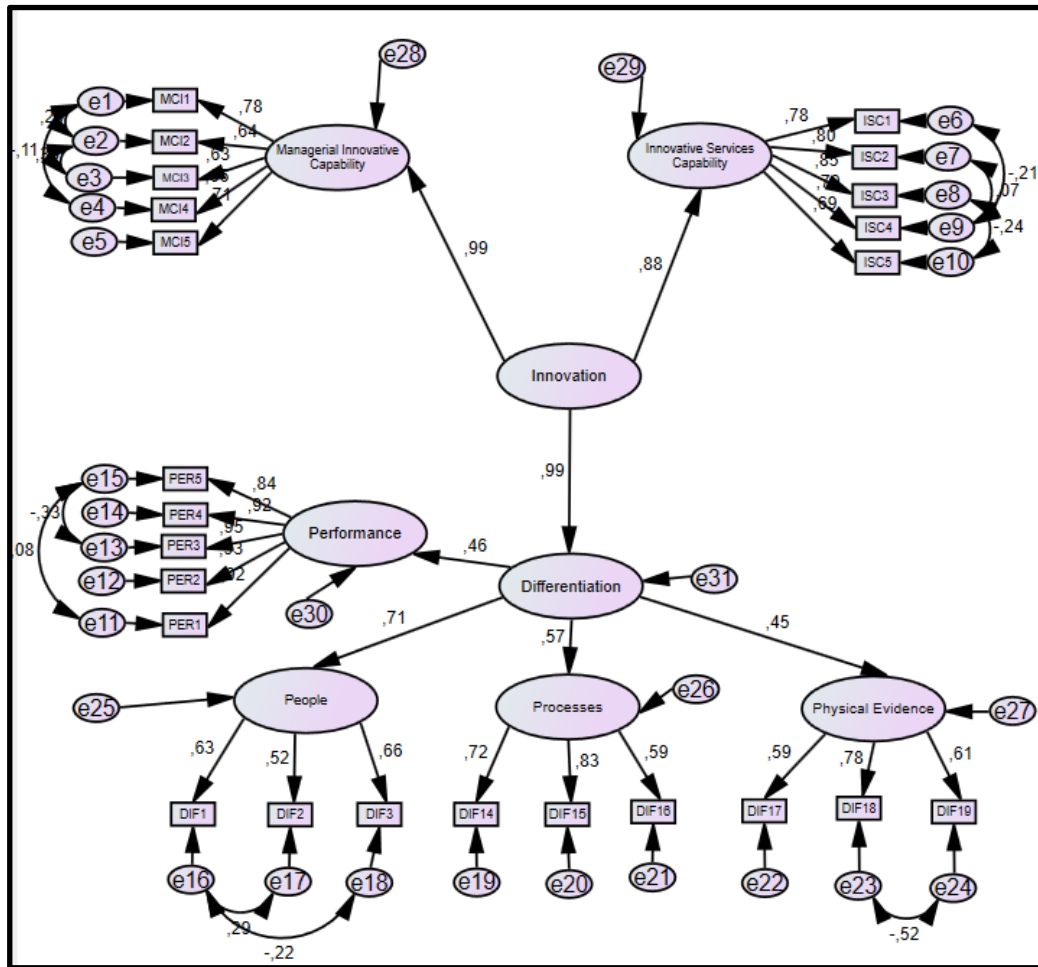
Figure 9: Proposed Adjusted Model - Standardized.
Source: Research Data (2017).

According to the previous information and the software AMOS™ 24, the measurement model for construct Performance was developed, obtaining as a counterpart the adjustment indexes of initial model, according to Table 19. Validating the model.

Index	Final Model Values	Expected Values
X^2	206,703 (FD=152)	
X^2 / FD	1,360	< 3,000
P	0,002	< 0,050
RMSEA	0,034	< 0,100
CFI	0,987	> 0,900
TLI	0,984	> 0,900
NFI	0,953	> 0,900

Table 19: Adjustment indexes of the first simulation of the general model
Source: Research Data (2017).

The set of hypotheses of this research was evaluated by the using of the method maximum likelihood of structural equations modeling available in the *software* AMOS™

24.0. With the exception of the relation of the dimensions Process and Performance, which did not prove to be considerable, the other relations are considered significant.

