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Editorial Abya-Yala (Quito-Ecuador)
Avenida 12 de octubre N422 y Wilson, Bloque A, UPS
Quito, Ecuador. Casilla 17-12-719
Telephones: (593-2) 3962800 ext. 2638
E-mail: editorial@abyayala.org.ec

© Universidad Politécnica Salesiana
Turuhuayco 3-69 y Calle Vieja
PO box 2074
Cuenca, Ecuador.
Telephone: (+593 7) 2 050 000
Fax: (+593 7) 4 088 958
E-mail: srector@ups.edu.ec
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Secretaría Técnica de Comunicación y Cultura
Universidad Politécnica Salesiana
Av. Turuhuayco 3-69 y Calle Vieja
PO box 2074
Cuenca, Ecuador.
PBX: (+593 7) 2 050 000 - Ext. 1182
Fax: (+593 7) 4 088 958
e-mail: rpublicas@ups.edu.ec
www.ups.edu.ec
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The Spanish company in the face of COVID-19: adaptation factors to the new scenario

La empresa española ante la COVID-19: factores de adaptación al nuevo escenario

Mg. Ricardo Diego Pérez-Calle is a professor and researcher at the University of Zaragoza (Spain) (rdperez@unizar.es) (https://orcid.org/0000-0003-2726-7146)

Dra. Nieves García-Casarejos is a professor and researcher at the University of Zaragoza (Spain) (ngarcia@unizar.es) (https://orcid.org/0000-0002-5142-0270)

Dr. Javier García-Bernal is a professor and researcher at the University of Zaragoza (Spain) (igbernal@unizar.es) (https://orcid.org/0000-0002-4540-4952)

Abstract

The COVID-19 pandemic has radically and unpredictably changed the competitive environment for companies, with Spain being one of the western countries most affected. In this new context, to face extremely dynamic, complex, and hardly predictable competitive environments, companies must adapt by having or developing a series of specific resources and capacities. This article aims to show that the development of Information and Communication Technology, labor flexibility and the capacity to innovate are factors that favor organizations having the ability to adapt to the new and changing competitive environments caused by the health emergency of COVID-19, reflecting the organization's ability to adapt through its ability to give continuity to both the management and monitoring of its operations and the relationship with its customers throughout all levels of the sales process. To analyze this relationship, company managers were interviewed during the months after the declaration of the state of alarm in Spain. Through the application of the multivariate analysis technique Partial Least Squares Structural Equation Modeling (PLS-SEM), it has been estimated that high levels of ICT development, labor flexibility or capacity to innovate are positively related to a better adaptation of companies to both the new needs of their customers as well as the operating limitations imposed in their respective markets.

Resumen

La pandemia de la COVID-19 ha cambiado de forma radical e impredecible el entorno competitivo de las empresas, siendo España uno de los países de su entorno que se ha visto más afectado. En este nuevo contexto, para hacer frente a unas condiciones del entorno extremadamente dinámicas, complejas y difícilmente predecibles, las empresas para poder adaptarse necesitan estar en posesión o desarrollar una serie de capacidades específicas. Este artículo pretende mostrar que el desarrollo de las TIC, la flexibilidad laboral y la capacidad de innovar son tres factores que favorecen la capacidad de las organizaciones para adaptarse a los nuevos y cambiantes entornos competitivos provocados por la emergencia sanitaria de la COVID-19. La capacidad de adaptarse se refleja a través de su habilidad para dar continuidad tanto a la gestión y monitorización de sus operaciones como a la relación con sus clientes a lo largo de todos los niveles del proceso de venta. Para analizar esta relación, se entrevistó a directivos de empresas durante los meses posteriores a la declaración del estado de alarma en España. Mediante la aplicación de la técnica de análisis multivariante PLS-SEM, se ha estimado que un mayor nivel de los tres aspectos indicados se relaciona positivamente con una mejor adaptación de las empresas tanto a las nuevas necesidades como a las limitaciones de operación en sus respectivos mercados.

Keywords | palabras clave

Management, ICT, flexibility, innovation, COVID-19, PLS-SEM, adaptability, competitive environment.
Gestión, TIC, flexibilidad, innovación, COVID-19, PLS-SEM, capacidad de adaptación, entorno competitivo.

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1. Introduction

The COVID-19 pandemic, since its declaration at the end of 2019, has imposed a radical transformation in the behavior of the different economic agents at a global level. Specifically, the impact it has had on Spanish economic activity has been devastating, making the country one of the most affected in its context. If at the end of the third quarter of 2020 the drop in GDP in the eurozone, compared to pre-crisis levels, was 4.5%, in Spain it was 9.1%. The Organization for Economic Cooperation and Development (OECD) forecasts for the year 2020, as a whole, are for a fall of 11.6%, the highest among all the organization's countries (OECD, 2021). And these forecasts establish the recovery of pre-crisis levels for the second half of 2022. The succession of waves of contagion and the consequent restrictions on economic activity or mobility do not suggest a more optimistic scenario.

Since the declaration of the state of alarm in Spain in March 2020, thousands of companies and workers have seen their activity stopped or suspended. Specifically, according to the report presented by the Bank of Spain in December 2020 (Blanco et al., 2020), it is estimated that up to 9.9% of Spanish companies could disappear due to solvency problems caused by the crisis generated by the COVID-19. This represents a 150% increase compared to the 2019 data. An indicator of this situation offered by the report is that 40.6% of companies have high financial pressure, compared to 13.9% the previous year. These data are explained taking into account that during the first nine months of the year, 36% of Spanish companies have had losses in their income statement. And all this despite the fact that the situation of Spanish companies before the pandemic was, on average, financial strength.

Not all economic sectors have been affected equally. Confinement and restrictions on mobility and assembly have affected supply and demand conditions in a very heterogeneous way in the different markets, as well as the relationships between the different value chains and systems. It is estimated that, in the hotel, restaurant, and leisure sectors, 72.4% of companies will have viability problems due to inability to pay their debts. In motor vehicles, this problem is estimated to be suffered by 64.6% of companies, 42.2% of those in the commercial sector, and 41.6% of those dedicated to transport and storage (Blanco et al., 2020).

The behavior of organizations in high volatility environments caused by exogenous shocks has been widely studied in the literature, under different names: unexpected events, rare events, crises, or catastrophes (Duchek et al., 2020). However, the origin of this social and economic situation, the COVID-19 pandemic, constitutes an event that fits with all the characteristics of a "black swan" event (Taleb, 2008): an unpredictable surprise event, of great socioeconomic impact and that can be rationalized by hindsight (later predictable appearance). In this way, the implications and consequences of an event of these characteristics imply a greater impact than those of predictable events, longer-lasting effects, and with a strong transversal component.

In this factual context, the analyzes on the adaptation factors to volatile, dynamic, and complex environments, but to a greater or lesser extent predictable, are no longer valid, given that the conditions imposed by the health emergency have radically changed, and literally overnight, the operating conditions of companies. And they continue to do so. The succession of waves of contagion has meant restrictions on economic activity and freedom of movement, therefore companies have had to continue adapting their activities to radical changes in their competitive environment. From all this, the conclusion can be drawn that the companies that were in possession of the resources and capacities necessary for a rapid reactive adaptation to the successive and changing competitive environments have been able to face these new conditions imposed in a situation of competitive advantage compared to those that were not in possession of those resources and capacities (Barney, 2001).

The objective of this research is to explore, in the Spanish case, possible answers to the question of what factors determine that companies are endowed with the necessary adaptation capacity to the new and changing conditions of the competitive environment caused by the pandemic, without entering to analyze the particularities of companies and the Spanish economy that have made the intensity of the crisis resulting from the pandemic greater than in the rest of the surrounding countries.

Three factors have been considered to analyze this relationship: the innovation capacity of organizations, their labor flexibility, and their level of development and implementation of Information and Communication Technologies. These following three variables, as will be explained later, are widely considered as drivers or as dimensions of the attributes related to an active adaptation capacity and organizational resilience in times of crisis: speed, agility, learning capacity, reinvention capacity (Alday et al., 2020; Duchek, 2020; Freije & Aláez, 2020; Garamendi, 2020; Weick & Sutcliffe, 2001).

The work has been organized as follows. In the first place, the theoretical bases and the hypotheses to be tested are presented. The methodology used in the research is described below, including the collection of sample data and the used multivariate analysis methodology. Afterward, the results obtained in the estimated model are presented and analyzed alongside the applied validation criteria. Finally, there is a discussion of the results and a presentation of the conclusions, as well as the establishment of the next steps to be carried out in line with the research.

1.1. Theoretical framework and hypotheses

1.1.1. The ability to adapt during the crisis

The COVID-19 pandemic has required companies to adapt, as quickly and efficiently as possible, their structures, activities, products, or processes to new competitive conditions. Different studies (Duchek, 2020; Hermann, 1963; Pearson & Clair, 1998; Smart & Vertinsky, 1984; Lengnick-Hall et al., 2011) analyze the adaptability of organizations to unexpected crisis situations with a high potential of consequences. Common factors considered in them are the proactive attitude, the continuous observation of the environment, or the ability to rebuild and reinvent themselves. However, the already described characteristics of the exogenous shock produced by COVID-19 make the determinants of adaptation capacity vary in the face of more predictable situations or with less dynamic or traumatic evolution. In this context, the analyzes on how to successfully face the crisis focus on concepts that are difficult to quantify such as business resilience (Garamendi, 2020), sustainability (Schaltegger, 2020), or the exploitation of strategic options such as coopetition (Crick & Crick, 2020).

This research aims to determine some of the factors that favor successfully circumventing the current competitive environment. Thus, the “adaptability” of organizations has been defined as an endogenous variable, considered as the ability to be in sync with successive competitive environments, the speed in doing so, and the efficiency of the process (Grant, 2014; Hax & Majluf, 2015; Thompson & Strickland, 2004). Said adjustment of the company to the new external conditions implies that the company must align aspects related to:

- Resource needs.

- Offer of products/services, both mix and quantity demanded.
- Operating leverage.
- Operating procedures.
- Relationship with external stakeholders, especially clients.

1.1.2. The relationship between ICT development and adaptive capacity

Information and Communication Technologies (ICT) constitute a heterogeneous field and of which there are many definitions and classifications. They group together a set of resources and innovations of hardware, software, telecommunications, or electronic devices linked to each other, with the capacity to generate between all of them a universal network or tools that allow the accumulation of data to synthesize and generate information. Therefore, they constitute a set of means, tools, and devices that use both telecommunications and computing technologies to generate and transmit information (Cobo-Romaní, 2009).

Regarding the organizational and business dimension of ICT, it is identified with the set of resources that provides the ability to manipulate information and that support the development and economic growth of any organization (Thompson & Strickland, 2004). In any case, ICTs provide organizations with enormous possibilities and different approaches to manage their knowledge, increase their flexibility, enhance interactivity with their stakeholders, favor their financial robustness, increase their speed of development, favor their independence, etc.

Despite the consensus among academics that ICTs are a factor that significantly favors the growth and survival chances of companies, the specific mechanisms that underlie these consequences have been the subject of wide debate (Bharadwaj, 2000), although there is a certain consensus on one of its most valued effects: that of enhancer and support of the basic competences of the organization (Ravichandran & Lertwongsatien, 2005).

Thus, directly or indirectly, the level of ICT development or digitization of organizations has a key impact and a permanent effect on organizational processes, behavior, performance, or culture (Bloom et al., 2014; Draca et al., 2007).

Therefore, based on this, we formulate the following hypothesis:

H1: There is a positive and significant relationship between a company's ICT development and its ability to adapt to the external shock produced by COVID-19.

1.1.3. The relationship between innovation effort and adaptability

Innovation has become in recent decades a fundamental element for the survival of companies when previously it had been considered as a differentiating element. And in the turbulent environment marked by COVID-19, the innovation factor of companies is being perceived as a catalyst for the efficient management of organizations and as a generator of opportunities at multiple levels of their value chain (Guderian et al., 2020; Lee & Trimi, 2020; Sharma et al., 2020).

Innovation has different determinants, the fundamental one being the capacity for innovation (Prajogo & Ahmed, 2006), considered as the capacity of the company to generate new knowledge that will later be applied in a practical way, either through the offer of new products or services or through the development of new processes. In turn, the capacity for innovation can be broken down into effort and experience in innovating (López-Mielgo et al., 2012). In our research, the first component has been considered, since it significantly determines the second, and it is also not biased or moderated by the age of the organization.

Thus, the organization's effort in innovation is identified with the search for the generation of new knowledge, for its subsequent application in new products or services to be offered in the market or in new internal processes, organizational structures, etc., Its measurement is carried out through the implemented R+D+i activities (Adler & Shenbar, 1990; Guan & Ma, 2003).

Based on all this, we formulate the following hypothesis:

H2: There is a positive and significant relationship between a company's innovation effort and its ability to adapt to the external shock produced by COVID-19.

1.1.4. *The relationship between flexibility and adaptability*

Organizational flexibility represents the ability to adapt quickly and efficiently to an uncertain environment —in terms of demand and market conditions— applying a combination of resources and capabilities (Bueno, 2007; Volberda, 1996).

The flexibility of the organization can be divided into three dimensions (Sánchez et al., 2011):

- Productive flexibility: ability to achieve adequate versatility in volume and type of offered products or services.
- Flexibility of the organizational structure: the ability to adapt at the level of hierarchical structure, decentralization, size, internationalization, or vertical integration.
- Labor flexibility: capacity of human resources to adapt to the internal and external conditions of the organization.

This research focused on labor flexibility, considered as a facilitator of organizational and productive flexibilities (Wright & Snell, 1998). Atkinson (1981) establishes the following typology of labor flexibility: numerical, financial, and functional. The first two have been excluded from the study since the first refers to the ability to adapt the size of the workforce to demand — a situation that companies have carried out through the legal figures of ERE and ERTE— and the second to the remuneration conditions - also determined by different laws and regulations. The third refers to the versatility or autonomy of employees as a factor for adapting the workforce to market demands. In this context, it is important to highlight the relationship established between organizational resilience and human resources management, in which it is identified that the former is favored by the level of competencies in the possession of employees (Lengnick-Hall et al., 2011).

In this way, we formulate the following hypothesis:

H3: There is a positive and significant relationship between the labor flexibility of an organization and its ability to adapt to the external shock produced by COVID-19.

1.1.5. *The mediating role of the innovation effort*

The positive influence that flexibility exerts on the ability to adapt can also be analyzed through the influence that flexibility exerts on the effort in innovation. This influence, at the level of functional labor flexibility, has been analyzed through various channels that favor the capacity for innovation (Sánchez et al., 2011):

- Versatility improves individual skills.
- Versatility favors teamwork and interdepartmental collaboration.

- Versatility broadens the dissemination of knowledge.
- Versatility improves motivation by eliminating repetitive work
- On-the-job training develops employees from the competitive core of the organization.

In addition, the innovation capacity of companies influences and transversally enhances the capacities of the organization and its relationship with the different stakeholders (López-Mielgo et al., 2012).

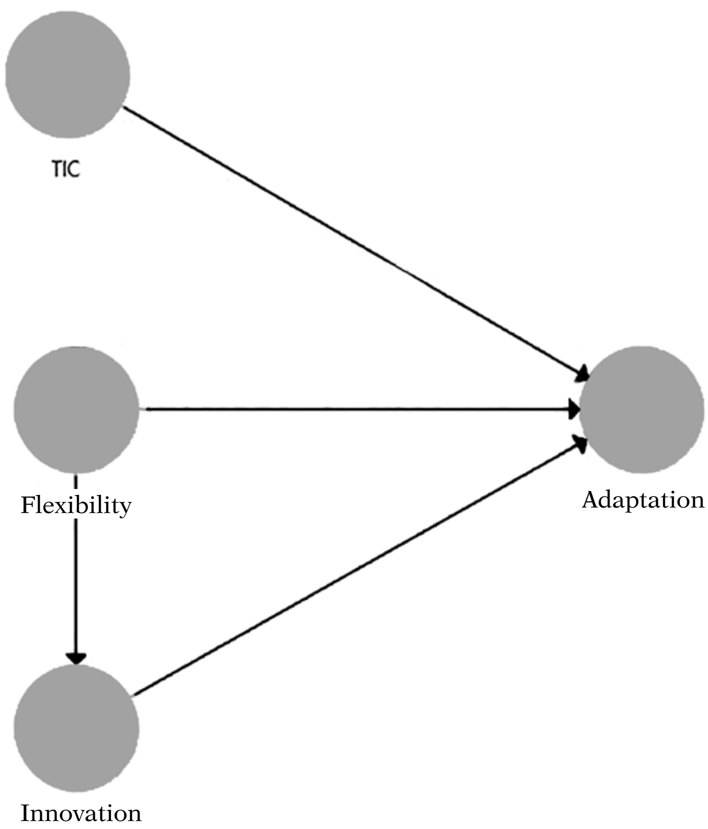
All of the above leads us to formulate the following hypothesis:

H4: There is a positive and significant relationship between the flexibility of an organization and its ability to adapt to COVID-19, through the channel of effort in innovation.

1.1.6. Theoretical model

With the presentation of the resources, foundations, and reasoning, we propose the following theoretical model.

Figure 1. Theoretical model



Source: the authors

2. Materials and methods

The exploratory analysis of our theoretical model has been carried out by Modeling Structural Equations with Partial Least Squares (PLS-SEM), through the SmartPLS 3.3.2 software application. The reasons for this choice were its adaptation to the exploratory nature of the research, its flexibility for the simultaneous use of formative and reflective indicators and different measurement scales, as well as its ability to use non-parametric variables.

Data collection was carried out through a survey of 76 company managers between the months of May and August 2020. The average size of the companies included in the sample was 527 workers, with a median of 60, which approaches the representation of the Spanish economic fabric if individual companies are ignored. Companies from the sectors most affected by the pandemic and the resulting restrictions, such as hotels and restaurants, tourism, transport, leisure, automotive or certain retail businesses were not included in the sample (Blanco et al., 2020).

The survey was constructed with open questions about different activities, practices, or resources related to the variables of our theoretical model and with the difficulties that arose after the state of alarm. For the observation and measurement through the survey of the four latent variables of the model, a set of indicators or manifest variables were defined.

Latent variable "ICT": construct with a training indicator, *Digi*, quantified by a Likert scale from 1 to 3, based on the classifications by subject areas and levels of ICT development established by the Ministry of Industry, Commerce and Tourism of the Government of Spain (National Observatory of Telecommunications and the Information Society, 2011, 2020):

- Level 1 (Likert 1): basic technological infrastructure (computer, servers, etc.); basic communications infrastructure (telephony, internet).
- Level 2 (Likert 2): general solutions (office automation, ERP, etc.). Profiles in RRSS. Website development or e-commerce.
- Level 3 (Likert 3): industry 4.0, advanced ICT services (specific tools for business processes, electronic administration, real-time information, targeted advertising, Big Data, etc.).

Latent variable "Innovation": composed of a training indicator, IDi. R+D+i activities are considered the first step and promoters of innovation (Cohen & Levinthal, 1990; Janowski, 1998; López-Mielgo et al., 2012), which is why resources dedicated to R+D+i were taken as a proxy for this construct. The quantification of the observations made through the indicator survey was carried out using a Likert scale from 1 to 3, based on the adjustment of the responses obtained regarding the resources dedicated to R + D + I activities with the following pattern:

- They are not done or are done as an extraordinary effort.
- Activities are carried out on a regular basis. No committed budget/formal structure for their realization.
- The R+D +I effort is part of the normal operation of the company, with a set percentage of the annual budget and people/department/division responsible.

Latent variable "Flexibility": composed of two formative constructs, *Aut* and *Multi*. Considering functional labor flexibility (Atkinson, 1981), the two dimensions observed were the redistribution of workers based on their versatility (Multi indicator) and the autonomy of the employee in carrying out the work (*Aut*). The quantification of each indicator was by Likert scale from 1 to 5, applying the criteria set out by Bloom and Van Reenen (2007):

Quantification of the *Aut* indicator: "the pace of work and tasks performed by workers on a day-to-day basis is decided":

1: Businessperson/manager all.
2: Businessperson/manager most.
3: Consensus / balance.
4: Worker most.
5: Worker all.

Quantification of the *Multi* indicator: "in the organization exists":

1: High specialization of workers to achieve maximum efficiency. There is no mobility between positions.
2: Some ad hoc mobility when production needs demand it.
3: Formal movements between positions due to production needs. There is no specific program for the development of worker versatility.
4: Formal movements between positions due to production needs. There is a specific program for the development of the versatility of the worker.
5: Promotion and development of the versatility of workers. Turnover is part of the normal operating operation of the company.

Latent variable "Adaptation": measured by five reflective indicators, *Costs*, *P/S*, *Pers*, *Org*, *RelCl*. Each one corresponds to the effects that cause a greater or lesser capacity to adapt to the environment in organizations. The observation of each one was carried out through the following questions and the quantification of the observations based on the corresponding answers:

- *Costs*: "Has the situation caused by COVID-19 forced your company to reduce overhead costs (excluding personnel costs) to reduce the operating leverage of the company?" Likert quantification from 1 (a lot) to 3 (little/not at all).
- *Pers*: "Has the situation caused by COVID-19 forced your company to continuously vary the number of workers on the payroll?" Likert from 1 (a lot) to 3 (little/not at all).
- *P/S*: "Has the situation caused by COVID-19 forced your company, due to operational problems, to vary the mix of products/services offered?" Likert from 1 (a lot) to 3 (little/not at all).
- *Org*: "Has the situation caused by COVID-19 made it difficult to organize or monitor work at the operational level in the company?" Likert 1 to 5:
  1: The organization and monitoring of work have been greatly affected.
  3: Some of these activities have been affected in a medium or temporary manner.
  5: The organization and monitoring of work, in general, have not been affected.
- *Rel.Cl*: "Has the situation caused by COVID-19 hindered the relationship and management of customers at the pre-sale, sale, or post-sale level?" Likert 1 to 5:
  1: The relationship with customers has been greatly affected/hampered at all levels.
  3: The relationship with customers has been significantly affected at some of these levels.
  5: The relationship with customers has not/hardly been affected.

With all this, our theoretical model has four latent variables and nine manifest variables:

Table 1. Latent variables and indicators of the theoretical model

Latent variable	Description	Index	Description
ICT	ICT development.	Dig	Level of development reached in Information and Communication Technologies.
Flexibility	Functional labor flexibility.	Aut	Level of autonomy of workers.
		Multi	Versatility of employees.
Innovation	Effort in innovation.	IDi	Resources dedicated to R + D + i
Adaptation	Adaptability.	Costs	Variation of operating leverage.
		Pers	Worker's variation.
		P/S	Product/service mix variation.
		Rel.Cl.	Impact on the relationship with customers
		Org	Incidence in organization and monitoring of work.

3. Results

3.1. Sample

For the definition of the sample size, the criterion of the power tables of Cohen (1988) was used. For our research, with a maximum number of predictors of three, power of 0.8 and √ of 0.05, the required sample for medium effects is 76 observations and 35 for large effects, therefore the sample obtained is considered sufficient for our model.

Table 2 describes the statistical parameters of the manifest variables of the sample.

Table 2. Descriptive statistics

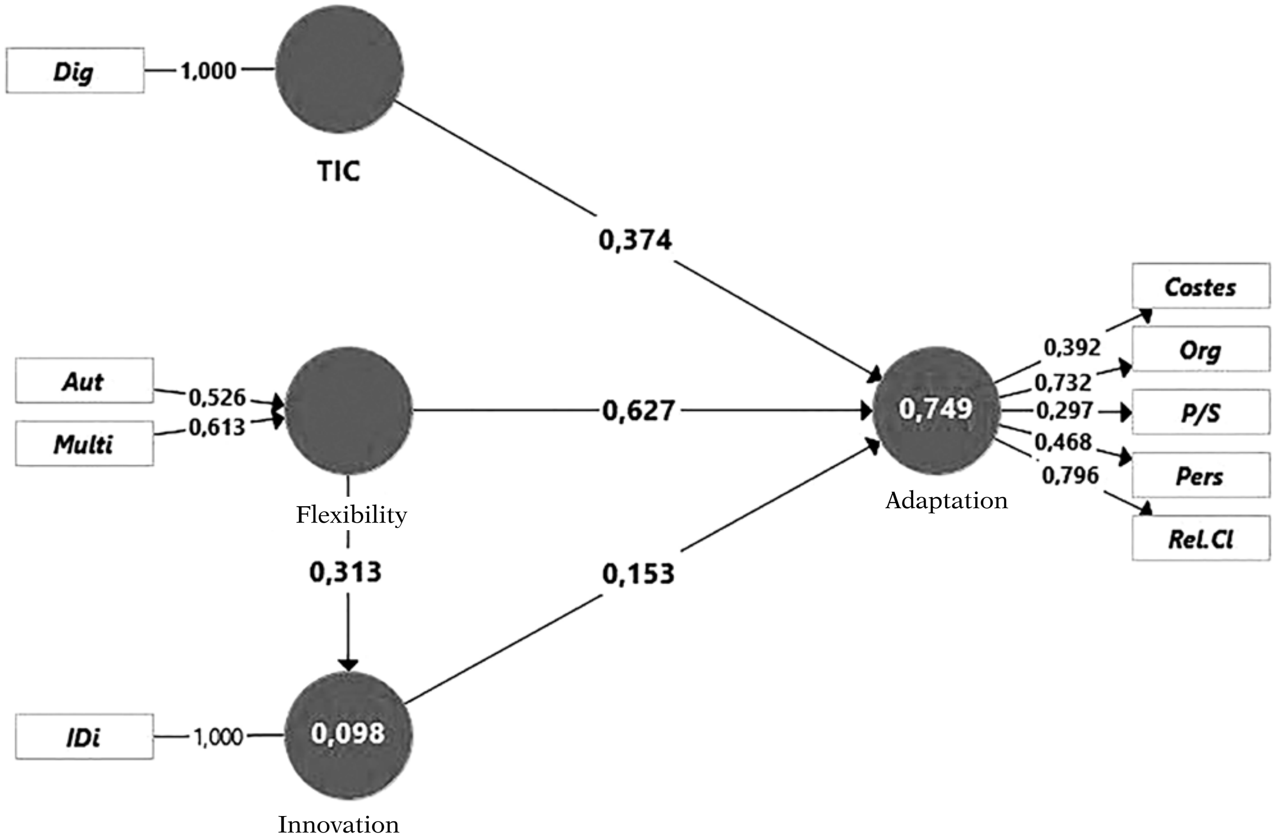
	Mean	Median	Desv. Est.	Kurtosis	Nº Observ.
Dig	2,158	2,158	0,779	-1,31	76
Aut	2,105	2,105	0,981	-0,175	76
Multi	2,605	2,605	1,052	-0,383	76
IDi	2,816	2,816	1,243	-0,936	76
Costs	2,092	2,092	0,652	-0,634	76
Pers	2,039	2,039	0,637	-0,499	76
P/S	2,592	2,592	0,566	0,119	76
Rel.Cl	3,289	3,289	1,049	-0,576	76
Org	3,066	3,066	1,017	-0,626	76

3.2. Estimated model

The analysis procedure carried out has been the one proposed by Hair et al. (2019). The evaluation of the model was carried out in two stages: evaluation of the structural model and evaluation of the measurement model. Additionally, a valuation adjustment of the global model has also been carried out.

The estimated results were as follows:

Figure 2. Estimated model (R^2, path coefficients, and external weights/loads)



Source: the authors

3.2.1. Evaluation of the measurement model

The measurement model shows the relationships between constructs and indicators. Through its analysis, the reliability and validity of the indicators of each construct were evaluated (Hair et al., 2019). Given the different nature of the measurement models with reflective and formative indicators, the validation of each type was carried out separately. The following validation criteria were considered:

Formative (Hair et al., 2019; Chin, 2010):

- Construct level evaluation: external or convergent validity.
- Evaluation at the indicator level: assessment of the existence of multicollinearity; assessment of the magnitude of the weights and their significance.

Reflective (Hair et al., 2019):

- Reliability of the indicator.
- Internal consistency.
- Convergent validity.
- Discriminant validity.

Training measurement models (“Innovation”, “ICT” and “Flexibility”).

Analysis of the existence of multicollinearity: using the Variance Inflation Factor (VIF), where the validation criterion is that for VIF values greater than 3.3 there is high multicollinearity (Diamantopoulos & Siguaw, 2006).

Table 3. Variance Inflation Factor (VIF)

	VIF
IDi	1
Dig	1
Aut	1,406
Multi	1,406

Valoración de la relevancia de los indicadores: los pesos de los distintos indicadores formativos muestran que todos ellos son relevantes en el modelo.

Table 4. External weights

	Innovation	ICT development	Flexibility
IDi	1		
Dig		1	
Aut			0,526
Multi			0,613

Assessment of the significance of the indicators: using the bootstrapping resampling procedure. The results show that the indicators are significant.

Table 5. Bootstrapping result for external weights

	Original sample	Average sample	Standard deviation	Statistics t	P-Values
Aut -> Flexibility	0,526	0,504	0,162	3,25	**0,001**
Multi -> Flexibility	0,613	0,625	0,149	4,106	**0,000**

Reflective measurement models ("Adaptation").

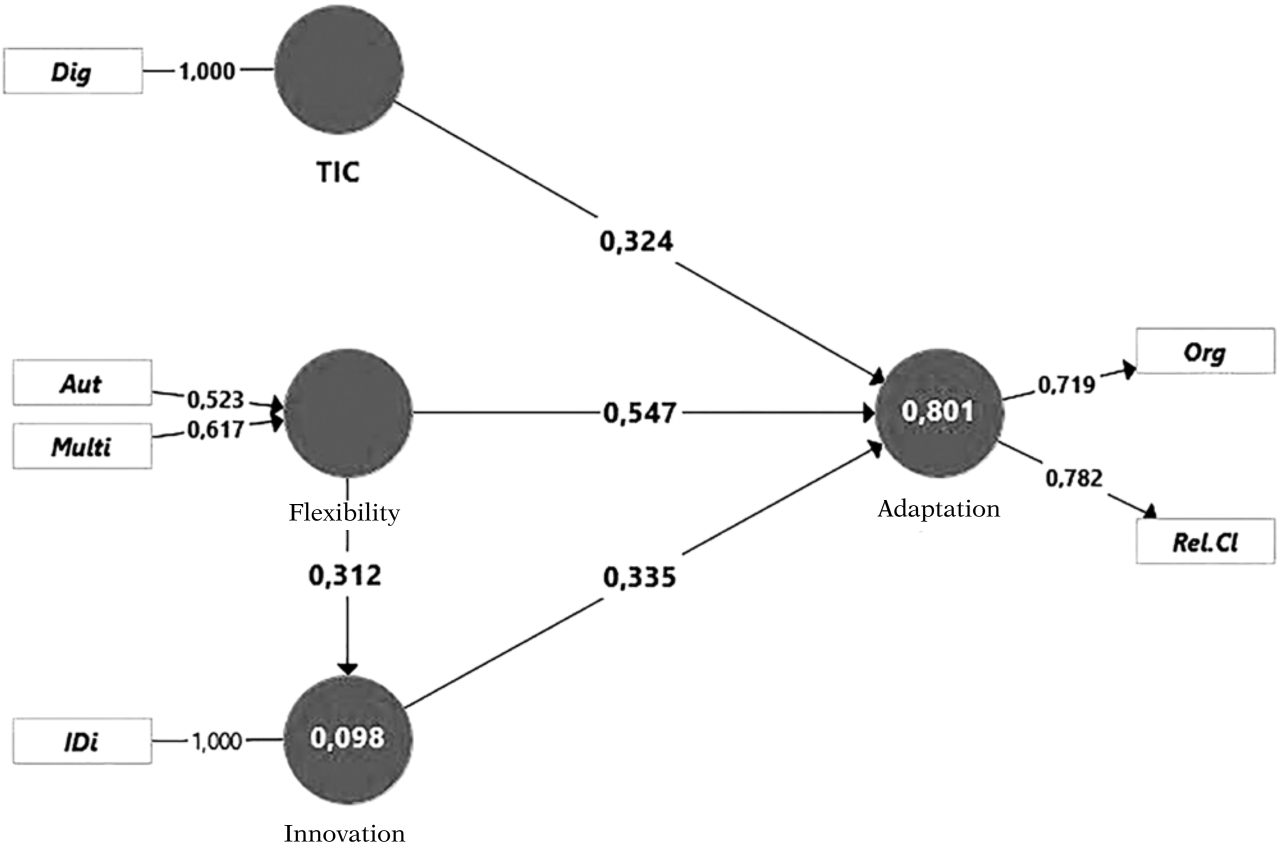
Individual reliability of the indicator (correlation with its construct): the factorial load (l) must be greater than 0.707. The following results have been obtained:

Table 6. Factor loads

	l
Costes	0,392
Pers	0,468
P/S	0,297
Rel.Cl.	**0,796**
Org	**0,732**

Only the Rel.Cl and Org indicators are sufficiently reliable, so the other three were removed from the model. The estimation of the theoretical model once these three indicators had been eliminated was as follows:

Figure 3. Estimated refined model



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Reliability and validity of the construct (internal consistency): the following criteria were used (Hair et al., 2019; Werts, et al., 1974; Dijkstra & Henseler, 2015):

Table 7. Results criteria reliability and validity of the construct

	Alpha Cronbach	Composite reliability	Dijkstra and Henseler
Values (reliability if> 0.7)	0,719	0,721	0,723

Convergent validity (convergence of a construct in explaining its indicators): measured by the Average Variance Extracted (AVE). In the construct "Adaptation Capacity" AVE = 0.564> 0.5.

Discriminant validity (degree to which each construct is different from the others in the model): evaluation by two criteria.

- Fornell-Larcker criterion: variance captured by a construct of its indicators must be greater than the variance shared between it and the others in the model (Fornell & Larcker, 1981).

Table 8. Fornell-Larcker criterion

	Adaptation
Adaptation	**0,751**
TIC	0,699
Innovation	0,682
Flexibility	0,587

- Analysis of the cross loads: the factor loads of the indicators must have a higher value with their own variable than with the others.

Table 9. Cross loads

	Adaptation	ICT	Innovation	Flexibility
Org	**0,719**	0,369	0,488	0,535
Rel.Cl	**0,782**	0,508	0,535	0,516
Dig	0,587	**1**	0,547	0,147
IDi	0,682	0,547	**1**	0,312
Aut	0,572	0,116	0,307	**0,854**
Multi	0,649	0,14	0,246	**0,898**

The results validate all the formative and reflective measurement models of the refined theoretical model.

3.2.2. Evaluation of the structural model

The estimated direct and indirect effects between the exogenous and endogenous variables were the following:

Table 10. Direct effects (path coefficients), indirect and total

	Efectos directos	Efectos indirectos	Efectos totales
Flexibility -> Adaptation	0.547	0.104	0.651
Flexibility -> Innovation	0.312		
Innovation -> Adaptation	0.335		
ICT -> Adaptation	0.324		

For the validation of the structural model, the following have been considered (Hair et al., 2019): collinearity problems, values of the path coefficients, coefficient of determination (R^2), size of the effects (f^2) and predictive relevance.

Analysis of the presence of collinearity problems: to ensure that there is no multicollinearity between the preceding variables of each endogenous construct, the Variance Inflation Factor (VIF) must be less than 3.

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Table 11. VIF of the structural model

	Adaptation	Innovation
Flexibility	1,109	1
Innovation	1,547	
ICT development	1,427	

Evaluation of the algebraic sign, magnitude, and statistical significance of the path coefficients (hypothesized relationships between the variables), based on the data in Figure 3.

- Sign and magnitude of the coefficients: all coefficients have a positive sign, according to the hypothesized positive relationships. They show medium or moderate effect sizes.
- Valuation of the significance of the effects: using the bootstrapping resampling technique, the level of significance of each coefficient ($p < 0.05$) has been verified.

Table 12. Results bootstrapping effects

	Original sample	Sample mean	Standard deviation	Statistics t	P-Values
Flexibility -> Adaptation	0,547	0,548	0,106	5,175	**0**
Flexibility -> Innovation	0,312	0,324	0,112	2,797	**0,003**
Innovation -> Adaptation	0,335	0,336	0,111	3,014	0,001
ICT -> Adaptation	0,324	0,323	0,097	3,345	**0**
Flexibility -> Innovation -> Adaptation	0,105	0,112	0,059	1,769	**0,039**

The results show that the four hypotheses formulated constitute significant relationships.

Assessment of the determination coefficient (R^2): the values obtained for R^2 and adjusted R^2 for the endogenous variable "Adaptation" have been 0.801 and 0.792 respectively, which indicates a substantial explanatory power (Chin, 1998).

Regarding the explained variance of "Adaptation" for each of its predictor variables:

Table 13. Variance explained by each predictor

	Coef. path	Correlation	Explained variance
Flexibility	0,547	0,699	**0,3823**
Innovation	0,335	0,682	**0,2284**
ICT	0,324	0,587	**0,1901**

Assessment of effect sizes (f2): all observed effects are large in size (Cohen, 1988).

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Table 14. Effects size

	f^2
Flexibility	1,352
Innovation	0,363
ICT	0,369

Assessment of predictive relevance: the Q^2 value of the Stone-Geisser test was used as a measure of the predictive power of the model outside the sample used. For its calculation, the blindfolding procedure has been used, reusing the sample omitting each D-th data of the endogenous construct, estimating the different parameters with the remaining data, and predicting the omitted values from them (Chin, 1998). The procedure has been carried out with an omission distance D = 7[1]. The value of Q^2 was calculated using the cross-validated redundancy approach (estimates from both the structural model and the measurement for prediction).

Table 15. Results blindfolding-Cross-validated construct redundancy

	Sum of Squared Observations (SSO)	Sum of squared prediction errors (SSE)	Q^2=1-SSE/SSO
Adaptation	152	85,456	0,438
Innovation	76	72,035	0,052

The obtained value, greater than 0, reflects predictive relevance. In the case of "Adaptability", when it is between 0.25 and 0.5, it indicates medium-size relevance and in the case of "Innovation", low (Hair et al., 2019b).

3.2.3. Global fit of the model

By evaluating the degree of discrepancy between the correlation matrix of the estimated model and the empirical correlation matrix. The SRMR, Standardized Root Mean Square residual, was used as a reflection of this divergence. SRMR must be less than 0.08 (Hu & Bentler, 1998), and the lower the SRMR value, the better the fit. In our model, SRMR = 0.026.

4. Conclusions and discussion

This research has explored whether certain cross-cutting factors for organizations can facilitate their adaptation to the competitive environment resulting from the COVID-19 pandemic. Significant relationships have been found between three organizational characteristics and the ability to adapt to the new scenario: labor flexibility, ICT development, and effort in innovation. The latter also plays a mediating role in the relationship between flexibility and adaptability, increasing the total effect of the former on the latter. The results have validated the four hypotheses formulated.

1 The recommended values for D are between 5 and 10 (Hair et al., 2019). Furthermore, the quotient between the sample size and the distance D cannot be a whole number, to avoid that the same set of observations is always eliminated from the data matrix in each round. In this case, 76/7.

Regarding the ability to adapt, it has been found that the most appropriate variables for observation are the level of incidence on the organization and monitoring of work and on relationships with clients. Aspects such as workforce adjustments, changes in the supply mix, or structural cuts have not been shown to be elements whose main common factor is the ability to adapt, having to explore other internal and external factors of the company- such as the generic strategy, the particularities of its supply chain, specific regulatory limitations, seasonality of the sector, etc.

The main contributions of the research are, firstly, the delimitation of determinants that seem to favor the ability of companies to adapt to the competitive environment as a result of COVID-19. Although all hypothesized relationships have been significant, the greatest effect is given by the positive influence exerted by functional labor flexibility, which is in line with previous studies that show that practices such as decentralization or polyvalence favor the competitiveness of organizations. (Bloom et al., 2010; Sánchez et al., 2011). Second, the results can guide the focus of efforts. Many of the effects caused by the crisis will remain in the long term (Gruszczynski, 2020; Ortega-Vivanco, 2020), with COVID-19 becoming a catalyst for trends observed for years. Thus, actions towards digitization- which allow activities such as real-time monitoring, teleworking, or developing online channels with customers and suppliers-, the versatility of workers- which favors continuous adaptation to demand, greater motivation, and work spirit as a team —or efforts to innovate— that have organizational consequences of excellence throughout the entire organization beyond innovative outputs —become a must for companies in the short and medium-term.

The results and conclusions are in line with various previous investigations. Following Milgrom and Roberts (1992), it can be concluded that the development of ICT allows the information and coordination problems of an organization to be managed more efficiently, which directly affects its adaptation to the competitive environment. In the current context, Almeida et al. (2020) highlight the importance of the role that digitization can play in the competitiveness of companies in the post-COVID-19 era. And Fields et al. (2020) find that Industry 4.0 practices have helped sustain business activities during the crisis.

In addition to the moderating and mediating role played by innovation, it has been observed that the effects of the pandemic have exerted a catalytic role on innovation (Heinonen & Strandvik, 2020) and that in the current environment the capacity to innovate significantly influences the business success (Putra et al., 2020).

The next steps to follow in the research are to delve into the relationships explored and analyze their temporal evolution through the use of panel data, also exploring the relationship between the considered variables and various organizational performance indicators, incorporating other variables in the study, such as cooperation between companies as a source of local economic development in times of crisis (Carpio, 2020; Vergara-Romero & Sorhegui-Ortega, 2020). Also increasing the sample size to advance on the path of confirmatory study of the relationships between the variables. Finally, analyze the moderating role that variables such as type of property or size can exert on the relationships analyzed.

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The impact of COVID-19 in small and medium-sized communication enterprises in Spain

El impacto de la COVID-19 en las pequeñas y medianas empresas de comunicación en España

Dra. Elena Bandrés-Goldáraz is a professor and researcher at the University of Zaragoza (Spain) (bandres@unizar.es) (https://orcid.org/0000-0003-0898-2232)

Mg. Mariola Conde-Casado is a professor and researcher at the University of Zaragoza (Spain) (mconde@unizar.es) (https://orcid.org/0000-0003-1348-035X)

Dra. Isabel Iniesta-Alemán is a professor and researcher at the International University of La Rioja (Spain) (isabel.iniesta@unir.net) (https://orcid.org/0000-0002-0127-3487)

Abstract

The pandemic caused by COVID-19 has taken a large number of small and medium-sized Spanish companies by surprise. However, these SMEs dedicated to communication have seen how the economic crisis has not only not affected in the same way as the rest of companies and self-employed, but they are getting ahead, in a large majority, with the great hope that the crisis will respect them in this 2021, despite the tough adjustments they have had to make before the majority reduction of income. The study has been carried out in SMEs and self-employed workers in the Community of Aragon, mainly, but a small sample of those in Madrid has also been studied, as they are representative of what is happening in Spain. The aim of this work is to find out what measures have been adopted by these companies to face and weather the global crisis.
Through an e-Delphi methodology, the main conclusions obtained were the high degree of positivity in the face of the crisis detected in these companies; their efforts to move forward, despite the economic blow that the drop in income has meant for most of them; and the high degree of solidarity with the rest of society shown by these people.

Resumen

La pandemia provocada por la COVID-19 se ha llevado por delante a buena parte de las pequeñas y medianas empresas españolas. Sin embargo, estas pymes dedicadas a la comunicación han visto cómo la crisis económica no solo no ha afectado de la misma manera que al resto de empresas y autónomos, sino que están saliendo adelante, en una amplia mayoría, con la gran esperanza de que la crisis les respetará en este 2021, a pesar de los duros ajustes que han tenido que hacer ante la reducción mayoritaria de ingresos. El estudio se ha realizado en pymes y autónomos/as de la Comunidad de Aragón fundamentalmente pero también se ha estudiado en una pequeña muestra de las de Madrid, por ser territorios representativos de lo que ocurre en España. El objetivo de este trabajo consiste en averiguar cuáles han sido las medidas adoptadas por estas empresas para afrontar y capear la crisis mundial. A través de una metodología e-Delphi se ha obtenido como principales conclusiones el alto grado de positividad frente a la crisis detectada en estas empresas; sus empeños por salir adelante, a pesar del mazazo económico que ha supuesto para la mayoría la bajada de ingresos y el alto grado de solidaridad para con el resto de la sociedad desplegada por estas personas.

Keywords | palabras clave

Companies, SMEs, communication, COVID-19, competitive advantage, crisis management, communication, resilience.
Empresas, pymes, comunicación, COVID-19, gestión de la complejidad, gestión de crisis, resiliencia.

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1. Introduction

The unprecedented economic crisis generated by COVID-19 in Spain has fundamentally impacted small and medium-sized businesses. Of every five jobs destroyed in 2020, four were registered with business organizations with fewer than fifty employees.

According to the classification of micro, small and medium enterprises (SMEs) contained in Annex I of (EU) Regulation No. 651/2014 of the European Commission:

1. The category of micro, small and medium-sized enterprises (SMEs) consist of companies employing less than 250 people and whose annual turnover does not exceed EUR 50 million or whose annual balance sheet does not exceed EUR 43 million.
2. In the SME category, a small business is defined as a company employing less than 50 people and whose annual turnover or annual balance sheet does not exceed EUR 10 million.
3. In the SME category, a micro-enterprise is defined as a company employing less than 10 people and whose annual turnover or annual balance sheet does not exceed EUR 2 million.

On the other hand, in Spain, there is also a job category performed by people whose professional work is defined as "self-employed". According to article 1 of Law 20/2007, of July 11, of the Statute of Self-Employed Work, the following can be classified as Self-employed professional:

> Individuals who regularly, personally, directly, on their own account and outside the scope of management and organization of another person, carry out an economic or professional activity for profit, whether or not they give employment to employed workers. This autonomous or self-employed activity may be carried out full-time or part-time.

Based on the data for December 2020, in Spain, there are 3 271 408 self-employed workers who contribute to Social Security within the Special Regime for Self-Employed Workers (RETA).

Of the total volume of companies and workers, this research will be limited to companies dedicated to the integral management of communication for organizations and people, which may contain consulting services, communication auditing, corporate image and brand, reputation, or public relations, among other fields, a classification that is collected, according to the National Classification of Economic Activities (CNAE), in group M of said ranking, called "Professional, Scientific and Technical Activities", which includes the activities dedicated to "public relations and communication (…) advertising; advertising agencies; media representation services; market research and public opinion polls; specialized design activities and photography activities ". The study will focus on a representation of companies in the Community of Madrid and Aragon, in order to limit the size of the sample, while obtaining a representative sample.

Regarding the number of companies registered with Social Security, according to the report prepared by the Ministry of Labor as of December 2020, the companies engaged in this type of activity in December 2019 went from 94,001 in the whole of Spain to 92,843 in the same month, but 2020. In December 2020, the number of people registered in this Public Relations and Communication sector throughout the country was 763,867. In the self-employed regime, this same section brought together 295,389 people. This is a decreasing trend (Marta-Lazo et al., 2018) that was already being experienced in the sector, even before the current crisis.

In January 2020, in the Autonomous Community of Madrid, there were 243,692 people affiliated with the general regime in this activity and, in Aragon, 14,510. These figures fell in Madrid in December of that same year to 242,249 people, while in Aragon there was a slight increase when this figure rose to 14,658. Regarding the registration of self-employed workers throughout Spain, in January 2020, their number was 131,395 but it ended the year with an average in December of 295,520 affiliates in category M.

In the autonomous worker's regime in Aragon, 7,703 were registered in January 2020 and they ended the year with a registration of 7,737 people, as can be seen in Table 1.

Table 1. Average affiliates of the month and activity sections CNAE 2009

LOCATION		DECEMBER 2020 Section M CNAE "Public relations and communication"	DIC. 2020 Section M CNAE "Public relations and communication"
SPAIN	GENERAL REGIME	766 823	763 867
MADRID A.C	GENERAL REGIME	243 692	242 249
MADRID A.C	GENERAL REGIME	14 510	14 658
SPAIN	SELF-EMPLOYED	131 395	295 389
MADRID A.C	SELF-EMPLOYED	27 015	58 083
MADRID A.C	SELF-EMPLOYED	7 703	7 737

Source: Own elaboration

As it is obvious the importance that communication has had and has in any situation and, especially, in times of pandemic, we want to reflect in this work how the economic crisis derived from the health crisis has affected small and medium-sized companies that have made and they make this type of communication possible in numerous organizations, entities, and companies, essential to face and overcome these difficult times.

Given the impossibility of carrying out a scan of all communication SMEs throughout the country, a study has been carried out on most of the communication companies registered in Aragon and on a representative sample of SMEs in the Community of Madrid. Aragon has been chosen because it is a community that is usually used as an average reference in terms of political behavior, as has been recorded in the book "Aragon is our Ohio (2019)", but also because it is a medium-sized community in Spain.

This study has been broadly compared with those carried out by KPMG and CEOE (2020a) and that carried out by DIRCOM (2020) for large companies in all sectors, to determine whether or not there are coincidences with small and medium-sized companies.

1.1. Communication as a tool for companies at the service of society

91.3% of large companies had a communication department in 2010, as shown in the third edition of the report "The state of communication in Spain" (2010) published by the Association of Directors of Communication (DIRCOM), a figure that increased to 100% of companies in 2018, according to data provided by this Association in its latest report (2018). The development of communication is linked, in recent decades, to the field of large companies (Gómez-Nieto, 2011) since when it comes to small and medium-sized companies (SMEs), according to a report by the consulting firm OAK Power published by the newspaper Cinco Días, (2015) this percentage drops to 55%.

Within this framework, the business volume of communication and public relations consultancies increases every year, both internationally and in Spain, as the number of companies that understand that specialized consultants are the ideal organizations to support, in the case of large corporations or, to organize, in the case of SMEs, the comprehensive communication of their brands. In 2019, 57% of companies claimed to have worked with communication consultancies. Of these, 75% stressed that they would work with one again and 88% consider them the ideal partner to manage the long-term communication and brand strategy.

These are some of the data that emerge from the biennial study "Agency Scope 2019/2020" prepared by the international consultancy Scopen (2020), where it is claimed that communication and public relations companies contribute 16% to the growth of their customers business. In Spain, this sector is made up of agencies with an independent profile and of a very small size that tend to work for SMEs, compared to large multinationals, which are more attractive and competitive for large companies (AxiCom, 2015). The vertiginous changes that the sector has to face have also led to the appearance of collaborative companies, made up of freelancers who specialize in specific areas of communication who offer their services independently but included in a common brand.

This new environment, immersed in the emergence of new business models and marked by the presence of Intelligence Technology, requires that companies be designed based on flexible, efficient and dynamic structures (Ravina-Ripoll et al., 2019). To achieve this, it is essential that the people who make up the team of the new communication and public relations companies accept naturally and without fear (Foncubierta-Rodríguez & Sánchez-Montero, 2019) the new context of digital communication.

As Gómez and Bandrés (2014, p. 144) collect, "communication agencies offer services to those organizations that, due to their size, cannot have their own department, but are aware of how unpredictable the services of communication are today". Following Marín-Dueñas (2015), SMEs consider the need to invest in communication since they consider it as a success factor that favors good results, as well as the good performance of the organization as it is an essential tool to interact with their public of interest, whether internal or external. For this author, SMEs understand that strategic communication must be managed by specialized and professional personnel, therefore, when they do not have the budget to incorporate a specialist on staff, they outsource the service to communication consultants.

Scopen's report assures that more and more companies are aware of the need to have communication consultants or public relations agencies to help them manage their image and reputation. Knowledge of the market, the client, and the brand (37%), proactivity and initiative (37%), and creativity and innovative ideas (31%), are the characteristics most valued by companies in a communication consultancy, according to Scopen.

Along the same lines, a report by the specialized magazine *El Publicista* (2019) highlights that Spanish companies value three key aspects of communication agencies very positively: their strategic capacity to generate business from communication management (a key aspect for eight out of ten interviewees), their ability to provide an innovative and creative vision to reach the audience (70%) and the fact that they are perfect interlocutors between the company and its stakeholders.

One of the pieces of evidence that the pandemic has left in the economic and social sphere has been the reinforcement of the involvement of organizations with their interest groups, in the sphere of social responsibility of their activity. Between March 14, 2020 (the day before the State of Alarm entered into force in Spain) and April 14 of that same year, according to a report by the CANVAS consultancy (2020), more than 650 business initiatives and more than 9000 impacts in the media featuring large companies, SMEs and the self-employed, have been identified as being linked to COVID -19. Some of these initiatives have been donations, solidarity actions, or adaptations of production models aimed at all interest groups, from employees to clients and suppliers, to society in general, especially the most in need or vulnerable sectors, as will be addressed later.

According to this report, 41% of the initiatives have, in general, focused mainly on society as a whole, highlighting the strength that companies can manifest when reacting to urgent situations, as well as their ability to help the most vulnerable sectors.

Faced with this health and social pandemic, more than 39% of the solidarity actions of companies have focused on the health and well-being of their closest interest groups, both external and internal, as shown in Table 2:

Table 2. Business initiatives against COVID-19

TYPES OF INITIATIVES		
CORPORATE	**EMPLOYEES**	**CLIENTS**
• Specific advertising regarding COVID-19 • Cost adjustment, reduction or readjustment of activity • Suspension of publicity and marketing activities • Public statements from CEO or high management • Salary cuts to directives • Suspension of dividends and/ or postponement of purchase of shares • Cancellation or telematic holding of shareholders' meeting • Launching of post COVID-19 plans	• Maintaining employment and activities • Extra bon uses for employees that work through the state of alarm • Measures related to health, well-being and security (includes teleworking • New hires or shift reinforcements • Corporate voluntary work or initiatives promoted by the employees	• Launching or redefinition of services • Reinforced security and prevention measures • Prioritization of certain collectives in the provision of services • Postponement or delays and moratorium in payments to clients • Provision of free services to disadvantaged collectives
SOCIETY		**SUPPLIERS**
• Economic donation • Donation in kind • Temporal adaptation of production, services or personnel to the needs that arose from the crisis • Accompaniment to vulnerable groups • Sensibilization and information campaigns • Cultural or formative initiatives • Support to innovation		• Advance payments to suppliers

Source: Canvas, 2020

From this general list of initiatives, donations in kind stand out, especially of sanitary material such as masks and hydro-alcoholic hand disinfection gels, as well as food and electronic devices. Also directly monetary actions are outlined, which together represent more than 19% of the total. Regarding the initiatives with the personnel, the maintenance of activity and employment and the reinforcement of health, safety, and well-being measures stand out. The CANVAS study (2020) also highlights the actions related to the establishment of alliances, adherence to initiatives or social platforms, something that denotes a high level of commitment to the context, with a vocation for permanence and with a strong cooperation component.

Among the conclusions of this report, it is clear that this crisis has strengthened the role and leadership of people within companies. In this way, it raises the need to consolidate the ethical climate generated in the face of the crisis, reinforcing sustainability, organizational resilience, and flexibility as the key vectors of the new business culture to adapt to the new post-COVID scenario.

A macro business initiative launched by a well-known supermarket brand promoted, together with its two hundred supplier companies, the platform #EstoNOtienequePARAR (this doesn't have to stop), to publicly recognize the efforts of companies to continue working and generate a climate of trust, at an internal level. It went online on March 16, 2020, to unite and encourage, as stated on its website, "those who worked guaranteeing essential supplies despite great difficulties." Through this initiative:

> It encouraged all companies, entrepreneurs, and freelancers who could not work or open their business to remain active, inspiring them with real success stories that happened at that time, to also innovate, reinvent their business or readjust to the new situation.

In a few months it reached more than 3,000 adhesions and, after the end of the confinement as of June 21, 2020, the date on which the State of Alarm that decreed the total home confinement was concluded, except for crucial sectors, this initiative gave way to a second phase called #EActíVate (E-activate), with the aim of "accelerating and activating our economy to overcome the social and economic consequences of the impact that the health crisis is having on our business and industrial structure and our economy".

More than 3,000 real cases of companies of all sizes, self-employed workers from all over the Spanish state were presented. In Aragon, it also aroused numerous adhesions. As they collect on their website, the dissemination of these experiences was made known through different channels in which a huge amount of news could be seen and that allowed feedback from the public, as they tell on their website: "more than 100 cases published on national and regional television/radio stations; 800 news items in the press; 640 cases explained on the web and 700,000 views of company videos on our channels".

In addition to this project, initiatives such as:

- #AragonenMarcha (Aragon on the march), managed by CEOE Aragón in which economic donations, products, or services were centralized together with the rest of the social agents and the Government of Aragon.
- #LasMarcasSeSalen (Brands go out). With this hashtag, a communication campaign was carried out to pay tribute to the 230 brands that joined this solidarity initiative. The objective was to generate confidence in the future and strengthen the ties drawn between companies and people to recover the "new normal" in which Aragón and the rest of Spain settled, after the end of home confinement.

2. Methodology and sample

The need to obtain information on the impact generated by the health crisis on the activity of communication SMEs, practically at the same time that the pandemic continues to be suffered, has made it necessary to adopt analysis parameters based on the versatility of the e-Delphi methodology, defined by Lindqvist and Nordänger (as cited in Mamaqi et al., 2010) "as a special type of research in which questionnaires are used for data collection", and in which "in recent years, the use of e-mail has become more and more frequent to carry out the process".

The protocol of phases has been followed, collected by Reguant and Torrado (2016, p. 92) initiated by consulting three experts who have helped to validate the criteria of the questions, as well as their formulation. A convenience sampling was established aimed at these companies to obtain specific information through a descriptive form, with basic phase quantitative questions and other qualitative questions to obtain information on personal responses to general problems caused by COVID-19. We also contacted the companies via email and the LinkedIn social network to explain the collaboration with the project and we obtained very valuable opinions from them on specific topics that were not covered in the questionnaire.

The survey carried out consists of six first questions in which the sex, age, size of the company, studies of the leader who answers, the address of the company, and years of creation of the company are determined.

The questionnaire contains ten other questions, which ask how COVID has affected the company; if they have accepted an erte[1] and if they are, at the time of answering, in one. He also asks about which of the suggested measures has been taken mainly to adapt to the situation generated by COVID-19 (teleworking; staff reduction; request for financial credit; focusing work on the internet and social networks; change of activity or another measure). Number 6 asks say whether the company has carried out any solidarity initiative during the pandemic. Number 7 requests that, if you have done so, indicate which one (s) they were. 8 asks how much the company billed per year, before COVID. The penultimate, what is the turnover at the end of 2020 and, finally, if they think that the company will be able to stay in business in 2021.

2.1. *Sample typology*

To locate Aragonese companies, the list included in the agenda of the Association of Journalists of Aragon has been used, as well as the directory of the Association of Communication Directors (DIRCOM-Aragón) of said Autonomous Community.

In order to find the Madrid companies for this work, a screening was carried out of the communication companies included in the ranking of companies in the Public Relations and Communication sector of the "El Economista.es" website, which shows the companies ordered by sales figure. This information comes, according to the page itself:

> From the Database of INFORMA D&B S.A.U. (SME), which draws on multiple sources of information, public and private, such as the BORME (Official Gazette of the Mercantile Registry), Deposits of Official Accounts, BOE (Official State Gazette), Official Provincial and CC.AA. Gazettes, National and regional press, ad hoc Investigations, and Various Publications.

The search engine allows you to discriminate the search range by size and city, so this method has been used to find the first twenty small companies and the first twenty, medium-sized ones.

1 Erte, defined by the Pan-Hispanic Dictionary of Legal Spanish, is the "procedure for the suspension of the employment contract or the reduction of the working day, of a temporary nature, for economic, organizational or production causes or those derived from force majeure. A figure of labor law regulated in Royal Decree 1483/2012, of October 29.

In total, the questionnaire was sent to 50 companies between December 27, 2019, and January 22, 2021, of which 32 answered. Taking into account that the Delphi method (regardless of its electronic variant) considers adequate the number of 30 experts in order to collect the information on the matter to be investigated, it would be within the optimal sampling parameters. More information has also been obtained through direct contact with various professionals who have particularly evaluated the current situation.

3. Results

From the obtained results, it is extracted that 65.6% are female, compared to 34.4% who are male. 50% are between 41 and 50 years old. 25%, between 51 and 60. 12.5% between 61 and 65 years. 3.1% are over 66 years old. Another 3.1%, between 20 and 30 years of age. 6.3%, between 31 and 40 years old.

Regarding the size of the company, 43.8% have between two and five workers. 34.4% are self-employed. 12.5%, between six and ten. 6.3%, between 11 and 20 and 3.1%, more than 51 workers. Regarding studies, 43.8% have a university degree in Journalism, Communication, or Advertising. 53.1%, their degree or degrees come from other university studies and 3.1%, from other studies.

53.1% of the companies consulted are in Zaragoza, 31.3% in Madrid, 9.4% in Huesca, and 6.3% in Teruel. 30.4% created the company more than 20 years ago. 43.5% ten years ago. 17.4% five years ago. 4.3% one and another 4.3% less than a year ago, as can be seen globally in Figur 1.

Figure 1.

Source: Own elaboration

Table 3 shows the answers to questions 1. How has COVID-19 affected your company? 2. Have you accepted an erte? 3. Are you in an erte right now? 4. Which of these measures have you taken mainly to adapt to the situation generated by COVID-19?

Table 3. Answers to questions 1, 2, 3 and 4

(1)	(2)	(3)	(4)
HOW HAS COVID-19 AFFECTED YOUR COMPANY?	HAVE YOU ACCEPTED AN ERTE?	ARE YOU IN AN ERTE RIGHT NOW?	WHICH OF THESE MEASURES HAVE YOU TAKEN MAINLY TO ADAPT TO THE SITUATION GENERATED BY COVID-19?
Reduced worked 25% 28%	21,9% Yes	93,7% NO	Telework 62,4%
Reduced worked 50% 18,1%	78,1% NO	6,3% Yes	Internet and RSS 18,8%
Reduced worked 75% 3,1%			Credits 6,3%
We have closed 9,4%			Downsizing 3,1%
It has not affected us 21,9 %			Change of activity 3,1%
My work has increased 19,4%			Other measures 6,3%

Source: Own elaboration

While the responses to question 5 (If you have chosen "another measure" in the previous question, please indicate what they are) the majority responses have been, as can be seen in Table 5:

Table 4.

Flexibility
Telework and ICO credit
Closing the business for various months
Financial credits
We have closed one of the branches, therefore the payroll has been reduced and we also teleworked during confinement.

Source: Own elaboration

And Table 5 shows the answers to the questions: 6. As a company, have you carried out any solidarity initiative during the pandemic? 8. How much did your company bill per year, before Covid-19? 9. What is your turnover at the end of 2020 compared to 2019? and 10. Do you think your company will be able to stay in business in 2021?

Table 5. Answers to questions 6, 8, 9 and 10

(6)	(8)	(9)	(10)
AS A COMPANY, HAVE YOU CARRIED OUT ANY SOLIDARITY INITIATIVE DURING THE PANDEMIC?	HOW MUCH DID YOUR COMPANY BILL PER YEAR, BEFORE COVID-19?	WHAT IS YOUR TURNOVER AT THE END OF 2020 COMPARED TO 2019?	DO YOU THINK YOUR COMPANY WILL BE ABLE TO STAY IN BUSINESS IN 2021?
	Between 300.000 and 400.000 € 21,8%	62,6% Inferior	68,7% Yes
56,6% No	Between 15.000 and 30.000 € 18,8%	15,6% equal	6,3% No
3,2% Doesn't know	Between 30.0001 and 50.000 € 18,8%	21,8% Superior	25% Doesn't know
	Between 50.001 and 100.000 € 3,1%		
	Between 100.001 and 200.000 € 11,5%		
	Between 200.001 and 300.000 € 10,5%		
	More than 400.000 € 9,2%		
	Less than 15.000 € 6,3%		

Source: Own elaboration

Question number 7 asked that, in case of having carried out a solidarity action, please indicate which one or which they had been. The responses obtained were:

- Support for clients with problems, NGOs, etc. within our scope of action
- Creation and Production of a motivational video for other people and companies.
- Offering my regular clients, a specific communication plan to help them, but in the end, it has not been of any use and I have to close.
- Various campaigns. To collect funds. Spread the work of others. And to spread the confidence we need to get out of this health and economic crisis.
- We are in process since the pandemic is not over.
- Several with IFEMA.
- Collaboration with the NGO Bokatas Zaragoza.
- Adherence to solidarity initiatives such as the one carried out by CEOE.
- Dissemination of the hotel offer.
- We donated money and collected material for the manufacture of masks.
- Help to communicate solidarity ideas of companies.
- Support to different NGOs that are within the Group's program.
- We have donated advertising space to value all the solidarity initiatives in the area, which have been many, with the aim of getting new collaborators for them.

4. Discussion and conclusions

It can be said that the effects of the economic crisis generated by COVID-19 in the communication companies and self-employed workers studied have not been as harsh as the rest of the small and medium-sized companies since, despite the dramatic situation, they have managed to get out afloat this year, although with considerable losses compared to its pre-pandemic situation.

Half have had to reduce their work between 25 and 75%; almost 10% have closed, while about 22% have not been affected by the crisis and 18.8% have increased their work in times of crisis.

About 22% have taken up an erte but at the time of answering the survey, 93.7% were not. Companies have weathered the bad situation by applying measures such as Teleworking (62.5%); turning their activity on the Internet and on social networks (18.8%); while 6.3% have applied for loans and others have reduced the workforce or have changed activity, with 3.1% respectively. Other measures adopted have been "flexibility", combining teleworking and applying for an ICO credit; closing the business for several months; reduce the staff and teleworking.

Solidarity is another identifying feature of these companies in which 45.2% have developed some solidarity initiative as an entity, despite the fact that the turnover in 2020 has been lower than that of 2019 for 62.5%. Of the people who have been solidary, 85.7% have carried out initiatives despite the fact that their turnover in 2020 has been lower than the previous year and, the rest presented an income statement equal to that of the previous year.

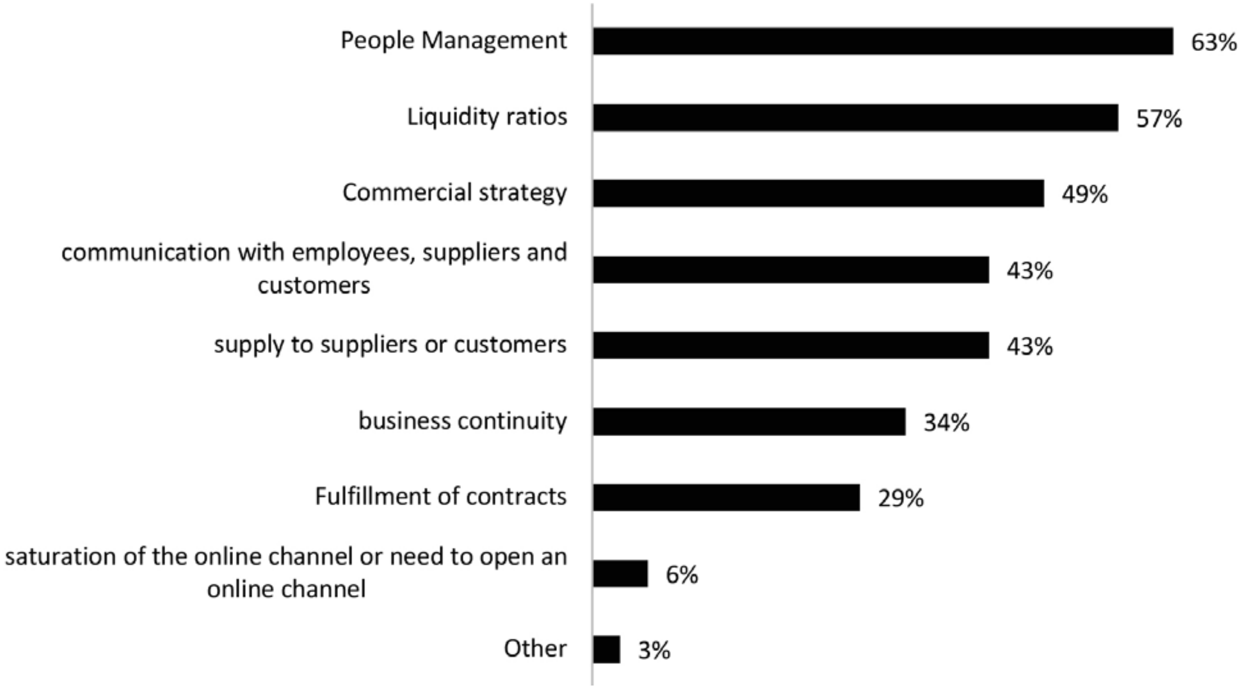
Despite the bad situation generated by the health crisis, 68.8% believe that their company will endure in 2021, compared to 6.3% who believe that it will not. 25% do not know.

Regarding these data, Spanish companies from all sectors during the pandemic, and especially in the State of Alarm, have a negative assessment of the economic situation and their future forecasts. The business confidence indicator has been, since the first quarter, the lowest value in the historical series (95.5 points), according to the INE (2020). In this unfavorable environment, many companies, especially small and medium-sized ones, have been forced to submit ertes. Many companies have suffered a sharp drop in their turnover, as well as the investments they had planned.

In the balance sheet of Spanish companies, which are periodically carried out by KPMG and CEOE (2020b), managers reveal that they have been forced by the pandemic to adopt measures quickly and beyond their strategic plans, with a double objective. On the one hand, to guarantee the health and well-being of their workers, suppliers, and clients, in order to contribute with their responsibility to stop the spread of the virus and, on the other, to maintain their activity as much as possible, trying to contain the adverse aspects that the coronavirus implies for their daily work. Objectives that coincide with the attitudes reflected in the responses gathered from the surveyed small and medium-sized companies.

The companies reflected in the previous report have seen all their areas of activity and their operating systems affected by COVID and also by the Government's measures to combat it, as can be seen in Figure 2.

Figure 2. Areas of companies that are affected by the coronavirus



Source: KPMG and CEOE, 2020

The functional areas most affected by the health emergency have been people management, treasury, and commercial management. Faced with this crisis, large companies have applied different measures, notably teleworking, which has been adopted by the vast majority of SMEs consulted, reaching 96%.

Also, marketing and commercial strategies have been modified and, among other things, commercial trips and those carried out by staff have been eliminated, in addition to suspending events, both internal and external. Likewise, the protocols and communication systems of companies with their stakeholders have been modified and the digital transformation of companies has been streamlined, as well as their digital communication, with the opening of new online channels, in the context of the web 2.0.

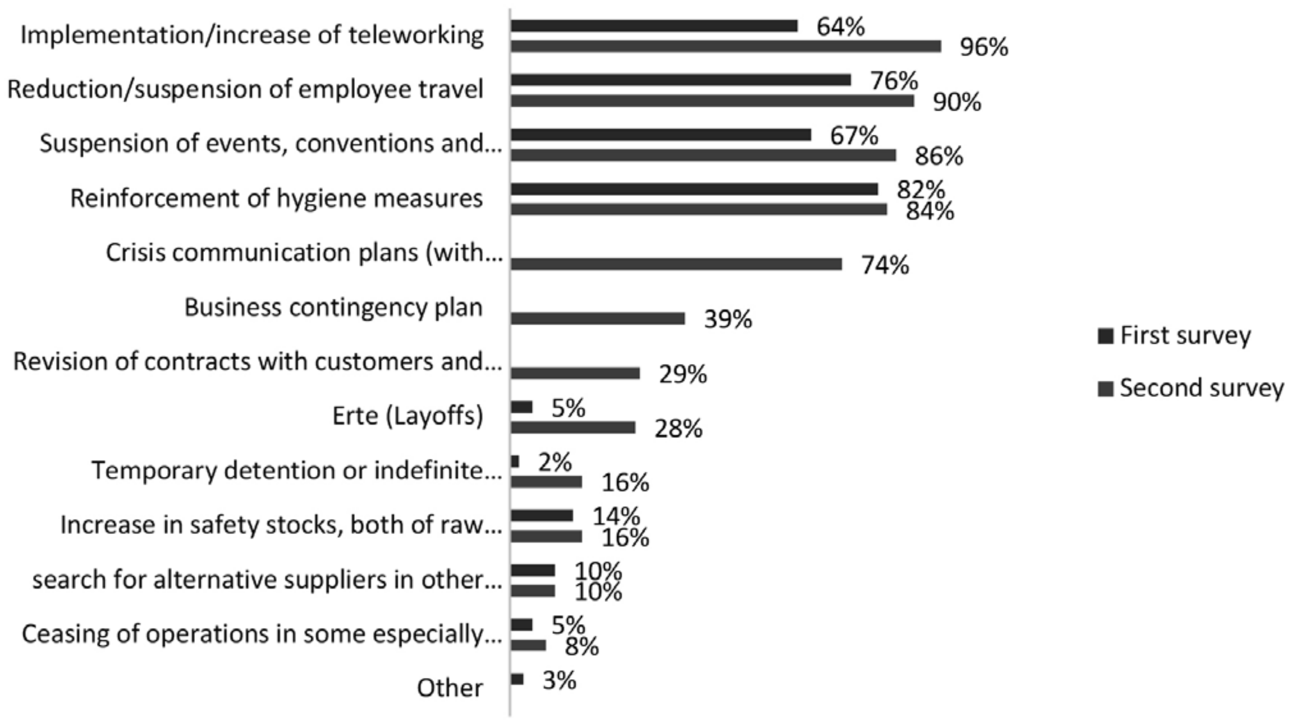
For those surveyed who occupy a managerial position, the current situation is here to stay and is going to transform some aspects of the business in the long term. Communication, digitization, ways of working, and risk management are the areas most sensitive to these changes, as can be seen.

The prolongation of the pandemic, waiting for the administration of vaccines to become a reality in all societies, has meant that these measures continue to be maintained over time, as shown in Figure 3.

However, as can be seen, if a comparison is made between the first and the last report by KPMG and CEOE (2020a and 2020b), the assessment of the evolution of the economy after the COVID crisis is slightly more optimistic than in full confinement, something that coincides with the forecasts of small and medium-sized companies, as well as self-employed workers.

Taking into account this comparison, it can be seen that communication and people management is precisely the main challenge they have had, and that companies will have to overcome in the face of the COVID crisis. Digital transformation is also a primary area for most business man and women, as well as process improvement and other operational restructuring measures.

Figure 3. Evolution of the measures adopted by companies in the face of the coronavirus



Source: KPMG and CEOE, 2020

For DIRCOM at the state level (2020), corporate communication has been revealed during this crisis as an essential tool in society around a triple function:

1. As a tool to inform with rigor and clarity and to calmly educate the population about the health and social situation derived from COVID. In their guidance to countries on the pandemic, the World Health Organization points out that timely and transparent communication, with correct and evidence-based information, but also honest and frank, with empathy and understanding for public concerns, is essential so that people know the risks of COVID-19 and follow the recommendations of the authorities to protect their health and that of others.
   In this context, consumer habits and trends have been drastically modified. Digital newspapers have received 45% more page views and increased their traffic by 100%. The digital audience of online radio has grown by 112% (which is why it has positioned itself as one of the media that gives the audience the most confidence) and live online television has added 93% of unique users. For its part, television has also become the main source of entertainment and information and news programs have increased 65% in their daily consumption, as recorded by Montaña-Blasco et al. (2020).
2. As an internal communication tool to increase the feeling of belonging of the staff hired on the payroll and taking care of them from the point of view of their physical and emotional health. At the time of the pandemic, practically 100% of the companies, consulted by DIRCOM, established security and protection protocols for their employees, which had to be implemented and, at the same time, communicated.

Multi-channel communication has been a common factor in internal communication protocols. Apps, podcasts, internal social networks, WhatsApp groups, employee helpline ... According to DIRCOM, companies have diversified their communication channels with their staff and have reactivated some of those that had little use. The challenge has been to create a new internal communication narrative, for which new content has been used with different objectives in which credible sources have been used and in which rigorous and truthful information has been offered.

3. As a tool at the service of society, so that companies can transmit their purpose and future challenges in terms of employment, sustainability, or social responsibility. During the pandemic, in addition, most brands communicated their solidarity with the situation, through campaigns focused on corporate purpose, while reducing the commercial communication of their products. To this end, multi-channel external communication actions were intensified, aimed at communicating to society the measures and actions that were implemented from the company itself to help improve the situation, as mentioned above.

In this area, according to a report by Deloitte (2020), almost four out of five people could cite a time when a brand responded positively to the pandemic and, one in five, strongly agreed that it led to a greater brand loyalty from them. On the contrary, more than 25% of those who noticed that the brands were acting in their own interest moved away from them.

In general, the business behavior of small and medium-sized communication companies, together with that of the self-employed who work in this sector, in the midst of the crisis generated by COVID-19, managed to adapt, for the most part, to the harsh consequences generated due to the cessation of economic activity in a large part of the business sector.

If the studies carried out by KPMG and CEOE (2020b) are taken into account, in which the situation of the Spanish company in the face of COVID-19 is analyzed, together with DIRCOM's analysis on communication in times of pandemic, cited above, and compared with the results of the survey of this research, it can be deduced that SMEs and freelancers of marketing and communication companies in our country have benefited from the increase in the needs of companies to communicate about their company and its activity, caused, in a generalized way, by the outbreak of COVID-19.

Almost all Spanish companies have seen their business model upset and have had to adapt quickly to a new complicated, highly changing and flexible organizational situation in an uncertain context. Faced with this situation, these organizations have launched or accelerated their digital transformation process and their communication models, both internally and externally. Likewise, in an extreme situation such as the one that has been experienced in the framework of this pandemic, companies have strengthened their line of social responsibility and help to their context.

Information within companies has become more necessary than ever, not only for the communication of new work situations that occurred with the pandemic but also to launch and organize new remote work processes, the orderly establishment of information flows or new forms of conciliation and relationship with all members of the organization, among other situations. Similarly, communication with the outside world, both with suppliers and with clients, both with public administrations and with the media, has taken a rapid and radical turn and companies have had to adapt to new 2.0 tools, new sales formulas, dialogue and relationship with their stakeholders.

All these changes have a full impact on the communication area, which is in charge of internal communication, together with the human resources department, communication with suppliers and customers, together with the marketing department, and the line of corporate social responsibility (CSR) of the organization. This increase in work in the communication departments of large companies and the emergence of new communication needs in SMEs has caused an increase in the demand for consulting, advisory, and communication services that have benefited SMEs and specialized freelancers in this matter, regardless of the moment of uncertainty and general crisis that has been felt with greater virulence in other sectors of the business fabric.

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Design and validation of an instrument for the insertion of emotional salary in the face of COVID-19

Diseño y validación de instrumento para la inserción del salario emocional ante la COVID-19

Dra. Janeth Elizabeth Salvador-Moreno is the director of the Occupational Health and Safety Master's Program at the San Gregorio de Portoviejo University (Ecuador) (salvador.janeth@gmail.com) (http://orcid.org/0000-0003-4252-9271)

Mg. María Elena Torrens-Pérez is executive editor of the San Gregorio Journal of the San Gregorio University of Portoviejo (Ecuador) (mariaelenatorrensperez@gmail.com) (https://orcid.org/0000-0003-3989-9765)

Dr. Vladimir Vega-Falcón is a professor and researcher at the Regional Autonomous University of the Andes (Ecuador) (vega.vladimir@gmail.com) (https://orcid.org/0000-0003-0140-4018)

Dr. Darwin Raúl Noroña-Salcedo is a professor and researcher at the Sucre Higher Technological Institute (Ecuador) (dnorona@tecnologicosucre.edu.ec) (http://orcid.org/0000-0002-0630-0456)

Abstract

The labor sector has responsibly faced the effects of the coronavirus (COVID-19) and the adversities that this epidemic causes, however, this human group is not exempt from risks and psychological effects due to the seriousness of the situation in the workplace, which you can resettle into the family. His performance is consistent with reality, although he needs different emotional conditions that allow him to continue in his performance. The research had as objectives: to design an instrument to measure the emotional salary and validate the instrument created for the insertion of the emotional salary before COVID-19. The methodology used was non-experimental, descriptive, and transversal, and as a variable of study interest: the Emotional Salary. An instrument was designed and validated to measure emotional salary, with a Cronbach's alpha of 0.925, which was applied to a sample of 207 workers. Respondents expressed a favorable predisposition to the instrument and their perception of emotional salary is considered high. As conclusions, the reaffirmation of the insertion of the emotional salary is obtained, with strategies of attention to human resources in a personalized way, with respect to their emotions in the workplace in the face of COVID-19.

Resumen

El sector laboral se ha enfrentado responsablemente ante las afectaciones del coronavirus (COVID-19) y las adversidades que esta pandemia ocasiona, no obstante, este grupo humano no está excepto de riesgos y de afectaciones psicológicas por la gravedad de la situación en el ámbito laboral, que puede reasentar en la familia. Su actuación es consecuente con la realidad, aunque necesita de condiciones emocionales diferentes que le permitan continuar en su desempeño. La investigación tuvo como objetivos: diseñar un instrumento para medir el salario emocional y validar el instrumento creado para la inserción del salario emocional ante la COVID-19. La metodología empleada fue de tipo no experimental, descriptivo y transversal, y como variable de interés de estudio: el salario emocional. Se diseñó y validó un instrumento para medir el salario emocional, con un alfa de Cronbach de 0,925, el cual fue aplicado a una muestra de 207 trabajadores. Los encuestados manifestaron una predisposición favorable al instrumento y su percepción de salario emocional es considerada como alta. Como conclusiones se obtiene la reafirmación de la inserción del salario emocional, con estrategias de atención al recurso humano de forma personalizada, con respecto a sus emociones del ámbito laboral ante la escalada de la COVID-19.

Keywords | palabras clave

Satisfiers, workload, compensation, worker motivation, emotional salary, work environment, remuneration, instrument validation.
Satisfactores, carga de trabajo, compensaciones, motivación del trabajador, salario emocional, ambiente de trabajo, retribuciones, validación de instrumento.

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1. Introduction

Society in general, and man in particular, faces adverse situations for which he is not prepared, in each situation the worker gathers his own resources of his inner nature, therefore, the responses cannot always be measured in equally, resilience is inherent in the individual responsibility of each person. This is how the performance and response of each professional and worker to the COVID-19 pandemic was represented, in all countries and institutions, with greater rigor in the health sector.

All personnel, in general (administrative, health, operational, service, technical, etc.), work in unusual conditions, for which it is necessary to make adaptations of protocols, shift changes, organization of work teams, all about the working day and the adaptation of processes (De Caneva et al., 2020). For these adaptations, flexible and motivating leaders are required, who place trust in man (Fundación más Humano, 2020) and the characteristics that are mostly manifested are those of cooperation and human sensitivity, everyone takes care of their own life and their family.

The ECLAC Special Report No. 3 (ECLAC, 2020) for Latin America, concludes that COVID-19 occurs in times of crisis, which implies that poverty continues and that the greatest consequences will occur in Mexico, Nicaragua, and Ecuador. It is also recognized that "The world is facing a health and humanitarian crisis unprecedented in the last century ... this is not a financial crisis but a people, health and well-being crisis" (Bárcena, 2020, slide.6), however the numbers of infections and deaths are not numbers, they are related to people and we must act, it is necessary to provide benefits to workers who are immersed in contagion, to give them some measure of satisfaction and the recognition they deserve, for everything they deliver to society.

In the history of contagious diseases and pandemics, COVID-19 is transmitted with causing great effects and impact on society. To face this crisis, teamwork offers encouraging results, where everyone's effort prevails, some separated by distance, and others creating limits to avoid contagion, but with the willpower efforts and commitments come together.

In the local context, when the 58 confirmatory cases of COVID-19 were registered in Ecuador, a series of strategies were put into practice to reduce the probability of transmission, such as restrictions on public spaces, strengthening of hospital services, opening to teleworking as a unique work modality during confinement, and border closures. As the months passed, the restrictions were gradually lifted by virtue of the urgency to reactivate the economy, which strongly hit the cost of living of citizens in general. However, the labor outlook was never the same due to overexposure to risk factors to the health of workers (Ortega, 2020). Therefore, job performance is decisive in the face of the health crisis of COVID-19 (Puitiza et al. 2020); and recognition of the worker for his performance must be part of the work environment, with favorable conditions that also recognize worker participation as a human need. (Vásquez et al. 2019).

Considering also that, "The labor market is and has been the means to sustain the lives of people, their families and social development" (Cedeño & Chávez, 2020, p. 145), work is vital for man (Torrens & Real, 2019). However, at present, the salary or remuneration is not enough (Hernández & Osorio, 2016), since the employees have different perceptions and needs. The worker prepares and grows in experiences, which makes him react differently from the worker of previous years, according to Gómez (2011, p. 5) "therefore the importance of having a strategy that helps achieving the satisfaction of the personnel in their work".

Currently, salary or economic remuneration is not the only indicator used by job competition, since it is no longer decisive, employees for their permanence and satisfaction focus on other types of remuneration such as benefits that represent greater satisfaction, not only professionally, but that encompasses much more. For today's man, it is important to satisfy personal and family needs, which the authors refer to as emotional benefits, that greatly contribute to the quality of life of the person (Howatt, 2011; Muñoz, 2011).

The worker expresses perceptions regarding their work, their difference is given by the nature and variety of needs of each worker, taking into account their expectations and aspirations, which are influenced by their culture and personality, and refer to the expectations each worker has for his future. Regarding this, Gómez (2011) states how important it is: "to have a strategy that helps staff satisfaction in the performance of their job" (p. 5).

In labor relations between the employee and the employer, compensation is of great importance and can influence other indicators of the organization, therefore compensation is a determining factor in the level of job satisfaction of an employee (Mabaso & Dlamini, 2017). Actions have been applied in both public and private companies in South Africa.

In the case of Mexico, there is the NOM-035-STPS-2018 standard, (applied as of October 2019), named as "anti-stress" (Cázares, 2020), whose application in companies is mandatory and its main objective is for entities to have beneficial work environments for the worker, taking into account the prevention of psychosocial risks in the work environment. For the author Cázares-Sánchez (2020) there is great concern regarding compliance with the norm, where she states that the application of it "implies the design of an emotional salary strategy in which a distinction is made between the emotional demands of each job, based on a case-by-case study" (p. 602), aspects that individualize the actions of each organization according to its characteristics and internal needs of the work environment and the needs and perceptions of its workers. In Mexico specifically, this policy has not been effective and this may be because the emotional salary, as a concept, is not widely disseminated, as reported by Quintero and Betancur (2018) and Rubio et al. (2020).

In the case of Spain, the emotional salary is applied in the escalation of COVID-19 by Human Resources managers from different sectors, it is a representation of what should really be provided in times of health crisis (Fundación más Humano, 2020; Emotional Salary Barometer, n.d) and in these actions, Spanish managers have offered a more humane character in the workplace.

1.1. Emotional salary

Based on the studies consulted, the first definition of emotional salary is from the year 2003, previous research considers other dimensions such as compensation and rewards to the worker. For Huete (2003) "The ability to make people feel well paid for their effort, with something more than money" (p. 156). On the other hand, for Gay (2006) it is a non-monetary way of rewarding the worker for the performed work, while for Temple (2007) and Melo et al. (2018) are the non-monetary reasons that make a worker develop their activities happily and feel committed to the organization. Authors such as Rocco (2009) consider that they are all factors that are not related to the economic monthly payment and that ensure their permanence, in addition, to give them greater satisfaction. On the other hand, Jiménez (2009) adds to the aforementioned statement: that these compensations provide the worker with peace of mind and efficient and effective performance and that they must also allow teamwork, for which cooperative leadership is required. In this case, Gómez (2011) places more emphasis on the fact that compensation must be aimed at satisfying the affective and psychosocial needs of workers, which influence their emotional well-being. It also considers its favorable impact on the productivity and competitiveness of the company. It is defined by Montalvo-Poveda (2018) as the intangible benefits that the worker receives and its objective is to complement the economic salary and generate worker's commitment to their organization. For Betancur and Quintero (2018), the emotional salary must be part of strategic planning, as one of the organizational objectives that in turn motivate the worker.

Finally, the authors of the research declare the emotional salary as the factors and satisfiers that achieve emotional well-being in the worker and allow his/her professional and family development, in addition to considering that the emotional salary must be analyzed by the employers and those responsible for its implementation since it can respond to the multiple unknowns such as how to resolve the dissatisfaction of employees with respect to the work they perform?, and it must be constituted from the particularities and flexibilities (Guzmán & Del Pilar, 2018) without implying monetary expenses (Rocco, 2009). They also argue that the emotional salary corresponds to creative and individualized actions that give satisfaction to each worker.

For Minchán-Rojas (2017) the emotional salary has an impact on the worker in a professional way, so it must be taken into account in compensation, both in the work environment and personally, he also recommends that these benefits should "be taken and confronted with multidisciplinary academic and professional instruments related to the management of human talent at the institutional level" (p. 18).

Therefore, in the face of this situation generated by the health emergency of COVID-19, public and private institutions, regardless of the type of company and the sector they represent, must use different ways to balance the emotional state of their workers, as well as their satisfaction for the performance of their activity and their organization.

The authors declare as objectives for this research: to design an instrument to measure the emotional salary and validate the instrument created for the insertion of the emotional salary in the face of COVID-19.

2. Materials and method

The study has a quantitative approach, with a non-experimental and cross-sectional design, the first stage of which was developed in the period between April and August 2020.

The variable of interest in the study was the emotional salary and age, gender, and seniority in the institution were taken into account as characterization variables, which allowed characterizing the population.

An instrument was designed for the Ecuadorian context, based on the expertise of the authors with more than twenty years related to the issues of human resources, organizational psychology, and business administration.

2.1. Instrument construction

During the last semester of 2020, four activities were carried out that allowed the validation of the emotional salary instrument. The first was content validation in which the operational and conceptual definitions of motivation were investigated, ranging from the definitions of equity, labor justice, and worker perception. Based on the theories of (Adams, Grifol & Siegrist, 1962; Littlewood-Zimmerman & Uribe-Prado, 2018).

Also, to better complement the understanding of the phenomenon, the concept was explored through an in-depth interview with experts in the area of human talent, having as an initial question: How can emotional salary be measured? During the in-depth interview, the keywords that helped define the concept of emotional salary were noted, recording the interviews on audio to later locate the keywords that allowed the concepts to be grouped.

Based on the aforementioned activities, three dimensions were established that explain the variable of this study: the environment, professional development, and flexibility.

In this sense, in the work environment, statements were included about the rewarding conditions on the part of the employer and related to comfort criteria such as culture, climate, training, and concern for the employee. In professional development, questions were raised about estimation about training and positive feedback from bosses. Finally, in the case of flexibility, organizational aspects were placed in relation to flexibility and licenses. All questions were worded in affirmative sentences. Of the 37 initial questions, only 18 statements were confirmed, after further refinement and analysis.

The list of items was prepared using the Likert scale, whose responses were the following 1: never; 2: rarely; 3: occasionally; 4: frequently; 5: very frequently, and 6: always. The final list was approved through an expert judgment made up of three (3) professionals with a Master's Degree in Human Talent Management who confirmed the relevance, sufficiency, and clarity of the wording.

The second and third activities were the construct validation and reliability calculation in a pilot test. The technique used was the methodology of Nunnally (1978), which indicates that for each item, five subjects should be validated. As such, the test was applied to 300 workers of a government entity.

The pilot test was carried out in the Ecuadorian public sector in the province of Manabí. The entity has a population of 300 workers, also using the following selection criteria: workers older than six months were included, those who were on leave were excluded, and collaborators who delivered the instrument incomplete were eliminated. However, only 207 of the surveys delivered could be included in the study due to errors such as double answers or lack of them, which invalidated the rest. A schedule of meetings was made for the calls of the workers, which included areas and shifts, in which they were provided information on the research to be carried out, the object of study, the content of the survey, the importance of honesty in the responses, the anonymity of the study and the form of assessment. The explanation was complemented with useful content for the workers in order to give added value for the entity and not only for the evaluator.

To confirm the proportion of the variability of the results, Cronbach's Alpha was used and when ratifying a high-reliability value, a factorial analysis was carried out to determine the groups of items in their final dimensions through the reduction of dimensions, with initial solution, KMO Barlett's sphericity test, and Varimax rotation.

Finally, for the calculation of the scales, the 33rd and 66th percentiles were identified to have the significance of low, medium, and high perception of emotional salary.

The workers gave their consent to participate and the ethical principles related to the administration and use of the information collected were respected, as well as the Declaration of Helsinki of the World Medical Association, including its updates (World Medical Association, n.d.).

3. Results

A total of 207 workers were surveyed, of these 186 are male (89.9%) and 21 female (10.1%). The age of the female group is between 16 and 44 years old, and that of the men between 16 and 65.

Sociodemographic variables are shown in Table 1.

Table 1. Sociodemographic variables

Age	Frequency	Percentage
16-24	18	8,7
25-34	119	57,5
35-44	47	22,7
45-54	22	10,6
65-o more	1	,5
Total	207	100,0
Gender	**Frequency**	**Percentage**
Male	186	89,9
Female	21	10,1
Total	207	100,0
Seniority	**Frequency**	**Percentage**
1-5	42	20,3
6-10	77	37,2
11-15	33	15,9
16-20	24	11,6
Age	**Frequency**	**Percentage**
21-25	15	7,2
26-30	16	7,7
Total	207	100,0

Source: Own elaboration.

3.1. Item refinement and internal consistency

The emotional salary survey was finally made up of 18 items, containing three factors (factor 1, factor 2, and factor 3) with a Cronbach's alpha of 0.925.

The rotated factor matrices showed three factors that explained 60.12% of the accumulated variance. These factors and their questions are shown in Table 2.

Table 2. Factors of the emotional salary survey instrument

Dimension	# Question	Question
Factor 1	1	Bosses or managers usually greet staff
	4	The company provides you with training that you then apply to your work or personal life
	5	You have developed friendships with your co-workers
	7	When someone has a family problem (illness or accident), your superiors show solidarity and help
	12	You feel happy to be part of this company
	17	When you wake up you like the idea of going to work and meeting with your colleagues

Dimension	# Question	Question
Factor 2	2	They provide you with training that you then apply to your work or personal life
	8	There are merit-based promotion possibilities
	10	Your opinions, reports or suggestions are well received by your superiors
	13	They recognize with gestures, phrases, or congratulations when you fully comply with a special task
	16	They take you into account for activities, jobs, or special commissions that the company must comply with
	18	If you resign, you think they would ask you to stay
Factor 3	3	Permission may be requested for banking, legal or personal matters
	6	They develop sports or recreation activities with all staff
	9	You have the opportunity to eat during your work day
	11	can you count on your breaks (weekends, holidays, or days off) without being interrupted or called from work?
	14	You have spaces to share a coffee or a joke with your coworkers
	15	They give you some flexibility in schedules if you have an emergency or want to study.

Source: Own elaboration

3.2. Internal consistency criterion

The reliability values are shown in Table 3 for each of the final factors of the instrument.

Table 3. Cronbach's alpha values by variable

Variables	No initial	Final α
Factor 1	6	0,97
Factor 2	6	0.96
Factor 3	6	0.98

Source: Own elaboration.

3.3. Instrument rating scale

To qualify the scale, the 33rd and 66th percentiles of the results of the 18 items of the instrument were calculated based on the three possible responses. Three scales are obtained, as shown in Table 4.

Table 4. Instrument rating scale

Variables	Low	Medium	High
Factor 1	6-25	26-29	30-36
Factor 2	6-19	20-25	26-36
Factor 3	6-22	23-27	28-36
TOTAL	6-69	70-83	84-108

Source: Own elaboration.

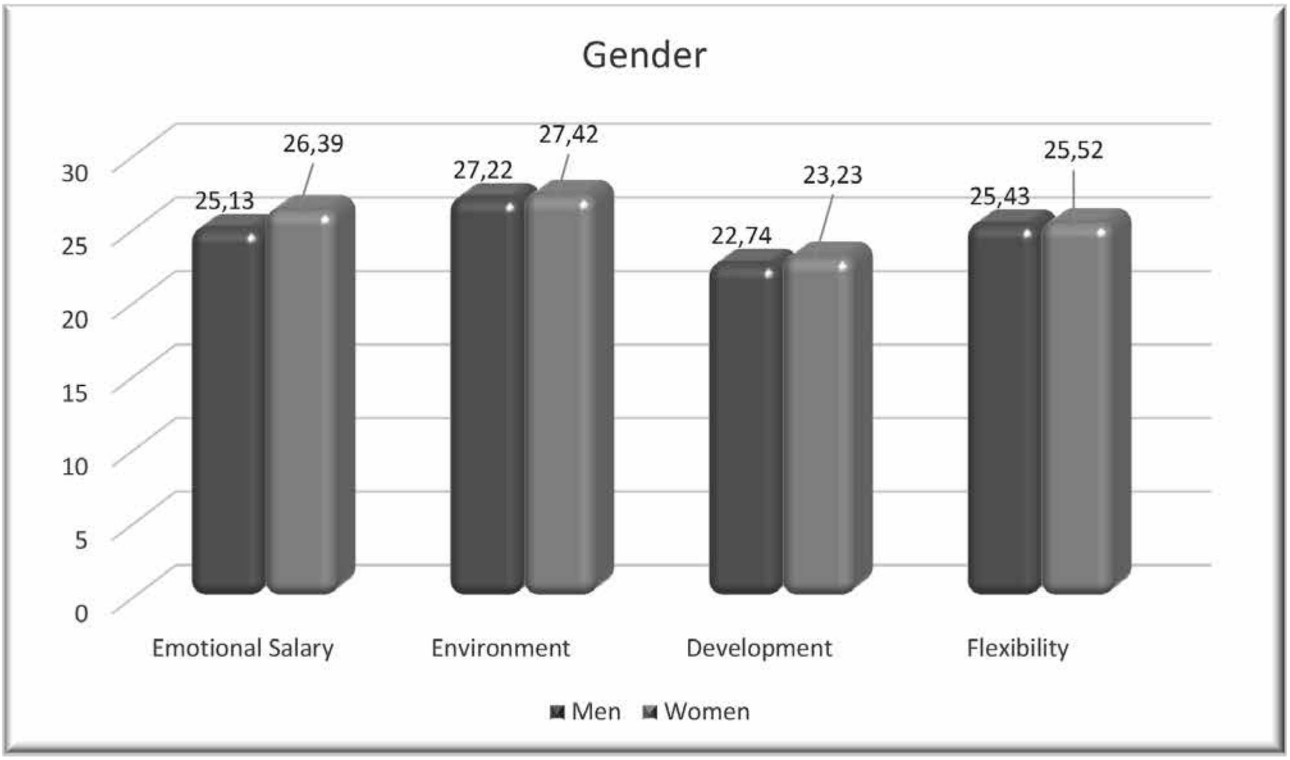
The response of the surveyed personnel yielded results that could well be described as surprising, by showing us their position in relation to the non-monetary compensation received at their workplace, since the results were positive.

In the emotional salary, three dimensions have been considered: the environment, development, and flexibility, in addition to the global value of the emotional salary as such and it can be noted some relevant values that allow orientation towards circumstances that people consider more valuable or significant importance.

The first analysis reviewed is the results by gender of the participants in the research, indicating that, of the 207 valid tabulated surveys, 89.9% correspond to the male gender and 10.1% to the female gender.

In order to interpret the results, guide parameters were established, so that those results that range between 1 and 12 correspond to a LOW rating, those that range between 13 and 24 a MEDIUM rating, and those that range from 25 to 36 HIGH.