Based on the previously presented information and the Exploratory and Confirmatory Factorial Analyses in the following are presented each one of the hypotheses presented in this research to be able to confront the assumption and the findings on the statistical data processing of the structural equation modeling.

H1: Innovative capabilities, has a positive relation with Services Differentiation.

The **H1** hypothesis was taken, Innovative Capabilities has a positive relation with Services Differentiation, by identifying that there is a positive relation between the Innovative Capabilities and Services Differentiation and, Performance (**0.986**), substantial to α=0.00 (p=0.000 < α = 0.05).

H2: Services Differentiation has a positive relation with Performance.

The **H2** hypothesis was supported, Services Differentiation Capabilities has a positive relation with Performance, by identifying that there is a positive relation between the Capabilities Services Differentiation and Performance (**0.460**), substantial to α=0.00 (p=0.000 < α = 0.05).

H3: Innovative Capabilities, has a positive relation with Services Differentiation that measures the link of Innovative Capabilities and performance. Along with the absorption of all load, the mediation in this relation has been proven. Hypothesis **H3** was supported. In Table 20:

DIRECT STRUCTURAL PATH	HYPOTESIS	P	STANDARDIZED COEFFICIENT	RELATIONS HIP	SUPPORT
Services Differentiation ← Innovative Capabilities	H1	0,00 0	, 986	Positive	Supported
Performance ← Service Differentiation	H2	0,000	0,460	Positive	Supported
INDIRECT STRUCTURAL PATH	**HYPOTESIS**	**P**	**STANDARDIZED COEFFICIENT**	**RELATION**	**SUPPORT**
Performance ← Innovative Capability Services	H3	0,000	,000	NULL	Supported

Table 20: Summary of hypothetical relation tested.
Source: Research Data (2017).

Conclusions

This study aimed the collaborate with researchers in the field of organizational strategy, specifically in its creation in the supermarket retail field. Thus, the research

conducted the path targeting the correlation between two dimensions of Innovative Capabilities, the Services Differentiation of the supermarket retail and the Performance.

The results presented in this study, after the appropriate measurements, that the analysis of the indicators of the Innovative Capabilities refers to two dimensions such as Managerial Innovative Capability and Services Innovative Capability. The indexes of adjustment (chi-square, chi-square/degrees of freedoms, RMSEA, CFI, NFI, and TLI) were assessed and analyzed at the levels accepted by the scientific literature, indicating that the model of measurements for each construct adapted perfectly to the collected data.

An additional hypothesis in this present study was to relate Innovative Capabilities with the Services Differentiation. The study proved the positive relation between the Innovative Capability and the Services Differentiation.

It was possible to prove through mediating the testing and examining the effect of differentiation on the Innovative Capabilities and Performance. Thus, it was possible to provide evidence that the Innovative Capability is a predictor of the Services Differentiation and a predictor of Organizational Performance.

According to the research question, the discovered results make it possible to assert the existence of a relationship between the constructs. Specifically, the Innovative Capability has a positive connection with the Services Differentiation as well as a mediated link that is positive with performance being a predictor. It can also be acknowledged, according to the analyzed outcomes, the Services Differentiation mediates the relation between the Innovative Capability and the organizational performance.

It is intended, by applying this research, to generate reflections and make decisions in the Supermarket Managers regarding innovation, Services Differentiation, and performance in the constant transformation that occurs every day in the supermarket field.

For future studies, this research, in the supermarket sector, enabled the researcher brand-new insights and perspectives and new paths to posterior scientific research. As a suggestion, apply this study to other states aiming at knowing, even more, the background that this field has. Studies covering the following can be held in more regions of the country, which would create the possibility of contrasts the data collected in each state and then in the region. Furthermore, this same study suggests applying it to specific formats of the supermarket classification or according to ownership types such as networks, independent, purchasing associations, and cooperatives.

Yet, it would be interesting to verify how the variables studied in other countries performed, through Cross-Cultural Research, mainly in the United States of America, where the supermarket sector is considered relevant, thus enabling comparative analysis.

Finally, it is relevant to develop a new study using the Qualitative Comparative Analysis method and with related techniques in cases of success and failure in the supermarket sector, considering that this technique allows studying fewer cases and with many variables.

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