Figure 1. Emotional salary by gender



Source: Own elaboration.

As can be seen in Figure 1, the perception of non-monetary compensation or emotional salary of both female and male staff is high and women have given it a higher value, although with a not very marked difference in relation to what the men consider.

When making a breakdown of the dimensions, a slight difference between genders can be noticed, with women presenting the highest percentage in all of them.

When the results were reviewed for each question, it can be noted that 89% of the respondents agree and strongly agree that their suggestions, reports, or opinions are well received by their superiors; Similarly, 79% state that they feel happy to be part of the company, the first appreciation corresponds to the development dimension and the second to the environment dimension. In the flexibility dimension, 64% agree and/or strongly agree that they are given a space to eat their meals; and, 59% indicate that the company allows them to leave their work to carry out personal activities. The results give us a clear orientation to situations in which the company has managed to generate positive responses from its staff, at no cost or with a low impact cost.

There are also the opposite cases, that is, those questions where the response percentage was highly unfavorable, hence 42% answered that they "disagree" and "strongly disagree" that there are possibilities of promotion based on merits, which should raise institutional alarms and review what is causing this perception in its staff. Another approach that generated 30% negative perception, is related to the possibility that their bosses asked them to remain at their job in the event of a resignation, on this point I must indicate that only 38% gave a positive response and the remaining 32% are in that intermediate that must also be considered negative.

Regarding the direction taken by the emotional salary in relation to the time spent in the activity, those professionals who had more than 25 years of service, reflect the highest index of emotional salary but only represent 7% of the respondents. They are followed by the group of workers who have between 16 to 20 years of work and represent 9% of those surveyed, both groups present a high level of emotional salary. The group of workers with one to five years, represent 20.38% of the respondents and show a high emotional salary (25.64), and the group of workers with 21 to 25 years of service, (7% of the respondents) presented the lowest index of emotional salary (22.31).

4. Discussion and conclusions

The Crombach alpha value obtained in the reliability analysis of the instrument corroborates that the factors, the number of items, and the wording of the questions do not interfere with the variance error of the surveyed subjects. In this regard, Oviedo and Arias (2005) indicate that reliability values above 0.80 guarantee the application of consistent and valid instruments.

On the other hand, the confirmatory factor analysis carried out with the data from this survey revealed the presence of three factors that explain more than 60% of the total accumulated variance. However, the arrangement of the items in these three groups did not correspond with the exact position of the questions in the categories environment, development, and flexibility. Based on the considerations of (Lloret et al., 2014) the items of a scale are organized according to their high correlations with each other, but although the factor analysis confirms the construct validity, it is the decision of the author of the instrument to adopt the ordering. If, for example, the factors generated are not related to the conceptual and operational definitions of the studied variables, it is better to accommodate according to the theoretical criteria and recalculate the confirmatory analysis with a second population sample.

Aliaga-Tovar (2007) in his work on psychometric tests, recommends that when the scales are constructed, they should be endowed with their respective validations through the external consistency criterion. Therefore, although the emotional salary scale obtained significant reliability values, it will be necessary to calculate the statistical correlation of its results compared to another instrument that evaluates this phenomenon to ensure the total validity of the criteria.

The perception of high emotional salary satisfaction in the research is opposed to that found in the conclusions of Chaparro-Espitia (2006). The workers value the economic part positively and put aside incentives such as incentives, recognition, or flexibility. In this study, fraternity is valued more than the emotional aspects of the company's compensation. In contrast, the research by López-Más (2005) emphasizes that workers, even those who receive lower remuneration, incorporate emotional incentives in their perception of satisfaction that do not directly generate capital accumulation, but that develop their knowledge, and skills generating self-esteem and feelings of self-efficacy.

At present, there are no recognized and specific quantitative instruments to measure the perception of emotional salary. The vast majority of the work environment surveys present dimensions that describe the satisfaction that workers feel towards remuneration. In this sense, the Gómez-Rada (2004) survey incorporates in the factor called support, the emotional rewards that the company provides to its workers. The validation process presents similar actions (content, criterion, and construct validation), with a number of five times more questions than the emotional scale of this study. The final Cronbach's Alpha value was 0.84 with the refinement of 70 items. Regarding the factor analysis, four factors were confirmed that explained 53.55% of the variance. At this point, the makers of this work environment instrument had to readjust the questions, since the factorial groups did not correspond to the initial definition.

In other validation studies of work environment instruments (Chiang-Vega et al., 2008; Arica-Rodríguez et al., 2015; Salaiza-Lizárraga & Vela-Nava, 2008) it is found that Cronbach's alpha value maintains the Scores from 0.8 to 0.9, with factorizations that do not explain more than 50% of the total variance, and with a similar number of questions that answer the emotional salary in aspects such as environment, development, and flexibility. However, it must be emphasized that the sample for the construction of these predictors amounts to a much larger number than that of the present investigation. This allows understanding the records of their variances. Another feature of these instruments is the standardization of their population since the predictors are designed for specific occupational groups such as doctors, office workers, or teachers, thereby ensuring greater precision in the final data.

The people surveyed showed satisfaction with the group of questions and considered them pertinent and adjusted to the reality of their environment, however, the applied study only shows that this group of professionals has compensatory situations that complement their monetary salary, but the level of influence of these non-monetary compensations is not determined on their willingness to remain in their workplace, in their work or professional activity, nor the relationship they have with the monetary salary.

When measuring the emotional salary study variable with respect to the rest of the demographic variables, a slight growth in the value scored by women is verified, this small difference may be given by the diversity of the occupations in which they are: be those responsible for the family (single mother), for the contracts for a specific time, which gives them insecurity, aspects that must be taken into account for future investigations.

Under an administrative analysis, it could be asserted that this group of professionals, despite the adverse conditions, have received good treatment from their superiors which, to some extent, is not only compensatory but also allows them to maintain a certain level of motivation to appropriately carry out their tasks.

This first publication is the starting point for future studies, where it is intended to continue the line of research, which allows analyzing the workplace and human talent immersed in current conditions, where it occupies a different dimension in the organization due to its importance, and for the contributions it provides, as Chiavenato (2011) states. It is not conducive to continue with stereotypes from other decades, which do not recognize the value of the employee and his influence on the final results of organizations. This research arose from the need to recognize the importance of the emotional state of the worker in their performance, however, a more generalized practice and socialization of the concept and benefits of the emotional salary is necessary.

The results presented in the study constitute the preamble for subsequent research in different sectors, in which the public and private sectors can be included indistinctly, with a larger sample, and with greater diversity, for which an inter-institutional research project will be formed.

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The adaptation of companies to the COVID reality: a systematic review

La adaptación de las empresas a la realidad COVID: una revisión sistemática

Dr. Miguel Ángel García-Madurga is a professor and researcher at the University of Zaragoza (Spain) (madurga@unizar.es) (https://orcid.org/0000-0002-7816-0050).

Lcda. Ana Julia Grilló-Méndez is a professor and researcher at the University of Zaragoza (Spain) (agrillo@unizar.es) (http://orcid.org/0000-0002-6272-5811).

Lcda. Tamara Morte-Nadal is a professor and researcher at the University of Zaragoza (Spain) (tmorte@unizar.es) (https://orcid.org/0000-0003-4459-9361).

Abstract

The sudden emergence of the COVID-19 pandemic has led to profound social and economic changes. Companies have been forced to pivot their business models to ensure their continuity. This study delves into the trends observed in the changes in business models during this crisis. The objective of this research has been to identify the factors behind the initiatives they have taken, as they will presumably be consolidated and will be the basis for disruptions unthinkable before the pandemic. A rapid systematic review has allowed to recover and summarize the results of the most relevant research in this field. Twenty-eight articles have been selected from the main scientific databases, Scopus and Web of Science, using the inclusion decision flowchart proposed by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis). The main findings of qualitative analysis that has been carried out highlight the importance of technology, with the generalization of digital marketing and sales channels in companies, teleworking and consumption of technological products such as Artificial Intelligence; the adoption of innovations related to the value proposition, in most cases in the form of new products and services, as a more common form of consumer experimentation; and the generalization of collaborative initiatives among all actors in the business ecosystem.

Resumen

La súbita irrupción de la pandemia COVID-19 ha propiciado profundos cambios sociales y económicos. Las empresas se han visto obligadas a pivotar sus modelos de negocio para asegurar su continuidad. El presente estudio profundiza en las tendencias observadas en los cambios de los modelos de negocio durante esta crisis. El objetivo de esta investigación ha sido identificar los factores que se encuentran detrás de las iniciativas que han adoptado las empresas, pues presumiblemente se consolidarán y serán la base de disrupciones que eran impensables antes de la pandemia. Una rápida revisión sistemática ha permitido recuperar y resumir los resultados de las investigaciones más relevantes en este campo. Se han seleccionado veintiocho artículos de las principales bases de datos científicas, Scopus y Web of Science, utilizando el diagrama de flujo de decisiones de inclusión propuesto por PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis). Los principales hallazgos del análisis cualitativo que se ha realizado destacan la importancia de la tecnología, con la generalización de canales digitales de marketing y ventas en las empresas, el teletrabajo y el consumo de productos tecnológicos como la Inteligencia Artificial; la adopción de innovaciones relacionadas con la propuesta de valor, en la mayoría de las ocasiones en forma de nuevos productos y servicios, como forma más común de experimentación de cara al consumidor; y la generalización de iniciativas de colaboración entre todos los actores del ecosistema empresarial.

Keywords | palabras clave

Review, PRISMA, business model, business environment, inter-firm cooperation, innovation, technology, COVID-19.
Revisión, PRISMA, modelo de negocio, ecosistema empresarial, cooperación entre empresas, innovación, tecnología, COVID-19.

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1. Introduction

The sudden appearance of the COVID-19 virus has caused profound changes in society as a whole and in the business environment, in particular, a VUCA context (volatile, uncertain, complex, and ambiguous) like the one we live in, forces us to continually reconsider routines to survive (García and Esteban, 2020). It is obviously too early to determine if the pandemic will bring permanent economic, social, and political changes, although trends such as teleworking, and the widespread use of the Internet seem to be here to stay (Tisdell, 2020). While these trends were already underway before COVID, they have accelerated, leaving the question of whether or not they are socially and psychologically desirable (Tisdell, 2017; Villasmil, 2021).

With many countries imposing bans or restrictions on travel, economic activity has weakened due to uncertainty in the business environment (Ratten, 2020). The confinements implemented by a good number of countries have contributed, at least partially, to minimize the spread of the pandemic, although its consequences both psychological (Le & My Nguyen, 2020) and economic (Acemoglu et al., 2020; Miles et al., 2020; Harris et al., 2020) and even environmental (Helm, 2020) have been numerous. The severity of the recession has been due to the combined effects of shocks on both the demand and supply sides and requires rethinking how industrial companies with a global supply chain and manufacturing can survive the impact of lockdowns and social distancing. Perhaps the pandemic will accelerate the process of deglobalization and the reduction of trade and collaborative research alliances between countries and regions (George et al., 2020).

Misinformation or insufficient or contradictory information has hampered the ability of consumers to understand, plan and deal with health, economic and social threats that have led to changes in the market and in the socio-cultural behavior of consumers (Campbell et al., 2020). For example, recent studies on consumer spending patterns provide evidence of spatial and temporal displacement of consumption and storage behaviors (Hall et al., 2021), since consumer behavior and personal, social, psychological, and cultural factors are significantly associated (Ortega-Vivanco, 2020). As the situation normalizes and consumers return to old habits, it is plausible to think that these will be modified by new regulations and procedures. New habits will also emerge from technological advances, demographic changes, and innovative ways that consumers have learned to deal with the blurring of the boundaries of work, leisure, and education (Sheth, 2020a).

Crises cause turbulence in the market due to changes in routines and structures (Williams et al., 2017), although their impact is very uneven depending on the sectors. Regarding what is happening as a consequence of the pandemic, in some sectors, such as education, innovations are happening; in others, such as hotels and tourism, located at the epicenter of the pandemic, the outlook looks bleak. Companies such as Amazon or Walmart are strengthened, while many others have been forced to close their doors (Barrero et al., 2020). In particular, SMEs, due to their particular idiosyncrasy, have been dramatically impacted and require very specific institutional, strategic and financial decisions (Eggers, 2020), as well as digitization and the use of the online channel, after careful analysis of the temporality of the windows of opportunity and the vulnerability of the innovations that are required (Dannenberg et al., 2020).

Younger workers, women, and ethnic minorities have been disproportionately affected and their jobs threatened. Human Resources departments have the opportunity to play an important role in helping individuals and organizations find and support resilience, manage crises, and build more sustainable professional cultures

(Hite & McDonald, 2020); in fact, the health crisis has brought the conversation about the future of work to the present (Lund et al., 2020). Following Hongwei and Lloyd (2020), the pandemic also offers a great opportunity for companies to move towards a more genuine and authentic Corporate Social Responsibility (CSR) and contribute to addressing urgent social and environmental challenges.

In this framework, companies must become better customers for their suppliers and redefine the purpose of their business (Sheth, 2020b), and decision-makers review their business models, focusing on customers, value propositions, capabilities, the potential of collaborating with a priori competing organizations and the connections between all these issues (Crick & Crick, 2020). And doing so quickly, considering the future effects of these decisions and, simultaneously, generating options to overcome the crisis here and now (Teece et al., 2016) and reflecting on the key factors in the identification of new opportunities (Gamero & Ostos, 2020).

As the pandemic has progressed, organizations have fully or partially integrated these recommendations and readjusted their approaches, activities, and business models, that is, the way in which they create and deliver value to their customers (Seddon et al., 2004). The review carried out delves into the trends observed in changes in business models during 2020. Rapid systematic reviews emerge as a useful methodology to efficiently provide actionable and relevant evidence when time and/or cost factors are relevant (Tricco et al., 2015), allow examining emerging areas (Trico et al., 2016), and are useful for answering research questions such as what information has been presented on this topic in the literature? (Sucharew & Macaluso, 2019). Systematic reviews and other techniques used for the synthesis of knowledge are increasingly used to facilitate decision-making (Bosch-Capblanch et al., 2012).

In situations where urgent decisions are required, governments, stakeholders in the health system, international organizations, and civil society request quick reviews (Tricco et al., 2017). There have been publications in a variety of areas including digital communication, energy drink consumption by children, sexual health interventions, and cannabis withdrawal (Plüddemann et al., 2018). These investigations adhere to the key principles of systematic reviews, including a clear statement of objectives, pre-definition of eligibility criteria, evaluation of the validity of results, and systematic presentation of results (Langlois et al., 2017), with the exception that the processes are accelerated and optimized to be completed in a shorter period of time. Rapid reviews are rigorous and explicit in method and therefore systematic, but they make concessions to the breadth or depth of the review process by limiting some aspects. To do this, several valid techniques that can be used to shorten the time, such as carefully focusing the question, using less sophisticated search strategies, restricting the amount of gray literature and/or extracting only key variables are identified (Grant & Booth, 2009). These types of studies involve fewer stakeholders, fewer discussions, fewer iterations, and greater use of previous lessons learned (Oliver et al., 2017); their elaboration is an important challenge, due to the difficulty of responding in the short term, with scientific rigor and a standard of transparency acceptable to all interested parties (Watt et al., 2008).

The crisis has brought research topics as disparate as their impact on specific sectors such as tourism (Sigala, 2020); the identification of different types of uncertainty, their antecedents and results, and the strategies used to mitigate their impact (Sharma et al., 2020); effective leadership in virtual work environments (Bartsch et al., 2021); the long-term consequences of the pandemic in the design of organizations (Foss, 2020); the provision of essential services, responsible purchasing practices, the behavior of the market in the midst of the crisis (Mele et al., 2020); or the needs that eventual hybrid, face-to-face, and remote work models will generate (Shankar, 2020).

The objective of our study is to analyze how companies have responded to the COVID-19 pandemic, characterized, as described, by operational difficulties of all kinds and radical changes in consumer purchasing habits. Based on the analysis of the selected documents, this research question will be elucidated: what major trends will guide the steps of business organizations after the crisis?

The manuscript is structured in this way: identification of the research problem from the literature review (Section 1); a detailed explanation of the used methodology (Section 2); presentation of the results (Section 3); and, finally, discussion based on the results of the study and its limitations and implications for future studies (Section 4).

2. Corpus selection criteria

The research was carried out according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyzes PRISMA protocol (Moher et al., 2009). PRISMA was developed by a group of experts who identified the minimum criteria for systematic reviews for high-quality scientific publications. There is still no PRISMA extension for quick reviews, although the use of the PRISMA checklist increases the transparency of those (Kelly et al., 2016) and facilitates the traceability of the entire process, in general, and the flow of information in particular. Following the recommendations of Hartling et al. (2015), and aligned with the PRISMA proposal, our research was characterized by its transparency and the clarity of its purpose.

A four-stage process was followed starting from the research object: identification of relevant studies, selection of studies, mapping of the data, and synthesis and reporting of the results.

In the first place, the inclusion and exclusion criteria were specified and documented, as shown in Table 1. The aim was to identify proposals based on scientific studies, despite the fact that these are still few in number because we are still immersed in the pandemic. Since the dissemination in the scientific community of conference transcriptions and the impact factor of books and chapters are lower than those of scientific articles, both sources were excluded.

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Research articles published (or in press) in scientific journals. Published during 2020-2021. Written in English. In the areas of Business Management or Social Sciences.	Conference transcriptions. Books and book chapters.

Source: Own elaboration.

An exhaustive search was then carried out in the Scopus (www.scopus.com) and Web of Science (https://apps.webofknowledge.com/) databases. To construct the optimal search equation, combinations of keywords and phrases related to business and COVID were used in SCOPUS on December 19. The search equation ultimately used, including limiters to take into account the inclusion and exclusion criteria, was: TITLE-ABS-KEY (business AND covid) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "re")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (SUBJAREA, "SOCI") OR LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "MULT")). A search with the help of this equation and its analogue in the Web of Science resulted in 882 documents. The results were exported to EndNote, and duplicates were removed.

The detection and elimination of duplicate studies eliminated 91 citations, finally leaving 791 articles.

A review of the evidence, based on the title and abstract, was then performed. 688 studies were excluded as they did not fit the research objective from the perspective of the scope of the study. Then, an evaluation of the degree of interest of the 103 chosen documents was carried out, selecting those which made transversal and/or generalizable contributions to business models in a broad sense, and excluding specific results for products or geographical areas. In conclusion, 28 papers were selected for the qualitative synthesis. Figure 1 shows the inclusion decision flow diagram with the steps of the review decision process (identification, selection, eligibility, and inclusion) according to the PRISMA standard:

Figure 1. Flowchart of inclusion decisions

Documents identified in databases (*n*=882)	→	Duplicates removed (*n*=91)
↓		
Documents for screening (*n*=791)	→	Records excluded due to being out of scope (*n*=688)
↓		
Documents selected by title and abstract (*n*=103)	→	Records excluded due to their specificity (*n*=75)
↓		
Studies included in the qualitative synthesis (*n*=28)		

Own elaboration from Preferred Reporting Items for Systematic Reviews and Meta-Analyzes (PRISMA).

The studies included in the synthesis are listed in Table 2 with all relevant data to inform the scope's review objective. The extraction fields were: title, first author, journal, and main contribution.

Table 2. Documents included in the qualitative synthesis

Title	First author	Journal	Main contribution
COVID-19 impact and survival strategy in business tourism market: the example of the UAE MICE industry	Aburumman, A. A.	*Humanities and Social Sciences Communications*	Importance of outsourcing as a source of cost variability
Cutting-edge technologies for small business and innovation in the era of COVID-19 global health pandemic	Akpan, I. J.	*Journal of Small Business & Entrepreneurship*	Difficulties of adaptation of SMEs to the new scenario due to their conservative culture in relation to technological changes
Small business awareness and adoption of state-of-the-art technologies in emerging and developing markets, and lessons from the COVID-19 pandemic	Akpan, I.J.	*Journal of Small Business & Entrepreneurship*	Competitive advantages provided by the implementation of cutting-edge technology
The Challenges and Opportunities in the Digitalization of Companies in a Post-COVID-19 World	Almeida, F.	*IEEE Engineering Management Review*	Impact of digital transformation processes on different business areas
Expanding entrepreneurial solution spaces in times of crisis: Business model experimentation amongst packaged food and beverage ventures	Björklund, T.A.	*Journal of Business Venturing Insights*	Importance of collaboration in times of crisis
The Future of B2B Customer Solutions in a Post-COVID-19 Economy: Managerial Issues and an Agenda for Academic Inquiry	Bond III, E.U.	*Journal of Service Research*	Adaptation of service companies in the B2B environment to the new reality
The role of business model innovation in the hospitality industry during the COVID-19 crisis	Breier, M.	*International Journal of Hospitality Management*	Incremental and rapid-deployment innovations in response to the crisis
Will COVID-19 be the tipping point for the Intelligent Automation of work? A review of the debate and implications for research	Coombs, C.	*International journal of information management*	Automation and implementation of Artificial Intelligence solutions in the new business scenario
Coopetition and COVID-19: Collaborative business-to-business marketing strategies in a pandemic crisis	Crick, J.M.	*Industrial Marketing Management*	Survival of collaborative models once the crisis is definitively controlled
Artificial intelligence in the agri-food system: Rethinking sustainable business models in the COVID-19 scenario	Di Vaio, A.	*Sustainability*	Artificial Intelligence in the creation and development of sustainable business models

Title	First author	Journal	Main contribution
Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life	Dwivedi, Y.K.	*International Journal of Information Management*	Importance of information management technology and its ramifications in the pandemic environment
The strategic change matrix and business sustainability across COVID-19	Hamilton, J.	*Sustainability*	Market Intelligence as a competitiveness tool in a complex framework
Reframing service innovation: COVID-19 as a catalyst for imposed service innovation	Heinonen, K.	*Journal of Service Management*	Strength Vectors in the field of innovative decisions taken during the crisis
Opportunities of frugality in the post-corona era	Herstatt, C.	*Hamburg University of Technology*	Frugality as a megatrend that can shape frugal "affordable green excellence" as the dominant paradigm of innovation
Business model innovation in established SMEs: A configurational approach	Ibarra, D.	*Journal of Open Innovation: Technology, Market, and Complexity*	Measures to ensure the successful implementation of innovations in SMEs business models
The triple-edged sword of COVID-19: understanding the use of digital technologies and the impact of productive, disruptive, and destructive nature of the pandemic	Kamal, M.M.	*Information Systems Management*	Use of advanced digital technologies to avoid loss of productivity, interruption in business operations, and destruction of companies
Business-to-business marketing responses to COVID-19 crisis: a business process perspective	Kang, J.	*Marketing Intelligence & Planning*	Responses to the crisis from marketing
New technologies used in COVID-19 for business survival: Insights from the Hotel Sector in China	Lau, A.	*Information Technology & Tourism*,	Specific technologies for the treatment of the new forms of relationships caused by the pandemic
Pivoting to stay the course: How women entrepreneurs take advantage of opportunities created by the COVID-19 pandemic	Manolova, T.S.	*International Small Business Journal*	Pivots of the business model in women-owned companies to simultaneously reduce risk and take advantage of new opportunities
New and novel business paradigms in and from China and India	Paul, J.	*European Business Review*	Geopolitical impact of decisions made by the companies of the two largest manufacturers worldwide

Title	First author	Journal	Main contribution
Resilience measures to dealing with the COVID-19 pandemic. Evidence from Romanian micro and small enterprises	Păunescu, C	*Management & Marketing. Challenges for the Knowledge Society*	Business fears in the face of the crisis and its impact on decision-making
COVID-19: A Huge Opportunity for Innovation in Marketing	Pillania, R.K.	*Indian Journal of Marketing*	The increased perception of risk has created opportunities for marketing innovations
Exploring the relationship between social capital, innovation capability and innovation during the coronavirus pandemic	Putra, I.	*Uncertain Supply Chain Management*,	Innovation and its link to business success during the pandemic
Navigating disruptive crises through service-led growth: The impact of COVID-19 on Italian manufacturing firms	Rapaccini, M.	*Industrial Marketing Management*	Importance of servitization business models, acceleration of digital transformation, and advanced services in the context of the pandemic
Sustainability learnings from the COVID-19 crisis. Opportunities for resilient industry and business development	Schaltegger, S.	*Sustainability Accounting, Management and Policy Journal*.	Learnings to achieve more resilient and sustainable businesses in crisis environments
Business models shifts: Impact of Covid-19	Seetharaman, P.	*International Journal of Information Management*	Redesign of products and business models for success in the new ecosystem
Business of business is more than business: Managing during the Covid crisis	Sheth, J.	*Industrial Marketing Management*	Implications of the crisis in B2B business
A systematic review and future directions of the sharing economy: business models, operational insights and environment-based utilities	Zhu, X.	*Journal of Cleaner Production*	Opportunities for collaborative models in the new COVID scenario

Source: Own elaboration.

3. Discussions and contributions to the state of the art

Crises are catalysts for trends (Bond III et al., 2020), as they inevitably lead to experimentation, introduce novel risk management mechanisms, require the redeployment of certain resources and accelerate the adoption of tools (in the studied case, the digital ones). The sudden onset of the pandemic has required companies to make decisions of all kinds. Sectors such as MICE (Meetings, Incentives, Conferences, and Exhibitions) have resorted to obvious operational measures, such as outsourcing, seeking to reduce operating costs (Aburumman, 2020). Kang et al. (2020) have identified nine urgent responses from marketing to the COVID crisis; proactively adjust products for emerging needs; coordinate suppliers to meet growing demand; migrate to digital distribution channels; promote solidarity with all members of the supply chain; invest in advertising and promotion; encourage cross-selling, and support existing customers.

After the first and severe blow, companies from all sectors have reconsidered their sustainability: the research of Păunescu and Mátyus (2020) reveals how their main fears are the maintenance of the business from the point of view of financial sustainability, economic insecurity, and the high probability of job losses. The so-called 3Cs (competencies, capabilities, and competitiveness) offer an internal framework capable of moving the company towards that assured future (Hamilton, 2020). The "new normal" must be based on a conciliatory approach that ensures affordable access to products and services for the population, adequately manages society's consumption of natural resources, and strives for technological excellence (Herstatt & Tiwari, 2020). It is also about generating learning to achieve more resilient and sustainable businesses in pandemic environments (Schaltegger, 2020) and systematically targeting stakeholders, measuring the satisfaction and well-being of the community, suppliers, customers, and employees (Sheth, 2020b).

This systematic review allows us to encompass the initiatives taken by companies to adapt to the complex situation generated by the pandemic around three major vectors: innovation, technology, and collaboration.

3.1.Innovation

Although the need to generate results in an environment of such high uncertainty has put extraordinary pressure on decision-makers, the confinements and the reduction in the number of operational activities have freed them time and allowed them to reflect at a strategic level, and in particular, analyze how innovation, in its various expressions, can contribute to the sustainable future of their organizations.

Innovations related to the value proposition have been the most common form of experimentation with regard to the consumer, most often taking the form of new products and services. The COVID-19 crisis has required, in the short term, that organizations look for digital options and identify ways to deliver their products and services with minimal and safe physical contact, as well as strategic positions and partners in the new ecosystem that could help them achieve it. To achieve this adaptation to changing times, companies have had to be extremely agile; exploit their dynamic capabilities (Seetharaman, 2020); squeeze the opportunities that marketing has brought them, such as bundling products, adopting rebranding initiatives, and even entering entirely new product categories (Björklund et al., 2020); and taking advantage of their social capital to create and expand knowledge about customers, raw materials and competitors and to obtain cheap, fast and useful information to generate innovation (Putra et al., 2020).

In severely affected sectors such as hospitality, business model innovation has occurred through small incremental changes that are rapidly implemented (Breier et al., 2021). In the services sector, the pandemic has forced companies to go beyond existing commercial strategies: innovations in this sector have been characterized by spatial flexibility, social reach, focus on health and the exploitation of technology, acting as engines of change, clients and their new role, external restrictions and the dynamics of institutions (Heinonen & Strandvik, 2020).

Not only the sector is a relevant variable for these purposes: gender (Manolova et al., 2020), country, or size also matter. Thus, the concentration of resources by the Government helps to create an external business environment that encourages companies to focus on adequate innovation and technological advancement (Paul et al., 2020). Regarding size, beyond the uncertainty and complexity that SMEs (Small and Medium Enterprises) face when innovating in their business models, the results of the research by Ibarra et al. (2020) suggest that these types of companies should implement a specific set of capabilities, promote practices and routines focused on detecting customer needs, detecting technological options, conceptualizing and experimenting, collaborating and promulgating a clear innovation strategy for their business models. Contrary to the general perception, instead of stopping financing innovations during times of crisis, large companies have dedicated efforts and funds to generate innovations during these times of crisis, using COVID-19 as shock therapy to overcome internal resistance against innovation (Pillania, 2020).

3.2. La tecnología

In COVID times, technology is essential to improve competitive advantage and ensure survival. In today's competitive business landscape, small businesses with cutting-edge technology can create and maintain competitive strategies and set the stage for long-term growth and market leadership, differentiating themselves from the many others that resist adopting these solutions and are limited to the regular use of commonly used information technology infrastructure (Akpan et al., 2020a).

The pandemic offers an opportunity for the emergence of a new generation of entrepreneurs willing to lead the next industrial revolution and invent new ways of doing business using cutting-edge technology (Akpan et al., 2020b). Sectors severely affected by the pandemic, such as restaurants and hotels, can improve hygiene, promote social distancing and provide their customers with a compelling and personalized experience thanks to the use of new technologies (Lau, 2020).

COVID-19 has accelerated digital transformation processes not only in companies but also in individuals and public entities. The digitization of companies will increase the importance given to digital marketing and sales channels in companies and will promote teleworking and the consumption of technological products (growth of systems compatible with the Internet of Things; Artificial Intelligence; Big Data; robotics). More people will interact using hybrid communication mechanisms accessible from anywhere and not exclusively in the physical environment of companies and their homes. Cybersecurity and privacy appear as key elements in the adoption of these new technological solutions (Almeida et al., 2020).

As discussed in the introduction, the implications of this acceleration are numerous. Digital technologies can help create sustainable business models, increasing productivity, reducing production costs and emissions, and decreasing the resource intensity of the production process (Di Vaio et al., 2020). For example, there is consensus that Artificial Intelligence (AI) implementations can provide value to businesses. However,at the beginning, they are likely to focus on tasks that are highly predictable and routine. Second, anxiety levels in the workforce over automation are projected to be high due to the global recession and fears about job security. Third, AI implementation experiences suggest that business process performance improvements are often achieved by combining the technical capabilities with the soft skills of human workers in hybrid worker teams (Coombs, 2020).

In particular, a 360º paradigm shift is needed in the industrial sector, stimulating and developing the next generation of organizations, industries, and societies. The key is to co-work and co-create to generate data in real-time, reconsider the meeting of people and machines and create platforms for the joint creation of value, reinforce the areas of systems and information technology and, finally, develop digital infrastructures to manage secure communications and interactions online (Kamal, 2020). Industrial companies that take advantage of software-based and/or digitally-enabled services will be less affected by this type of crisis in the future (Rapaccini et al., 2020).

The pandemic has forced governments and decision-makers to re-evaluate how they use information and expand the use of technology to mitigate many of the social impacts of the spread of the virus (Dwivedi et al., 2020). The enormous challenge for managers is to get involved in this change, while trying to keep the business running, in the face of a different and uncertain future (Almeida et al., 2020).

3.3.Collaboration

In the fields of accommodation, transportation, educational services, housing, and tourism, excellent collaborative economy companies have emerged in recent years (Zhu & Liu, 2020). According to the research of Björklund et al. (2020), during the crisis, entrepreneurs have used their networks for collaboration and collective action, launching new products and services through collaborative sales channels, sharing vital information, and simultaneously helping third parties in their local communities. These actions have typically been incremental and have contributed to the development of internal capacities and relational and ecosystem capacities, further expanding their resilience and potential for future joint value creation.

Business-to-business cooperation has proven to be an effective B2B marketing strategy in a pandemic, as it has the potential to benefit organizations, their customers, and other stakeholders. Cooperative activities are made up of cooperative and competitive forces, so decision-makers choose with extreme caution the competitors with whom they collaborate, to avoid damaging outcomes. Once the COVID-19 pandemic ends, there are questions about whether these existing competition strategies will continue or end (Crick & Crick, 2020).

4. Conclusions and discussion

The way in which companies pivot their business models cannot be fully understood without taking into account the economic and social structure in which they operate. For these movements to be successful in times of crisis, they must simultaneously reduce risk and seize opportunities (Manilova et al., 2020). Companies have found themselves faced with the complex task of simultaneously managing what is close, the financial and operational difficulties caused by the supply and demand shock, and what is far, the uncertain future that is to come. The analysis of the data obtained through the used technique has allowed us to know the factors that have made the business models evolve to adapt to the crisis caused by COVID-19. In the first place, companies have evolved their portfolio of products and services to adapt it to the characteristics of a new reality plagued by restrictions such as, fundamentally, physical proximity. Second, technology has gone from being a future possibility to becoming a reality, which must support more efficient manufacturing processes, the rise of online commerce, teleworking, and the digitization of all organizational processes. Finally, the commitment to collaborative approaches, already consolidated in some sectors and aligned with the principles of social responsibility, has made it possible to channel the solidarity of the entire business ecosystem, aware of the need for mutual aid in times of crisis.

The fact that the pandemic is still active at this time has implied a limited selection and review of the literature, which is still scarce. To avoid confusing the end product of this research with a standard systematic review, the trade-offs and limitations of a rapid product compared to a systematic review have been explicitly outlined in the methodology section. Reducing the duration of the review process implies a greater risk of introducing bias: documenting the methodology and highlighting its limitations is one way to combat such biases (Grant & Booth, 2009). “Shorter and faster” may not always be better, or even as good, but the information currently available does not allow us to conclude when to worry that the conclusions of a quick review may be wrong (Hartling et al., 2015). Furthermore, systematic reviews have their own limitations, which we do not reflect on here, and these limitations, therefore, apply to quick reviews as well (Møller, 2018).

Unfortunately, as a society, we find ourselves immersed in difficult times and with uncertainties about the evolution of the pandemic. The trends described will be consolidated, or not, depending on the scenario that finally arises. Future research work should delve into their impact and the link between them and the disruptions that they will undoubtedly end up causing.

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Crowdfunding for the rescue of micro-businesses. Factors and perceptions of potential investors in Mexico

Crowdfunding para el rescate de microempresas. Factores y percepciones de inversionistas potenciales en México

Dr. Francisco Javier Segura-Mojica is a researcher and professor at the National Technological Institute of Mexico/ Technological Institute of San Luis Potosí (recursosmx@yahoo.com) (https://orcid.org/ 0000-0001-5981-9246)

Abstract

During the confinement associated with the health contingency due to Covid-19, almost four hundred thousand micro and small businesses were forced to close in Mexico. This document presents the results of a quantitative descriptive and cross-sectional study, the objective of which was to track the perceptions of micro-investors and factors that would influence their decision to help rescue micro-enterprises and jobs in the scenario of the economic contingency. The Actor-Network Theory (ANT) was used as the analysis methodology. It was found that, in the scenario of economic recession associated with the health contingency, approximately 23% of economically active people have surpluses that could be used for collective financing; Furthermore, the interest of micro-investors in projects that create jobs or help to preserve existing ones has been reinforced. On the other hand, as an element that helps to trace the associations between investors and entrepreneurs, a variable that we call mediation was identified; Based on the above, a list of criteria was defined that could help design a collective financing platform with a decentralized and solidarity network approach. In addition, it was found that digitization is key for a microenterprise to aspire to obtain collective financing, and therefore, to improve its chances of survival in a scenario of economic contingency.

Resumen

Durante el confinamiento asociado a la contingencia sanitaria por la COVID-19, casi cuatrocientas mil micro y pequeñas empresas se vieron forzadas a cerrar en México. En este documento se presentan los resultados de una investigación cuantitativa, de alcance descriptivo, cuyo objetivo fue rastrear percepciones de microinversionistas y factores que influirían sobre su decisión de ayudar al rescate de microempresas y empleos en el escenario de la contingencia económica derivada de la COVID-19. Como metodología se utilizó la *Actor-Network Theory* (ANT) y como herramienta de análisis el *Chi Square Automatic Interaction Detection* (CHAID). Se encontró que, en el escenario de recesión económica, aproximadamente 23% de las personas económicamente activas cuentan con excedentes que podrían destinarse al financiamiento colectivo; además, se ha reforzado el interés de los micro inversionistas hacia proyectos que crean empleos o ayudan a conservar los ya existentes; por otra parte, como elemento que ayuda a rastrear las asociaciones entre inversionistas y emprendedores se identificó una variable que llamamos mediación; con base en lo anterior, se definió un listado de criterios que podrían ayudar a diseñar una plataforma de financiamiento colectivo con enfoque de red descentralizada y solidaria. Además, se encontró que la digitalización es clave para que una microempresa aspire a obtener financiamiento colectivo, y por lo tanto, para mejorar sus posibilidades de sobrevivencia en un escenario de contingencia económica.

Keywords | palabras clave

Micro-enterprise, crowdfunding, actor-network, micro-investors, entrepreneurs, COVID-19, fintech, platform.
Microempresa, crowdfunding, actor-red, microinversionistas, emprendedores, COVID-19, fintech, plataforma.

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1. Introduction

As a result of the slowdown of the global economy, and specifically, of the Mexican economy in the scenario of the contingency due to COVID-19, thousands of micro and small companies have closed or are at risk of bankruptcy, and with it, the disappearance of millions of jobs is possible, given the impossibility of a micro-enterprise sector to pay for its operating expenses. The Study on Business Demography (SBD) 2020, of the National Institute of Statistics and Geography (INEGI, 2020), shows that, between May 2019 and September 2020, the number of micro, small and medium-sized companies in Mexico decreased from 4.85 to 4.46 million, which represents a decrease of 8.06% in the number of establishments.

According to estimates by the Inter-American Development Bank (IDB, 2020), Mexico could lose between 4.1% of formal jobs in the event of a short-term crisis, up to 14.4% in the event of a prolonged recession.

According to the 2019 Economic Censuses, 95% of formal establishments have less than ten workers (INEGI, 2019). These businesses are highly vulnerable to contingency situations, since many of them do not have economic reserves to survive prolonged recesses such as that caused by the health contingency.

1.1. Crowdfunding or collective financing

The health and economic crises associated with COVID-19 have exposed the weaknesses of the capitalist model and of liberal democracy. The speed of contagion revealed strong limitations by the State, the financial institutions, and the private sector in the implementation of effective actions to contain the epidemic outbreak, the preservation of the productive system, and the protection of especially vulnerable social strata. This is associated with the global and interdependent of the productive system, but also with the asymmetric and exclusive of the financial systems. However, the uncertainty generated by COVID-19 also offers us clues about the way in which elements associated with the knowledge society and the solidarity economy can help build solutions that we could call "post-capitalist" (Nelson, 2020).

Crowdfunding (CF) is a phenomenon in which factors typical of the information and knowledge society concur: digitization, new spaces for coexistence with technological mediation, and alternative models of entrepreneurship and financing. García and Garibay (2016) define CF as "a method through which individuals or non-profit organizations and companies obtain resources to carry out initiatives or projects of a social or business nature" (p. 37). Other authors, such as Schwienbacher and Larralde (2010), and Belleflame et al. (2012), coincide in conceptualizing FC as a call that uses the internet to provide financial resources to a project. These funds can take the form of donations, loans, or be given in exchange for some kind of reward.

The modality of collective financing using the internet was first observed in 1997 when musical groups began to collect donations to finance tours (García & Garibay, 2016). The same authors place the Artist Share company, in 2003, as the first collective financing platform focused on the artistic sector, and the Kickstarter company in 2008, as the first one focused on business.

According to Salido et al. (2019), most CF models are based on the concept of equity or capital investment, that is, an economic reward that can mean participation in the ownership of the project. However, there is a growing interest in some segments of the populati

CF has been examined from an economic perspective as an opportunity to capture economic surpluses from consumers and limit prices in the supply of goods and services to attract a greater number of funders (Belleflame et al., 2012; Bahena et al.

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2017). On the other hand, authors such as Agrawal et al. (2011) highlight the role that CF plays to shorten the distances between investors and entrepreneurs, reducing unwanted effects of bank financing.

Salvador (2018) points out that the lack of liquidity in the banking system is a factor that drives the operation of CF platforms, and that this has occurred especially since the financial crisis of 2008 and 2009, therefore there is currently a transition from the traditional venture capital model to participatory financing platforms in which the power of the crowd helps to satisfy credit demands.

1.2. Financial Technology Ecosystem (Fintech)

In addition to the restrictions and difficulties that have arisen from the confinement by COVID-19, in Mexico, there is a structural problem of financial inclusion and access to credit. According to Demirguc-Kunt et al. (2015), in Mexico, only 39% of the adult population has a bank account in a formal institution.

León and Saavedra (2018) warn that, for MSMEs, bank financing, in addition to being expensive, is asymmetric; microenterprises are seen by banks as risky clients due to the lack of mortgage guarantees, high mortality, low productivity, and the possibility that they may change the destination of the borrowed resources. The interest rate is determined by adverse selection since it is difficult to distinguish between payers and non-payers, and this, together with the imperfections of the capital market, becomes a rationing problem that especially affects smaller companies. According to Bank of Mexico (2015), in Mexico, only 29.5% of companies with less than 100 employees have bank financing.

This set of variables has configured a favorable scenario for the rise of emerging players that help to resolve asymmetries in the financing market, such as financial technology companies (Fintech). Fintech companies and initiatives are part of an ecosystem that, using mobile telephony and innovation, expand the coverage of financial services with lower costs, better-distributed information, greater transparency, and accessibility (Zedeli, 2019).

In a study carried out in micro and small companies in 22 countries affiliated with the Organization for Economic Cooperation and Development (OECD), Abbasi et al. (2020) found a positive relationship between the efficiency of MSMEs and the use of Fintech, which is why they suggest that governments introduce policies to support this type of initiative. On the other hand, when analyzing success factors in the financing of MSMEs through CF, González et al. (2021) find that risk is the variable with the greatest impact on successful funding.

In Mexico, a regulatory scheme has been developed in recent years that favors the growth of the Fintech ecosystem. According to Oxford Analytical (2019), the country is now a leader in financial technology in Latin America. This regulatory framework has as a key piece the Law to Regulate Financial Technology Institutions, also known as the Fintech Law. It includes collective financing entities and electronic payment funds such as Financial Technology Institutions (FTI). Collective Financing is defined in the Fintech Law as "activities designed to put people, of the general public, in contact, in order for them to grant each other financing" (Ministry of Finance and Public Credit, 2018, p. 6).

González (2018) considers that the Mexican Fintech Law is a window of opportunity that allows the entry of new actors to the business financing scene on equal terms with banks; by opening up competition, it is possible to offer more and better financial services in less time and at lower prices, in addition to motivating entrepreneurs to advance their projects by accessing new sources of capital.

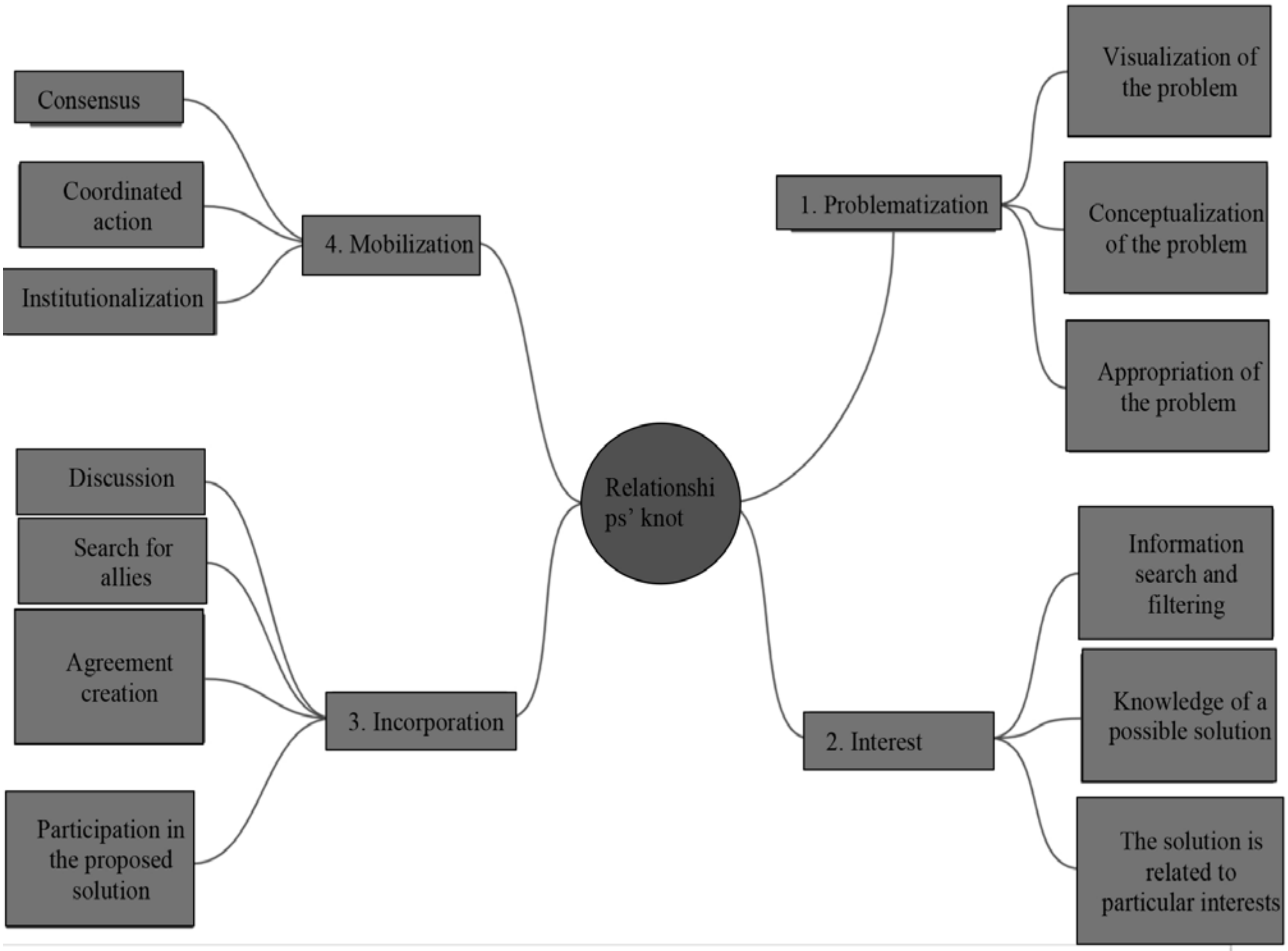
1.3. From Fintech companies to actor-network theory

One way of approaching the way in which crowdfunding networks are integrated is what is known as Actor Network Theory (ANT), which Law (2009) defines as "a diverse family of semiotic-material tools, sensitivities, and methods of analysis that treat all the elements of the natural and social worlds as a permanently generated effect of the networks of relationships within which they are located" (p.141).

Latour (2008) highlights that the social is constructed with the participation of people, organizations, and non-social entities, such as technology, and runs through associations and movements (a continuous process of reassembly) that if systematically tracked end in a shared definition of the world, or "collective".

To integrate the collective, a process called translation is carried out (Jarrahi & Sawyer, 2019), which is the sequence of a group of actors who try to advance on an agenda, and for this, they mobilize their resources and translate the interests of others with the hope of involving them, transforming matters of fact into matters of interest (García, 2017). According to Iyamu et al. (2018), there are four moments in this process: problematization, interest, incorporation, and mobilization (Figure 1).

Figure 1. Translation process in the Actor Network Theory



Source: Own elaboration based on Iyamu et al. (2018); Sánchez et al. (2020).

The translation process is relevant to our analysis because it is a model that helps to interpret the redefinitions and changes of interests of the actors. According to Ruiz

(1999), it implies linguistic and geometric modifications. In the scenario of the contingency due to COVID-19, we can observe a translation in the linguistic sense as the actors begin to reinterpret and verbalize their reality based on the real and imaginary changes that have occurred during confinement; and in a geometric sense, to the extent that they participate in new associations and begin to play roles different from those they did before.

2. Materials and methods

The questions that give rise to this research are: Can associations between actors of the financing ecosystem be traced? And based on these associations, what are the criteria that a micro-company or an entrepreneurial project should meet to attract the interest of micro-investors?

A quantitative research, with descriptive scope, and non-experimental cross-sectional design was carried out. The methodology used was actor-network theory (ANT). According to Echeverría and González (2009), ANT is a descriptive theory that allows characterizing the natural and social world as a product of the networks of relationships between actors, which can be both human and non-human, and according to McBride (2003), provides a social and technical description of the processes of organization and association between heterogeneous elements.

To collect the information, a questionnaire was designed consisting of four sociodemographic identification questions (age, gender, marital status, place of residence, and level of studies); and 14 questions related to the predictor variables and research criteria (Tables 1 and 4). The information collection instrument was applied through the Microsoft Forms platform during the months of August, September, and October 2020.

A sampling by social networks was used (Heckathorn, 1997), which combines the snowball technique with a controlled selection system so that the initial subjects are the recruiters (they propose other subjects who have some similar characteristic) and each participant can act as a recruiter until the desired sample size is achieved (Baltar & Gorjup, 2011). This type of sampling is used in hidden populations, which are characterized by their difficulty in identification, lack of a sampling frame, and little-known geographic distribution (Marpsata & Razafindratsimab, 2010). In this case, the population under study, defined as "potential micro-investors", has characteristics of a hidden population. Using a confidence level of 94% and a margin of error of 6%, a sample size of 245 people was obtained, of which 242 provided valid information.

Table 1. Theoretical model of the investigation. Predictor variables and criterion variable

Predictor variables	Criterion variable
Age (E)	Availability to make contributions via CF (DACF). Categories: 0 = No, 1 = Micro-contributions, 2 = Capital contributions
Gender (G)	
Marital status (EC)	
Scholarity (ESC)	
Perception of changes in the economic situation associated with Covid-19 (PCE)	

Predictor variables	Criterion variable
Degree of economic impact associated with Covid-19 (GAE)	Availability to make contributions via CF (DACF). Categories: 0 = No, 1 = Micro-contributions, 2 = Capital contributions
Level of economic solvency during the pandemic (SE)	
Job stability (EE)	
Degree of involvement in CF campaigns (GICF)	
Altruism vs personal gain approach (EAP)	
Local vs global approach (LG)	
Degree of effort to obtain information (EI)	
Type of expected benefit (BE)	
Factors that make a project attractive (FA)	
Technological resources associated with mediation (RM)	
Confidence Building Factors (FC)	
Factors that generate mistrust (DF)	

Source: Own elaboration.

To validate the questionnaire, an Exploratory Factor Analysis (EFA) was performed using the Principal Component Analysis and Varimax Rotation method, in which it was determined that there are four factors that explain 45.3% of the total variance (Table 2).

Table 2. Rotated matrix of components. Varimax rotation

Variable	Factor1	Factor2	Factor3	Factor4	Communality
PCE	0.699	-0.155	0.004	0.064	0.517
GAE	0.676	-0.279	0.014	0.125	0.551
SE	0.044	-0.081	-0.044	0.838	0.713
EE	0.582	-0.023	-0.022	-0.338	0.454
GICF	0.206	0.138	0.731	0.074	0.602
TB	0.444	0.056	-0.349	-0.005	0.322
LG	-0.025	0.777	-0.008	-0.020	0.604
DACF	0.596	0.442	0.155	0.030	0.575
EI	0.180	-0.038	-0.327	0.203	0.182
RM	0.127	0.399	0.038	0.450	0.380
FC	-0.149	0.630	-0.094	-0.041	0.430
FD	-0.016	0.129	-0.723	-0.052	0.543
EAP	-0.245	0.413	0.147	0.364	0.384
FA	-0.090	-0.021	0.200	0.191	0.085
Variance	2.0215	1.6754	1.3849	1.2605	6.3423
% Var	0.144	0.120	0.099	0.090	0.453

Source: Own elaboration using Minitab-19.

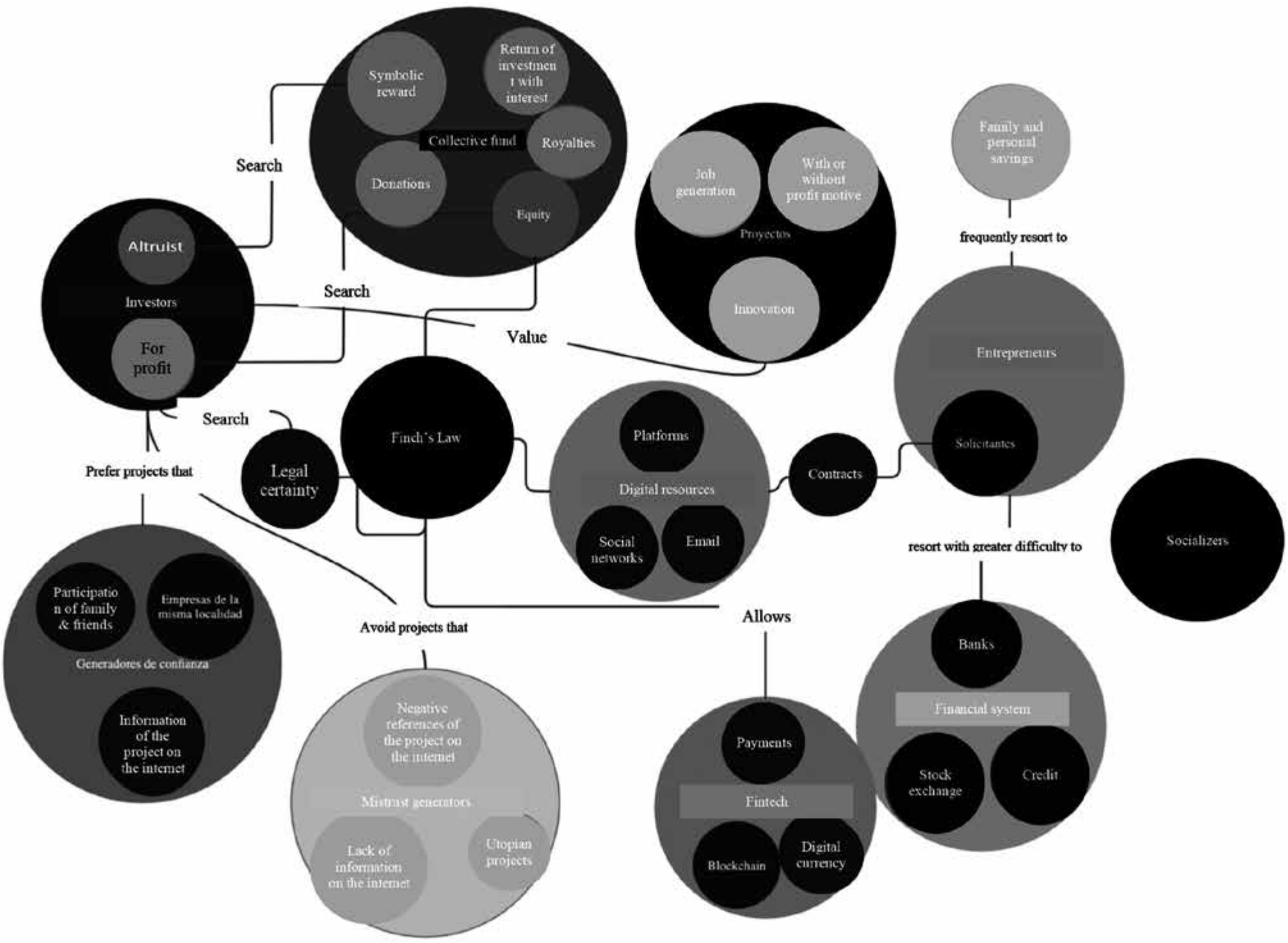
After the Varimax rotation, the matrix of components shows that the first factor groups, with high scores, the items related to the perception of the effects generated from the confinement due to COVID-19, while the second factor groups elements related to mediation, that is, the interests of the micro-investors, the aspects that generate trust and the preferred technological resources.

3. Results

3.1. Description of the crowdfunding ecosystem

The first step of the analysis is to draw the investor-entrepreneur network. The objective is to establish a starting point to trace the formation of specific associations. Figure 2 shows the generality of the elements identified between which some type of association can be established, that is, the "panorama", according to the terminology of Latour (2008). This is what Correa-Moreira (2012) calls framework or actor-network.

Figure 2. Investor-entrepreneur ecosystem



Source: Own elaboration.

3.2. Analysis of responses and behaviors associated with the translation phases

The second part of the exercise consisted of analyzing the database constructed from the baseline survey to identify what Latour (2008) calls questions of interest.

First, descriptive statistics (frequencies and percentages) were used to characterize the results of the survey (Tables 3 and 4). For this, the statistical software XLSTAT was used.

Table 3. Sociodemographic profile of the sample

Variable	Categories	Frequency	%
Age	20 to 29 years old	133	55.649
	30 to 39 years old	17	7.113
	40 to 49 years old	32	13.389
	50 to 59 years old	29	12.134
	60 to 69 years old	9	3.766
	Less than 20 years old	19	7.950
Marital status	Married	54	22.594
	Other	10	4.184
	Single	175	73.222
What is your educational level?	Baccalaureate or technical studies	62	25.941
	Undergraduate	130	54.393
	Postgraduate	43	17.992
	High school	4	1.674
Sex	Female	147	61.506
	Male	92	38.494

Source: Own elaboration.

Table 4. Table of frequencies per question

Variable	Item	a	b	c	d	e	f	g	h
PCE	**As a result of the health contingency associated with Covid-19 and its effects on the productive sector, you consider that your personal economic situation:** a) Has improved; b) Has worsened; c) It remains the same as before.	8	148	86					
GAE	**Which of the following effects associated with the Covid-19 contingency have you suffered?:** a) I lost my job; b) A close relative lost their job; c) Someone I know lost their job; d) My income was reduced; e) My family's income was reduced; f) We close a personal or family business; g) I have a business whose income was significantly reduced; h) None of the above	33	78	55	89	125	15	35	38
SE	**How easy or difficult is it for you to cover the expenses of the month?:** a) I finish the month without problems and I have a surplus that I can invest to save or finance projects; b) Tight, but I cover the expenses of the month; c) Sometimes I can't make ends meet; d) Usually I can't make ends meet.	55	108	59	20				
EE	**Do you currently have any paid work, even if it is temporary?:** a) Yes, I work permanently for a company or institution; b) Yes, I have my own business; c) Yes, I work temporarily for a company or institution; d) Yes, I do temporary jobs on my own account; e) I am unemployed.	90	19	32	29	72			
GICF	**Have you ever supported a collective financing initiative or crowdfunding campaign with money?:** a) Yes; b) No, although I do know the concept of crowdfunding or collective financing; c) No and I am not familiar with the concept of crowdfunding either.	15	50	177					

Variable	Ítem	a	b	c	d	e	f	g	h
EAP	**Which of the following factors would influence your decision to support a project through crowdfunding or collective financing?** a) That the project is creative or innovative; b) That the support makes it possible to save one or more sources of employment; c) That the support allows the creation of one or more new jobs; d) That the support generates some symbolic benefit for me e) That the support generates some economic benefit for me f) That it be altruistic. For example, that supports people in situations of poverty; g) None of the above. I am not interested in supporting projects through crowdfunding.	87	89	103	35	82	65	18	
LG	**If you were invited to participate in a collective financing campaign to rescue micro-businesses at risk of closure due to the health contingency derived from Covid-19, what projects would you prefer to support?:** a) Companies of known people; b) Companies of my locality; c) Companies from any location, but that are in Mexico d) Companies from other countries; e) I am not interested in participating in this type of campaign.	104	132	77	7	15			
DACF	**If you decided to participate in a collective financing campaign to rescue micro-businesses at risk of closure, what would be the amount of your contribution?**: a) Less than 100 pesos; b) From 101 to 500 pesos; c) From 501 to 1000 pesos; d) From 1000 to 5000 pesos; e) More than 5000 pesos; f) I cannot contribute resources; g) I am not interested in providing resources	39	76	40	41	5	32	9	

Variable	Ítem	a	b	c	d	e	f	g	h
EI	**What information about a project would you research to be willing to support it with microfinance?:** a) General description of the company, its market, and its products; b) Profile of entrepreneurs or project managers c) Fiscal and financial situation of the business; d) History of the project e) Other	180	112	107	64	14			
BE	**If you supported an entrepreneurial or micro-business project through a collective financing campaign, what would you expect to receive?:** a) Nothing specific; b) Detailed information on the use made of the resources c) That the contributions are tax-deductible; d) That the contributions be returned to me as if it were a loan; e) That the contributions are returned to me with interest; f) That the contributions allow me to become a business partner; g) That the entrepreneurs send me a symbolic reward (for example a souvenir or a thank you letter)	34	117	49	40	38	83	33	
FA	**Which of the following factors would influence to make a project attractive for microfinance purposes?** a) That it inspires confidence; b) That it be feasible, not very utopian c) That it be told in an attractive way; d) That it proposes to do things of high quality; e) That proposes any innovation or scientific and technological development; f) That it generates jobs and wealth; g) That it be supportive, that is, that it takes care of the most vulnerable; h) others	139	99	39	91	82	120	66	63
RM	**Through what means would you prefer to receive information about a project to decide whether to support it?:** a) An internet platform; b) Email; c) Social networks; d) By traditional mail; e) By telephone; f) Other.	121	148	73	21	36	13		

Variable	Ítem	a	b	c	d	e	f	g	h
FC	**Which of the following factors would favor your confidence to support a project through crowdfunding?:** a) That family or friends participate in it; b) That there are relatives or friends of people I know; c) That there are known people, even if we do not have family or friendship ties; d) That it has the backing of a recognized person or company; e) That there is sufficient information available about the project on the internet; f) That they have sent me information about the project through social networks; g) In general they do not inspire confidence in me, since I cannot know how they will use the money.	62	68	86	99	112	41	28	
FD	**Which of the following factors would cause you to distrust when supporting a project through crowdfunding?** a) There are no known people in the project; b) That it does not have an internet page; c) That there is no information about the project available on the internet; d) That it has bad references on the internet or on social networks; e) That it may be related to political interests; f) That it does not offer information on results to its investors or benefactors (accountability); g) That it seems too utopian or unrealizable.	56	74	124	133	124	124	76	

Note: In some questions the sum is greater than 242 because more than one answer was allowed.
Source: Own elaboration.

Here are some of the findings organized according to the phases of the translation process.

3.2.1. Problematization

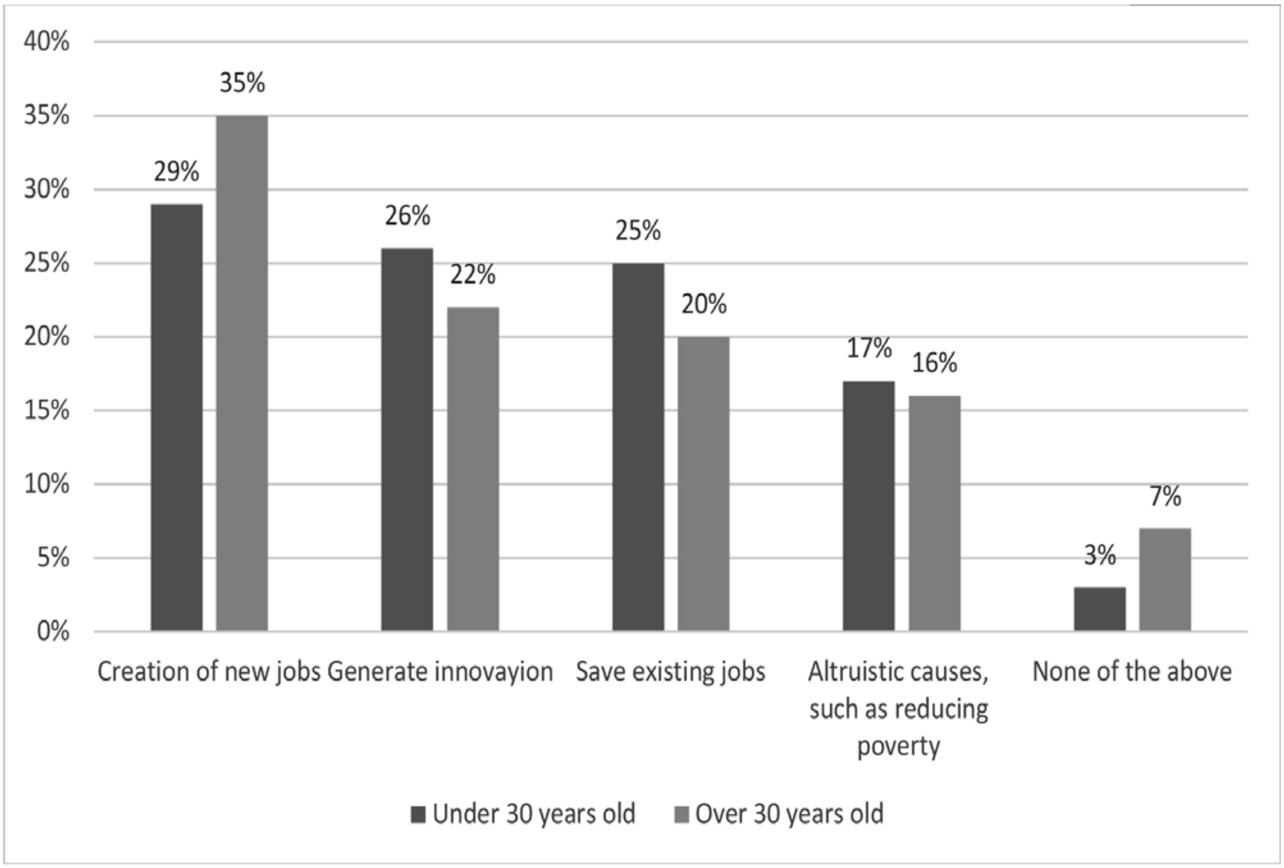
84% of those surveyed state that they had had some degree of economic issues as a result of the contingency caused by COVID-19, ranging from the loss of a job, the unemployment of a relative or acquaintance, or a reduction in family income.

3.2.2. Interest

22% of those under the age of 30 know the concept of crowdfunding or collective financing, while in the population aged 30 and over, the percentage of people who know the concept is 17.5%. In those under 30 years of age, 29% would participate in crowdfunding campaigns if this allows creating new jobs, and 25% if it helps to save existing ones, while 26% prefer proposals that generate innovation and 17% focus on altruistic causes. In those over 30 years of age, the greatest interest is directed towards creating new jobs (35%), innovation (22%), saving existing jobs (20%), and altruism (16%) (Figure 3).

The economic surpluses that can be used for collective financing have been reduced during the contingency; despite this, 23% of those surveyed state that they have surpluses that allow them to save and invest.

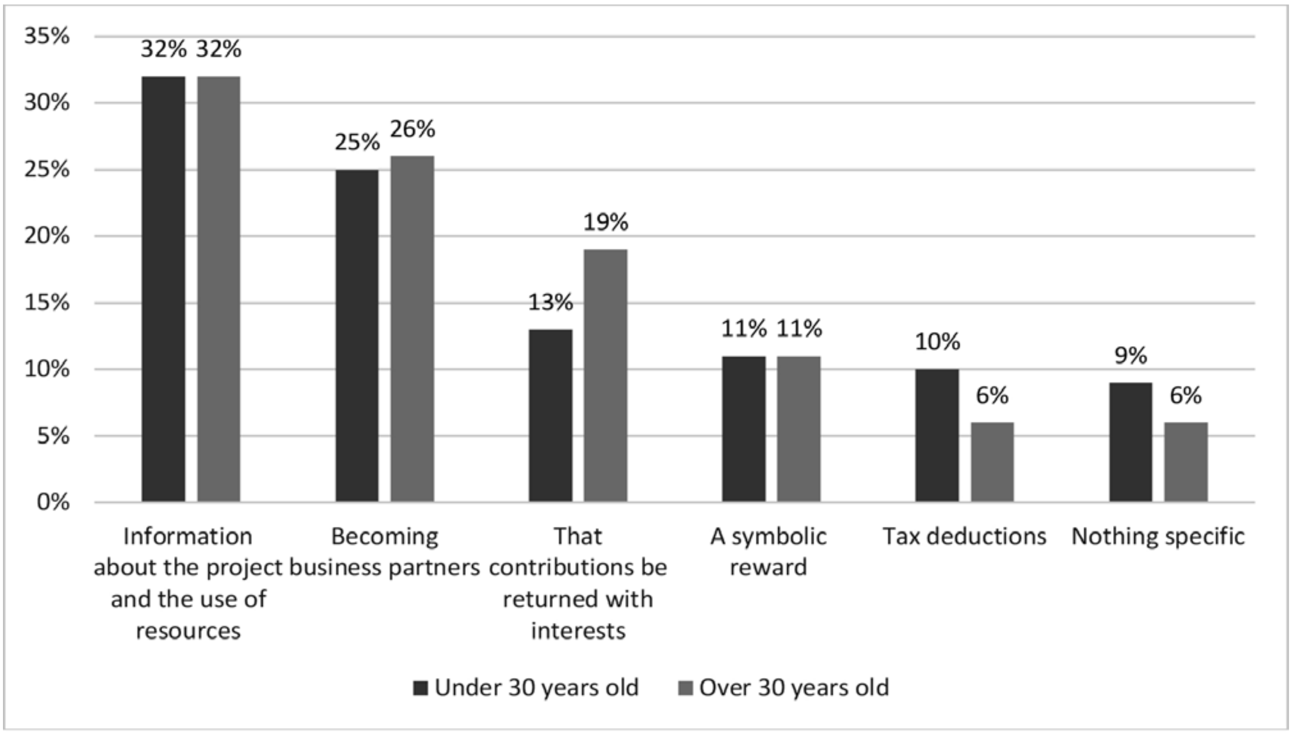
Figure 3. Aspects valued by potential investors in the projects to be funded



Source: Own elaboration.

In case of participating in a crowdfunding campaign, people under 30 years of age would expect to receive, in the first place, information about the project and the use of resources (32%); a segment of investors (25%) would expect to become project partners, and 11% would expect only a symbolic reward (Figure 4).

Figure 4. Expectations of potential investors when participating in the funding of microprojects



Source: Own elaboration.

3.2.3. Incorporation

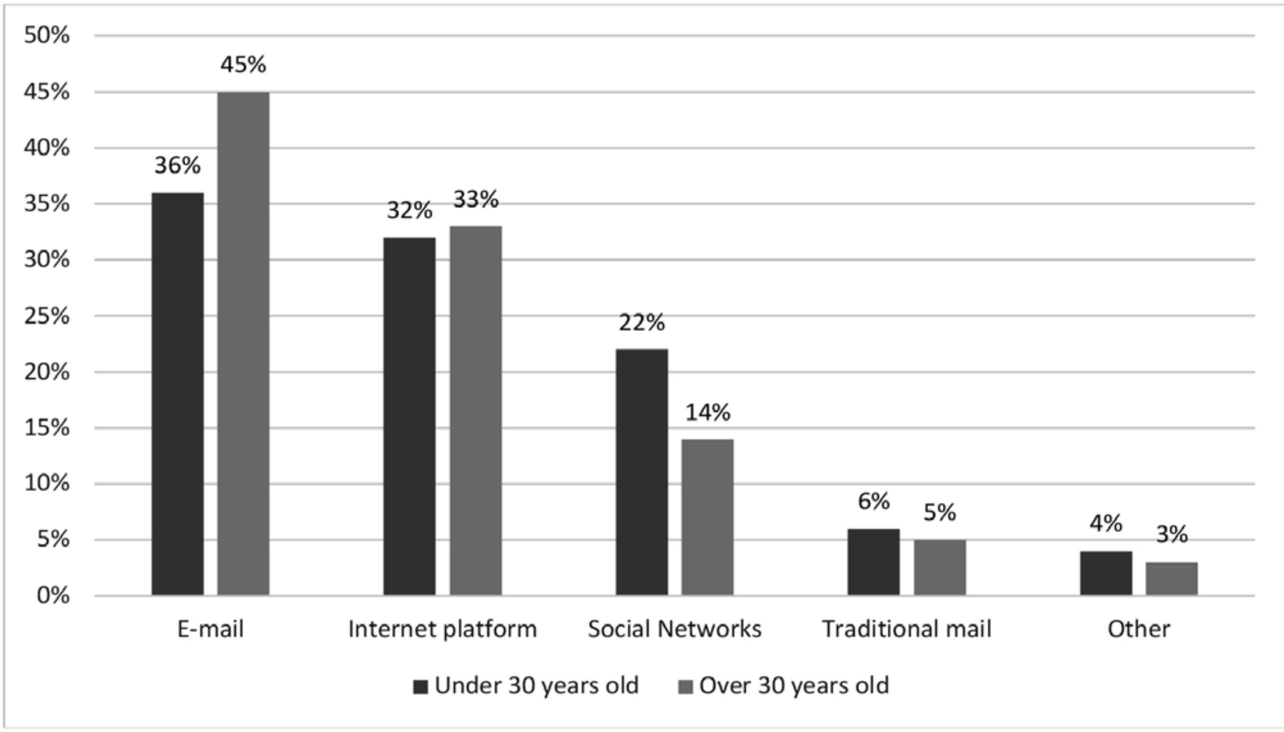
6.5% of those under 30 years of age have participated in a donation or collective financing campaign, while in those over 30 the participation level is 5.6%.

E-mail is mentioned as the predominant means of contact for those who would be interested in participating in CF campaigns (45% in the population aged 30 and over and 36% in those under 30), followed in importance by an internet platform (33% and 32% respectively). Social networks would have a greater presence in those under 30 years of age (22%) than in the older population (14%) (Figure 5).

Respondents express a preference for supporting projects from their own locality (39%) and from known people (31%). The information they would require to make the decision to support a project is the general description of the company, line of business, and products (37%); profile of entrepreneurs (23%); and the fiscal and financial situation of the project (22%).

The factors that encourage trust in projects, for collective financing purposes, are, firstly, that relatives participate in them, or relatives of known people (26%); that there is sufficient information available about them on the internet (22%); and that it has the endorsement of a recognized person or company (20%). On the other hand, the factors that generate distrust are, in the first place, bad references on the internet (18%) and that there is no information available about the project on the internet (17%).

Figure 5. Technology mediators preferred by potential investors



Source: Own elaboration.

3.2.4. Mobilization

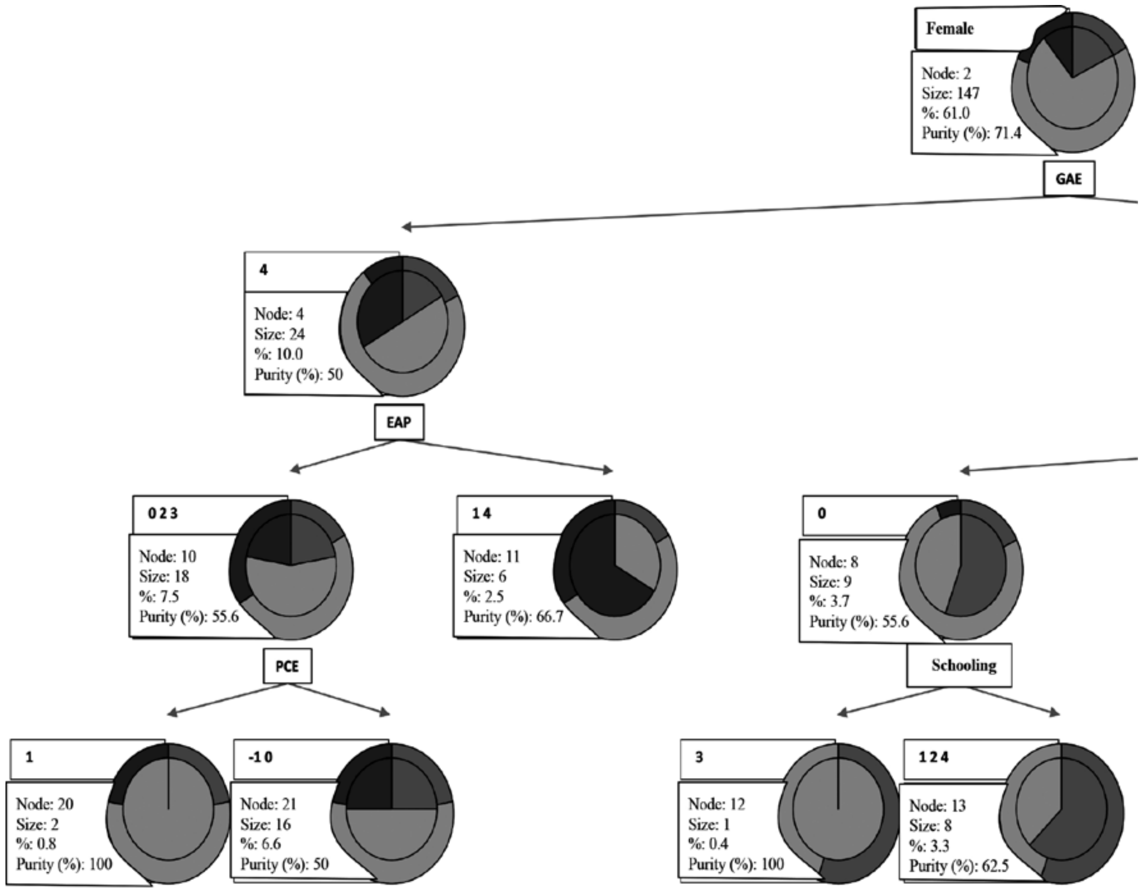
According to Gunawong and Gao (2010), mobilization comprises both an implementation model and channels for the different actors to align their interests and actions to the route proposed by the focal actor. In Mexico there is a CF ecosystem, which brings together four donations and rewards platforms, five equity platforms, five real estate platforms, 11 loan platforms, and a royalty platform (Asociación de Plataformas de Fondeo Colectivo-AFICO, 2020); however, its level of penetration is still incipient, since at least 78% of the people surveyed are unaware of the concept of collective financing. The existence of a focal actor (AFICO) and a participation mechanism (ecosystem and crowdfunding platforms) can be identified. In addition, there is a process of institutionalization of the proposed solutions (Fintech Law).

3.3. Identification of traceable associations

In the third stage of the analysis, the CHAID (Chi-Square Automatic Interaction Detection) algorithm with XLSTAT-2016 was used as a tool. It is a hierarchical segmentation predictive algorithm that works with a nominal or ordinal categorical dependent variable, from which as many partitions are created as independent variables are considered for the model. The CHAID uses the Chi-square to study all the values of each predictor variable, which helps to find how similar or associated the variables are and which is the most significant predictor (Sanz & Ponce de León, 2010). In this way, a classification tree in which each node is made up of similar categories of the selected variable is formed. As it is a hierarchical segmentation technique, it identifies homogeneous groups of subjects based on the values taken by the criterion variables based on the statistical significance of the explanatory variables (p-value).

To carry out the analysis, the Availability to make contributions via CF was taken as a criterion variable. It is a categorical variable with three possible values: 0 = Not willing to make contributions; 1 = Would be willing to make micro-contributions (less than 1000 pesos), and 2 = would be willing to make capital contributions (greater than 1,000 pesos). First, the classification and regression algorithm was applied to the criterion variable and the predictor variables corresponding to the investor's profile (age, gender, education, perception of changes in the economic situation associated with COVID-19, degree of economic impact associated with COVID-19, and altruism vs. personal gain approach). A part of the results can be seen in Figure 6.

Figure 6. Classification tree for the criterion variable and the investor profile



Source: Own elaboration utilizando XLSTAT-2016.

Each node represents a homogeneous group with specific characteristics, whose predictive capacity occurs when conditions of the type If p, then q is met. For example, node 20 in Figure 6 shows us a group of people who are willing to make micro-capital investments (the criterion variable has a value of 1). The rules for this node are:

If *PCE=1* (Perceive that the economic situation has improved); EAP = 2.3 (Would support projects that generate employment or that are creative and innovative); GAE = 4 (Someone you know lost their job during the contingency) Gen = 2 (Female) **then** Availability to Make Contributions = 1 in 100% of the cases.

Another example would be node 11, which profiles a group willing to make capital contributions (the criterion variable has value = 2). The rules for this node are:

If EAP = 1 or 4 (Would support projects that generate some economic benefit and have an altruistic purpose) and GAE = 4 (Someone known to me has lost their job during the contingency) and Gen = 2 (Female) **then** Availability to Make Contributions = 2 in the 66.7% of the cases.

Next, the classification algorithm was replicated for the criterion variable and the variables related to the profile of the entrepreneurship projects: Type of economic benefits offered, local vs. global, factors that make a project attractive, technological resources associated with mediation, factors that generate trust, factors that generate mistrust. From this analysis 27 nodes emerged and, as an example, the rules of nodes 10 and 23 are explained.

If RM = 2 (The project is promoted by email and a platform); FC = 2, 3, 4, 5 (Family, friends, or acquaintances participate in the project, there is information about the project on the internet, entrepreneurs send information via email, platform or social networks); FA = 1, 2, 3, 4, 6, 7, 8 (The project is presented in an attractive manner, it is related to social goods, it produces jobs and wealth, it shows successful experiences, it shows testimonials from people it has supported and proposes some innovation or technological development) and LG = 1, 2, 3, (The project involves companies of well-known people, from my town or from another part of Mexico), **then** Availability to Make Contributions = 2 in 61.5% of the cases.

If FC = 2 (Family members or acquaintances participate in the project); RM = 1,2,3 (Entrepreneurs send information via email, platform, or social networks); BE = 1,2,3 (The project offers information on the use of resources, could return the contributions as if it were a loan or offers a symbolic reward) and FA = 5, 9, 10, 11 (The project inspires confidence, proposes to do things of high quality, it is feasible, not very utopian, it is supportive) and ELG = 1,2,3 (The project involves companies of well-known people, from my town or from another part of Mexico) **then** Availability to Make Contributions = 1 in 83.3% of the cases.

Finally, the confusion matrix is shown (table 6) in which the accuracy of the model can be appreciated. The number of correct answers, which appear in bold in the table, indicates that the model has a moderate predictive capacity, since it was only correct in 72% of the cases, therefore, in a subsequent investigation, it would be convenient to expand the sample and adjust the questionnaire to increase the reliability of the algorithm.

Table 6. Confusion matrix for the estimation sample

Estimated Real	0	1	2	Total	% correct
0	**19**	22	0	41	46,34%
1	3	**147**	5	155	94,84%
2	2	34	**9**	45	20,00%
Total	24	203	14	241	72,61%

Source: Own elaboration utilizando XLSTAT-2016.

4. Conclusions and discussion

The ANT methodology proposes to construct a narrative in which a network similar to a music sheet can be traced that links heterogeneous and inconstant actors from an oligoptic point of view, which allows seeing little but seeing well (Seijo, 2006). By following the sequence of problematization - interest - incorporation - mobilization, we can trace the movements of the actor-network, which allows understanding the nature of the transactions that can occur between an investor and an entrepreneur.

In the framework of the investor-entrepreneur ecosystem, each action is motivated by the movements of other participants, their expectations, and their interests. This is what Greimas and Courtès (1982) call "actants", that is, who at the same time acts and suffers an action. Tirado et al. (2005), define it as any entity that produces a relationship or acquires significance value, and that is defined by its ability to produce an action within a framework.

In response to our first research question, we can conclude that it is possible to trace the associations between actors, and that these occur through a series of tangible and intangible elements grouped in a factor that we call "mediation". The classification and regression analysis allows us to visualize the way in which the actors of the network are linked through symbolic elements corresponding to this variable. For example, an investor is willing to commit his resources to a project when he sees it as reliable and attractive; this is especially the case when there is the participation of relatives or acquaintances; is from the same community as the investor; has a presence on the internet; provides information on the use of resources; and generates a social good, such as jobs or wealth, among other criteria.

Mediation has been widely discussed in the context of the ANT and has several meanings or dimensions. It can be understood as a translation of goals and as coordination between actors and actants (technical mediation), but also as a process of space-time folding or black box where "various elements, goals, actions given in other times and different spaces coexist compressed, folded, in a single actant" (Correa-Moreira, 2012, p. 69).

The mediation factor also provides the guideline to answer our second research question, as it suggests aspects that a micro-enterprise or an entrepreneurial project should gather to "produce an action within the framework". In this sense, a microenterprise or project is significant for investors and can contribute to their mobilization if they answer affirmatively to key questions such as: Does it help to solve any problem that affects me? Allows me to get involved? And in doing so, does it provide me with a social or economic reward? Does it inspire me a reasonable level of confidence? Does it allow me to contribute resources according to my possibilities? Is it easy to access the project information? Does it involve well-known people or companies? Is it visible on the internet? Is there accountability for the resources it receives? Does it operate in my locality? What references do they have?

It is important to highlight how the presence on the internet, the positive and negative references about the business, and the possibility of accessing information on the use of resources, are key for a potential investor to consider that an entrepreneurial project is reliable, which gives us leads to the conclusion that digitization is an essential requirement not only to activate sales, but to access financing through CF. This is consistent with the findings of Ortega (2020), who highlights the importance of designing digital marketing strategies focused on the customer rather than the product. In addition to the above, the presence of relatives and acquaintances in the projects is relevant, since they are generators of trust, which in turn is related to the reliability of the contact network (Gamero & Ostos, 2020).

It is important to highlight that, in accordance with the advice of authors such as Belleflame et al. (2012), despite the fact that in the confinement scenario the income of most of the population was reduced, almost a quarter of economically active people still have economic surpluses that make them potential investors. Finally, the preference of potential investors for local projects denotes the positive effect of what Agrawal et al. (2011) call “the geography of crowdfunding”, that is, the possibility of connecting investors with entrepreneurs almost without intermediaries.

With this information, it is possible to advance in the design of a collective financing platform that fulfills the role of mediator and helps to increase the flow of resources to microenterprises. Furthermore, the growing interest in micro-projects that support the creation or conservation of jobs at the local level, allows us to see that it is possible to develop solidarity networks of financing, with a decentralized structure and with a not necessarily lucrative approach. For practical purposes, this type of association could support the development of CF campaigns, and even in the development of algorithms that serve as a basis for the design of microfinance platforms.

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Economic growth and the dynamic efficiency theory

Crecimiento económico y la teoría de la eficiencia dinámica

Dr. Armando José Urdaneta-Montiel is a professor and researcher at the Metropolitan University (Ecuador) (aurdaneta@umet.edu.ec) (https://orcid.org/0000-0002-9825-9453)

Dr. Emmanuel Vitorio Borgucci-García is a professor and researcher at the University of Zulia (Venezuela) (emmanuelborgucci@gmail.com) (https://orcid.org/0000-0002-4078-006X)

Mg. Bladimir Jaramillo-Escobar is a professor and researcher at the University of Guayaquil (Ecuador) (bladimir.jaramilloe@ug.edu.ec) (https://orcid.org/0000-0001-9984-813X)

Abstract

This research analyzes economic growth from the theory of dynamic efficiency, using a global indicator of competitiveness and one of global economic freedom, starting from the hypothesis that greater economic freedom translates into greater competitiveness and economic growth. The dynamic efficiency supported by authors of the Austrian economy aims to explain how the increase in profitability and productivity in the production of goods and services depends mainly on business creativity. From the methodological point of view, the study is descriptive, correlational and prospective, using panel data from the 20 largest economies in the American continent. The study analyzes the main macroeconomic indicators, the quality of institutions, health, primary education, infrastructure and the degree of business innovation, correlated with variables that measure the level of freedom to do business, fiscal pressure, size of government, security Legal, competitiveness is measured through the factors that determine the productivity of an economy. Among the main results, it was found that the index of economic freedom and the GDP per capita show a bidirectional causal relationship in the Granger sense, thus revealing an endogenity relationship between both variables. The degree of cointegration, causality and explanation of competitiveness and economic freedom with economic growth was demonstrated.

Resumen

Esta investigación analiza el crecimiento económico desde la teoría de la eficiencia dinámica, utilizando un indicador global de competitividad y uno de libertad económica global, partiendo de la hipótesis de que mayor libertad económica se traduce en mayor competitividad y crecimiento económico. La eficiencia dinámica sustentada en autores de la economía austriaca pretende explicar cómo el incremento en la rentabilidad y productividad en la producción de bienes y servicios, depende principalmente de la creatividad empresarial. Desde el punto de vista metodológico, el estudio es descriptivo, correlacional y prospectivo, se empleó datos de panel de las 20 economías más grandes del continente americano; también analiza los principales indicadores macroeconómicos, la calidad de las instituciones, salud, educación primaria, infraestructura y el grado de innovación empresarial, correlacionado con variables que miden el nivel de libertad para hacer negocios, presión fiscal, tamaño del gobierno, seguridad jurídica; se mide la competitividad por medio de los factores que determinan la productividad de una economía. Entre los principales resultados se encontró que el índice de libertad económica y el PIB per cápita, muestran una relación causal bidireccional en el sentido de Granger, develando con ello una relación de endogeneidad entre ambas variables. Se demostró el grado de cointegración, causalidad y explicación de la competitividad y la libertad económica con el crecimiento económico.

Keywords | palabras clave

Competitiveness, economic freedom, business function, and economic growth, dynamic efficiency, innovation, productivity.
Competitividad, libertad económica, función empresarial, crecimiento económico, eficiencia dinámica, innovación, productividad.

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1. Introduction

This study proposes a methodology that allows explaining economic growth from the theory of dynamic efficiency, using a global indicator of competitiveness and one of global economic freedom. The competitiveness indicator measures the quality of institutions, infrastructure, macroeconomic environment, health, and primary education, all of which are basic requirements; thus, a series of indicators that enhance economic efficiency are considered, such as higher education and training for work, the effectiveness of the market for goods and work, development of financial markets, technological availability, and the size of the market; finally, business discovery and business sophistication are assumed as fundamental elements of innovation. The economic freedom indicator measures the level of freedom to do business and trade, the level of fiscal pressure and size of the government, the level of independence of monetary policy, and the governing body that implements it, that is, monetary freedom, also, legal security for investment or investment freedom, legal guarantees of property rights, low levels of discretion in the operation of State institutions or freedom from corruption, labor flexibility or labor freedom in the consummation and dissolution of contracts of work or labor relations between employer and worker. It is hypothesized that greater economic freedom translates into greater competitiveness and economic growth. Now, from the approach of the Austrian school of economics, both variables are the product of the business function and are generated by processes of dynamic efficiency within the free market.

For this reason, the work will be subdivided into: 1) a brief summary of the characteristics of the research and the theoretical foundations that support the study; 2) the methodology assumed to integrate the theory with the empirical referents; 3) the results of a mathematical model of approximation of economic growth from the competitiveness and economic freedom of the respective countries under study, and 4) the conclusions of the case.

1.1. The free market, the business function and dynamic efficiency

Competitiveness, economic freedom, and growth are very old concepts, especially from the rebellion against mercantilism in the seventeenth century, where liberals such as Thomas Le Gendre coined the phrase laissez-faire[1] (letting be) (Rothbard, 2012). Later, at the end of the 18th century, the great thinker and statesman Anne Robert Jaques Turgot would come. This economic doctrine stated that trade can only flourish and subsist when merchants are free to procure the goods they need in the places where they are sold at the lowest price (Rothbard, 2012) and Mises (1983 [1944]).

For this reason, Schumpeter (1983) characterized the market as the place where intertemporal competitive processes take place, where economic risk is always present in setting the prices of goods and services, in addition to other things beyond purchase-sale contracts. According to Schumpeter (1983), market processes provide a

1 According to Fergunson (1979 [1938]) and Schumpeter (1994 [1954]) the phrase is rightly or wrongly attributed to Vincent de Gournay (1712-1759). The sentence would be: "Laissez faire laissez passer le monde va de lui-même". According to Schumpeter (1994 [1954]), Gournay had two great contributions to the economy and specifically to economic freedom: 1) he was together with Mirabeau one of the main popularizers of the work of Richard Cantillon (1680-1734), since they considered that it was a systematic and didactic work that turned it into a great antecedent to the work of Quesnay; and 2) "… his contribution to the economic training of Anne Robert Jacques Turgot (1721-1781)" (Schumpeter, 1994 [1954], p. 289).

relevant case for clearly distinguishing between what the author calls "circular current" and "development" (*Entwicklung*).

Regarding development, Schumpeter (1983) characterizes it as follows: 1) alterations of the economic system from the economic sphere; 2) that arise from the growth of economic activity, population, or wealth; 3) it does not refer to adaptation processes of the economic system, as it is related to exo-economic factors; 4) as a process that rests on the preceding development; 5) are associated with spontaneous and discontinuous alterations of the circular current; 6) by the implementation of new combinations of the elements that serve as materials for production, production methods, packaging systems, labeling systems, marketing systems or markets to which it will be used to satisfy the needs; and 7) be the result of non-pure competition.

Within the circular current and development is where companies and the business function act. Thus, for Knight (1964 [1921]): "We live only by knowledge about the future; while the problems of life, or behavior at least, arise from the fact that we only know a very small portion of the future" (p. 199). Man and his conscience, says Frank Knight, faces the environment and constantly adapts to it. Man reacts to the "image" of a future that may be, among other things, the future situation of business; and by common sense, the image is both present and operative; the image is spontaneous and looks forward. For Frank Knight, the role of consciousness is to give the organism knowledge of the future and based on René Descartes: "We perceive the world before we can react to it, and we react not to what we perceive, but always to what we infer" (Knight, 1964 [1921], p. 201).

But development requires a place where the combinations take place and the actor who carries them out. In this way, Schumpeter expresses the following: "We call "company" the realization of new combinations, and "business men" the individuals in charge of directing said realization" (Schumpeter, 1983, p. 84).

Leibenstein (1969), the business function would be all those actions that seek to reduce the inefficiencies of the organizational cycle of the company. These inefficiencies come from the incomplete specification of contracts and knowledge gaps from both the organizational cycle and the market. For Huerta de Soto (2010): "The business function is the typically human capacity to realize the profit opportunities that arise in the environment, acting accordingly to take advantage of them" (p. 110). For his part, Kirzner (1979), entrepreneurship does not always work in equilibrium conditions in the neoclassical style. Entrepreneurship can sometimes face profit and loss situations, non-balancing situations.

These ideas have as a common base the proposals of Mises (1983 [1944]) and Hayek (1978):

> Those eager to profit are always looking for an opportunity. As soon as they discover that the relation of the prices of the factors of production to the anticipated prices of the products seems to offer such an opportunity, they intervene. If their valuation of all the elements involved was correct, they make a profit. (Mises, 1983 [1944], pp. 31-32)

But for Mises (1983 [1944]) the nature of profits is found in the fact that the real world is not stationary, but changing and in this sense the author states:

> But today's world is a world in constant flux. The numbers, tastes, and needs of the population, the supply of factors of production, and technological methods are in constant flux. In such a state of affairs, a continuous adjustment of production to changing conditions is necessary. This is where the entrepreneur comes in. (Mises, 1983 [1944], p. 31)

Now, the free market and, with it, competition are approached from the perspective of dynamic efficiency theory; which aims to explain how the increase in profitability and productivity in the production of goods and services depends mainly on business creativity and speculation[2] in commercial activities, avoiding the waste of resources given according to static efficiency (Huerta, 2010).

For this reason, the business function always generates new information (Huerta, 2010). This occurs due to the social imbalances generated by the market which, in turn, mean new business opportunities and profits. This information is transmitted mainly through the price system in the various markets of the economic system.

Economic equilibrium is not the same as general equilibrium theory. The origins of the first date back to late scholasticism (Schumpeter, 1994 [1954]). From Saint Thomas, balance, let's say individual, starts from the respect for the idea of the common good or just good. Equilibrium, following Aristotle (1992) is a proportion following the rules of commutative justice. The first broad vision of the economic process came from the hand of Saint Anthony Pierozzi (1389-1459) and Gabriel Biel (1425-1495). Already in late scholasticism the just price was identified not only with the normal competitive price but with any competitive price. With Pietro Verri (1728-1797) the vision of balance was based on calculations of pleasure and pain in the style of Jeremy Bentham. Pierre le Pesant sieur de Boisguillebert (1646-1714), the equilibrium is of interdependent economic magnitudes, but from the point of view of consumption (Schumpeter, 1994 [1954], p. 259). The first mathematical exposition of equilibrium is due to Achille Isnard. Although Charles Devenant, Josiah Child, and John Pollexfen build relationships between economic magnitudes, it is with the Tableau Cantillon-Quesnay that the first method was reached to expose the nature of economic equilibrium seen as social aggregates. The process outlined above was continued by Smith (1982 [1776]), when studying the price components (costs and income: wages, income, and profit), he established a primitive interdependence of the magnitudes that make up the economic system. Special mention must be made of Ferdinando Galiani who exposed the economic equilibrium from a long-term perspective (Schumpeter, 1994 [1954]). Among the classics, we must highlight Jean-Baptiste Say (1767-1832) (2001 [1841]), whose ideas of economic balance brought together the contributions of Richard Cantillon (2002 [1959]) and Jacques Turgot (Aramburo-González, 1998) with Leon Walras. With Nicolás Barbón (1640-1698), the economic equilibrium extends to international trade, and with John Stuart Mill (1806-1873) (1985 [1848]) the static analysis and the idea of steady-state insistently used by David Ricardo (1772-1823) (1973) and Sir Thomas Robert Malthus (1766-1834) (1977).

In this sense, the theory of dynamic efficiency differs from the concept of economic equilibrium and particularly from the Walrasian and its variants. For Huerta de Soto

2 From the Latin noun speculātio and from the Latin verb specuiari, which means to register, look at, carefully observe something to recognize and examine it and speculātor, observer, spy, explorer. Commercial speculation is about buying (or selling certain products at a certain price to resell them (or buy them again) at a price at higher or lower prices that occur in other circumstances of time and place in order to obtain a profit. That is, the speculative business consists of knowing the way in which the market works, through bidders and claimants in order to take advantage of the arbitration. The necessary conditions for it to occur are: 1) that the goods object of the business is negotiated in different markets, to locate their differential price variations; 2) the market is not in a position to offset such variations on its own. In the case of the Economy, speculation is the effort made to take advantage of the market knowledge of the product of interest to the speculator, on the path that its price will take (Salvat, 1972).

(2010), dynamic efficiency is based on creativity, discovery, and organizational coordination. It consists of adapting ends and means within chronic imbalances in any part of the economic system related to the organization and its most important economic variables. Necessarily, a point of indifference (Pareto limit of efficiency) will not be reached in a function of production possibilities, which would imply underutilization of resources, since what matters is that the company can hunt for profit opportunities and with its expansion its function of possibilities. In this idea of hunting opportunities, Kirzner (1979) proposes the idea that entrepreneurs carry out entrepreneurial acts in search of profit in a context where failure is a (non-statistical) possibility and where there is learning of the behavior of the variables that affect the business. This profit-making becomes a mechanism for transmitting information and coordinating the activities of an entire economic sector.

Now, from the point of view of the context, the company finds that it cannot fully know the set of ends and means by which it will make decisions. This incompleteness in encompassing all the possibilities of the context is due to the fact that the variety of businesses is indeterminate (Rothbard, 1979). Therefore, making decisions assuming a certain generic utility function would tend to underestimate or overestimate the reality of business. For Rothbard (1979), one element that can help improve dynamic efficiency is to have an adequate ethical framework in which at least the right to property is guaranteed and the possibility of executing voluntary agreements is guaranteed. In the words of Demmert and Klein (2003) it would be: “A regime of freedom —low taxes, secure private property, minimal restrictions on voluntary agreements— could promote all kinds of discovery and improve the alignment between individual opportunity and social betterment” (p. 299).

Finally, Joseph A. Schumpeter proposes, apart from the role of the businessman exposed above, the idea of creative destruction and in that sense:

> The fundamental impulse that sets and keeps the engine of capitalism in motion comes from the new consumer goods, the new methods of production and transportation, the new markets, the new forms of industrial organization that capitalist companies create. (Schumpeter, 2008 [1942], p. 83)

However, this creative destruction and, consequently, “sunk costs” for many organizations do not occur in a perfectly competitive market or in situations of automatic and instantaneous equilibrium. That destruction is found in the so-called development (Entwicklung) and that process of destruction that presupposes a process of creation is surprising. With regard to Leibenstein (1966), economic relations between agents can lead to contracts that do not consider all possible situations between suppliers and demanders. That is, the generation of gaps, areas of uncertainty, or indeterminacy in specific situations can lead to wrong decisions in companies. Bad decisions can be aggravated in a context that allows the existence of “loophole minning” (Kane, 1981) or problems of adverse selection (Akerlof, 1970). The end result of an adverse context and poor decisions is organizational inefficiency.

One of the things that must be considered from the above is that the idea of automatic, instantaneous, simultaneous, and perennial[3] equilibrium of neoclassical econo-

3 When talking about the theory of general equilibrium, one initially starts from the works of Cournot (1863) and then Walras (1987 [1874]). Walras’s versions are long-term models and he was interested in knowing when the equilibrium was final and stable. Equilibrium for Walras involved a process known as “Tâtonnement”, where an auctioneer announced a price and agents responded with their supply and demand amounts that they were willing to compromise. When a price match occurred, it

mists is a concept far removed from the reality of economics because: 1) one starts from a version of ontological and methodological individualism that assumes that economic agents have all the knowledge to make their economic decisions (Hayek, 1989); 2) one starts from the "heroic" assumption (Bunge, 1999) that the economy is a closed system both in its relations with the government and with the rest of the world; 3) rationality is understood both as the inevitable maximization of utility and total profit, which, according to Morgenstern (1972), implies that people and companies control all the variables on which the maximum depends; 4) the market is perfectly competitive and that the price expresses that equilibrium, although in the long run, the price is equal to the average unit cost, which makes it difficult to explain the profit (Samuelson et al., 1983); 5) agents and their desires are mutually exclusive, they are random variables; 6) the existence of the "invisible hand" as a self-regulation mechanism of the system.

However, when the interaction of the business function and competitiveness are taken to the macroeconomic level and specifically of economic growth from the Austrian perspective, the contribution of Garrison (2005) should be considered in the sense of considering two crucial problems: the problem of if the market works and the approach in which it should be approached from work or from the capital. In this sense, the first problem considers the question of whether decentralized decisions lead to macroeconomic coordination or lack of coordination. The analytical orientation, for its part, has to do with the preference to approach coordination in the study of the labor or capital market. Both John M. Keynes and Milton Friedman focus on the study of the labor market, but while the first assumes that the market does not properly work, the second believes that it does. For his part, Friedrich von Hayek considers that markets, by working without government interference and studying the economic problem from the capital factor, produce better economic decisions.

Accordingly, indicators have been developed that, on the one hand, emphasize the results of the economic process, such as gross domestic product per capita with labor productivity, and on the other, evaluate the determining factors. With regard to the latter, four large blocks have been considered: infrastructures and accessibility, human resources, technological innovation, and the productive environment. (BBVA Foundation Notebooks, 2008). In light of this, DeLong (2003) and the European Commission (1999) in their sixth periodic report on the economic and social situation support the idea that competitiveness is important to achieve economic growth, of income per capita with the concourse of the accumulation and efficient use of physical, human, intellectual and technological capital obtained through the mechanism of the free market, where companies, industries, regions, nations, supranational regions compete with relatively high levels of income and employment.

The determining factors of per capita income growth from economic competitiveness would be: 1) the inventory of productive fixed capital in relation to qualified employment; 2) transport infrastructure, communications and production facilities; 3) the existence of a Research and Development department in the companies; 4)

was either produced or traded in the markets involved. Subsequently, the models of Kenneth Arrow, Gerard Debreu, and Lionel W. McKensie emerged in the 1950s. In later years, both the New Keynesians and the new classical macroeconomic economists (without forgetting that they have, for example, the theory of real cycles), accept that macroeconomic models should be of general equilibrium both in the world of perfect competition with flexible wages and prices, but what is known as dynamic stochastic general equilibrium models (Dynamic Sthocastic General Equilibrium or DSGE) are used to study the short-term effects of alternative policies in contexts of imperfect competition, both in the market work as well as products (Woodford, 2008).

Exo-economic aspects such as geographical location, nature of labor relations, public policies oriented towards production and productivity, among other aspects (BBVA Fundación Notebooks, 2008).

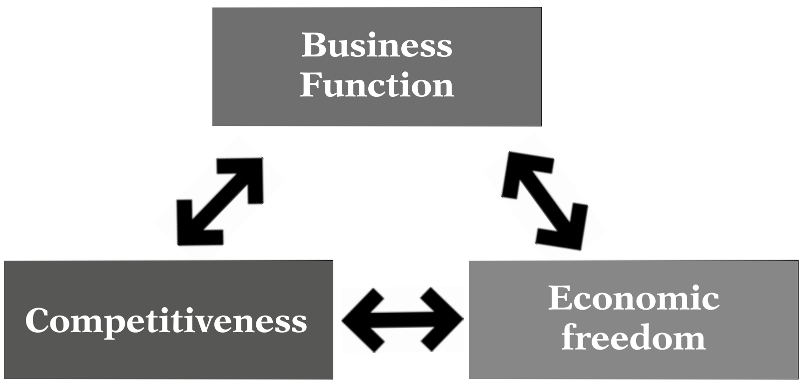
For this reason, economic competitiveness can be seen from two perspectives: 1) the external one, based on the capacities and potential of the sustainability of production, supported by low comparative average unit costs to strongly participate in the rest of the world (Fundación BBVA Notebooks, 2008); and 2) the aggregate, which suggests an aggregate supply and demand perspective of competitiveness, which focuses on productivity per worker.

Likewise, Traverso et al. (2017) point out that competitiveness (measured by the Global Competitive Report produced by the World Economic Forum) is a variable highly associated with per capita economic growth. In other words, the most competitive economies are the ones that grow the most in per capita terms. However, economic freedom should also be considered as an indicator that explains both competitiveness and economic growth. The aforementioned statement is based on the postulates of Rothbard (2001) who points out:

> Free competition is the application of freedom to the field of production: freedom to buy, sell and transform one's own goods without violent interference from any external power. This is due to the fact that in a free competition regime, consumer satisfaction tends to be maximized, within the existing natural conditions. Those who make their forecasts better have the possibility of emerging as outstanding business people, and if one sees an untapped opportunity, one is at liberty to take advantage of his better speculative capacity. (p. 70)

Due to the aforementioned, economic growth is based on the triad composed of the business function, competitiveness, and economic freedom from the principles of the Austrian school of economics as shown in Figure 1. Consequently, this work will use as an explanatory variable of the economic growth the index of economic freedom, and the global index of competitiveness.

Figure 1. Triangle of economic growth



Source: Own elaboration (2019).

However, there are positions that account for the relationship between economic growth, productivity, and competitiveness of the economy. Schumpeter (1983) establishes a difference between his concept of "Economic development" and the growth of the economy:

> Nor will the mere growth of the economy, reflected by that of population and wealth, be called a process of development here. For it does not represent qualitatively different pheno-

mena, but only adaptation processes, of the same kind as changes in natural data. (Schumpeter, 1983, p. 74)

And he adds the following to explain the previous quote: "We do this because these changes are small annually and do not mean, therefore, difficulties for the application of the static method. However, its existence is often a condition of development, in our sense" (Schumpeter, 1983, p. 74).

One author who related the entrepreneurial function to the increase in per capita income was Leibenstein (1968). He affirmed that this growth was only possible with the field of the technological patterns of the companies through the creation of new products, new raw materials, new organizational forms, and new knowledge. In this way, Harvey Leibenstein visualizes the entrepreneur as the input, the key element, and the first inspiration in the growth process. For Kirzner (1985), once the business people are taken into account in economic growth, the emphasis is on the discovery of new structures of ends and means. This vision allows accounting for the changes in the set of inputs and the relationships between these and the results of the organizational processes (including the productive ones). To understand the process of economic growth, the problem of resource allocation must be approached from the point of view of discovery processes.

For his part, Baumol (1990) starts from the simple idea that while the total number of businesspeople is more or less fixed, their contribution to growth could vary to a greater extent. The businessperson may or may not contribute per capita income depending on the relative income that a society offers. In other words, the businessperson's contribution will depend on the stability of the rules of the game that a society/government offers since this influences the structure of the reward system. This reward structure, in turn, affects the pattern of resource allocation. In summary, for Baumol (1990), there is a strong link between the degree to which an economy socially rewards productive entrepreneurial activity and the prosperity of that economic system. Most studies confirm the positive relationship between entrepreneurial activity and economic growth (Córdova et al., 2020). There are also other elements that contribute to economic growth, such as the degree of economic openness of a country with the rest of the world (Molero et al., 2020).

In this way, the relationships between the variables of the triad previously exposed could depend on 1) the degree of complexity of the work carried out and the quality of the training of skilled labor on a world scale; 2) intervention with advantages in foreign trade; 3) disparities in per capita income; 4) sociodemographic disproportions; 5) the speed of economic growth; 6) the accessibility and availability of productive factors; 7) the prevailing social climate and its effects on the development of the political system, and 8) factors associated with risks and hedging costs among other factors (Cadavid & Franco, 2006).

2. Materials and method

From a methodological point of view, the study is descriptive, correlational, and prospective. Panel data was used for the 20 largest economies in the American continent, grouped into four clusters: 1. Ecuador, Nicaragua, Argentina, Bolivia, and Venezuela; 2. Colombia, Peru, Brazil, El Salvador, Paraguay, Honduras, Guatemala, and the Dominican Republic; 3. Chile, Mexico, Uruguay, Costa Rica, and Panama; 4. The United States and Canada. For the statistical tests, the Eviews 10.0 and SPSS 24.0 programs were used, the variables under study were standardized with standard scores (number of standard deviations that are above or below the mean of the ranking and global competitiveness index published by the World Economic Forum).[4] The description refers to the process of outlining the relationship between the competitiveness index and the global index of freedom with economic growth (Marczyk et al., 2005). Correlational research attempts to determine whether there is some degree of statistical association between the two indices presented above with economic growth. Finally, it is prospective, because if the correlation is verified, then it is possible to advance approximations about the future behavior of the variable, considering certain conditions and restrictions (Marczyk et al., 2005).

Therefore, this study is framed within the focus of the global competitiveness indices (hereinafter GCI) of the World Economic Forum (hereinafter WEF). Competitiveness is measured by means of the factors that determine the productivity of an economy and specifically those of income levels and long-term growth. Then, the GCI assesses productivity through the so-called 12 "pillars", paying attention to the participation of human capital, productive creativity, the ability to recover from unfavorable circumstances, and flexibility in organizational systems seen as factors that guide the economic-financial success. These are security, property rights, social capital, checks and balances, public sector performance, and corporate governance; the quality and extent of transportation infrastructure and infrastructure for public services; adoption of information and communication technologies (ICT), the level of inflation and the sustainability of fiscal policy; studies health-adjusted life expectancy, that is, the average number of years a newborn is expected to live in good health; the general skill level of the workforce and the quantity and quality of education.

Similarly, it studies the degree to which a nation-state provides equal opportunities for free access to its markets; looks at the ways in which human resources are reorganized and leveraged; examines the depth and diversity of monetary financial markets; the tolerance limits of the economy to financial and economic risks. Next, it studies the dimension in demographic and purchasing power terms of the markets that companies[5] could enter. Finally, it analyzes the scenario for the production of scientific knowledge convertible into research applied to processes, goods, and services to achieve greater competitiveness in terms of quality and quantity (Center for Studies on the Pacific Basin, 2018).

3. Results

This study began with the performance of the Granger causality test, where the probability of the F statistic whose decision rule is to reject Ho: There is no causality between the variables, the decision rule being: If Prob <0.05, Ho is rejected in this sense, it was found that the competitiveness index causes, in Granger terms (precedes), GDP per capita; plus GDP per capita does not cause, in Granger terms (precedes), the competitiveness index as shown in Table 1. For their part, the index of economic freedom and GDP per capita shows a bidirectional causal relationship in the sense of Granger, thus revealing an endogeneity relationship between both variables. It is also worth noting the bidirectional non-causality in Granger terms between the economic freedom index and the competitiveness index.

4 Published annually since 1979, it covers 140 countries; the index and ranking of economic freedom created in 1995, includes 180 nations, and since then published annually by the Heritage Foundation and the Wall Street Journal.

5 Their values are obtained with the sum of consumption, investment, and exports. This evaluates the attitude of the private sector to generate and adopt new technologies and insert them into its productive and organizational process.

Table 1. Granger's causality test

Pairwise Granger Causality Tests
Date: 11/10/19 Time: 11:40
Sample: 2006 2017
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob	Result
ECONOMIC_FREEDOM_INDEX does not Granger Cause COMPETITIVENESS_INDEX	200	237.105	0,0961	H0 is accepted
COMPETITIVENESS_INDEX does not Granger Cause ECONOMIC_FREEDOM_INDEX		204.678	0,1319	H0 is accepted
GDP_PER_CAPITA does not Granger Cause COMPETITIVENESS_INDEX	200	282.044	0,062	H0 is accepted
COMPETITIVENESS_INDEX does not Granger Cause GDP_PER_CAPITA		365.471	0,0277	H0 is rejected
GDP_PER_CAPITA does not Granger Cause ECONOMIC_FREEDOM_INDEX	200	461.399	0,011	H0 is rejected
ECONOMIC_FREEDOM_INDEX does not Granger Cause GDP_PER_CAPITA		483.245	0,0089	H0 is rejected

Source: Eviews 10.0 (2019).

The analysis of the triangle of economic growth proposed in the theoretical foundation of the work, which in the case of the 20 largest economies of the American continent subject to study, shows that the index of economic freedom is an endogenous variable for estimating GDP per capita, therefore, the lags of said variable cause an impact on the future values of GDP per capita, while the competitiveness index is an exogenous variable in the estimation of GDP per capita.

Similarly, the Pedroni residual cointegration test was performed for panel data, taking a single lag, showing that 7 of the 11 test statistic show a probability (Prob<0.05), which shows that the variables subject to study, that is, the competitiveness index, the economic freedom index and the GDP per capita are cointegrated, that is, they have a long-term relationship. Therefore, the null hypothesis is no cointegration. The decision rule is to reject H0 if Prob <0.05 in this case 7 of the 11 tests reject H0, that is, the variables are cointegrated because Prob. <0.05 as shown in Table 2.

The factor analysis model states that the covariances in a set of observable variables $X_1, X_2, ..., X_n$ in terms of a small number of common factors that are latent not observed, are presented in their developed form as a system of linear equations in 1 (OECD & JRC, 2008; Timm, 2002; Peña, 2002).

$$
\begin{array}{l}
X_1 - u_1 = \lambda_{11} f_1 + \lambda_{12} f_2 + \dots + \lambda_{1k} f_k + e_1 \\
X_2 - u_2 = \lambda_{21} f_1 + \lambda_{22} f_2 + \dots + \lambda_{2k} f_k + e_2 \\
\quad \vdots \qquad\quad \vdots \qquad \vdots \qquad\qquad \vdots \\
X_i - u_i = \lambda_{i1} f_1 + \lambda_{i2} f_2 + \dots + \lambda_{ik} f_k + e_i \\
\quad \vdots \qquad\quad \vdots \qquad \vdots \qquad\qquad \vdots \\
X_n - u_n = \lambda_{n1} f_1 + \lambda_{n2} f_2 + \dots + \lambda_{2k} f_k + e_2
\end{array}
$$

Where: Xi represents the observed variables obtained from data and that when standardizing will have mean E(Xi) = 0 y $\sigma^2 = 1$ for all i = 1, 2, . . ., p; las λ11, λ12, ..., λk are regression coefficients, which in this technique are called factor weights; the f1, f2, ..., fk are the so-called unobserved latent common factors that are investigated, each average observation E(Xi) = 0 y $\sigma^2 = 1$; finally, e_t is the residuals or the observed population disturbances of the unique or specific factors (García et al., 2017).

Table 2. Pedroni's residuals cointegration test

Pedroni Residual Cointegration Test
Series: INDICE_DE_COMPETITIVIDAD INDICE_DE_LIBERTAD_ECONO
MICA PIB_PER_CAPITA
Date: 11/10/19 Time: 12:05
Sample: 2006 2017
Included observations: 240
Cross-sections included: 20
Null Hypothesis: No cointegration
Trend assumption: No deterministic tren
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs, (within-dimension)					
		Statistic	**Prob.**	**Weighted Statistic**	**Prob.**
Panel v-Statistic		2.344.857	0,0095	0,202451	0,4198
Panel rho-Statistic		-0,381267	0,3515	0,030367	0,5121
Panel PP-Statistic		-3.424.514	0,0003	-3.087.803	0,001
Panel ADF-Statistic		-3.197.237	0,0007	-2.954.698	0,0016
Alternative hypothesis: individual AR coefs, (between-dimension)					
		Statistic	**Prob.**		
Group rho-Statistic		1.491.335	0,9321		
Group PP-Statistic		-4.141.125	0		
Group ADF-Statistic		-4.749.343	0		
Cross section specific results **Phillips-Peron results (non-parametric)**					
Cross ID	**AR(1)**	**Variance**	**HAC**	**Bandwidth**	**Obs**
ARGENTINA	0,328	0,987572	1,175089	2	11
BOLIVIA	0,46	1,555689	1,775483	2	11
BRASIL	0,362	1,288832	1,288832	0	11
CANADA	-0,413	1,102382	0,862499	2	11
CHILE	0,358	0,711223	0,438157	4	11
COLOMBIA	0,081	0,179908	0,190315	1	11
COSTA RICA	-0,301	0,634419	0,562050	1	11
ECUADOR	0,184	1,096583	1,379429	2	11
EEUU	0,169	2,629120	2,702221	1	11
EL SALVADOR	0,24	0,943645	0,771107	3	11
GUATEMALA	-0,294	1,020709	0,607087	10	11
HONDURAS	-0,041	1,887664	1,014380	10	11

Cross section specific results Phillips-Peron results (non-parametric)					
Cross ID	**AR(1)**	**Variance**	**HAC**	**Bandwidth**	**Obs**
MÉXICO	0,112	0,354694	0,188321	6	11
NICARAGUA	-0,032	1,646624	1,582661	1	11
PANAMÁ	-0,392	0,540932	0,495727	1	11
PARAGUAY	-0,096	0,511455	0,482381	2	11
PERÚ	0,097	0,246061	0,246061	0	11
REPÚBLICA DOMINICANA	-0,356	0,234491	0,067484	10	11
URUGUAY	0,623	1,594121	2,061241	1	11
VENEZUELA	-0,279	1,399358	1,030636	2	11

Source: Eviews 10.0 (2019).

In this research, panel data were used, where all the variables under study were standardized with standard scores (number of standard deviations that are above or below the mean of the ranking and index of global competitiveness published by the World Economic Forum). For its part, GDP per capita was estimated using data provided by Penn World Table 3[6]. The results obtained were the following:

Table 3. Reliability analysis

Case Processing Summary				Reliability statistics	
		N	%	Cronbach Alfa	N of Element
Cases	Valid	240	100,0	0,931	5
	Excluded[a]	0	0,0		
	Total	240	100,0		

a. List elimination is based on all variables in the procedure.

Source: SPSS Ver. 24.0

The reliability analysis was carried out by estimating the Alpha Cronbach coefficient of the variables previously standardized with the Z functions. In this sense, reliability represents the stability or persistence of the evolution of a variable with respect to different subjects or research objects (Kerlinger & Lee, 2002). In this case, the variables are the Z scores of the index and ranking of competitiveness and economic freedom and GDP per capita and the research objects are the economies under study.

The Alpha Cronbach coefficient of 0.931 indicates that the data subject to study is 93.1% reliable, that is, there is a high degree of association or linear correlation between the sums of the variances of the scores Z $Z = \frac{x_i - \bar{X}}{\sigma}$ of each of the 20 economies subject to studies, with respect to the sum of the variances of each variable with respect to the 240 analyzed cases.

6 It is a set of national accounts data developed and maintained by academics from the University of California, and the Groningen Growth Development Center of the Faculty of Economics and Business at the University of Groningen, it is a database with information on relative levels of income, products, inputs, and productivity, covering 182 countries between 1950 and 2017 based on purchasing power parity.

Table 4. Cluster analysis

Final cluster centers				
GDP per capita Z score	Clúster			
Cluster of membership according to the level of GDP per capita	1 (Low)	2 (Moderate)	3 (High)	4 (Very high)
	-0,78	-0,30	0,22	2,71
	$5.399	$11.047	$17.241	$46.698
	Clúster			
	1 (Low)	2 (Moderate)	3 (High)	4 (Very high)
Cases	68	85	63	24

Source: SPSS Ver. 24.0

Now, in this research, the k-means agglomeration technique was used, which according to Everitt and Hothorn (2011), aims to divide the n subjects or study objects in a multivariate data set into k groups or clusters, (G1, G2, ..., Gk), where denotes the set of subjects or study objects in group i, and ka is given a possible variable of which the researcher specifies the range, minimizing some numerical criteria, where the low values of which are considered indicative give a "good" solution. The most used is the implementation of k-means clustering, which wants to find the partition of the n subjects into k groups that reduces the within-group sum of squares (WGSS) over all variables; explicitly, this criterion is:

$$WGSS = \sum_{j=1}^{q}\sum_{l=1}^{k}\sum_{i\in G_i}(X_{ij} - \overline{X_j}^{(I)})^2 \qquad (1)$$

Where $\bar{X}_{ij}^{(l)}$ is the mean of the elements in the group in the variable.

Establishing for this case four clusters as shown in Table 4: Group 1 with 68 cases whose economies on average have a GDP per capita of $ 5399 dollars; group 2 $ 11,047 with 85 cases; group 3 with $ 17,241 and 63 cases; and group 4, with an average GDP per capita of $ 46,698, with only 24 summarized cases in which the economies of Canada and the United States of America stand out for America. Likewise, below is an index of evaluation of competitiveness, economic freedom, and economic growth, elaborated by the researchers according to the categorization of the variables subject to study on a scale of 1 to 5 for the 12 years studied for each economy, whose maximum accumulated sum has a score of 300 points and a minimum of 60 points.

Cluster 4: United States and Canada.
Cluster 3: Chile, Mexico, Uruguay, Costa Rica and Panama.
Cluster 2: Colombia, Peru, Brazil, El Salvador, Paraguay, Honduras and Guatemala.
Cluster 1: Ecuador, Nicaragua, Argentina, Bolivia and Venezuela.

Graph 1. Index of evaluation of competitiveness, freedom and economic growth

Source: Own elaboration.

3.1. Factorial analysis

In the determinant of the matrix of correlation coefficients, Bartlett's sphericity contrast test of the Z scores of the studied variables approaches zero Δ_D= 0,000173763, which is an important indicator to support the use of factor analysis, because it denotes a high degree of linear association between the variables considered (see Table 5).

Table 5. Correlation Matrix

Correlation Matrix[a]							
		Competitiveness Index Z score	Competitive Ranking Z Score	Economic Freedom Index Z Score	Economic Freedom Ranking Z Score	GDP per capita Z score	Cluster
Correlation	Competitiveness Index Z score	1,000	0,963	0,661	0,704	0,886	0,750
	Competitive Ranking Z Score	0,963	1,000	0,671	0,744	0,794	0,719
	Economic Freedom Index Z Score	0,661	0,671	1,000	0,902	0,468	0,323
	Economic Freedom Ranking Z Score	0,704	0,744	0,902	1,000	0,509	0,395
	GDP per capita Z score	0,886	0,794	0,468	0,509	1,000	0,861
	Cluster	0,750	0,719	0,323	0,395	0,861	1,000

a. Determinant = ,000
Source: SPSS Ver. 24.0

Table 6. KMO sample sufficiency test

KMO and Bartlett test		
Kaiser-Meyer-Olkin measure of sampling adequacy		0,690
Bartlett's sphericity test	Approx. Chi-squared	2044,687
	Gl	15
	Sig.	0,000

Source: SPSS Ver. 24.0

The general sampling adequacy measure (Kaiser-Mayer-Olkin) shown in Table 6 is a global measure indicative of whether factor analysis is carried out, how strong and adequate would be the possible solution to be found? The larger this value, the stronger the solution; the optimum is for it to be: MASg≥0,5. And considered acceptable according to Garza et al. (2013). In the case of this study, the value of the coefficient is 0.69, which is acceptable, thus validating the relevance of the factor analysis.

Table 7. Anti-image matrix for sampling adequacy measures

Anti-image matrix		Competitiveness Index Z score	Competitive Ranking Z Score	Economic Freedom Index Z Score	Economic Freedom Ranking Z Score	GDP per capita Z score	Cluster
Anti-image correlation	Competitiveness Index Z score	,665[a]	-0,894	-0,250	0,187	-0,761	0,369
	Competitive Ranking Z Score	-0,894	,676[a]	0,216	-0,339	0,577	-0,428
	Economic Freedom Index Z Score	-0,250	0,216	,724[a]	-0,806	0,092	0,078
	Economic Freedom Ranking Z Score	0,187	-0,339	-0,806	,739[a]	-0,067	0,056
	GDP per capita Z score	-0,761	0,577	0,092	-0,067	,653[a]	-0,691
	Cluster of membership according to the level of GDP per capita	0,369	-0,428	0,078	0,056	-0,691	,721[a]

a. Measures according to sampling (MSA)
Source: SPSS Ver. 24.0

The anti-image matrix for sampling adequacy measures, shown in Table 7, indicates on its main diagonal that all the variables considered are relevant for factor analysis since the correlation coefficients present values above 0.5. Likewise, the matrix of communalities, which shows the percentage of the total variance explained by the factor(s), as evidenced in Table 8, indicates that they explain 92.3% of the Z-score variable of GDP per capita; 94.4% of the variable Z score of the competitiveness index; 93.6% of the variable Z score of the index of economic freedom.

Table 8. Matrix of communalities

Communalities		
	Initial	Extraction
Competitiveness Index Z score	1,000	0,944
Competitive Ranking Z Score	1,000	0,907
Economic Freedom Index Z Score	1,000	0,936
Economic Freedom Ranking Z Score	1,000	0,940
GDP per capita Z score	**1,000**	**0,923**
Cluster of membership according to the level of GDP per capita	1,000	0,896
Extraction method: main component analysis.		

Source: SPSS Ver. 24.0

Table 9. Total variance of the variables subject to study explained by the factors

Total variance explained									
Component	Initial auto-values			squared			squared		
	Total	% of variance	% accumulated	Total	% of variance	% accumulated	Total	% of variance	% accumulated
1	4,483	74,725	74,725	4,483	74,725	74,725	3,044	50,737	50,737
2	1,062	17,705	92,430	1,062	17,705	92,430	2,502	41,693	92,430
3	0,215	3,582	96,012						
4	0,141	2,353	98,364						
5	0,084	1,396	99,761						
6	0,014	0,239	100,000						
Extraction method: main component analysis.									

Source: SPSS Ver. 24.0

Table 9 shows how the two considered factors explain 92.43% of the total variance of the variables subject to study. The first factor explains 74.73% and the second factor 17.71%.

Table 10. Component score coefficient and rotated component matrix

Component score coefficient matrix			Rotated component matrix[a]		
	Componente			Componente	
	1	2		1	2
Competitiveness Index Z score	0,227	0,066	Competitiveness Index Z score	0,802	
Competitive Ranking Z Score	0,178	0,119	Competitive Ranking Z Score	0,741	
Economic Freedom Index Z Score	-0,229	0,532	Economic Freedom Index Z Score		0,946
Economic Freedom Ranking Z Score	-0,182	0,494	Economic Freedom Ranking Z Score		0,929
GDP per capita Z score	0,386	-0,151	GDP per capita Z score	0,921	
Cluster	0,456	-0,265	Cluster	0,940	
Extraction method: main component analysis. Rotation method: Varimax with Kaiser normalization			Extraction method: main component analysis. Rotation method: Varimax with Kaiser normalization		

Source: SPSS Ver. 24.0

$$F_2=0,07PZIC+0,12PZRC+0,53PZILE+0,49PZRLE-0,15PZPIBPC-0,27CNPIB \quad (2)$$

$$F_2=0,07PZIC+0,12PZRC+0,53PZILE+0,49PZRLE-0,15PZPIBPC-0,27CNPIB \quad (3)$$

The component coefficient matrix shows the unbiased estimators of the F_1 and F_2 factors based on the Z scores of each variable under study, as shown in Table 10 and equations 1 and 2. Likewise, in Table 10, the matrix of the rotated components is observed, which indicates which variables are explained to a greater extent by each factor, in this case, the variables related to competitiveness and economic growth are explained by factor 1; while the variables related to economic freedom are explained by factor 2. We proceeded with the estimation of a multiple regression model using GDP per capita as a dependent variable per level, obtaining the following results in the following tables:

Table 11. Correlation coefficient and determination between the real variable and the forecast

Summary of the model[b]				
Model	R	R square	Adjusted R squared	Forecast standard error
1	,951[a]	0,905	0,904	3656,53356

a. Predictors: (Constant), Reg factor score 2, for analysis 3, REGR factor score 1 for analysis 3
b. Dependent variable: GDP_PER_CAPITA
Source: SPSS Ver. 24.0

Pearson's linear correlation coefficient expresses that the percentage of linear association between the real and predicted variable is 95.1%; R^2 shows that the percentage of the variance of the dependent variable explained by the regression is 90.5% and R^2 (adjusted) indicates that 90.4% of the variance of the dependent variable is explained by the independent variables of joint way.

Table 12. Correlation coefficient and determination between the real variable and the forecast

ANOVA[a]						
Model		Sum of squares	gl	Quadratic mean	F	Sig.
1	Regression	30.270.356.045,53	2,00	15.135.178.022,77	1.132,01	,000[b]
	Residue	3.168.746.332,43	237,00	13.370.237,69		
	total	33.439.102.377,96	239,00			

a. Dependent variable: GDP_PER_CAPITA
b. Predictors: (Constant), Reg factor score 2, for analysis 3, REGR factor score 1 for analysis 3
Source: SPSS Ver. 24.0

In the analysis of variance shown in Table 12, it is evident that the model is significant since the sig. (Bilateral) < 0,05 Fisher's F statistic $F_{(calculated)} = 1.132 > F_{(theoretical)} = 26{,}13$. At 5% significance; Therefore, Ho is rejected, the explanatory variables jointly and linearly influence the explained variable.

Table 13. Unbiased coefficient of the regression model

Coefficients[a]								
Model		Non-standardized coefficients		Standardized coefficients	t	Sig.	Estadísticas de colinealidad	
		B	Standard error	Beta			Tolerancia	VIF
1	(Constante)	14.642,87	236,03		62,04	0,00		
	REGR factor score 1 for analysis 3	10.741,15	236,52	0,91	45,41	0,00	1,00	1,00
	REGR factor score 2 for analysis 3	3.358,86	236,52	0,28	14,20	0,00	1,00	1,00

a. Dependent variable: GDP_PER_CAPITA
Source: SPSS Ver. 24.0

It can be observed in Table 13, that the unbiased estimators are significant as well as the intercept, since the sig. (Bilateral) < 0.05; similarly, the Variance Inflation Factor (VIF) of each estimator as the constant or regression intercept VIF < 15, with which there are no collinearity problems between the independent or explanatory variables.

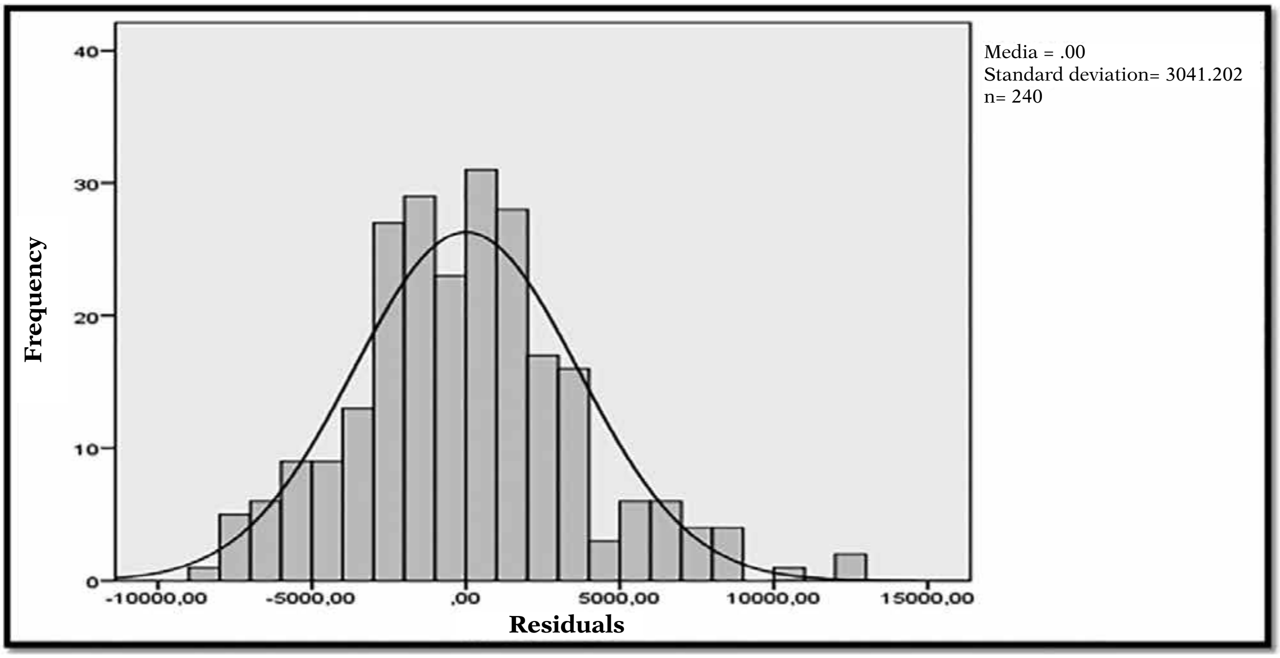
Table 14. Normality test of the regression model residuals

Normality test						
	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistical	gl	Sig.	Statistical	gl	Sig.
RESIDUES	0,051	240	,200*	0,980	240	0,002

*. This is a lower limit of true significance
a. Lilliefors significance correction
Source: SPSS Ver. 24.0

Finally, the normality test of the residuals shown in Table 14 and Figure 2, indicates a sig. (Bilateral) > 0.05 for the Kolmogorov-Smirnov test sig. (Bilateral) = 0.200 for samples larger than 50 subjects or objects, which shows the existence of a normal distribution in the model residuals.

Figure 2. Histogram of the residuals of the regression model



Source: SPSS Ver. 24.0

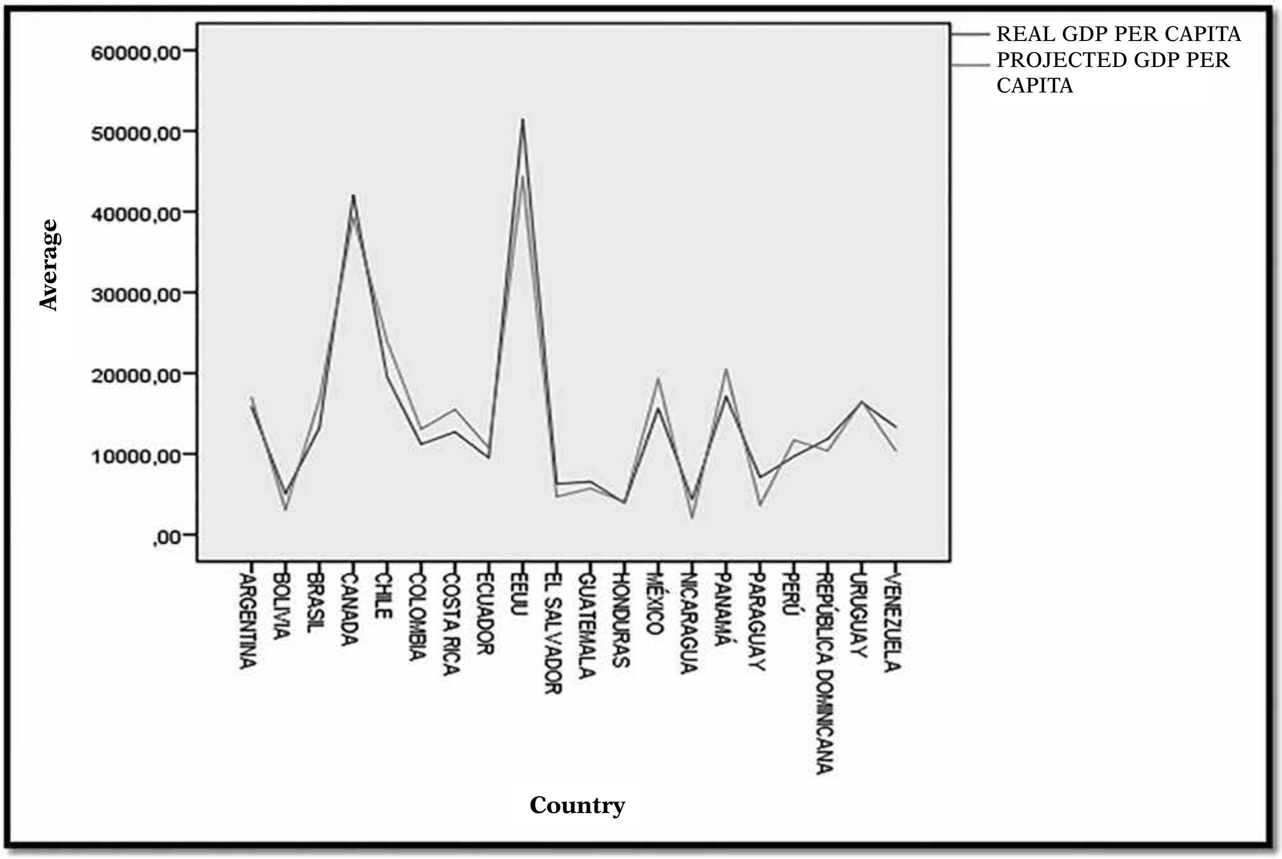
Table 15. Homogeneity test of the residuals of the inter-cluster regression model

Homogeneity test			
RESIDUALS			
Levene statistic	gl1	gl2	Sig.
1,117	3	236	0,343

Source: SPSS Ver. 24.0

Table 15 shows the results of the Levene statistic, where Ho is contrasted for homogeneity of population variances and whose decision rule establishes if Sig. (Bilateral) > 0.05 Ho is rejected. The result shows that the null hypothesis is not rejected. Therefore, there is homogeneity in the variances of the residuals between clusters. In Figure 3, the efficiency of the model is shown once again by graphing the average real GDP of each country vs. the projected one, where one is practically collinear with the other.

Figure 3. Graph of the average real GDP of each country vs. the projected GDP



Source: SPSS Ver. 24.0

4. Conclusions and discussion

The most relevant conclusive element of this study is, without a doubt, the statistical and econometric demonstration of the thesis put forward by the Austrian School of Economics according to which the freest and most competitive economies are those that show the greatest advances and positioning, at an international level, in terms of economic growth. Likewise, the bidirectional causality relationship between the index of economic freedom and the GDP per capita was verified for each of the economies studied in the panel; such as the significant degree of long-term cointegration between competitiveness, economic freedom, and GDP per capita.

It is also important to highlight how competitiveness and economic growth are statistically explained with data available, at the current moment, by one factor, while economic freedom is explained by another factor. However, both factors explain by more than 90% the variance of economic growth measured through GDP per capita. This allowed the study to build a regression model that, rather than a forecast of GDP per capita, more reliably demonstrated the hypothesis raised in the research, according to which greater competitiveness and economic freedom translates into higher levels of economic growth.

Likewise, it is important to emphasize how in the case of the economies of the American continent, the competitiveness factor has a greater incidence explaining

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growth than economic freedom, this is evidenced in the significant differences in the average GDP per capita of the cluster 4 made up of the United States and Canada with respect to the rest of the economies of the continent. The contrast materializes when economies such as those of Ecuador, Nicaragua, Argentina, Bolivia, and Venezuela have ended up curtailing the incentives for competitiveness and economic freedom, showing lower levels of economic growth including contraction of GDP per capita. The reason is located in: 1) the application of inflationary monetary and fiscal policies; 2) interference in the price system through the establishment of controls; 3) a higher fiscal pressure that mainly covers accumulated fiscal deficits, and 4) the disproportionate increase in state regulations.

The above reasons are supported by the theories according to which for the capitalist system to function efficiently (correcting market failures, achieve a more equitable distribution of national disposable income) and offer social welfare through the free market, it must tolerate a greater government intervention through its fiscal, monetary, credit and budgetary policy. For this, the public sector should not fear the execution of unbalanced budgets financed with debt, because all this will translate into an increase in domestic demand and aggregate supply. Consequently, the government, as a result of the economic expansion, will collect more direct and indirect taxes. However, the reality is that fiscal policy becomes increasingly expansive, and external debt reaches superlative degrees, while the economy grows at rates well below population growth, which generates a generalized impoverishment as a result of the drop in GDP per capita.

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Social responsibility and quality management: Peruvian insurance company

Responsabilidad social y la gestión de calidad: Empresa Peruana de Seguros

Dr. Jaime Agustín Sánchez-Ortega is head of the research unit of the Institute of Government and Public Management, University of San Martín de Porres, Lima-Peru (asesorjaime.s@gmail.com) (https://orcid.org/0000-0002-2916-7213)

Lic. Alejandra Seminario-Polo is a planning analyst for the company Pacífico Seguros, Peru (alejandra.seminario19@gmail.com) (https://orcid.org/0000-0002-5308-4901)

Mg. Abel Marcial Oruna-Rodríguez is a professor at the North Private University (UPN) Los Olivos, Faculty of Business, Lima, Peru (abel.oruna@upn.pe) (https://orcid.org/0000-0001-6380-1014)

Abstract

To be sustainable over time, corporate social responsibility must influence its environment and its collaborators in times of uncertainty. A crisis in the health, political, and economic systems in Peru has been triggered as a result of COVID-19. The purpose of this study is to determine the relationship between social responsibility and quality management in a Peruvian insurance company. The methodology used to achieve the objective was a quantitative approach, cross-sectional and non-experimental design. A sample of 331 employees in the city of Lima was surveyed. The survey was applied as an instrument through the validation of contents by expert judgment and reliability of Cronbach Alpha>0.96. The results show that the company supports the less privileged communities in health and nutrition campaigns through voluntary collaborators of corporate social responsibility programs who contribute to caring for the environment. We conclude that there is a significant relationship between the variables studied, however, the insurance company is aware that it is still necessary to work on knowledge management and strategies to get the participation of its collaborators and suppliers in social responsibility tasks in times of pandemic, which allow higher levels of competition.

Resumen

Para ser sostenible en el tiempo, la responsabilidad social empresarial debe incidir en su entorno y sus colaboradores en tiempos de incertidumbre. Una crisis en los sistemas de salud, políticos y económicos en Perú se ha desencadenado como resultado de la COVID-19. El propósito de esta investigación fue determinar la relación entre la responsabilidad social y la gestión de calidad en una empresa peruana de seguros. La metodología utilizada para lograr el objetivo fue de enfoque cuantitativo, diseño no experimental y de alcance transversal. Se encuestaron a 331 colaboradores en la ciudad de Lima. Se aplicó como instrumento un cuestionario validado por juicio de expertos y con una confiabilidad de Cronbach $\alpha > 0,96$. Los resultados evidencian que la empresa apoya a las comunidades menos privilegiadas en campañas de salud y nutrición a través de colaboradores voluntarios de los programas de responsabilidad social empresarial que contribuyen al cuidado del medio ambiente. En conclusión, existe una relación significativa entre las variables estudiadas; sin embargo, la alta dirección de la empresa aseguradora es consciente de que aún falta trabajar en la gestión del conocimiento y estrategias para conseguir la participación de sus colaboradores y proveedores en las labores de responsabilidad social en tiempos de pandemia, que permitan mayores niveles de competencia.

Keywords | palabras clave

Responsibility Social, Quality management, community, environment, knowledge management, job performance, COVID-19.
Responsabilidad social, gestión de la calidad, comunidad, medio ambiente, gestión del conocimiento, desempeño laboral, COVID-19.

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1. Introduction

The COVID-19 pandemic has complicated the way of life of people and organizations across the planet. The statistics regarding the numbers of infected and deceased are alarming. This has forced many governments in various countries to close borders, airports and isolate the population to prevent this disease from spreading further. COVID-19 has affected the insurance sector in the commercialization of products, digitally, in the workplace, and in social actions and reputation (Montalbo et al., 2020).

According to a report issued by Deloitte, private sector companies have made donations to the neediest people and communities and have chosen to provide financial assistance to pay their clients' premiums, which will not affect the insured or their coverage (Montalbo et al., 2020). Digital activity (e-commerce) has increased in insurance companies, which has generated new communication and contracting ties with clients and between collaborators. However, there was a slowdown in premiums (income), the effects of which will last from two to three years (Montalbo et al., 2020). Likewise, Peruvian insurance companies and health provider plans (EPS) affirmed that, during the pandemic period, all policyholders would have 100% medical care (Peruvian Association of Insurance Companies, 2019). This reveals a socially responsible decision of Peruvian companies.

Insurance is essential for people and companies because they provide a guarantee in their life or daily activity, both for them and for their family and properties since they offer us peace of mind, protection, risk reduction when some type of tragedy or catastrophe happens, and even promotes savings (Superintendency of Banking, Insurance, and AFP, 2016).

Due to the importance of insurance, this study was carried out in the company Pacífico Seguros, domiciled in the San Isidro district, located in the ranking of the five best insurers in Peru with more than half a century of activity. Its mission has been to assist its clients by safeguarding their financial stability and vision, to be the most prominent insurer in Latin America with highly qualified and inspired collaborators.

From another perspective, in Peru, there are companies with the 2019 Socially Responsible Company Distinction such as Calidda, Arca Continental Lindley, Sodimac, Backus, Pacifico, Motored, Pacasmayo, Ferreyros CAT, BCP, among others. Thus, in Peru, this is the only seal that provides added value to institutional reputation and competitiveness related to best practices in sustainable development and social responsibility and quality (Peru 2021, 2019).

In accordance with the above, quality can be understood as the discrepancies between the consumer's perceptions of a certain good or service and the expectations about said service (Loranca-Valle et al., 2019) and, within this framework of ideas, the management of quality should not only aim at the proper and smart handling of the merchandise or service that is provided, but that the errors in the procedures are 0% and give the utmost importance to people by relating them to the management of social responsibility through the time and maturity (Deulofeu, 2006). In this regard, in Peru, only 1% of all formal companies have a quality management system, one of them is the Higher Agency for Energy and Mining Investment, which received the National Quality Award in 2019 and a Leader medal in the Gold Category, because they have systematized their processes and measured their results, which has produced well-being in the organization and improved the quality of its energy services (Cisneros, 2019). The non-implementation of this type of system in most companies in the country is due to the fact that it has not been integrated into the quality circle, nor has a new Peruvian technical standard been created and given greater importance to the National Institute of Quality. Factors that will contribute to the improvement of competition in the Peruvian market that helps to improve the life and sustainability of the environment.

1.1. Theories of social responsibility

Among the various theories on social responsibility, we can cite that of Bowen (1953) studied by Ormaza et al. (2020) whose proposal was to reduce, in the long term, the economic problems of society if the objectives of a business organization are achieved. Likewise, the proposal of the same author agrees with the analysis of Duque et al. (2013) since businesspeople, although their objective is economic, their purpose is social, although Ferrero (2014), when studying Friedman (1970), concludes that the damages produced in society are externalities and their solution falls under the responsibility of the government that must seek the most effective solution; this position is interpreted by Duque et al. (2013), who, in relation to the same author, argues that these problems should be solved by market forces.

In relation to the above, Carroll (1979), cited by Duque et al. (2013) establishes that Corporate Social Responsibility (CSR) considers the legal, ethical-moral, economic perceptions that society has of companies at a given time. This position is complemented by that of Licandro et al. (2019), citing the same author (Carrol, 1985) in the sense that socially responsible management manages the impacts within the organization or abroad, seeking to protect the environment and produce improvements in it.

For the purposes of this research in relation to the concepts of social responsibility, we cite Verduzco (2006), who considers it as the predisposition of an organization to listen, understand and meet the requirements of citizens, contributing to internal development and its positive impact on its context. Likewise, we consider responsibility in the environment as another of the concepts to consider, which becomes the commitment that an organization has with respect to caring for the environment (Oxfam Intermón, 2016) and responsibility with the community as the contribution made by the organization to solve the impacts that it generates and due to the different problems, that exist such as extreme poverty, social inequality, corruption, among others (Uribe et al., 2005).

1.2. Quality management theories

In reference to the various theories of quality management, Lizarzaburu (2016), cited by Amaya et al. (2020), indicates that this system has evolved over time from approaches of full satisfaction of consumers and users; from inspection to quality control; the assurance; until modernly developed as quality management and quality of integrated management systems. Therefore, we consider what was expressed by Hernández et al. (2018), citing Goetsch and Davis (2014), which is a transcendental mechanism to plan, control and improve quality in companies, which is consistent with what was stated by Morán (2016), citing the cycle of Deming and Traba et al. (2020), which in turn cites the work of Peter Drucker entitled "Life of the new organization", who argues that the company of tomorrow is like a symphony orchestra, where high individual specialization with coordination and synchronism prevails. Finally, Hernández et al. (2018), citing Hernández (2011), point out that quality must undoubtedly be related as an integral part of social responsibility strategies that generate social and environmental improvements such as the placement of products or services that are suitable for customers.

For the purposes of our research, in relation to the definitions of quality management we consider that of Camisón et al. (2006) as factors, directives, standards, capabilities, knowledge, goals, among others, by which the employer establishes action plans, manages, executes and controls various activities to achieve the established goals. Additionally, we consider as another concept in this research the level of job performance such as the evaluation, performance and previous and current actions of workers in relation to their standards (Dessler & Varela, 2011); and the level of safety and health of the employees as the system that is in charge of recognizing, evaluating, mitigating and eliminating the dangers that can cause accidents, incidents or illnesses in the employees, which can be managed by the employer, but also by collaborators, who must receive training to be able to collaborate with it (Tovalino, 2017).

1.3. Dimensions, principles, and measurement of the variables under study

According to Levante (2015), the issue of social responsibility is not only a marketing instrument but a real commitment to society, which strengthens the reputation of the organization. This helps to plan the strategy and manage knowledge, which is integrated into the way of thinking of the members of the organization. The principles that identify companies that practice social responsibility policies are: a) comply with international and national legislation, b) organizational ethics, c) meet the needs of stakeholders, d) social, economic, and environmental balance, and e) provide information. These guidelines are considered by various entities such as the Global Compact, the OECD, the International Labor Organization and the rules on Social Responsibility of the European Union contained in its Green Book (Puentes et al., 2020).

Social responsibility has two dimensions: intrinsic and extrinsic. The *intrinsic dimension* is related to the workers, the environment, the coordination of raw materials, the working conditions, or the danger the workers may face when they make products or provide services. While the *extrinsic dimension* refers to society, suppliers, consumers, customers, among others, who are linked to the business and for whom value must be created. The company can belong to any of these dimensions, but they all have common needs such as (i) information transparency; (ii) participation, and (iii) mutual benefit (Fernández, 2010).

Within this dimension (extrinsic) is the environment, which is guided by the ISO 26000 standard, which is governed by seven vertical axes, the direction of the business, jurisprudence, labor practice, the environment, the best practices of the tasks, buyers, and active collaboration in the improvement of the community (Estévez, 2015). To measure the environment, the following instruments can be used: the carbon footprint or the water footprint. The first is measured by means of an analysis of GHG emissions during a year or another determined period, which is carried out through the accumulation of an inventory of studies (Gerendas, 2018).

Another aspect to consider is the responsibility with the community and to measure the satisfaction of the communities with the projects carried out by the companies. For this, surveys and interviews are used, depending on the size of the community since if it is a large community, Likert scale surveys can be carried out. If it is a small community, it can be carried out personally with each of the families through interviews and a more specific questionnaire (Uribe et al., 2005). This activity can well be classified as social advertising (Cárdenas-Rebelo & Orosco-Toro, 2020), which has to do with the perception and acceptance that communities have of the development of companies, the understanding of their demands and requirements, their shortcomings, and their perspectives, which will constitute information of interest to companies, but it is very expensive and for some companies inaccessible, especially for SMEs (Romero, 2018). A case related to this analysis is the one carried out by Barrio (2016) in the Unilever company, in which it was shown that through the campaigns carried out by the company it was possible to impact more than ten million people through the creation of jobs, and make people aware of their health and well-being habits. However, Reyes (2017) indicates that many companies have environmental policies but these are not used by employees because there is no training and support plan that allows promoting the culture of the business environment.

Every company has three aspects that corporate social responsibility must influence: *environmental*, economic, and social (Puentes et al., 2020). On the environmental side, the exploitation of the planet's materials, its depredation, the existence of industrial and domestic waste, and the biodegradable products that affect the planet have forced the creation of the so-called environmental finances, the objective of which is to reduce these threats with emission Reduced Reductions certificates(CER) and the carbon market, which are disseminated by the Executive Council of the Clean Development Mechanism, and which are monetized at the end of the year. Its purpose is to reduce the sufficient emission of this polluting compound at the lowest cost (Estévez, 2015). If a balance can be found between these, sustainable development can be improved and natural and human resources managed in a better way, which is the basis for the continuity and success of the company (Antelo & Robaina, 2015). Each company, when developing products or services, affects the environment in a particular way and therefore its mission is to establish strategies to avoid, reduce corrective measures, control measures, as well as adequately train staff to contribute to the environment (Pérez et al., 2016).

In reference to the *economic* aspect, this refers to the investment for the acquisition of goods or resources that the companies require to generate profits and become, at the market level, strong competitors that generate benefits in the immediate, medium, and long term to those related. While, in the social aspect, employees must be integrated by good practices such as adequate remuneration and working conditions, correct training based on values that the company holds, and practices such as support for its community (Puentes et al., 2020).

In the study by Tarí and García (2009), it is highlighted that there are eight dimensions that deserve to be identified: the first is *leadership*, which involves the exercise of power by the employer so that employees will obey orders even when they can attend the decision-making meeting. The second is *planning* or the succession of steps to achieve objectives. The third is employee management, which involves *training* workers and their equipment or tools to use. The fourth is *process management*, which includes the coordination and administration of the improvement of procedures. The fifth is *information* and *analysis*, which involves the study of quality, measurement, and comparative analysis; the sixth is the *customer approach*, which studies the strategy that links with users. The seventh is *supplier management*, which interprets the relationship that businesses have with suppliers; and finally, *product design*, which quantifies the collaboration of all affected areas with the product structure and its verifications.

ISO 9001: 2015, in section 9.1.1, requires the measurement of this system as a requirement by stating that every company must assess performance and its effectiveness. Each organization can decide what best suits its needs; however, there are measures to quantify system performance such as (a) customer satisfaction; (b) use factors that measure according to their elaboration; (c) profitability and profit growth indicate whether financial ratios are good or not; and (d) the rate of return which, when measuring this indicator, companies assess the effectiveness of the quality management system is measured (IsoTools Excellence, 2017).

However, to maintain continuous improvement of this system, it must be monitored through audits. Similarly, mandatory physical or electronic records must be documented and evidenced, such as the internal work regulations; the Occupational

Health and Safety System, the criteria for identifying risky accidents and incidents, prevention measures, among others; inspection records, occupational medical examination records, among others (Tovalino, 2017).

1.4. Analogy and relationship between responsibility and quality management

While quality seeks to satisfy the needs of customers, social responsibility processes and meets the expectations of stakeholders (Morán, 2016). Both variables are not improvised, they are the result of a long path that companies travel through the analysis and implementation carried out by managers and front-line bosses, who through constant change in the world must adapt to new challenges and technological advancement. Likewise, the commitment of the collaborators of an entity with the less privileged communities is related to the study by Henao (2014), which demonstrated the need to have an area of social responsibility in the entity in order to achieve financial success. Social responsibility and quality go hand in hand since Deming's proposal can be applied to both. The author indicates that it is imperative for both to respond in an agile and effective manner to 5W and 1H, for its acronym: what?, why?, where?, when?, who?, and how? This is only theoretically, but it is essential that the partners and managers of these companies hire trained personnel who have high ethical standards, both personally and professionally; and, with notable values, since this produces a stronger bond between quality management and social responsibility as stated by Morán (2016) and Navarro (2015) allowing a selection and development of tools, that, with a process approach, integrate organizational and technological aspects (Pacheco et al., 2021).

Finally, the two variables under study are linked in the full execution of the so-called knowledge management, since the organizations that adequately handle the information and give it value have an advantage when applying their policies, impacting positively within and without. Thus, according to Echeverry et al. (2018), knowledge management helps in the way of managing and encouraging the development of innovative and useful ideas since it encourages creativity essential for change and competition.

In the same sense, Agudelo and Valencia (2018) argue that the incorporation of knowledge in the company gives it value by helping to form competitive advantages that must be translated into production. This allows contributing in the execution of the two subjects under study because there is a full relationship between the so-called economic strategies that seek to place products or services on the market with the symbolic ones that aim to bring the organization closer to the environment to reduce the negative perception that the business may have as a result of its development and influence (Pellegrin et al., 2018).

2. Materials and method

The main objective of this study was to determine the relationship between social responsibility and quality management in a Peruvian insurance company, while the specific objectives were: to determine the relationship between responsibility with the community and quality management, and the responsibility with the environment with quality management in a Peruvian insurance company.

It is a descriptive correlational research, with a positivist paradigm of quantitative approach, of cross-sectional scope (Rivera-Camino, 2014) and non-experimental design with the purpose of conducting basic research (Hernández et al., 2010). The population and research sample of this Peruvian insurance company is made up of 2387 employees, of which 68% are female and 32% male; 48.8% belong to the area of managers, assistant managers, and administrative personnel; 43.6% to the sales force area; and 7.6% are practitioners. The collaborators work in Lima. To find the sample, the simple random probability sampling formula was applied, which had a result of 331 collaborators.

A survey of 25 questions with a five-level Likert scale was used which, according to Llaurado (2014), becomes a tool to measure attitudes and the degree of agreement of the respondents to the statements. Table 1 describes the operationalization of the variables, dimensions, and indicators of the present study.

The content validation was applied by expert judgment, made up of four research professors from the University of Piura with master's and doctor's degrees from the School of Business Administration. As well as two specialists from the investigated company, the Social Responsibility Deputy Manager and the company's public relations consultant. To perform the validation, three indicators are considered: clarity, convenience, and scope. According to Cochachi (2018), an investigation is reliable if the alpha coefficient is greater than 0.7. When the questionnaire was processed by the SPSS system, it gave us a result of 0.962, which indicated that the instrument has high reliability through the Cronbach alpha.

3. Results

When carrying out a descriptive analysis, the behavior of both variables is considered to later analyze the explanation of the information collected. A total of 331 collaborators were surveyed who were randomly selected, using simple random sampling.

Table 1. Social responsibility by dimensions

	Social responsibility	Responsibility with the community dimension	Environmental responsibility dimension
N	331	331	331
Mean	38,12	18,12	19,99
Deviation	8,250	2,879	5,763
Median	43,00	19,00	23,00

Source: Own elaboration.

In Table 1, it can be seen that social responsibility obtained an average score of 38.12 ± 8.25 and a median score of 43, which indicates that 50% of employees have a score above 43; the maximum score obtained is 50 points. Therefore, the employees of the insurance company have a high social responsibility towards the community and the care of the environment.

Table 2. Quality management by dimensions

	Quality management	Level of security with collaborators dimension	Employee performance level dimension
N	331	331	331
Mean	34,49	16,74	17,75
Deviation	7,282	4,338	3,306
Median	38,00	18,00	19,00

Source: Own elaboration.

In Table 2, it can be seen that quality management obtained an average score of 34.49 ± 7.28 and a median score of 38, which indicates that 50% of collaborators present a score above this value, the maximum score being 45 points. Therefore, the employees of the insurance company present a high level of safety and performance.

Table 3. Spearman's Rho for social responsibility with quality management

			Social responsibility	Quality management
Spear-man's Rho	Social responsibility	Correlation coefficient	1,000	,721**
		Sig. (bilateral)	.	,000
		N	331	331
	Quality management	Correlation coefficient	,721**	1,000
		Sig. (bilateral)	,000	.
		N	331	331

** The correlation is significant at the 0.01 level (bilateral).
Source: Own elaboration

The relationship between quality management and CSR was evaluated from the calculation of the Spearman correlation coefficient, obtaining a coefficient of 0.721, which indicates a high and positive relationship between the two variables. That is, the higher CSR, the higher quality management in the insurance company.

Table 4. Spearman's Rho for Community Responsibility and Quality Management Dimensions

			Responsibility with the community dimension	Level of security with collaborators dimension	Employee performance level dimension
Spear-man's Rho	Responsibility with the community dimension	Correlation coefficient	1,000	,756**	,577**
		Sig. (bilateral)	.	,000	,000
		N	331	331	331
	Level of security with colla-borators dimension	Correlation coefficient	,756**	1,000	,601**
		Sig. (bilateral)	,000	.	,000
		N	331	331	331
	Employee performance level dimension	Correlation coefficient	,577**	,601**	1,000
		Sig. (bilateral)	,000	,000	.
		N	331	331	331

** The correlation is significant at the 0.01 level (bilateral).
Source: Own elaboration

In Table 4, the relationship between the community responsibility dimension with the quality management dimensions was evaluated, when evaluating the relationship of responsibility with the community and safety with the collaborators, a Spearman correlation coefficient of 0.756 was obtained, which indicates a high relationship between both dimensions, with a positive relationship.

In other words, the greater the responsibility with the community, the higher the level of security of the collaborators. Thus, we also observe a strong relationship between the level of security and the level of performance of the collaborators (rho = 0.601; p = 0.000), this relationship being positive, that is, the higher the security level, the higher the performance level.

Table 5. Spearman's Rho for Environmental Responsibility and Quality Management Dimensions

			Environmental responsibility dimension	Level of security with collaborators dimension	Employee performance level dimension
Spearman's Rho	Environmental responsibility dimension	Correlation coefficient	1,000	,571**	,782**
		Sig. (bilateral)	.	,000	,000
		N	331	331	331
	Level of security with collaborators dimension	Correlation coefficient	,571**	1,000	,601**
		Sig. (bilateral)	,000	.	,000
		N	331	331	331
	Employee performance level dimension	Correlation coefficient	,782**	,601**	1,000
		Sig. (bilateral)	,000	,000	.
		N	331	331	331

** The correlation is significant at the 0.01 level (bilateral).

Source: Own elaboration

In Table 5, the relationship between the environmental responsibility dimension with the quality management dimensions was evaluated. When evaluating the relationship of responsibility in the environment and safety with the collaborators, a Spearman correlation coefficient of 0.571 was obtained, which indicates a high relationship between both dimensions, with a positive relationship. In other words, the greater the responsibility with the environment, the higher the level of safety of the collaborators.

Quality management models have been incorporating elements of social responsibility to meet the needs of stakeholders; however, they take elements of integrity, equity, transparency, care, and freedom; they are also elements of responsibility, each time they intertwine more and more (Tari & García, 2009).

4. Discussion and conclusions

4.1. Discussion

In Table 1, it can be seen that, in relation to social responsibility, 50% of employees of the insurance company present a high social responsibility towards the community and care for the environment. Likewise, in table 2, it can be seen that in reference to quality management, 50% of collaborators present a high score, which implies that the collaborators of the insurance company present a high level of safety and performance. These results are related to the policy developed by managers when promoting social responsibility campaigns in the company. At the same time, they agree with the findings of the research carried out (Levante, 2015; Henao, 2014), also verifying the existence of the Deming cycle cited by Morán (2016) as an integrated system exposed by Hernández et al. (2018) citing Goetsch and Davis (2014) and is related to what was proposed by Hernández et al. (2018) citing Hernández (2011) that allows generating value to the company with CSR.

In relation to the results of Table 3, when evaluating the relationship between quality management and CSR, it is revealed that there is a high and positive relationship between the two variables, that is, the higher CSR, the greater the quality management in the insurance company. This result is evidenced by the motivation that the company encourages in employees with training workshops on health and work with the preventive objective of avoiding some type of work accident (Dessler & Varela, 2011) and (Tovalino, 2017), in the sense of improvements in working conditions; what leads according to Navarro (2015) and Pacheco et al. (2021) to establish an organic system among the variables analyzed in this research to achieve the appropriate procedures or techniques and achieve sustainability over time. The result is also evidenced by the position of Bowen (1953) supported by Ormaza et al. (2020) in the sense that the market can solve environmental problems. Likewise, most of the collaborators indicated that they are volunteers of the social responsibility programs because they are convinced that their help will improve the community (Antelo & Robaina, 2015), their own lives, that of their families and the community, in accordance with the above by Carroll (1979), cited by Duque et al. (2013), in the sense that CSR impacts the interior or exterior of the company by the studies developed (Uribe et al., 2005; Verduzco, 2006).

According to the results of Table 4, the relationship between the community responsibility dimension with the quality management dimensions was evaluated, resulting in a positive relationship. That is, the greater the responsibility with the community, the higher the level of safety of the employees, and there is a strong relationship between the level of safety and the level of performance of the employees; that is, the higher the security level, the higher the performance level. In this regard, it can be seen that there is an association with quality management, studied by Barrio (2016), when analyzing the impact of Unilever company campaigns on the creation of jobs and on raising awareness on their health habits and of well-being that is related to the analysis of the care for the environment of Oxfam Intermón (2016); and the position of Traba et al. (2020) while citing Drucker, stating that companies must behave with quality to integrate collaborators and the environment, which reveals safety and work performance related to what was expressed by Tovalino (2017) and Dessler and Varela (2011), in the sense that symbolic strategies should be promoted (Pellegrin et al., 2018), with which the organization's knowledge (Echeverry et al., 2018) will be properly managed. This provides added values that allow innovation.

Based on the results of Table 5, a high relationship between the dimension of environmental responsibility and the dimensions of quality and safety management was evidenced; in other words, the greater the responsibility for the environment, the higher the level of safety of the collaborators. This is related to the theoretical position established by Pérez et al. (2016), who indicated that for there to be business stability with responsible behavior, its members must act consciously respecting the rules and the environment, including the natural environment. This dependence that exists between responsibility in the community and quality management was demonstrated in the analyzes by Reyes (2017), where the opposite is evident, since according to the indicated author, many organizations have environmental policies, but they are not realized due to lack of motivation, training or simply ignorance of what can happen in the company under analysis.

4.2. Conclusions

Therefore, it is evident that there is a relationship between social responsibility and quality management because throughout these years the company has established and implemented policies related to the studied variables, this has progressively convinced many employees of the need for them to participate in what is classified as a sustainable quality entity aligned with the main line of business. The level of satisfaction in the collaborators is important because the company has an impact on their permanent training with courses on safety, health at work to avoid occupational accidents, among other training programs, which allows them to achieve work goals, but above all, because of the fact of being integrating into a prestigious and sustainable entity.

Likewise, there is evidence of a relationship between social responsibility and the environment because it is closely linked to the mainline of business through the purchase of carbon bonds, which come from the Tambopata reserve, which has managed to reduce CO2 emissions, the product of the energy consumed by the company with the use of computers, air conditioning, among others. Added to this are recycling campaigns and support for campaigns for the preservation of the environment despite the fact that the majority of employees do not participate.

There is a relationship between quality management and social responsibility in the community, because it has been recognized in the disadvantaged communities in districts such as Villa María del Triunfo or San Juan de Lurigancho in Lima, that it influences on the health of these families as the case of the so-called *ponchilas* for children that were backpacks with a poncho to help combat the cold when children from remote areas of the Andes went to schools, and instruction to families on health, personal accidents and the preservation of the environment.

The main limitation of the organization is that it still needs to work on the development of symbolic strategies, that is, to manage knowledge of issues that motivate employees and also involve suppliers to participate convinced of the benefits of responsibility, and quality management programs, in order to bring the company closer to the environment and reduce the negative perception that organizational impact generates, especially in this stage of pandemic and in which it will be generated after the era of COVID-19, in which organizations will face higher levels of competition. Therefore, we suggest investigating the development of strategies developed by various entities to reverse these types of limitations.

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Cost management in production chains: reflections on its genesis

Gestión de costos en las cadenas productivas: reflexiones sobre su génesis

Dra. Rosana Meleán-Romero is a professor and researcher at the University of Zulia (Venezuela) (melean_rosana@fces.luz.edu.ve) (https://orcid.org/0000-0001-8779-738X)

Dr. Fernando Torres is a professor and researcher at the University of Zulia (Venezuela) (fernando_torres@fces.luz.edu.ve) (https://orcid.org/0000-0003-3464-7876)

Abstract

Cost management represents an important tool for decision-making in companies, especially in times characterized by high levels of uncertainty and restrictions. The objective is to analyze cost management from the perspective of production chains. It relies on the review and analysis of scientific documents, from specialized databases, in order to identify aspects that allow us to focus attention not only on internal production relations and their costs; but rather in the analysis of costs incurred in other links in the chain: supply (provision of essential production factors) and marketing and sales (output of products derived from core activity). When companies require focused accounting information for analysis and projections, cost accounting is an alternative. However, changing contexts require combining specific methods, measures and reports on costs with qualitative elements offered by the administration. Both disciplines complement each other and give rise to management accounting or cost management. This, from the conception of production chains, allows more powerful organizations, by assuming an extended vision in cost analysis. Adding and expanding from a comprehensive view, allows to analyze and evaluate costs associated with the supply of inputs, the production and marketing of products or services with a greater direction and support of business decisions.

Resumen

La gestión de costos representa una importante herramienta para la toma de decisiones en empresas, más en épocas caracterizadas por altos niveles de incertidumbre y restricciones. Se precisa como objetivo analizar la gestión de costos desde la perspectiva de las cadenas productivas. Se apoya en la revisión y análisis de documentos científicos, procedentes de bases de datos especializadas, con la finalidad de identificar aspectos que permitan centrar la atención no solo en las relaciones internas de producción y sus costos; sino en el análisis cuantitativo en otros eslabones de la cadena: aprovisionamiento (disposición de factores de producción esenciales) y comercialización y ventas (salida de productos derivados de la actividad medular). Cuando las empresas requieren información contable focalizada para realizar análisis y proyecciones, la contabilidad de costos es una alternativa. Sin embargo, contextos cambiantes, exigen combinar métodos, medidas y reportes específicos sobre costos, con elementos cualitativos ofrecidos por la administración. Ambas disciplinas se complementan y dan surgimiento a la contabilidad de gestión o gestión de costos. Esta desde la concepción de cadenas productivas, permite organizaciones más potentes, al asumir una visión extendida en el análisis de las erogaciones incurridas. Sumar y ampliar desde una visión integral, permite analizar y evaluar costos asociados al aprovisionamiento de insumos, la producción y comercialización de productos o servicios con un mayor direccionamiento y sustento de decisiones empresariales.

Keywords | palabras clave

Cost management, cost planning, costs control, decision making, productive chains, procurement costs, production costs, marketing costs.

Gestión de costos, planificación de costos, control de costos, toma de decisiones, cadenas productivas, costos de aprovisionamiento, costos de producción, costos de comercialización.

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1. Introduction

Organizations require useful information on which to support their decisions. Knowing the profit margin of the business requires having accurate records on the developed processes, that is, quantifying the activities, so that accurate information can be made available from the quantitative level, in which to support or base the decision-making process.

Costs have always been a central element in any management; they are the basis for making accurate calculations and estimates on prices (Fernández, 2000) and profits in companies. Its use at the formal accounting level requires dedication, time, and investments for the maintenance of specific information systems; that offer timely and truthful information, with which to project the business.

Faced with this, the fact of differentiating traditional accounting from management or administrative accounting becomes prevalent in times of collapsed and restricted economies marked by a global pandemic (COVID-19), where the rationalization, efficiency, and adaptation of business resources, is essential.

Organizational measurements and controls become central (Fernández, 2000), expanding biased visions, which limit the analysis to the production area, being important the analysis of costs and their management from an integral perspective that includes primary phases of the production chains: supply, production and marketing, and sales. An expanded comprehensive vision, for an approach and understanding of cost management, integrating disbursements prior to production work, and others incurred once the product or service is available for placement in the markets (Suárez-Tirado, 2013). In some cases, these disbursements are classified as expenses, and in others, they are classified as logistics costs.

From a generic perspective, studies are carried out whose direction focuses on the approach of cost accounting, accumulation systems, management control tools and techniques and practices used to control and reduce costs, decision-making, among other elements of interest on the subject (Ripoll & Urquidi, 2010; Baldini & Casari, 2008a, 2008b; Chacón, 2007; Chacón et al., 2006; Molina, 2003; Morillo, 2002; Valdés, 2016). However, when referring to cost management, the amount of studies is reduced (Salgado-Castillo, 2011; Vélez et al., 2005), even more so, when specific applications are required in particular study sectors (Quintanilla-Ortiz & Díaz-Jiménez, 2019).

Management requires recognition of pure conceptions of administrative and accounting sciences. The former use specific procedures and scientific rigor; and the second, questioned for lack of scientific knowledge to support them; offers methodologies, techniques, and tools (Otálora-Beltrán et al., 2016; Sinisterra-Valencia & Polanco-Izquierdo, 2007; Atehortúa & Mejía, 2018; Abril-Flores & Barrera-Erreyes, 2018; Scoponi et al., 2017) to show quantitative information of interest in the decision-making process.

The combination of qualitative elements (management), with quantitative elements, offer answers to the demands of organizations. From management, consider planning, control, and decision-making, giving input to specific accounting tools with a high level of detail to understand, from a detailed perspective, the organizational environment and its productive chains from the perspective of costs. According to Osorio et al. (2016), a cost management system must be supported not only in quantitative information but also qualitative, so that the administration has more solid criteria to make decisions.

When making precise applications on the subject in the business world, Rodríguez et al. (2007), Rincón (2005), and Castro (2010) establish guidelines for logical analysis, achieving the application of content related to costs and their management in specific contexts of the organizational field. These approaches allow specifying theoretical-methodological tools, combining traditional and modern cost theory in particular production systems.

Expanding the spectrum of analysis requires having theoretical-documentary support that allows the precision of elements for the analysis of cost management from the perspective of the production chains, reflecting on their genesis and evolution, and on the incorporation of management elements for a comprehensive analysis of them in organizations. Based on this, central elements are needed from the birth of this accounting discipline that derives from administrative praxis, to later disaggregate the essence of the elements that make up the definition of management accounting and specify the foundations that enhance the use of this tool of planning and organizational control. As an innovation of the study, the integrality of the cost analysis is included from the generic conceptions of the production chains, so that an integral cost is managed at the company level, which exceeds the limited vision of the production area in the organizations.

2. Corpus selection criteria

The research is analytical, qualitative, part of a theoretical documentary review carried out in a systematic way. The exploration of internationally recognized databases was established as a search strategy, preferably: Scopus, Redalyc, Dialnet and SciELO, and others with open access. Inclusion and selection criteria of documents were the folowing: language (Spanish and English), articles related to the proposed topic: management accounting; administrative-accounting; cost accounting, cost management, production lines.

As a result of the first search, generic information related to the variable was obtained, then in a second review some document selection criteria were defined so that pertinent information associated with the defined categories of analysis could be filtered: genesis/evolution of the cost accounting; definition/conceptualization of cost management and its elements, the latter analyzed from the essence of the primary links of the production chains: supply, production, and marketing.

The theoretical information collected was arranged in an analysis matrix in which information on the works was included, considering: year of publication, author, title, language, abstract, central elements developed in the research, main contributions. With the emphasis on making a selection that is more pertinent to the topic to be investigated and more up-to-date, the study variables were defined as management of supply, production, and marketing and sales costs. In this selection, we worked with more interest in the review articles, and those that did not address the study variables were discarded, resulting in more than 70 works related to the subject. The works were analyzed from the decomposition of the whole in its central elements, specifying the indicators described in each category of analysis, for a full understanding of the phenomenon studied, resorting to scientific knowledge to explain the object of knowledge.

3. Results

3.1. Cost management: brief historical reference path

The combination of administrative processes with accounting systems and methods allows the emergence of cost management; a very useful discipline for managers who do not find sufficient support in the information generated by legal, traditional, or financial accounting (Esteban-Salvador, 1998).

To understand the genesis of cost management, we present a brief historical overview, specifying outstanding events since its birth; being aware that the accounting history and its precepts are delineated from relationships that are gestated and projected between actors who make use of this discipline in their daily work.

For Gutiérrez (2005), the birth of accounting takes place at the end of the 18th century, hand in hand with the industrial revolution; an event that brought great changes at the level of organizations, especially those dedicated to the development of productive work. At that time, the double-entry theory was used as the central basis for analysis and decision. General established legal regulations were assumed and complied with, and information was offered to external entities so that they can know the equity, economic and financial situation of the company, expressed precisely in the published financial statements (Baldini & Casari, 2008a).

As a complement to traditional financial accounting, in the 20th century, cost accounting emerged, aimed at responding to the information and decision-making needs of the industrial organizations of the time. It is important to make appraisals of finished and in-process products and to control what is related to production tasks (González, 2005; Cárdenas et al., 2020). For Montero (2011), the valuation of companies from the identification and quantitative analysis is a fundamental tool in organizational management and development. The information requirements, the performance of measurements, and the determination of returns in order to direct management actions (Rodríguez et al., 2019), become a necessity.

In this context, technological, social, political, and economic demands stand out, with large concentrations of private-financial capital, they generated a direct impact on the administrative and accounting area of organizations, giving rise to the emergence of new information needs (Otálora -Beltrán et al., 2016; Chacón et al., 2006; Valdez-Requena et al., 2017; Salgado-Castillo, 2011; Esteban, 1998) and, therefore, of their satisfaction. It gives way to cost management, as a discipline that, fed by cost accounting (with clearly quantitative elements), uses managerial tools (with qualitative elements) to enhance the complex and demanding process of determination and analysis (Balcázar- Sarmiento et al., 2019; Valdés, 2016). Interpretations of scenarios are included, from the manager's vision, to direct the organization in spaces of high uncertainty.

From the quantitative level, the use of standards to measure the quantity and costs of the resources required in production: labor and materials is promoted (Gutiérrez, 2005). This from the studies of times, movements, methods, sequences, work processes, efficiency, projection, and their rationalization, together with the controls required in the production area of companies, aspects studied by Taylor (1963) from scientific rigor that sustains the science of administration (Gutiérrez, 2005). This combination of quantitative with qualitative allowed a significant evolution in management accounting.

In this way, the cost of materials and labor could be predicted (standard) and compared with the real costs, a situation that prompted at the beginning of the 20th century the development of sophisticated systems for the recording and analysis of real deviations with respect to the estimates. (Gutiérrez, 2005).

In this context, it is recognized that cost accounting manages to overcome the limitations of legal, financial, or traditional accounting (Esteban, 1998). Orderly and systematized knowledge begins to be compiled to support the product costing process (Gutiérrez, 2005). New techniques and work methodologies emerge before the nascent demands of management at the operations level, and in general terms, of companies or organizations. According to Blanco (2003), the idea is to generate information that demonstrates effectiveness and efficiency at the level of production factors (Montalvo-Cuesta et al., 2020), thus achieving the consolidation of accounting management parallel to legal accounting (Lorino, 1993).

Cost accounting emerges to respond to internal information needs of companies; It offers information related to production operations, basically those related to the transformation of raw materials and inputs into products/services designed to satisfy needs. It enjoys autonomy and is not subject to formal criteria of faithful compliance (Chacón, 2007), that is, this discipline that derives from general accounting (Machado, 2002), defines flexible work methodologies that offer useful information for the decision-making process.

Product of the evolution and demands of the organizations, the simple study in detail of operational tasks, became incomplete. There was a partial vision of the organization (only the operational or workshop area) and general aspects were neglected in other areas of interest of the organization; This situation led to the deployment of more specialized knowledge that included all organizational areas and functions.

A systemic approach is assumed to understand the operational processes of organizations, from the perspective of costs. In other words, it is conceived as an accounting information system that compiles, records, classifies, analyzes, evaluates, and is capable of supporting explanations related to disbursements incurred in the production area of companies (Rincón, 2005). From this, financial and non-financial information is constructed so that management can make decisions and project essential functions such as planning, control, and evaluation of organizational performance. It is possible to provide timely and necessary information to facilitate and improve decision-making at the level of the entire structure of the organization (Cárdenas et al., 2020; Chacón, 2007; Chacón et al., 2006; Hansen & Mowen, 2003, 2007; Mallo et al., 2000; Cárdenas, 2006; Horngren et al., 2007, Atehortúa & Mejía, 2018; Abril-Flores & Barrera-Erreyes, 2018; Scoponi et al., 2017).

Management elements are incorporated, and cost[1] accounting is assumed as an important support for cost management. There is a leap between data recording and basic accounting information, considering qualitative and management elements, to project the situation of the organization and interpret diverse and possible scenarios.

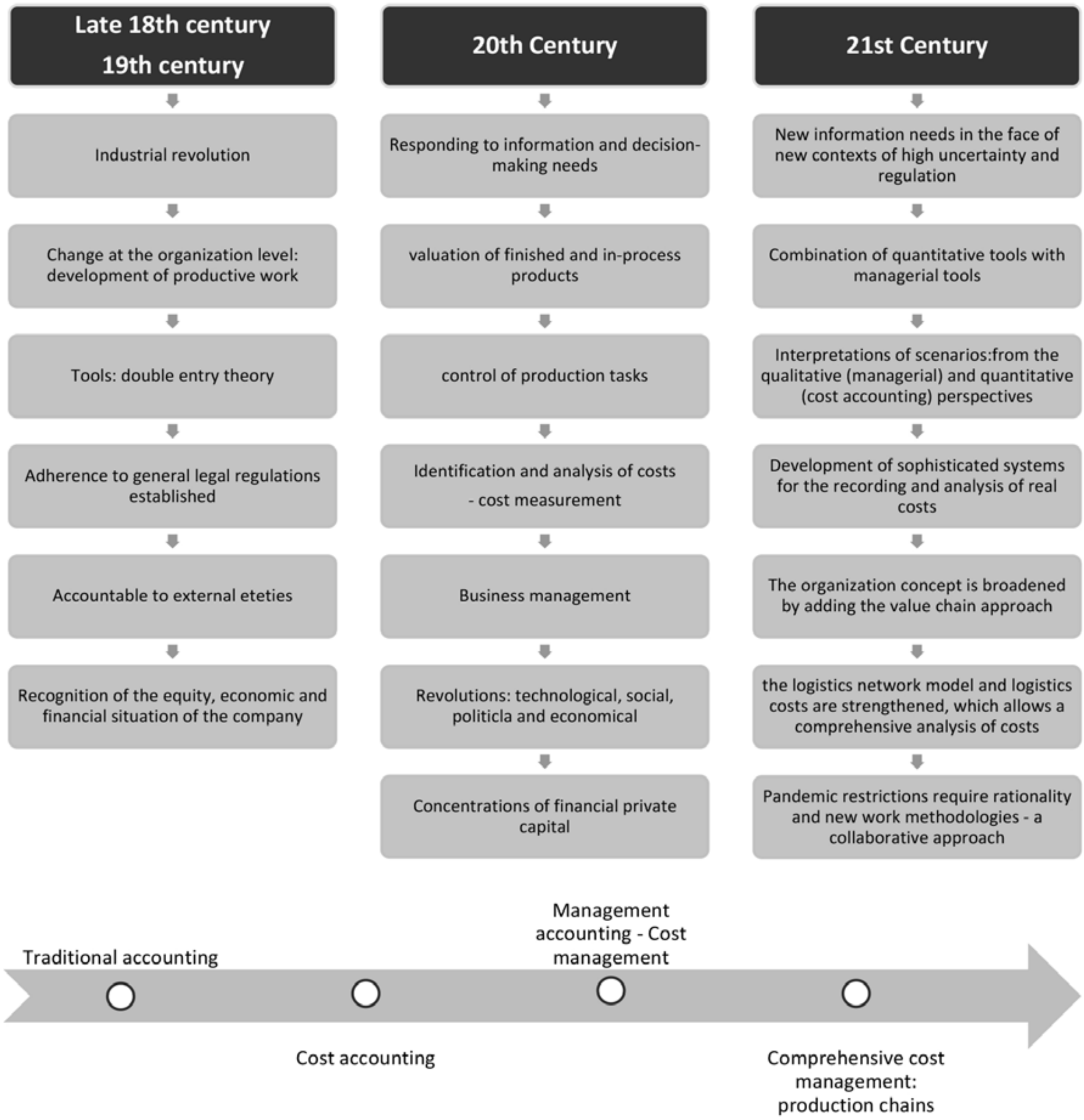
Cost management broadens the organization's analysis vision from the simple determination of cost (Baldini & Casari, 2008a); advances in the definition of new forms of work, achieving independence from traditional cost accounting. Despite this, both cost accounting and management accounting become complementary disciplines with sufficient autonomy to act independently; that is, they are mutually inclusive (Chacón, 2007).

When analyzing the various conceptions that make up the evolution of cost accounting and management accounting (Figure 1), the renovating current proposed by Baldini and Casari (2008a) is assumed. Under this current, each one sets specific objectives, dedicating cost accounting to the identification, capture, measurement, classification, accumulation, and issuance of reports of information related to expenditures; analyzing and interpreting data, so that they are useful in the decision-making process, while management accounting integrates managerial functions such as planning and control (Otálora-Beltrán et al., 2016; Barfield et al., 2005; Gayle, 1999;

1 It goes beyond being highly analytical. It projects, schedules, and allows making decisions based on the total cost of production (Santos, 2008), it does not incorporate planning tools, cost control, and strategic decision-making (Chacón et al., 2006; Horngren et al., 2007).

Chacón, 2007; Chacón et al., 2006; Hansen & Mowen, 2003, 2007; Mallo et al., 2000; Cárdenas, 2006; Horngren et al., 2007), and economic-managerial decision making (Mallo et al., 2000; Chacón et al., 2006) as central processes that guide actions to guide organizations appropriately.

Figure 1. Evolution of management accounting or cost management



Source: Own elaboration, based on the referenced authors.

Cost management constitutes a managerial area of the organization (Gayle, 1999; Chacón, 2007; Chacón et al., 2006; Hansen & Mowen, 2003, 2007; Mallo et al., 2000; Cárdenas, 2006; Horngren et al., 2007), using exhaustive knowledge of organizational processes. Applies tools of cost and management accounting, and control techniques and strategies to generate useful information. It assumes comprehensive analysis perspectives of the activities and critical points of the operations carried out in the company.

Cost management deploys and integrates planning and control processes. On the one hand, the plans are assumed as a reference with precise information, which serves as a basis for control. The first defines objectives and directs the strategies to be fol-

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lowed at certain times and allows quantitative estimates of what is to be achieved; the second works to determine deviations on what has been proposed to review, that is, a feedback process is developed and the need to adjust existing plans or develop new strategies is identified (Kast & Rosenzweig, 1988, cited in Chacón, 2007). They are difficult to separate processes within cost management.

Focusing attention on two of the four administrative processes does not mean that it is not necessary to organize resources and the very execution of the developed plans. However, when implementing accounting procedures designed to calculate costs, resources that once consumed become costs (Rodríguez et al., 2012) are organized, which must be subject to adequate management by cost managers, while constituting an important basis for organizational decision making.

In this sense, it is assumed as part of planning and control, accumulation systems, and management techniques and strategies, which allow making decisions from the integrality of the productive chain of organizations, supported by costs. According to Arias and Cano (2020), the strategic implications of management accounting in the development of industrial sectors show important conceptual and analytical participation challenges for decision-making.

It is evident how cost management:

> It is of greater depth than the determination of the cost as such, since it consists of making the best decisions to achieve the objectives set on the organizational processes and activities in terms of strategies and compliance with costs, particularly those of production. (Rodríguez et al., 2007, p. 458).

It includes actions, managerial elements, and others associated with markets, expanding its scope of action (Ruschanoff, 2007).

As central objectives, cost management pursues three essential aspects (Cárdenas, 2006): a) provide information resulting from the costs of manufactured items or services provided; b) provide information related to planning and control, and c) present information for adequate management decision-making. For this, adequate knowledge of production costs (raw materials, labor, and indirect manufacturing costs) is essential; being also necessary, for profitability and strategy purposes, the consideration of costs related to design, administration, marketing, and distribution of the product.

Cost management makes expenditures or disbursements that will produce future benefits in the organization —capitalizable expenditures[2] (Pabón, 2010)— and constitute resources sacrificed to achieve specific objectives (Sinisterra, 2007; García, 2001; Horngren et al., 2007; Hansen & Mowen, 2003, 2007) and guide the decision-making process betting on efficiency, effectiveness (Montalvo-Cuesta et al., 2020; Rincón, 2005) and organizational profitability.

Table 1. Traditional accounting, cost accounting, and cost management

Traditional, legal or financial accounting	Cost accounting	Cost management

2 According to Pabón (2010), not all incurred expenses can be capitalized.

• Manages information about the assets of the company. • Shows changes in the financial situation • Results obtained during the financial year.	• Complements traditional accounting. • Responds to information and decision-making needs. • Determine the value of stocks, finished products, and in-process. • It allows controlling the production process. • The information generated must be complemented with management tools and processes. • It is an area of traditional accounting. • Study the inside of organizations. • It has techniques or methods for calculating the cost (projects, processes, or products). • Identify, capture, measure, classify, accumulate and report information on incurred costs.	• It is a managerial area of the organization. • It offers relevant information to support planning, control, and decision-making processes. • Includes management processes. • It considers qualitative elements in the interpretation of the cost data. • It requires information derived from cost accounting. • It uses an in-depth understanding of cost structures.

Source: Own elaboration.

3.2. *Planning and cost control: essential elements for its analysis from an extended vision*

From an expanded conception, the analysis of cost management is oriented considering fundamental management processes: planning and control (Cárdenas et al., 2020) not only to refer to production or service costs but also to the productive chains that they are part of every organization. According to Orjuela-Castro et al. (2017), accounting management uses incomplete terminology when measuring the costs of logistics processes or the chain, since it does not disaggregate each activity or take into account the links generated in the chains. In the current context, not only is the internal environment of organizations important, but also the knowledge and adequate performance of their chains (Suárez-Tirado, 2013). According to Cárdenas (2006), the information on production costs of manufactured items will not be sufficient for planning and control; a broader vision is required, which includes all stages of the value chain. Cost management must provide the cost of this entire value chain. Nowadays it is not enough to know exclusively the cost of producing to be successful in the market.

The chains approach allows companies and their management to be analyzed from all the activities they carry out, being able to determine which of them has value and which do not. It guides the achievement of sustainable competitive advantages, reduces the costs of activities that do not add value, and focuses on activities on which advantages can be obtained with respect to its competitors, either because they are executed at lower costs or because they are achieved through them differentiating strategies (Baldini & Casari, 2008b; Suárez-Tirado, 2013).

This way of conceiving cost management requires the study not only of the quantitative elements of the production area but also of those related to the supply and marketing area (Suárez-Tirado, 2013), primary links in the entire production chain. Costs represent performance measures that are used in supply chains, express values and data on materials, personnel, supplies, and other resources required in production work, and are useful for the construction of indicators that denote economic efficiency at the level of the different stages and activities that make up the chains (Ferreira et al., 2019). Decisions made at the production level as the core area of the organization affect the planning of inputs or materials (supply) and, therefore, affect the marketing of products (Valdés, 2016).

Cost management-procurement phase

Managing costs in the supply chain of the production chain is a challenge in organizations, even more so when their characteristics correspond to those of small and medium-sized organizations. In this type of organization, the controls implemented at the chain level are scarce and insufficient (Díaz et al., 2008). In order to address the supply chain of the production chain, approaches are assumed that allow defining indicators to measure cost management in this particular phase of the chain (Chase et al., 2000; Krajewski et al., 2013; Drango et al., 2008; Moreno et al., 2011; Bowersox et al., 2007).

In this sense, purchasing decisions, relationships with suppliers, and supply policies (Table 2) are fundamental elements in this phase. Not only are costs important at the level of production or operations of the company, but it is also required to have information on those expenditures associated with the activities of purchase, storage, inventory, claims, replacements by the supplier, inspection, communication, and supplier development. (Carranza & Sabría, 2005).

Table 2. Cost management: procurement phase

Management elements	Elements of analysis at the cost level
Purchase decision Relationship with suppliers Supply policies	Costs related to activities of purchase, storage, transfers, inventories, communication and claims to suppliers, transactions, quality of raw materials and supplies, ordering and supplying inventorys

Source: Own elaboration.

It is essential to define supply policies as part of the planning of material requirements in order to establish control guidelines. Policies represent guides that direct actions in companies. In the field of purchases, once defined, they help determine quantities and times and make decisions about when and how much to order, so that suitable inventories can be maintained with bearable costs for companies (Moreno et al., 2011).

The policies assumed for the supply of materials must specify: quantities and costs of materials to be acquired or purchased. The establishment of clear and precise supply policies guarantees continuity in production and efficient management of supplies and materials inventories.

Production cost management

From the production processes, it derives the information required for the analysis and management of production costs (Meleán & Ferrer, 2019), which is why their understanding is required to identify the expenses incurred in them. In this sense, a cost management system supported by work methodologies is necessary to support the development of managerial functions and cost-generating activities in companies (Barfield et al., 2005).

This requires the study of the used accumulation systems, elements of production costs (materials, labor, and indirect costs), and control techniques and strategies (Chase et al., 2000; Krajewski et al., 2013; Fernández et al., 2006; Castro, 2010; Rincón, 2005; Rodríguez et al., 2007; Molina, 2003, 2012; Gayle, 1999; Barfield, 2005; Mallo et al., 2000; Hansen & Mowen, 2003; Baldini & Casari, 2008a, 2008b; Galia, 2007).

The aforementioned authors allowed the establishment of indicators to measure the production cost management dimension: a) production process, b) accumulation systems, c) production costs and d) control techniques and strategies (Table 3).

Table 3. Production cost management: essential elements of analysis

Management elements	Elements of analysis at the cost level
Cost planning: production process	• Costs associated with generating factors of production
Decisions on: Accumulation systems	Decide on the accumulation system to use depending on the nature of the process Accumulation by: • Work orders • By process • Hybrid • Activity Based Costing (ABC)
Production costs	Costs of: • Direct materials • Direct labor • Indirect production
Decisions on: Cost control techniques and strategies	• Target cost • Just in Time (JIT) • Total quality management • Continuous improvement • Reengineering • Stakeholders • Empowerment

Source: Own elaboration.

The indicated tools allow the analysis of the value drivers established in the administrative process (planning, control, decision-making, and communication) that have allowed the passage between the simple or straightforward of the determination of costs and financial control, betting on the creation of value (Martínez & Blanco, 2017).

Marketing and distribution cost management

The commercialization processes are constituted in fundamental pillars in the organizations (Quiñónez et al., 2020a), they allow the output of obtained goods, either for their provision in final markets or for their incorporation in other productive chains (Meleán & Velasco, 2017). This process represents activities carried out by organizations to deliver what they want to customers; serve as a guide in the production processes that allow the consolidation of products, desired results, or aspired services that will then be offered by the company (Quiñónez et al., 2020b). Planning, controlling, and making decisions regarding the process of marketing and distribution of products, requires analysis from the perspective of the costs associated with their placement in specific points of the markets.

In this sense, supported by Usgame et al. (2007), Calderón et al. (2012), Gutiérrez (2010), Cuevas et al. (2007), Brambila (2006, cited in Verduzco, 2010), Aponte et al. (2013), Bowerson et al. (2007), Ballou (2004), Horngren et al. (2007) and Rincón (2005), the central elements for the analysis and measurement of the management of marketing and distribution costs are specified in Table 4.

Table 4. Management of marketing and distribution costs: Essential elements

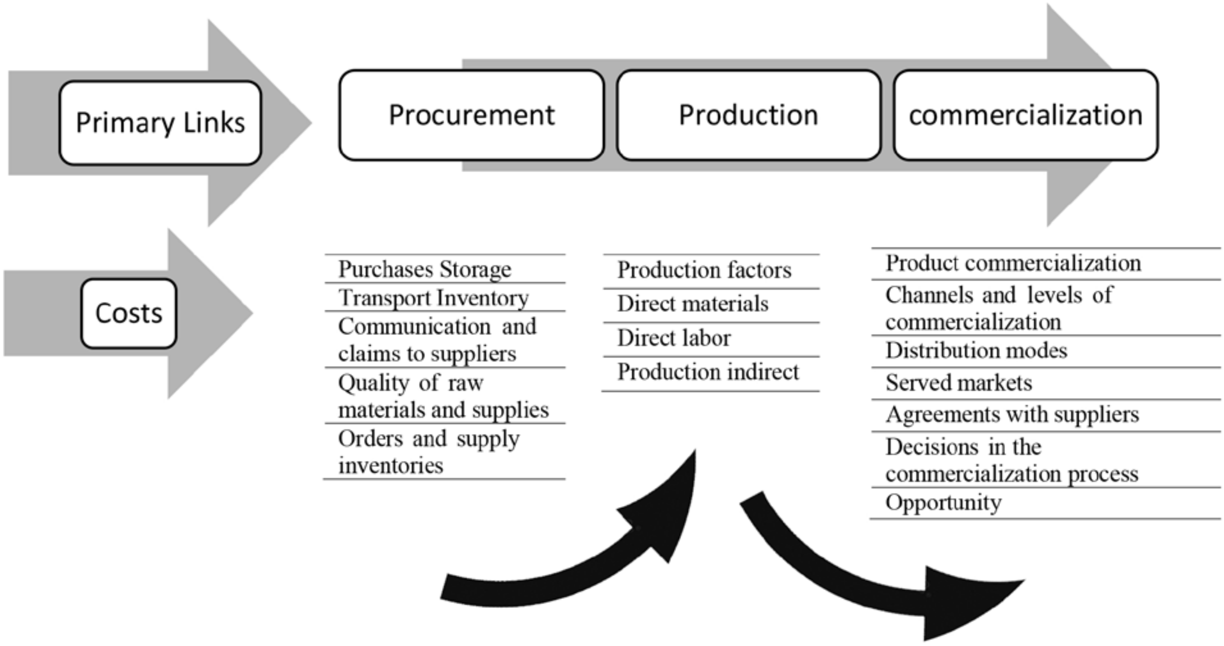
Management elements	Analysis elements
Planning, cost control, decision making	• Product marketing costs • Costs associated with marketing channels and levels • Costs associated with the modalities of distribution • Markets served • Costs derived from agreements with distributors • Costs related to decisions in the marketing process • Opportunity cost

Source: own elaboration.

The requirements are aimed at the creation of comprehensive management systems, where the analysis of costs goes far beyond their identification, registration, and classification. They constitute a valuable input to support decision-making and undertake continuous improvement projects in organizations since a full, rational, efficient, and continuous performance of productive operations is required.

For an organization to be profitable in the global economy, it must have full knowledge that its decisions really add value for the interested parties (stakeholders) and for the clients (Rocha de Araujo et al., 2005). Today it is recognized that costs alone are not sufficient to determine profitability; management methods, quality, productive flexibility, and innovation are also important (Flaherty, 1996, cited in Rocha de Araujo et al., 2005), this, despite the fact that strategic management costs contribute significantly to efficiency in the value analysis for stakeholders, in a possible alteration of organizational behavior and minimize the risks for the company (Figure 2).

Figure 2. Costs in the production chain



Source: own elaboration.

4. Discussion and conclusions

Essential aspects of costs and their management are needed from a theoretical perspective. The genesis of cost management is specified, combining administrative or management functions with elements and tools, which allow their organization, registration, classification, and assignment. All this aiming at obtaining timely and pertinent information that allows decisions to be made in organizations of various kinds.

The costs must not only be seen from the conception of the production or servuction tasks, but also from the integrality that organizational operations imply, whether these are developed in manufacturing instances that imply the transformation of raw materials, or in organizations in the service area, where intangible transformations are required, which also account for their expenditures.

The objective and critical understanding of cost management is essential in these times, characterized by restrictive requirements and environments that demand exhaustive knowledge of disbursements in the work environment. The management of integral conceptions from the point of view of the production chains extends the analysis vision of managers and business people.

Nowadays, not only the internal control of operations is important, but also the recognition of the context ranging from what the costs for the procurement of supplies or raw materials imply for the development of operations, as well as the best and most economical way of providing an outlet for the products that are made or the services that are designed or provided.

Work for the recognition that there is something more than the production or service area. It is important to analyze procurement activities that require disbursements. But also analyze the quantitative elements of the marketing process that requires resources for the placement of products or services in the market.

The understanding of the theoretical foundations on the expenses, and the understanding of the integrality of the management, is fundamental to establish sustainable relationships between subject and object and to consolidate a systemic and integral vision. The idea is to continue deepening the cost management research line and consolidate bibliometric analyzes complemented with accurate information on diverse organizational realities. The recognition and subsequent application of these elements are central aspects in the analysis of these highly useful tools in times of business restrictions.

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Information and Communication Technologies exclusively for consumer behavior from a theoretical perspective

Tecnologías de la Información y Comunicación exclusivo para el comportamiento del consumidor desde una perspectiva teórica

Mg. Freddy Rodolfo Lalaleo-Analuisa is the general manager of Editorial Queyám Cía. Ltda. (Ecuador) (flalaleo@indoamerica.edu.ec) (https://orcid.org/0000-0003-0108-3365)

Mg. Diego Mauricio Bonilla-Jurado is an associate researcher at the Universidad Tecnológica Indoamérica-Matriz Ambato (Ecuador) (diegobonilla@uti.edu.ec) (https://orcid.org/0000-0002-4784-7861)

Mg. Rodolfo Enrique Robles-Salguero is a research professor at the State University of Milagro (Ecuador) (rrobless@unemi.edu.ec) (https://orcid.org/0000-0003-1016-4079)

Abstract

The objective of this study, focuses on carrying out a literature review of Information and Communication Technologies (ICT) as an exclusive factor affecting consumer behavior. The methodology has a descriptive scope of a bibliographic type, studies were selected that have been published in the most important indexes worldwide, in the following order: Web of Science, Scopus, Ebsco and ProQuest, from 2009 to 2020, with a total of 62 publications among scientific articles, books and thesis, which discussed the development of ICT exclusively focused on the modern consumer. A considerable scientific production found between 2013 and 2017 with 47,00% of the documents analyzed. Likewise, in these publications key words such as ICT, digital consumers and consumer behavior are highlighted with 27,00%, 19,00% and 10,00% respectively. Regarding the origin of the documents, it is highlighted that most of them come from Latin America with a percentage of 53,00%. As main conclusions it is highlighted that the intervention of the TIC is immersed in almost all the phases of the decision making that the consumer makes, in addition to it, the present consumers are permanently connected, having greater alternatives of election according to the information that the company develops to reach the final purchase of the product and/or service.

Resumen

El objetivo de este estudio se centra en realizar una revisión de literatura de las Tecnologías de la Información y Comunicación (TIC) como un factor exclusivo que incide en el comportamiento del consumidor; la metodología tiene un alcance descriptivo de tipo bibliográfico, se seleccionaron estudios que han sido publicados en los índices más importantes a nivel mundial, en el siguiente orden: Web of Science, Scopus, Ebsco y ProQuest, desde el año 2009 hasta el 2020, con un total de 62 publicaciones entre artículos científicos, libros y tesis, que discutieron el desarrollo de las TIC exclusivamente enfocado hacia el consumidor moderno. Se encontró una considerable producción científica entre los años 2013 y 2017 con un 47,00% de los documentos analizados. Asimismo, en dichas publicaciones se resaltan palabras clave como TIC, consumidores digitales y comportamiento de consumidor con el 27,00%, 19,00% y 10,00% respectivamente, en cuanto a la procedencia de los documentos se destaca que la mayoría de estos provienen de América Latina con un porcentaje del 53,00%. Como principales conclusiones se destaca que la intervención de las TIC está inmersa en casi todas las fases de la toma de decisiones que realiza el consumidor, adicional a ello, los consumidores actuales se encuentran permanentemente conectados, disponiendo mayores alternativas de elección según la información que la empresa desarrolla para alcanzar la compra final del producto y/o servicio.

Keywords | palabras clave

E-commerce, consumer behavior, digital consumers, digital environment, internet, social media, Information and Communication Technologies (ICT).
Comercio electrónico, comportamiento del consumidor, consumidores digitales, entorno digital, internet, social media, Tecnologías de la Información y Comunicación (TIC).

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1. Introduction

The impact that the Internet has had in recent years has led to a great change in consumer behavior. Today, both companies and consumers take advantage of all the benefits generated by buying and selling operations facilitated by it. A good number of consumers, depending on the new cultural and social patterns that have arisen on the occasion of a change in lifestyle, find a good option to acquire practically any product and/or service to satisfy their different needs through new information technologies. In this sense, the registered technological progress allowed the Information and Communication Technologies (ICT) to play an important role, especially during the last year, where, as a result of COVID-19, the planet experienced a radical change in relation to the development of the different activities.

The contribution of this study is to generate knowledge so that organizations understand the consumer behavior that is being formed by the development of ICT, where through a literature review, elements and factors that must be taken into account by the senior management of the company were identified, and at the same time answering many questions that business people ask about who are the consumers? What are their demographic and psychographic characteristics? What information is relevant to attract these consumers? What do they buy? How often do they buy? By what means do they buy? Is everyone attracted to the same thing? And all the questions that influence market research. In addition to this, the conclusions of this study generate value in the information, on which products and/or services must be designed, with specific strategies in consumer behavior to maximize sales through ICT and, at the same time, identify groups of reference with which the opportunities that appear indistinctly are taken advantage of.

The companies of the 21st century continue to transform due to the globalization of the internet and with it, the vertiginous growth of social networks and different mobile applications, an event that has generated different changes in the internal and external spheres of organizations. In this sense, they must necessarily adapt to scenarios that are becoming more competitive and complex every day, where administrators must possess sufficient skill, ingenuity, and expertise to design value strategies to satisfy a new behavior and lifestyle of different consumers of products and/or services that, influenced to a great extent by those publications presented through the different virtual media, find themselves increasingly seduced (Aucay & Herrera, 2017).

Today, in the middle of the information age, or as other theorists call it the era of the ICT revolution (Restrepo, 2011), they are rapidly altering the way people do business around the world. In the business-to-consumer segment, sales via the web have increased dramatically in recent years. Given that, customers, not only from developed countries but also from developing countries, are adopting a new purchasing channel (Barrientos, 2017). As such, ICT has an important role to play not only in companies but also in people's daily activities. Internet-based services continue to grow in the "business-to-consumer" and "business-to-business" environments (OECD, 2019). From this point of view, every year, the number of organizations that use the internet for marketing purposes increases greatly. As well as the number of consumers who use the internet, not only to collect information but also to purchase goods (Rivera, 2015).

In a general context, a total population of 7,676,000,000 people is estimated, of which 75.00% are considered active Internet users (Arribas et al., 2019). While, in relation to the number of active users in social networks, an amount close to 3,484,000,000 is estimated, corresponding to 45.00% of the global population, with Facebook being the social network with the highest number of subscribers (Kutchera et al., 2014),

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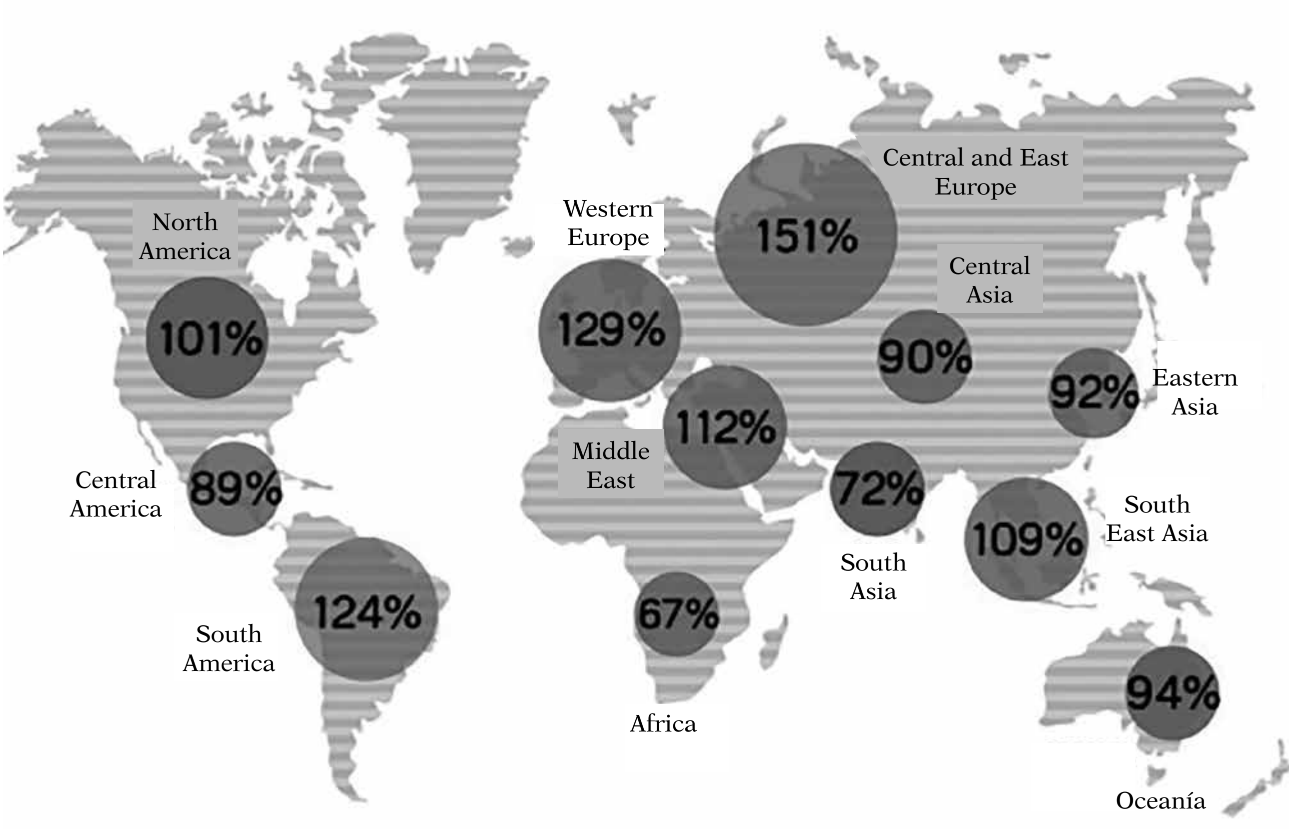
followed by YouTube and WhatsApp respectively. On the other hand, in the American continent, specifically in the South American area, a general population of close to 430,000,000 people is estimated, of which 73.00% are permanent Internet users; that is, compared to the percentage worldwide, this indicator increases significantly in this region (Islas et al., 2018) (See Figure 1).

Figure 1. ***Use and connectivity in the world***



Source: Adapted from Campos, 2015.

With these important statistics, today, in the world context, it is very common to see or hear that most sales are made online; that is, a type of commerce where a website or an application connected to the internet is used as the main means to carry out said transactions (Roman, 2016). In the last decade, customer buying practice has changed dramatically, as the use of digital technology to browse, research and buy has moved from a sporadic or specific segment to the mainstream. Faced with this reality, different studies reveal information on how customers use technology and their expectations about companies in this new environment (Cano, 2018; Encalada et al., 2019; Linero & Botero, 2020; Matute et al., 2012; Millat, 2011; Vera et al., 2011). Based on this reasoning, different organizations are currently forced to propose and use new strategies that mainly involve the use of technology as an indispensable factor in their companies, to provide a timely response to both the needs and expectations of their customers. In other words, as they provide innovations to improve the shopping experience, customer expectations will change, which is why, at present, investment in digital technology is becoming a significant strategic imperative for the consolidation and development of many companies worldwide (Yasav, 2015).

Today's society is exposed to continuous changes in the technological field, where the digital aspect takes a significant advantage and people constitute the central point of the experienced digital development, it is thus that the practices of digital life go hand in hand with evolution technological (Santos, 2019). In this sense, the evolution of ICT has brought with it a series of mechanisms and tools for interconnectivity and intermediation (Díaz et al., 2011; Madrigal et al., 2015). Today's world is conquered by a large number of mobile devices that are immersed in each of the daily activities that people carry out, technological devices that are used by them in order to inform themselves, analyze reality, activate relationships with others. and mainly communicate (Ureña et al., 2014). This scenario has mainly brought about the readjustment in relation to the forms of communication between peers, at the same time that it has been in charge of imposing a new scale of values and exchange channels whose main characteristic is given by the existence of a greater interaction in the relationship company/client (Barrios, 2014).

In the commercial field, the use of ICT leads to a greater number of markets, these being local, national, and international, at the same time, that they contribute to greater transparency in relation to information, thus allowing the rationalization of operating costs, as well as lower prices (Saavedra & Tapia, 2013). From this point of view, its application facilitates access to global supply chains where both buyers and sellers share information, specifications, and processes, which cross borders. Thus, both the network of buyers and sellers as well as the different research tools electronically provide a rapid, appropriate, and economic evaluation of the offer between different suppliers, with an efficient realization and completion of all the transactions implicit in the process of promotion and acquisition (Mihajlovi- et al., 2014).

Likewise, it can be mentioned that the current behavior presented by the client greatly affects all those involved in the marketing chain who focus on the acquisition of either goods or services, which are intended to satisfy existing needs (Virgüez et al.., 2020). Given that, with the passing of the years, the basic production in which individuals only produced what was just and necessary that allowed their subsistence to mass production at present, the same that allows serving a highly competitive market where high impact advertising is the one that most attracts the attention of customers (Díaz & Vicente, 2011).

For their part, customers who have ventured into the digital field have developed new consumer practices, a situation that is generated due to the constant advancement of ICT, this evolution has given rise to the appearance of new applications that have caused constant development in the products (Guaña et al., 2015); However, despite this, not everything is good, as this constant development brings with it a serious problem associated especially with how to understand the needs of the so-called "new consumer", given that, by nature, they change their actions unexpectedly. This change can be attributed to the fact that currently, "the user is connected to the internet 24 hours a day, seven days a week and 365 days a year" (Lagos et al., 2018), and this, without doubt, has created a constant disturbance in the user, who is exposed to an infinity of information, products and/or services and promotions (Guaña et al., 2017).

Faced with this scenario, these new consumers, called digital clients, usually use different tools associated with the digital environment as a means of sharing information, which allows new technologies to play an important role in the lives of each of the individuals (Apolo et al.., 2015). In a general context, these types of clients increase considerably, an increase that is mainly associated with the different benefits that the use of the internet provides, which is why organizations are forced to modify their business structure, as well as Customers necessarily have to adapt to the new processes that are carried out effectively, establishing electronic commerce as a fundamental alternative for the sustainable growth of different organizations.

In this same order of things, the term consumer 2.0 appears, which can be defined as:

> A well-informed person, who gets bored quickly and is quite immune to obvious publicity, seeks out innovative information and different experiences. On this basis, new consumers are permanently connected, have greater decision-making power, more choice, and are more demanding of information than ever. (Cáceres, et al., 2017, p. 15)

Under the aforementioned parameters, a 2.0 consumer constitutes the current target audience for any type of organization; that is, if it is possible to capture their interest and even more so their consumption; there are great chances of being successful in an increasingly competitive market full of brands that market an infinite number of products and/or services. In short, it takes advantage of the possibilities offered by the web to improve your shopping experience (Burgos et al., 2009). Unlike the traditional consumer, they have an immense variety of resources and tools that allow them to have an advantageous position when making purchases, either online or offline. In addition to the above, it is necessary to emphasize that they do not simply make a purchase, on the contrary, they want a positive experience in the purchase process, they want information, transparency, communication, advice, personalized attention, practical content, as well as quality to a low cost (Ferrer, 2018).

With the requirements stated in the previous paragraph, the development of ICT supports the interaction between consumers and intermediation, as a result, it leads to the reengineering of the business, the development of processes, as well as the forms of communication (López et al., 2018). In addition to this, innovative technologies improve efficiency for customers and suppliers, as well as promote interoperability, personalization, and the creation of permanent networks of the participants in the process (Travaglini, 2016). At present, ICTs have gained a significant role in different activities such as education, the health sector, and the economy in general. Since, in recent years, its inclusion in people's daily lives is undeniable, since its use is immersed in the different activities that are developed day after day (Guaña et al., 2017).

ICTs represent one of the main driving forces behind economic, social, and cultural changes from modern to postmodern, from local to global markets, from production to consumption, and from industrial to informational economies. With the availability of ICTs practically all over the world, consumer experiences and marketing are increasingly represented through the concept of data. In other words, information, today more than ever, has become the essential part of the market (Ferreirós, 2016). Consumers are often overwhelmed and intimidated by the sheer volume of information available for consumption (Rivera, 2015). However, and in response to such information overload, marketers have responded with possible solutions that somehow seem to mimic the posed problem; to the avalanche of information available there is the same amount of search tools accompanied by buying guides where highly specific summaries are offered for the convenience of those who use it.

On the other hand, from a marketing and consumer point of view, the impact of high technology and ICT has been the transformation of physical market spaces into data landscapes that encompass not only a growing percentage of customer transactions but also, for example, the real-time monitoring of the global movement of merchandise (Capellan et al., 2015). The technology adoption processes have gradually attracted the attention of scholars in marketing and social sciences for several decades, since technology has been recognized as a key factor that drives strategy, not only in the research and development aspects (R&D) but also the marketing and product or service portfolios of many organizations (Dholakia et al., 2009).

In general, organizations use ICT for internal and external communication, for the easy and fast updating and exchange of information and to increase their competitiveness through the creation of websites, portals, discussion forums, electronic stores, among others. (Gaile, 2009). In this same order of things, ICTs in a short time have become a key factor in obtaining an important competitive advantage in organizations. Thus, the popularization in relation to its use has generated an evident transformation in a considerable number of areas of the different companies, since with its application today it is easier to perform order processing, effective stock management, and obviously storage and transportation if it is a production company. In addition to the above, with the correct application of ICT in the business context, several additional benefits can be derived for an organization, such as saving time, unnecessary expenses in personnel, higher productivity, better inventory management, reduction of errors, accuracy, and reliability (Gil et al., 2009).

Today, through the use of ICT, customers have greater access to information than before (Barinas, 2013). That is, they search the web for information related to the goods and/or services they need to satisfy their existing needs. This process of customer sophistication forces business managers to innovate with greater precision and speed in the solutions offered by their companies in response to user requirements. As such, fortunately, the information that is captured through ICT can help the different administrators in the difficult process of understanding consumer behavior and the solutions available in the market (Barrio, 2017).

Consequently, the information in the profiles of the people who inquire on the web about what they are looking for, the channels they used, and the type of device used to make said queries, is offered by large organizations such as Google and Facebook, which focus on providing information regarding the client and also helping the different companies to be visible to real and potential clients. In particular, Google Analytics is responsible for offering solutions to understand customer interaction with different online marketing channels. For example, it has specialized tools that provide useful information to recognize how customers use mobile technologies and measure the success of social media campaigns. Likewise, one more service that provides data and offers tools to analyze what people search for on the web; develop market research projects and understand trends in the sector is Google Insight (Piñeros & Gómez, 2017). For its part, Facebook is another organization that provides customer information. Given that, this company created one of the social networks with the highest traffic on the planet, offering marketing services for companies from different segments (Blanes, 2017). As there is a large amount of data, this company is in charge of analyzing it in order to design advertising campaigns for specific sets of potential customers that achieve a high impact in the advertising field. In this sense, the quality of the information obtained allows us to geographically locate clients and offer a comprehensive interpretation of clients' needs and interests.

In short, both Google and Facebook use the information generated through the use of ICT to help managers and their teams make more accurate decisions. However, to carry out a more reliable analysis and, consequently, make more rational decisions, companies can use the information recorded in their daily interaction with real and potential clients (Piñeros & Gómez, 2017). The widespread adoption of ICTs, as well as their continued use, regardless of time and place, reinforces the rise of digital commerce (Rivera et al., 2012). Consequently, this emerging way of conducting business transactions refers to the unidirectional or bidirectional exchange of value facilitated

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by an electronic device, which is enabled by wireless technologies and communication networks (Golovina, 2014). Consumer decision-making has changed dramatically since the prevalence of these devices in the consumer's everyday life (Pelet & Papadopoulou, 2013). With easy access to user reviews, expert opinions, price comparisons, and other emerging facilities, consumers can conduct comprehensive evaluations of the products and services available in an increasing number of categories. For marketers, this suggests the need for a whole new way of thinking about influencing consumers. The challenge is also valid for information systems developers, as mobile commerce websites and social networks must be carefully implemented and used to become effective marketing tools (Pelet, 2014).

Regardless of the means of communication used, their relationship with the client is bidirectional. That is to say, in the first instance, the means have a great influence on consumer behavior because it generates certain affective, cognitive, and attitudinal effects in them (Vega, 2015). While, the other way determines that customers are no longer considered only as passive actors of the information, but become active users who become expert communicators since they are in charge of disseminating information, issuing evaluations, and even issuing personal comments (Golovina, 2014). Likewise, the current dynamic environment that combines the digital age and the changing economic context, forces different companies to investigate consumer preferences, conducting market studies, and learning about the activities carried out by competing companies in order to have a real panorama that allows launching a product and/or service that provides significant economic returns to the market. On this basis, the information available from the market helps the administrative and marketing departments in making decisions, given that the approach is not limited only to gathering data, but seeks the most suitable way to submit them to an exhaustive analysis in order to identify trends and statistical data that allow the delineation of timely actions within organizational management (Ortiz et al., 2016). That is why, below, a descriptive analysis is made through a literature review on ICT and consumer behavior, starting from the previously established antecedents.

2. Materials and method

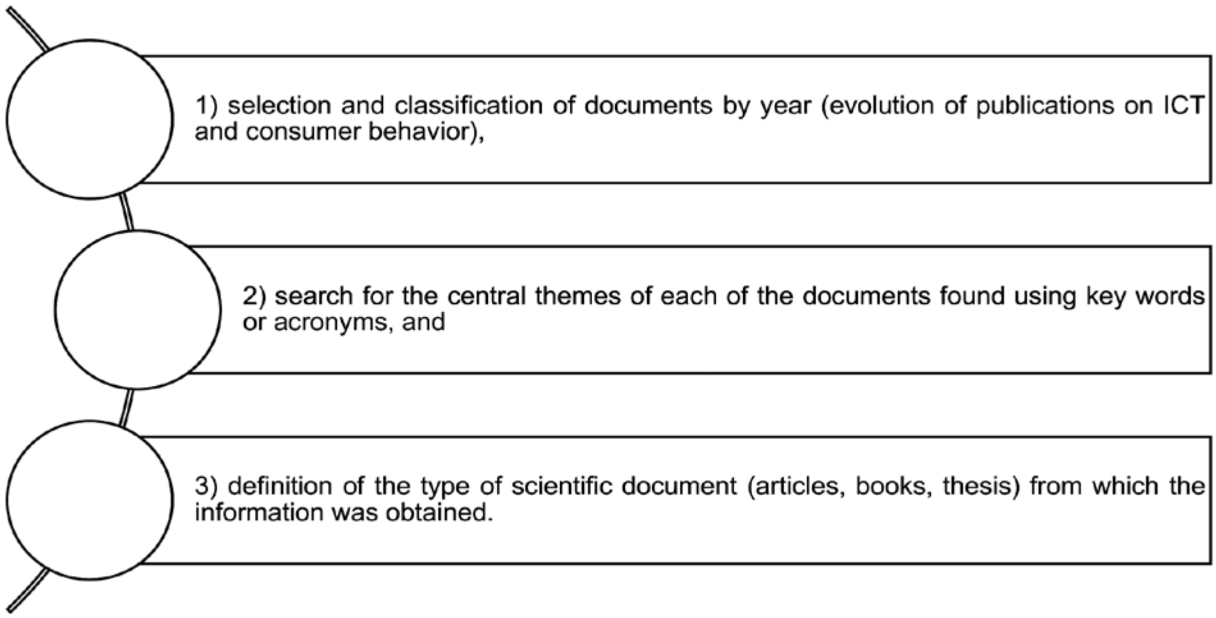
In order to verify the interest in the academic scientific field on this issue (ICT and consumer behavior) during the last years, a bibliographic study was developed, the same one that focused on the review of literature from different sources of information from a secondary level (scientific articles, books, previously carried out research). For this, scientific documents that have been published and whose texts can be retrieved from databases such as Scopus, ProQuest, Ebsco, Web of Science have been analyzed.

Based on the above, the multiple purposes involved in a review of the literature are then proposed, since it constitutes one of the most important parts of the genesis of a study, this perspective allows the researcher to know the results of other studies similar to the one being carried out, it also provides a frame of reference to justify the importance of the study, likewise, it allows to have a point of reference to compare the results obtained with others that have been derived from previous investigations within a context similar to that established (Creswell, 2014). On this basis, it is scientifically proven that review articles are responsible for compacting and synthesizing fragmented knowledge, updating and reporting on the status of a particular topic, knowing the trend of research, comparing information from different sources, evaluating the literature published, among others (Cué et al., 2008).

Under this context and seeing the importance of a bibliographic review, in the first instance those works that have been disseminated, either through a physical distribution or through the use of electronic platforms such as indexed journals or digital repositories, during the last decade were taken into consideration. In relation to the words that made the search possible, the key words or acronyms used were as highlighted by Bonilla et al. (2019) these for example: ICT, consumer behavior, consumer 2.0, digital age, internet, digital marketing. These highlighted terms form the basis for the corresponding search for information in relation to the issue raised. Based on the above, for the investigation of information, it was necessary to delimit the years of search (2009-2020) so that very old information that could distort the current context of the established topic is not presented, in addition to that, it is necessary to clarify that the choice of these years is mainly due to the advances made in ICT during that period. Finally, as regards the language of publication, there are no restrictions on the selection of documents. On this basis, the works that complied with the established requirements and from which the information was obtained were from a total of 62 reliable sources and with a very good quality of information.

In addition to the above, the processing of the information obtained after the search was carried out as follows:

Figure 2. Information processing



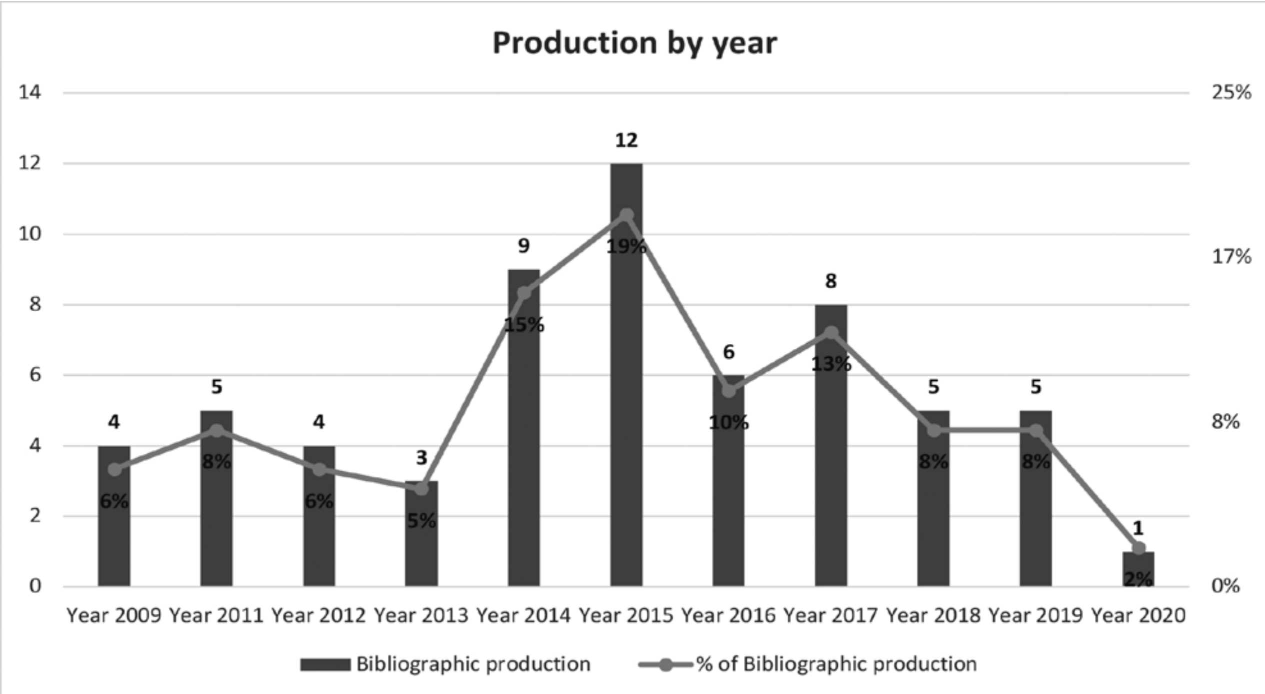
Source: own elaboration

Finally, the analyzes have focused on grouping the different elements of this sampling unit of sources, which are expected to be representative due to the way they are selected, into categories that group the studies in the most relevant classifications for evaluating scientific production. In this way, the production relative to the years, the thematic areas in which the studies have focused, the type of scientific document, and the countries of publication have been categorized; this procedure was similar to that presented in the study developed by Sánchez et al. (2019).

3. Results

Within this section, we begin by presenting the scientific production (documents) by year around the issue, the temporal range of analysis was those publications made between 2009 and 2020, since the development that the ICT have experienced during this period of time and how this has influenced the modus vivendi of different people is evident.

Figure 3. Evolution of publications on ICT and consumer behavior

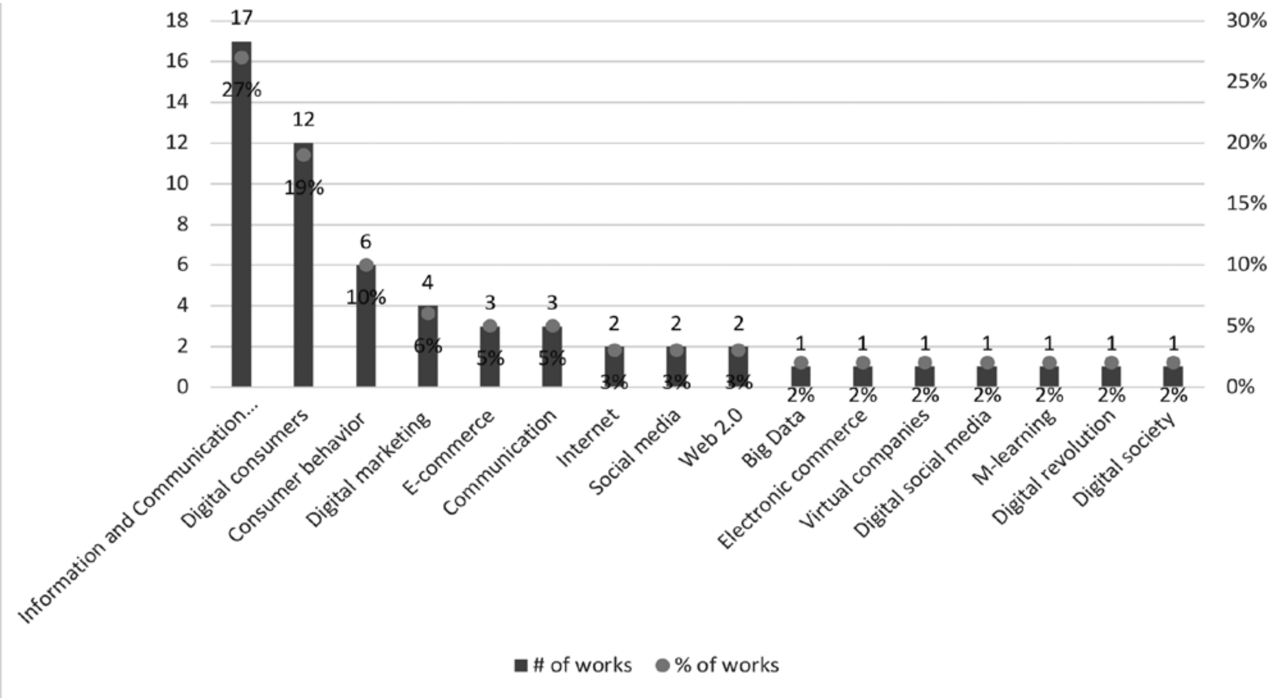


Source: own elaboration

In percentage terms, the years with the highest scientific production in this field were 2014, 2015, and 2017 with percentages of 15.00%, 19.00%, and 13.00% respectively, while 2013, according to the statistics, would be the year with less scientific production with only 5.00% of total production. Likewise, it is necessary to make a special mention of the year 2020 that, although it is true, has a low scientific production, it could not be considered since the records obtained in this period only constitute the production during the first quarter of this year.

On the other hand, in relation to the thematic areas addressed by the analyzed scientific production, those that have been studied the most in recent years are ICT (27.00%) and digital consumers (19.00%). Next, areas such as: Consumer behavior (10.00%), Digital marketing (6.00%), digital environment (6.00%), e-commerce (5.00%) and communication (5, 00%). Likewise, with minimum percentages (3.00%), other studies stand out that have been in charge of analyzing aspects such as the internet, social media, and web 2.0. Finally, there is also a small group of writings (2.00%) that focus on aspects such as big data, Electronic commerce, virtual companies, digital social media, M-learning, the Digital revolution, and Digital society (see Figure 4).

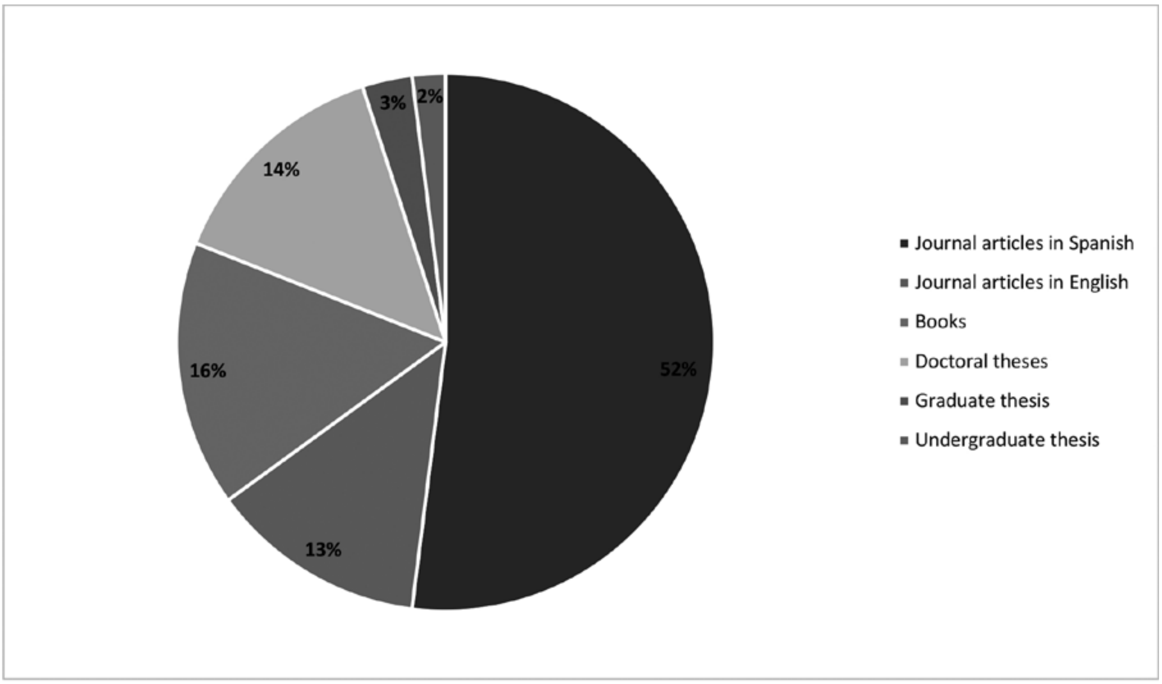
Figure 4. Central themes of scientific production



Source: own elaboration

As the next point within the results, we present the information corresponding to the type of document we investigated, finding that the articles in Spanish/English (65.00%) are the ones with greater presence. Very distant from this percentage are theses (19.00%) and books (16.00%).

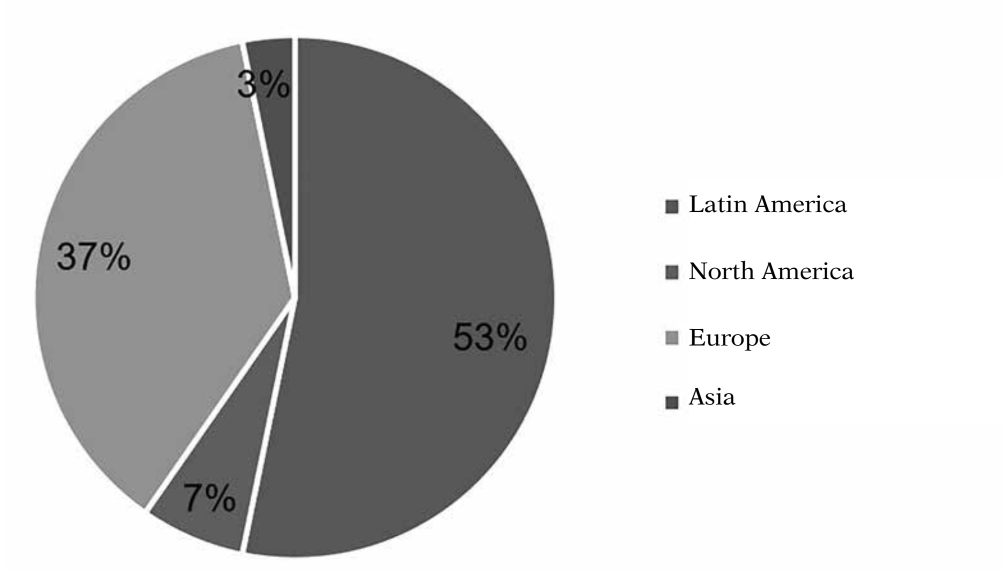
Figure 5. Type of document



Source: own elaboration

In addition to what has already been presented, it is important to highlight the origin of the cited works. The vast majority of them come from Latin America with 53%, being the places of origin countries such as Argentina, Chile, Colombia, Costa Rica, Cuba, Ecuador, Mexico, Peru, and Venezuela; 37% were developed in Europe (Croatia, Spain, France, and Portugal), 7% took place in North America (Canada and the USA), and the remaining 3% in Asia (China and India), remembering that for the search for information there were no restrictions in regard to language (Figure 6).

Figure 6. Origin of the documents



Source: own elaboration

Based on what is stated in the previous section, the main findings regarding the analyzed documents are presented below. In general, it was possible to obtain information from 62 reliable sources and with a very good quality of information to process the information through a comprehensive reading process and subsequent analysis by the researchers. As can be seen in Figure 5, the information comes from different bibliographic sources from which both categories and subcategories implicit in the variables under study (ICT and consumer behavior) were detailed, which were timely used in each one of the investigations taken into consideration.

4. Conclusions and discussion

The review of all these documents shows the importance of the issue at hand; given that the results allow us to visualize the interests of the scientific community around these lines of research. In this sense, according to the obtained records, there is a high scientific production, especially between 2014 and 2017, the results of which have been mostly published in indexed journals.

As a result, the great and profound transformations generated in the technological field have had several important repercussions on public opinion and on social life, in general. Nowadays, it could be said that distances have been greatly reduced, where technology has allowed for countries to come together regardless of the distances, taking advantage, in a certain way, of the access that technology offers (Bonilla et al., 2020). Then, from this criterion, it is understandable that the technological development experienced, especially in recent years, has greatly influenced the behavior of each of the individuals since they are currently receiving an infinity of information at every moment, which affects their behavior (Molina et al., 2015). The high traffic of Internet users on the web allows the formation of large virtual communities, whose members share similar interests. Consequently, the interactivity that ICTs have breaks the traditional scheme that manages communication. In this scenario, users not only consume the content made available to them by the different media, but they are also in charge of sharing the content with other people (Álvarez & Rodríguez, 2012).

With the incursion of the internet in the commercial sphere, purchasing procedures have changed significantly, given that, today, the client handles a lot of information in relation to the offer of products and/or services, and as an additional plus, he/she can handle different alternatives to carry out the acquisition that the local, national and even international offers, since with technology, distances are now a myth (Millat, 2011). Likewise, its application reduces the problems generated by the lack of information between manufacturers and buyers; which does not happen with the incursion of technology, since the interaction is permanent, providing the market with information such as product availability, characteristics, prices, among others (García, 2014). In the same way, it happens with ICT, which over the years have been proliferating, consumers who currently make use of the web to buy products and/or services are constantly increasing, therefore there are few people that once they have used this method, reject it (Martí et al., 2015).

ICTs have gradually become a key element in economic growth and in the performance of a company. For a time, the impact of ICT shifted from the mere digitization of manual processes using computers to fully digital companies (Berthon et al., 2012). This is not unusual, as academics have proposed models in which new technologies lead to a long period of incremental innovation, followed by radical disruption by other technology. Disruption occurs when products or services based on new technologies make existing products or services obsolete (Kumar & Thirumoorthi, 2019). The incursion of ICT has generated an evident transformation in relation to consumer behavior. In other words, the current commercial scenario suggests that: "a new consumer who is more informed than before, where thanks to the presence of the internet and social networks, has access to a variety of options, in regard to products that he/she might want to acquire" (Millat, 2011, p. 628) and in this way, the options can influence the purchase decision (Rinaldi & Garmendia, 2015).

Based on the above, the increase in the use of ICT means that both companies and people make most of the decisions within a digital environment; because at present it is very common to execute a series of activities, either through web pages or mobile applications, for example, from the acquisition of clothes to the opening of a bank account. However, despite the enormous facilities provided by ICT, it is important to take into account that, sometimes, the user can make wrong decisions due to the excess of available information that can be easily ignored or not paid attention to (Weinmann et al., 2016).

The increase in relation to the number of e-commerce users is becoming more and more significant, which is why the increase in people who require products from anywhere in the world, at any time of the day, and with complete product information to consume is growing day after day, which means a paradigm shift in terms of the commercial management for most organizations (Salvi, 2014). With the onset of the digital era, both companies and consumers are forced to adapt to this scenario; In this sense, for the specific case of companies, it is necessary that they develop short-term activities that allow them to consolidate their performance in the market in which they compete. Based on this, one of the main actions to be developed focuses on planning their commercial activities more effectively, that is, making the most of the availability of these new technologies, expanding as far as possible the range of products they offer and ensuring the loyalty and trust of their clients (Coloma & Martín, 2014).

The new digital consumers have developed new routines within the purchasing process, an aspect that has been achieved, particularly due to the progress made in relation to the newly available applications accompanied by communicational development, which has made it possible to understand, in some way, the behavior of the new consumer, due to the fact that he/she is exposed to a continuous, abrupt and quick transformation process (Bárcena et al., 2016). This constant change is generated because the user is connected to the web 24 hours a day and this causes a disturbance in their way of acting because he/she is bombarded with an infinity of information and promotions that many times ends influencing their purchase decision (Alvear, 2017).

At present, ICT have gained a significant role in different areas, since it has become part of the daily life of most human beings, where their use is immersed in the different activities that are developed day after day. In addition to this, today, the consumer is making purchasing decisions in a participatory digital culture. The old consumer behavior no longer fits within this digital age. This leads to an important conclusion; ICT is immersed in almost all phases of consumer decision-making. On this basis, there are several factors that influence this behavior and it becomes very important for a seller to understand consumer preferences, his/her online purchase intentions, and his/her behavior towards a certain brand, service, company, or institution.

Today's consumers are permanently connected, have high decision-making power, greater choice alternatives, and require extensive information, this situation forces different organizations to adapt to this new context through the paradigm shift in relation to their management or the rethinking of actions that allow permanent interaction with users; that is, direct their efforts to grant ease of purchase to customers who are more demanding with each passing day because, as has been seen throughout this study, they present a different culture in relation to the purchase and acquisition of products where technology plays a fundamental role for the achievement of said action.

Finally, the new commercial scenario proposes the substitution of physical currency for electronic transactions with the support of smart cards, allowing companies to offer an additional plus in the commercialization process that in recent years is seen in a good way by customers, who at the time of making their purchases, seek comfort and above all other things. In addition to this, this study is left open to the academic community to continue investigating the consumer behavior variable in the public context, because, today, the emergence of new digital platforms has represented a change in social behavior. To such a degree that some public institutions have had to adapt to this technological revolution, obtaining good results in the processes of attention to citizens and a vision of consumer behavior as an opportunity for innovation.

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Consumer ethnocentrism and purchasing intention in developing countries

Etnocentrismo del consumidor e intención de compra en países en desarrollo

Dra. Catalina González-Cabrera is a professor and researcher at the University of Azuay (Ecuador) (cgonzalez@uazuay.edu.ec) (https://orcid.org/0000-0002-1367-9337)

Lcda. Karen Trelles-Arteaga is a research assistant at the University of Azuay (Ecuador) (katrelles@es.uazuay.edu.ec) (https://orcid.org/0000-0002-4982-4073)

Abstract

Companies in countries with less productive experience have seen threatened by the introduction of foreign products to their local markets, perceived as superior among consumers. Therefore, local producers require effective strategies to give their products competitive advantages over imports. In this regard, research on consumer behavior has identified that the beliefs, perceptions and attitudes associated with the country of origin of the products have an influence on the purchase intention. In this way, the present article analyzes the degree to which the consumer's ethnocentrism has an effect on the intention to buy national footwear, as well as possible predictive and conditioning factors of the relationship. For such purpose, a survey was used in a sample made up of 361 university students. It was composed by an adapted version of the CETSCALE scale used to measure the level of the consumer ethnocentrism, and a scale that measures the intention to buy national and foreign products. Consequently, it was found that the level of ethnocentrism in the consumer positively influences the purchase intention of the national product and that it conditions the effect of the purchase habit on the purchase intention; in addition, it was possible to verify that the CETSCALE scale is a tool that can be used in developing economies with interesting results. The managerial implications and limitations of the research are discussed in detail.

Resumen

Las empresas en los países con menos experiencia productiva se ven amenazadas por el ingreso de productos extranjeros, percibidos como superiores entre los consumidores, lo que pone en desventaja a los suyos. Por consiguiente, los productores locales requieren de estrategias efectivas que doten a sus géneros de ventajas competitivas frente a las importaciones. Al respecto, investigaciones sobre el comportamiento del consumidor, han identificado que las creencias, percepciones y actitudes asociadas al país de origen de los productos tienen influencia en la intención de compra. En este sentido, el presente artículo analiza el grado en el que el etnocentrismo del consumidor tiene efecto sobre la intención de compra de calzado nacional, también examina posibles factores predictores y condicionadores de la relación; para esto, se empleó una encuesta en una muestra conformada por 361 estudiantes universitarios. En ella se utilizó una versión adaptada de la escala CETSCALE para medir el nivel de etnocentrismo del consumidor más una escala que mide la intención de compra de productos nacionales. En consecuencia, se comprobó que el nivel de etnocentrismo en el consumidor influye positivamente en la intención de compra del producto nacional y que condiciona el efecto del hábito de compra sobre la intención de compra, además, que la escala CETSCALE es una herramienta que puede ser utilizada en economías en desarrollo con interesantes resultados. Las implicaciones gerenciales y limitaciones de la investigación son discutidas a detalle.

Keywords | palabras clave

Consumer Ethnocentrism, CETSCALE, Moderation effect, buying intention, buying habits, national-made products, foreign-made products, developing countries.

Etnocentrismo del consumidor, CETSCALE, efecto moderador, intención de compra, hábito de compra, producto nacional, producto extranjero, países en desarrollo.

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1. Introduction

Globalization has facilitated the trade of products beyond their localities therefore in shopping malls it is common to find products of various origins (Karoui & Khemakhem, 2019; Teng, 2019). Consequently, it has become notable that certain products enjoy advantages over others due to their origin of manufacture. This effect is studied under the name "country of origin effect" (COE) (Hamin, 2006). This term represents the positive or negative influence that the country of manufacture of a product can have on the consumer's purchase decision processes or subsequent behaviors (Elliott & Cameron, 1994). Recently, Kausuhe et al. (2021) analyzed the influence of brand image and country of origin (COE) in the decision to purchase the Chinese smartphone Oppo in Manado (Indonesia), finding a positive and significant effect of brand image on loyalty, and another positive but not significant effect of the COE on the purchase decision. Now, what is important at this point is to analyze the purchase preference that could exist in consumers towards products of national origin in developing countries such as Ecuador; given that many people see globalization as a threat to the interests of their ethnic groups and nationality, including the culture of consumption (Bizumic, 2018).

The biases in favor of home-made products in consumers are explained through a personality trait called "consumer ethnocentrism" (Balabanis & Dimantopoulos, 2004), that is, the more importance a person gives to home-made manufacturing of a product, the greater the ethnocentric tendency (Huddleston et al., 2001). Indeed, the importance of the concept lies in its ability to provide marketing management with an approach to the reasons underlying the preference for buying domestic products versus imported ones, as well as why certain segments of consumers prefer domestic goods while others are not interested in the origin of these (Acikdilli et al., 2017). For Sharma et al. (1995), ethnocentrism has provided useful information for both importers and exporters in the selection of target markets and formulation of more appropriate marketing strategies; such as market penetration, when reviewing whether the ethnocentric behavior of people is decisive for the purchase of a product.

In Latin America, Muñoz and Velandia (2014) tried to establish the level of ethnocentrism in relation to the attitudes and intention to buy products of national and foreign origin in the markets of Brazil and Colombia, the findings showed a low level of ethnocentrism for the Brazilian sample and a medium level for the Colombian, however, no attitudinal differences were identified in the consumption of foreign and domestic products in the Colombian-Brazilian market. However, Camarena and Sandoval (2016) in a study carried out in Sonora, Mexico, found differences in the levels of ethnocentrism between populations of the same region and even the existence of microcultures, which led to different patterns of eating behavior. In Ecuador, Crespo and Salas (2020) studied the behavior of the Quito consumer of the product "chocolate" through structural equation models. The findings showed that the higher the ethnocentricity of the consumer, the greater the negative attitude towards the purchase of imported chocolates. It should be noted that no empirical evidence has been found on moderating effects between the level of consumer ethnocentrism and the intention to purchase local genres in Ecuador.

Therefore, this study aims to measure the level of consumer ethnocentrism in young Ecuadorian university students and its effect on the purchase intention of both domestic and imported products, in order to identify the interaction of the construct in developing economies, and also possible predictors and conditioning factors of the relationship.

1.1. Ethnocentrism of consumption

Ethnocentrism was conceptualized by William Sumner (1906), a sociologist at Yale University, recognized for developing the concepts of “diffusion”, “in-group” and “ethnocentrism”; the latter has been defined as the tendency of people to reject others who are culturally different while favoring those who are similar. Later, the concept was transferred to consumer behavior, inheriting the main premises and properties of the original construct. Applied to consumption, ethnocentrism has indicated the morality of the individual when buying or refusing to buy foreign products (Shimp, 1984; Spillan et al., 2007) and has placed the importation of products as a moral and social problem (Spillan et. al., 2007). However, recent research results justify the denomination of this protectionist attitude as “ethnocentric” since people with this characteristic are very concerned about the strength of their ethnic group and reject ideas, people, and products that can weaken their group in a certain way; including consumer culture (Bizumic, 2018).

In concept, consumer ethnocentrism (hereinafter CE) represents beliefs about the appropriateness and morality of buying foreign-made products (Shimp & Sharma, 1987). Thus, consumers with a high level of ethnocentrism qualify as “incorrect” the purchase of imported products because, from their point of view, this damages the domestic economy and causes job losses, in addition, they consider foreign products as a threat (Sharma et al., 1995). In sum, these consumers are more likely to bias their judgments by being more inclined to emphasize the positive aspects of domestic products and to disregard the virtues of foreign products (Kaynak & Kara, 2002; Shimp & Sharma, 1987); also manifesting a protectionist attitude towards the economic well-being of the country and the employment of their compatriots (Bizumic, 2018; Jiménez & Gutiérrez, 2010).

1.2. Ethnocentrism and purchase intention

According to Herche (1994), the perceptions of the morality of buying imported products among members of a market have a greater influence on purchasing decisions and intentions than a traditional marketing strategy, since the decision-making process is composed of a normative and a descriptive component (Slovic et al., 1977). Given that the CE models lines of action that adjust to the beliefs and values of the individual with respect to the group to which they belong, it has a normative character (Shimp, 1984). Indeed, the subjective norm, namely the normative beliefs and motivation to comply; is one of the components of the theory of reasoned action; model of social psychology that explains the elements that influence the intention of people’s behavior; in this case, the consumer (Rosero & Montalvo, 2015). In addition, CE is characterized by the love and concern of the individual for the country and the threat to its economic interests derived from the damage to oneself and to the country caused by imports(Sharma et al., 1995); the perceived threat of foreign competition would be expected to generate a psychological reaction that causes individuals to refuse to buy imported products (Jiménez & Gutiérrez, 2010; Luque et al., 2000; Shimp & Sharma, 1987) and pressure other group members to replicate such behavior (Huddleston et al., 2001). Consequently, it has been shown that consumer ethnocentrism is inversely related to the intention to purchase imported products, considering behavior as inappropriate and harmful to the domestic economy (Granzin & Painter, 2001; Jiménez & Gutiérrez, 2010; Netemeyer et al. al., 1991; Shimp & Sharma, 1987).

On the other hand, the consequences of ethnocentrism on domestic products include their overestimation and the moral obligation to buy and prefer them (Kaynak & Kara, 2002; Sharma et al., 1995). Indeed, several investigations found that the higher the EC level, the more positive the beliefs and attitudes about locally manufactured products and the greater the importance of buying them (i.e.: Balabanis & Diamantopoulos, 2004; Durvasula et al., 1997; Herche, 1992; Klein, 2002; Nadiri & Tümer, 2010; Shimp & Sharma, 1987).

Therefore, ethnocentric consumers must show more positive attitudes towards products made in their country rather than imported products, in accordance with the sense of obligation they have towards them (Shoham & Makovec, 2003). So, when consumers have a positive attitude towards the product, this perception is expected to be translated into real purchase intentions (Hamin, 2006; Wu et al., 2010). Thus, the more ethnocentric the consumer, the greater the possibility that he or she will choose locally made products (Nadiri & Tümer, 2010; Shoham & Makovec, 2003). This is how Akbarov (2021) recently demonstrated the effect of ethnocentrism on purchasing behavior between different product categories in Azerbaijan, a country with specific consumer characteristics.

Therefore, in accordance with the foregoing, the following hypothesis is postulated:

H1: The ethnocentrism of the consumer influences the purchase intention of domestic products.

On the other hand, it is important to mention that most of the studies on CE have been carried out in developed economies, where domestic products generally have a better appreciation than foreign ones (Elliott & Cameron, 1994; Herche, 1992; Karoui & Khemakhem, 2019). In fact, Klein et al., (1998) indicated that ethnocentric consumers prefer locally sourced products because they believe that their national production is the best. On the other hand, the results of the research by Acikdilli et al. (2017) in Turkey, point out that consumers have a preference for local products if they are of equal or better quality than imported ones, likewise, in Vietman, Pham (2020) found that consumer purchasing behavior was significantly influenced by their country of origin.

On the contrary, according to Wang and Chen (2004), in a developing country, a consumer with high levels of ethnocentrism does not necessarily tend to perceive domestic products as superior to imported ones, so an admiration for foreign products added to the negative perception of national products would mitigate the effect of the CE on purchase intention. Therefore, it is important to study the effect of CE in developing countries, where foreign brands are generally considered better than domestic ones (Batra et al., 2000; Hamin, 2006; Kinra, 2006; Wang & Chen, 2004). This suggests that the CE is able to more effectively explain the positive biases of consumers towards local products than the negative biases towards foreign products (Balabanis & Diamantopoulos, 2004; Hamin, 2006; Kausuhe et al., 2021; Klein et al., 2005; Luque et al., 2000; Supphellen & Rittenburg, 2001).

With the foregoing, the following hypothesis is raised:

H2: The ethnocentrism of the consumer favors the perceived quality of (H2a) domestic products and has no effect on the perceived quality of (H2b) products of foreign origin.

1.3. Conditioning factors of the ethnocentric effect

Now, considering that consumers in developed countries value their products better, ethnocentric behavior would guide their purchasing preference; consequently, the perceived quality of a product would moderate the effect of consumer ethnocentrism on purchase intention (Wang & Chen, 2004). Indeed, Yagci (2001) pointed out that consumer ethnocentrism is a predictor of the intention to purchase domestic products only when the competition originates from a less developed country. Likewise, Wang and Chen (2004) showed that, in a developing country, the relationship between the CE and the willingness to buy domestic products was weaker for consumers with a low-quality judgment of their domestic products or when they hold high values of conspicuous consumption; since consumers in developing countries perceive imported products as symbols of social status.

On the other hand, it should be noted that habits are what guide the making of unconscious purchasing decisions (Ji & Wood, 2007); and they are a form of automaticity in which the purchase decision is guided by the context (Wood & Neal, 2009) and not by a more detailed analysis of the product information. In this framework, in a developing country, where imports generally have symbolic and social status meanings, buying habits can negatively influence the purchase intention. Consequently, it is necessary to know, in the first instance, the influence of the buying habit on the intention of national purchases; and in the second instance, and where the novelty lies, if the level of ethnocentrism of the consumer conditions the effect of the habit on the purchase intention. It is worth mentioning that Akbarov (2021) demonstrated the moderating effect of some sociodemographic variables, such as gender, personal income, and marital status, but did not contrast the moderating role of the ethnocentric level. Therefore, the following hypotheses are established:

H3: The buying habit negatively influences the purchase intention of national products.

H4: The ethnocentrism of the consumer conditions the effect of the habit of buying footwear on the purchase intention.

2. Materials and method

This research was carried out in Ecuador, a country considered a developing one and with little industrial experience. Ecuadorian consumers tend to replicate the consumption trends of developed western countries. Indeed, fashion and footwear are sectors highly invaded by foreign brands that have hampered the positioning of Ecuadorian brands that, in addition to being conditioned when trying to globally expand due to the high costs derived from dollarization against the national currency of the rest of the regional competitors, find within their local environment a saturated market. Consequently, it is necessary to identify competitive strategies that provide advantages to Ecuadorian-made products; proposing the ethnocentrism of the consumer as a factor favorable to the sector to promote the consumption of its products in the face of foreign competition. For the purposes of this research, footwear was chosen because the industry has a wide and specialized national production; It has 5,800 companies that design and produce shoes for the local and foreign market (Lara, 2018). In addition, the sector is of great weight in the national economy; According to the National Chamber of Footwear (CALTU), annually, the sales of the sector reach an amount of $ 600 million, generating around 100,000 direct and indirect jobs (Lara, 2018).

In the first place, the questionnaire used in the study collected information on sex, age, study area, and consumption habit. Then, through the 6-item CETSCALE scale, version of Klein et al. (2005), the ethnocentrism of the consumer was measured. Originally, the items on the scale reflect a preference for US products over those manufactured in other countries; and measure loyalty to the purchase of US products; and the refusal to buy, or import, foreign products (Bizumic, 2018). Among the items used in the scale are "only those products that are not available in Ecuador should be imported" and "a true Ecuadorian should always buy products made in Ecuador"; the scale is measured in a five-point Likert format where (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree, which are added to obtain a score of between 6 to 30 points in which a higher score means a higher level of ethnocentrism. (M=15.45, DT=4.82; Cronbach's Alpha=.81). An index variable of consumer ethnocentrism was created (M = 2.57, DT = .80).

Purchase intention was measured using the Josiassen, Assaf, and Karpen (2011) scale. Respondents were asked to indicate their intention to purchase Ecuadorian versus imported shoes through items such as "I would feel guilty if I buy an imported product" and "whenever it is available, I would prefer to buy national products", the statements were measured with a Five-point Likert format ranging from 1 = strongly disagree to 5 = strongly agree. Finally, an index variable of purchase intention was created. (M=2.09, DT=.82; Cronbach's Alpha=.81). It is worth mentioning at this point that, according to the obtained average, the index of purchase intention of the national product is low (2.09), which means that the study participants prefer to buy imported products. The difference of the mean with the theoretical midpoint (3) was statistically significant [t(360)=-20.387, p=.000]

The perceived quality of a product was measured with the price that the consumer is willing to pay for a product of foreign origin and national origin; under the premise that when more information about a product is lacking, pricing has an effect on perceived quality (Chang & Wildt, 1994; Dodds & Monroe, 1985; Olson & Jacoby, 1972). The questions, how much are you willing to pay for a pair of Ecuadorian shoes? With price ranges ranging from $ 10 to $ 70 or more, they also asked about imported shoes. And finally, the buying habit was measured with the number of shoes that have been bought in the year (from one pair to nine onwards).

The number of valid questionnaires was 361 for which the non-probabilistic convenience sampling method was applied due to the ease of recruitment of the participants since all were students from the University of Azuay, Cuenca-Ecuador. The sample consisted of 213 women (59%) and 148 men (41%), between 17 and 37 years old from different areas of university specialization.

3. Results

Hypothesis 1 proposes that the ethnocentrism of the consumer influences the intention to purchase domestic products. To test the hypothesis, a linear regression was performed. As can be seen in Table 1, the value of F = 183.950 has a p-value of less than 0.05, which is why it is concluded that the linear dependence is statistically significant.

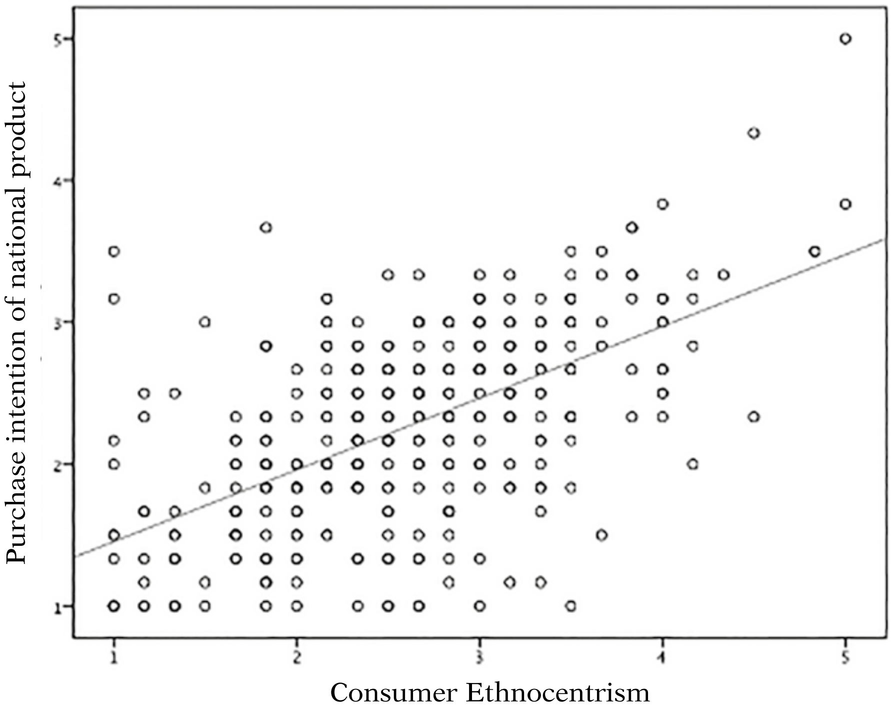
Therefore, hypothesis 1 is confirmed, the level of ethnocentrism of the participants influences their intention to purchase domestic products, in addition, the relationship indicates that the higher the index of consumer ethnocentrism, the greater the intention to purchase the national product. (See Figure 1).

Table 1. Linear regression on the intention to purchase a national product

	R	R squared	F	Beta	t	Sig.
CE	0,582	0,339	183,950	0,506	13,562	0,000

Note: Dependent variable: Purchase intention.

Figure 1. Dispersion, consumer ethnocentrism, and purchase intention



Hypothesis 2 formulates "The ethnocentrism of the consumer favors the perceived quality towards (a) domestic products and has no effect on the perceived quality regarding (b) foreign origin products", a linear regression is applied for their contrast. For domestic products, a value of $F = .682$ is obtained, but having a p-value greater than 0.05, H2a is rejected. In other words, the ethnocentrism of the consumer does not influence the perception of the quality of domestic products. However, regarding products of foreign origin, the value of $F = 3.352$ has a p-value lower than 0.1 and greater than 0.05, which indicates that it is a trend. In other words, if the sample or the study context were to be expanded, this data could change. For the moment, H2b is rejected as it does not find sufficient empirical support to confirm that there is no effect of consumer ethnocentrism on the perceived quality of imported products (See Table 2).

Table 2. Linear regression on the perceived quality towards the domestic and foreign product

	R	R squared	F	Beta	t	Sig.
CE[1]	0,044	0,002	0,682	-0,044	-0,826	0,409
CE[2]	0,096	0,009	3,352	-0,096	-1,831	0,068

1. Dependent variable: Perceived quality towards the domestic product.
2. Dependent variable: Perceived quality towards the foreign product.

For the verification of hypothesis 3 that states that the buying habit negatively influences the intention to buy national products, under the assumption that the habit is not a conscious purchase; and that, furthermore, in a developing country like Ecuador, highly consuming people prefer imported goods; those who, in addition, tend to have high purchasing power, do not tend to buy national product and, therefore, present conspicuous consumption values, "what is imported is better".

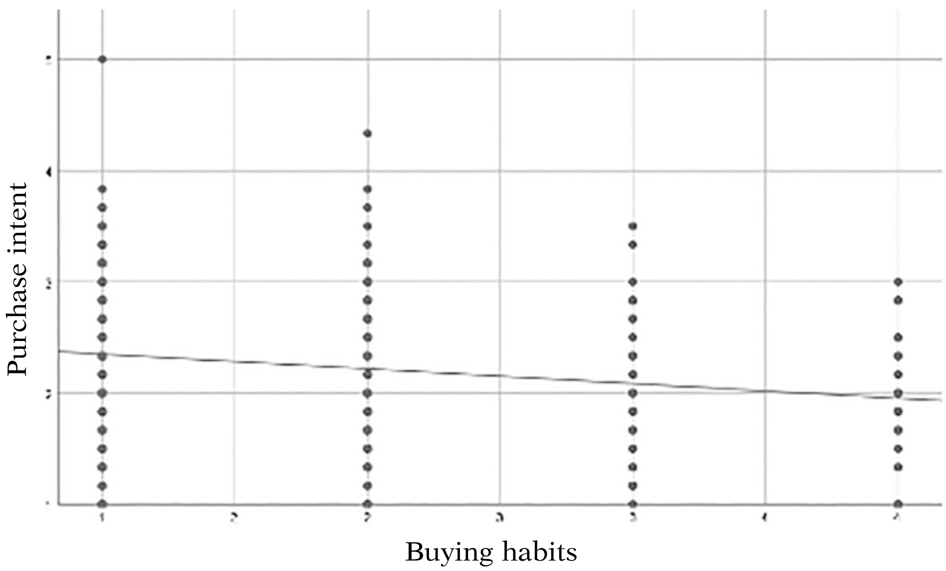
To contrast this hypothesis, a simple linear regression was applied, as shown in Table 3, according to the values of the F statistic of the ANOVA, [F= (1, 359) =11,482, p<.0001] confirms H3. Furthermore, through the beta coefficient, it can be established that there is a negative relationship between the buying habit and the intention to buy the national product [b=-0.17, t(359)=-3,388, p<.0001]. See also in Figure 2 that as the buying habit increases, the intention to buy national footwear decreases.

Table 3. Linear regression on the purchase intention of national products

	R	R squared	F	Beta	t	Sig.
Buying habits	-0,176	0,031	11,482	-0,176	-3,388	0,001

Dependent variable: Purchase intention

Figure 2. Linear regression of buying habit on purchase intention



Finally, hypothesis 4 formulates that the level of ethnocentrism of the consumer conditions the effect of the buying habit on the intention to buy a product of national origin. (See model in Figure 3). For the contrast of this hypothesis, moderation model 1 of the macro-PROCESS elaborated by Hayes (2013, 2018) was applied, which is based on multiple linear regression.

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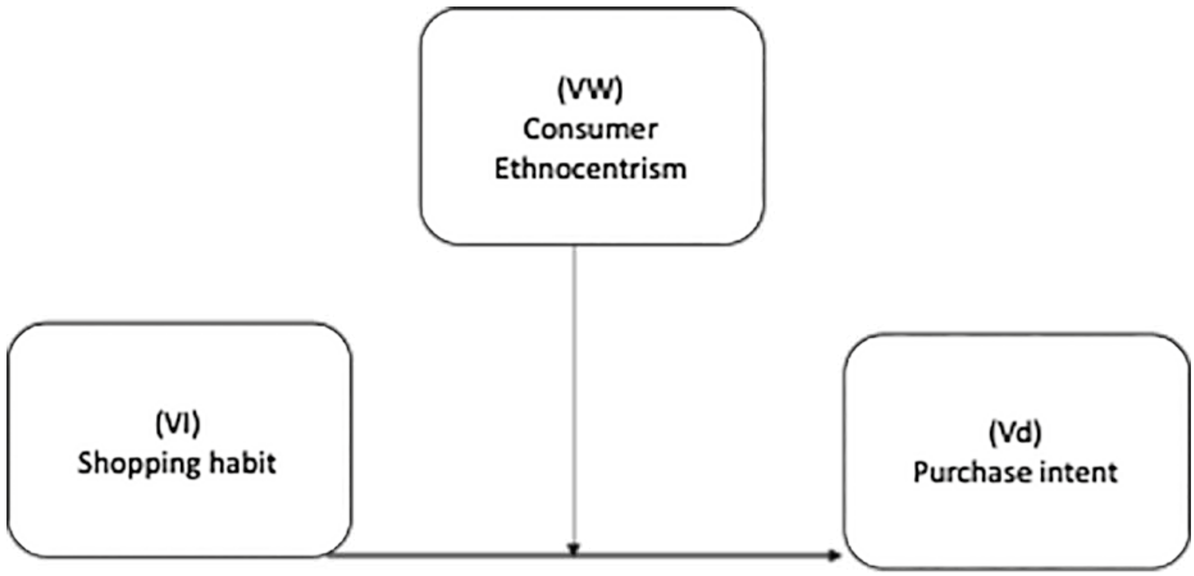
Figure 3. Conditional model



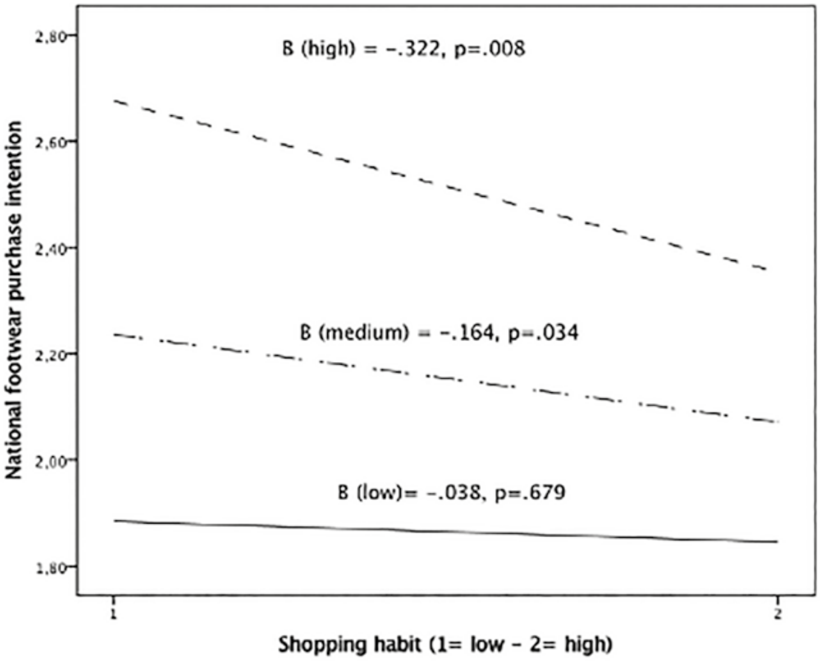
The results of the analyzes confirm hypothesis 4. On the one hand, there is a statistical trend interaction between the shopping habit and the level of ethnocentrism (b=-.189, p=.057), in addition, a moderating or conditioning effect of the consumer's ethnocentrism was found in the intention to purchase (See Table 4). That is, when the buying habit is high, the intention to purchase the national product decreases, but this only happens in people with high (B= -.322, p=.008) and a medium level of ethnocentrism (B= -.164, p=.034) (See Figure 4). This result is discussed in the next section.

Table 4. Analysis of moderation of consumer ethnocentrism in the purchase intention of national product

Moderating variable (W)	B	ES	p	IC 95% LI	LS
Consumer ethnocentrism (low)	-.038	.094	.679	-.223	.146
Consumer ethnocentrism (medium)	-.164	.077	.034	-.317	-.011
Consumer ethnocentrism (high)	-.322	.122	.008	-.562	-.082

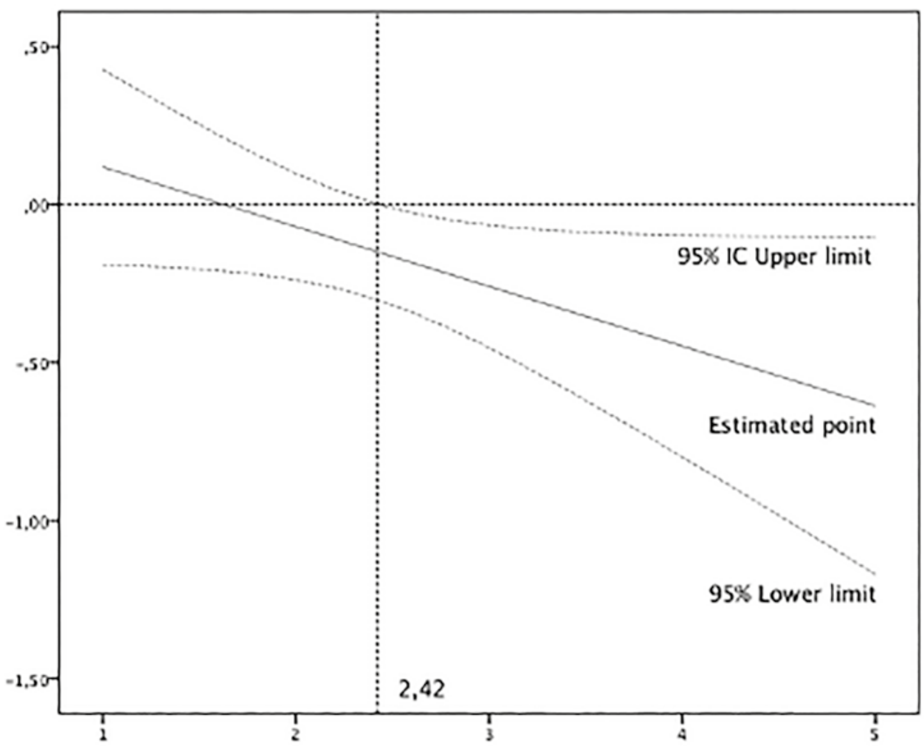
Nota: B=interaction coefficient. ES= standard error. CI= confidence interval. Ll= Lower limit, Ul= Upper limit.

Figure 4. Interaction of how ethnocentrism interferes between the purchase habit and the intention to purchase a national product



With the Johnson-Neyman technique (Hayes 2013, 2018) it was possible to know that the exact point at which the interaction begins to be statistically significant was from 2.42 (from the range of the moderating variable "level of consumer ethnocentrism" of 1 to 5) (See Figure 5). Before that, there was no conditional effect of consumer ethnocentrism on purchase intention.

Figure 5. Region of significance of the conditional effect (Johnson Neyman technique)



4. Conclusions and discussion

In the first place, this study demonstrates the validity and reliability of the CETSCALE scale in Ecuador, such as the study by Crespo and Salas (2018) but with another type of product, they analyzed the consumption of chocolate, in this case, we analyzed footwear; In this way, it contributes to the investigation of consumer ethnocentrism in developing countries. As mentioned in the literature, most studies on the subject have been carried out in developed countries where generally local products are more widely accepted due to their perception of quality derived from the image of the country to which they belong (Wang & Chen, 2004). Indeed, through the purchase intention scale, the sample that made up this study showed that there is a very low level of preference for domestic products and, likewise, they indicated that they do not feel morally bad if they buy a product of foreign origin.

Based on the above, and considering that previous studies showed that there is a significant relationship between the CE and the intention to buy goods produced in the country, it was necessary to investigate in what way and extent the CE can influence the purchase decision in countries where there is a greater preference for foreign products over domestic products. According to Shimp and Sharma (1987), the universality of the concept must have the same predictive ability of the beliefs and perceptions of consumers in any economic context, and, therefore, it must be able to predict preferences and purchase intentions, such as it does so in advanced economies. Consequently, H1 demonstrated that, in the study sample, the CE positively affects the purchase intention of the domestic product. Although the group's EC level is generally low (M = 2.57), it was shown to positively affect the purchase intention of domestic products.

In the same way, according to Klein et al. (2005), in environments where foreign brands are perceived as superior to local ones, the effect of CE is expressed in more positive perceptions about domestic products and with little or no effect on foreign brands. In this way, H2 was proposed in order to examine whether the consumer's ethnocentrism favored the perceived quality towards (a) domestic products and would not have an effect on the perceived quality regarding (b) products of foreign origin. However, it was found that the ethnocentrism of the consumer does not influence the perception of the quality of domestic products. However, the result was marginally statistical for products of foreign origin. In other words, if the sample were expanded or the study context changed, this data could be statistically significant. In addition to what was found, it can be affirmed that ethnocentrism in consumption is a moral construct independent of the quality evaluation that the consumer has of a national product. This is also supported by research findings by Teng (2019), who demonstrated that consumer ethnocentrism does not have a significant moderating effect on the relationship between perceived quality and the intention to purchase national products.

Now, the literature on consumer behavior suggests that there are social motivations that determine purchase intention. In this sense, conspicuous consumption, measured through purchase frequency, was established as a determining factor in the purchase decision process. Indeed, when people have often made a response in particular contexts, the context can trigger the response directly in the sense that it does not require supportive goals and intentions (Wood & Neal, 2009). Thus, it was argued that the intention to purchase national products would be affected when the consumer makes unconscious purchases, based on experiences and not necessarily on the intangible attributes of the product such as its place of manufacture. Indeed, the H3 results confirmed the above, and therefore, purchasing habits negatively affect the purchase intention of national products.

On the other hand, considering that the CE empirically goes beyond quality evaluations and represents a moral behavior (Shimp & Sharma, 1987), it was estimated that for the EC to favor the intention to purchase a national product, it is necessary for the consumer to know the origin of manufacture. To verify the above, the CE was evaluated as a moderator of the buying habit in the purchase intention. Consequently, H4 confirmed the premise and, it turns out, that ethnocentric behavior in the habitual consumer does not motivate the purchase of national products. This may be due to the fact that regular consumers are people with a higher purchasing power and are more interested in the brand image and the social status that it can represent.

In short, once the influence of ethnocentrism on the intention of buying national products has been demonstrated; consumer ethnocentrism has important practical implications for businesses and governments. On the one hand, local producers benefit from the ethnocentrism of the consumer by having a perception of the advantage they may have over the local market due to the fact that their production is national and because of the knowledge that their participation in the market implies benefits for the whole of society. This is necessary, since, in economic contexts such as Ecuador, local SMEs try to survive in a relatively small market saturated by foreign products. In this sense, this study was developed with the purpose of identifying practical implications that benefit the strengthening and expansion of the local industry; by providing small local businesses with information about the advantage that their products have due to the fact that they are nationally manufactured.

At present, it is important to direct marketing plans to the consumer considering their social, personal, cultural, and psychological factors, as Ortega-Vivanco (2020) concludes in his study carried out in the current situation caused by COVID-19. It shows that there is a significant relationship between changes in consumption habits and the factors that influence consumer behavior in times of pandemic, such as the increase in preferences in the consumption of local products and the need for companies to design digital marketing strategies focused more on the customer than on the product, which satisfies their post-COVID-19 needs, clearly associated with savings and the promotion of local entrepreneurship.

At the same time, the government or buy local organizations can lead campaigns that evoke a patriotic sentiment; that is, to propose the purchase of local products as a way of being Ecuadorian; and at the same time represent imports as a form of threat to the economy, highlighting the damage they cause to the entire society. All this as a result of having shown that the effect of the CE on the purchase intention is a clearly nationalistic behavior regardless of price or quality considerations (Shankarmahesh, 2006).

Finally, future lines of research are suggested, such as determining the emotional-traditional point of the consumer and its relationship with his ethnocentric level; as well as other determining factors of the CE on the purchase intention that can be identified, such as conspicuous consumption; so that the effect of the CE can be enhanced for the benefit of the local industry. In addition, it is important to extend the study to other industries in order to confirm the results found in this study and generalize them to other sectors. Likewise, the scarce research on EC in developing economies was in the literature review mentioned, therefore, it is proposed to study and apply CETSCALE in other spaces with similar characteristics to Ecuador and with other categories of products.

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Anexos

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Retos
Revista de Ciencias de Administración y Economía

The impact of COVID-19 in small and medium-sized communication enterprises in Spain

Dra. Elena Bandrés-Goldáraz
Mg. Mariola Conde-Casado
Dra. Isabel Iniesta-Alemán

Covid-19 has not affected the Spanish small and medium size media companies the same way as the rest of companies and self-employed people.

Solidarity is another identifying feature of these companies in which 45.2% have developed some solidarity initiative as an entity despite the fact that the turnover in 2020 has been lower than that of 2019 for 62.5%.

Half have had to reduce their work between 25 and 75%; almost 10% have closed, while about 22% have not been affected by the crisis and 18.8% have increased their work in times of crisis.

For those surveyed who occupy a managerial position, the current situation is here to stay and is going to transform some aspects of the business in the long term. Communication, digitization, ways of working, and risk management are the most sensitive areas to these changes, as can be seen.

Companies have weathered the bad situation by applying measures such as Teleworking (62.5%); turning their activity on the Internet and on social networks (18.8%); while 6.3% have applied for loans and others have reduced the workforce or have changed activity, with 3.1% respectively.

In general, the business behavior of small and medium-sized communication companies, together with that of the self-employed who work in this sector, in the midst of the crisis generated by COVID-19, managed to adapt, for the most part, to the harsh consequences generated due to the cessation of economic activity in a large part of the business sector.

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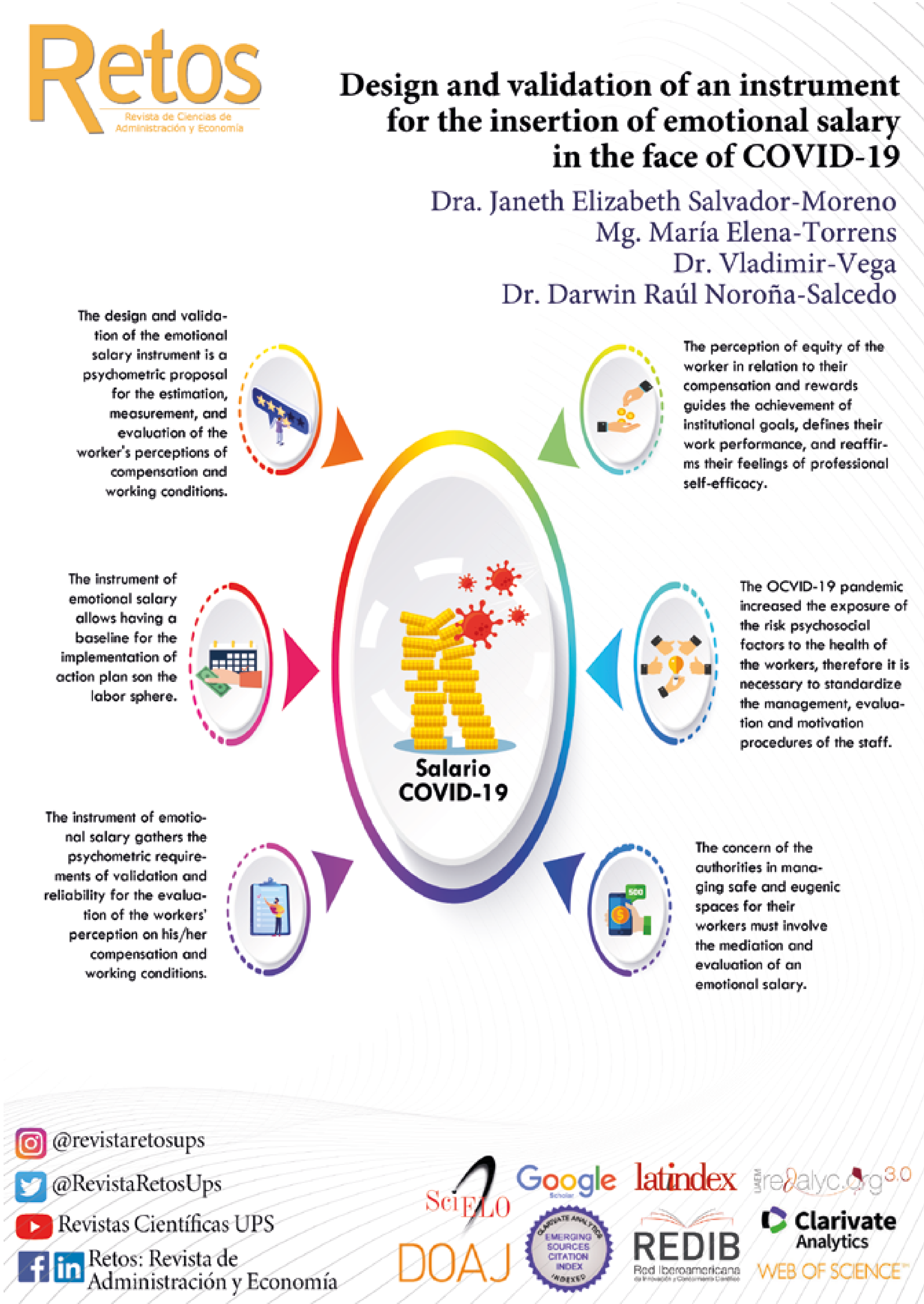

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Retos
Revista de Ciencias de Administración y Economía

The adaptation of companies to the COVID reality: a systematic review

Dr. Miguel-Ángel García-Madurga
Lda. Ana-Julia Grilló-Méndez
Lda. Tamara Morte-Nadal

The sudden appearance of the COVID-19 virus has caused profound economic, social, and political changes in society as a whole and in the business environment, in particular. Even though is too early to determine if the pandemic will bring permanent changes, there are trends that seem to be here to stay.

This context entails decisions for change at all levels of the organizations. This study delves into the trends observed in the changes in business models during 2020. 791 articles were selected, including 28 of the most significant ones for their qualitative synthesis.

The combined effects of shocks on both the demand and supply sides have put at risk the survival of companies due to the impact of lockdowns and social distancing.

This systematic review allows us to encompass the initiatives taken by companies to adapt to the complex situation generated by the pandemic around three major vectors: innovation, technology, and collaboration.

The impact of this crisis is uneven depending on the sectors, but also depending on age, gender and race of the workers. Human Resources departments have the opportunity to construct sustainable professional environments.

Faced with the complex task of reducing risk and seizing opportunities, companies faced with a reality plagued by restrictions, have had to evolve their portfolio, supported by technology and a patent bet for collaborative approaches.

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Retos
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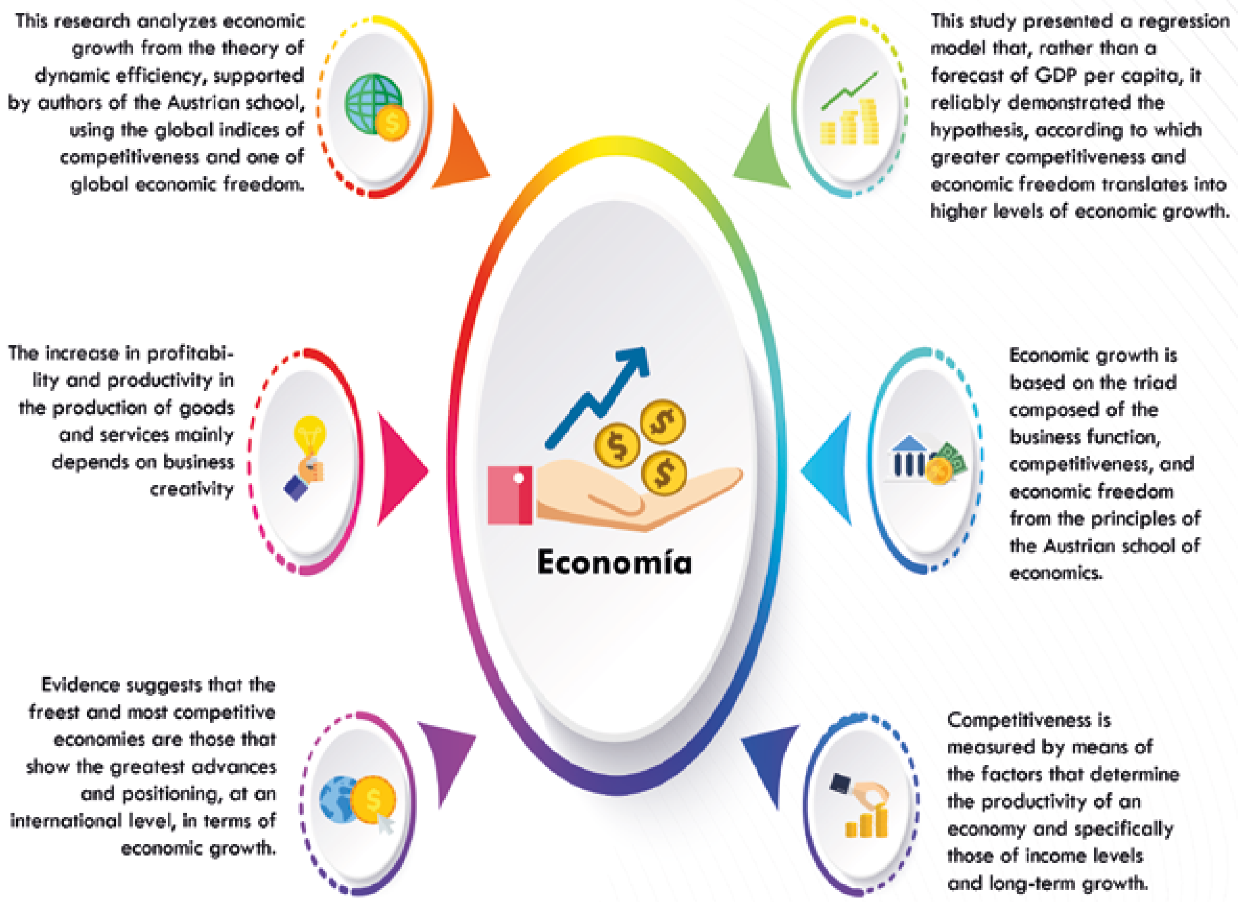
Economic growth and the dynamic efficiency theory

Dr. Armando José Urdaneta-Montiel
Dr. Emmanuel Vitorio Borgucci-García
Mg. Bladimir Jaramillo-Escobar



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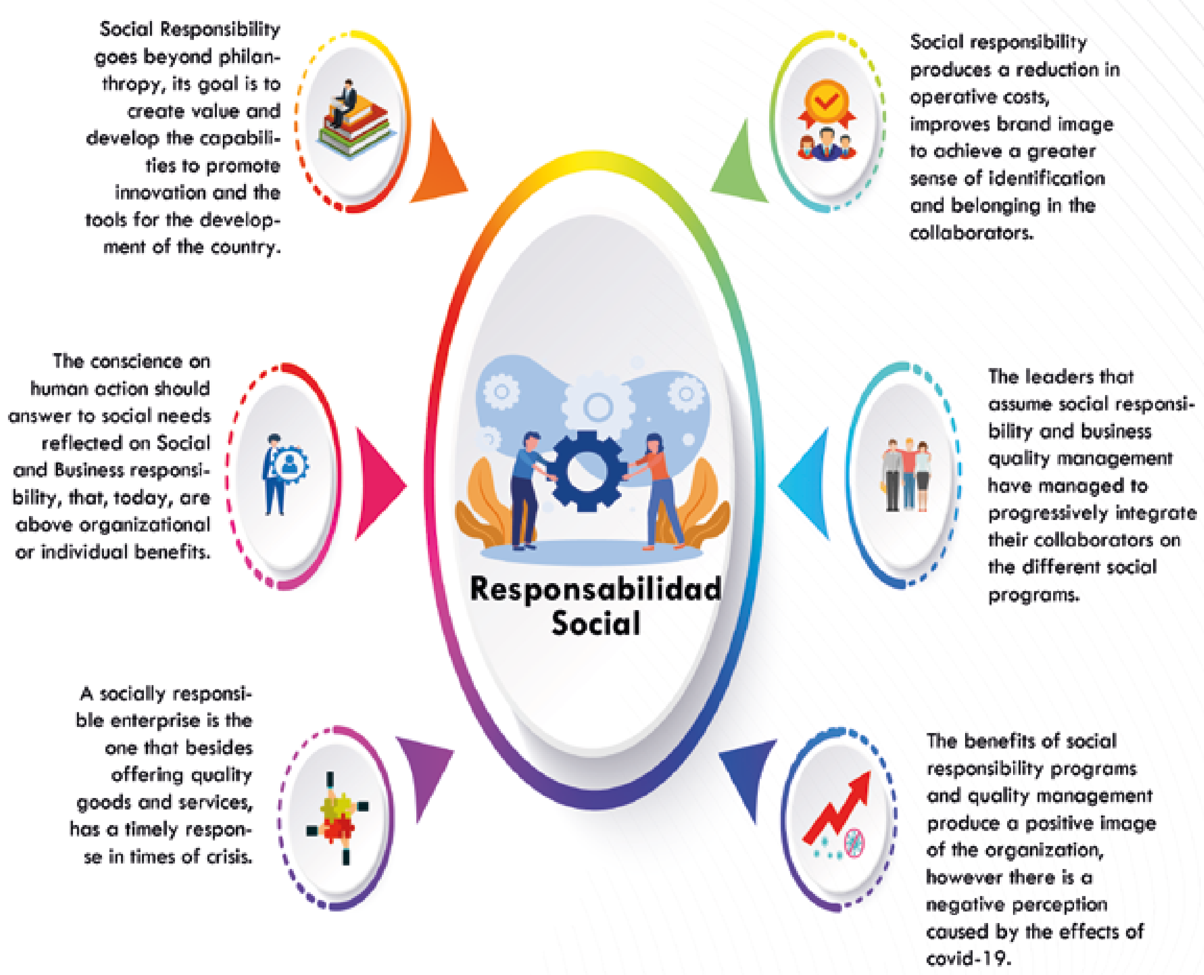
Social responsibility and quality management: Peruvian insurance company

Dr. Jaime Agustín Sánchez-Ortega
Mg. Abel Marcial Oruna-Rodríguez
Lic. Alejandra Seminario-Polo



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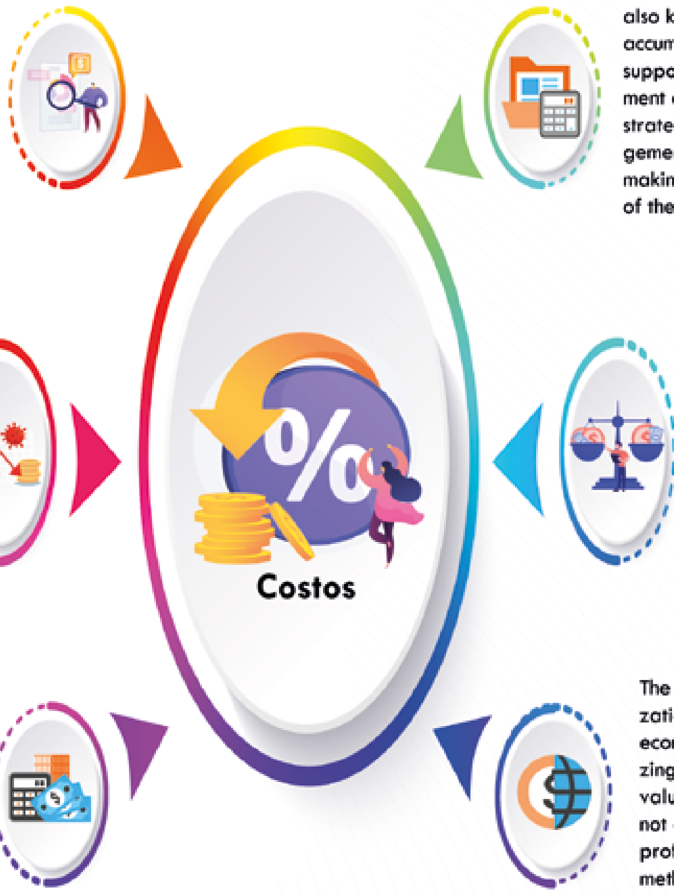
Cost management in production chains: reflections on its genesis

Dra. Rosana Meleán-Romero
Dr. Fernando Torres

Cost management represents an important tool for decision-making in companies, especially in times characterized by high levels of uncertainty and restrictions, it combines the methods, measurements and specific reports offered by diverse sciences and disciplines.

Cost management system, also known as cost accumulation systems, are supported by the deployment of techniques and strategies pf cost management, that for decision making in diverse stages of the productive chain.

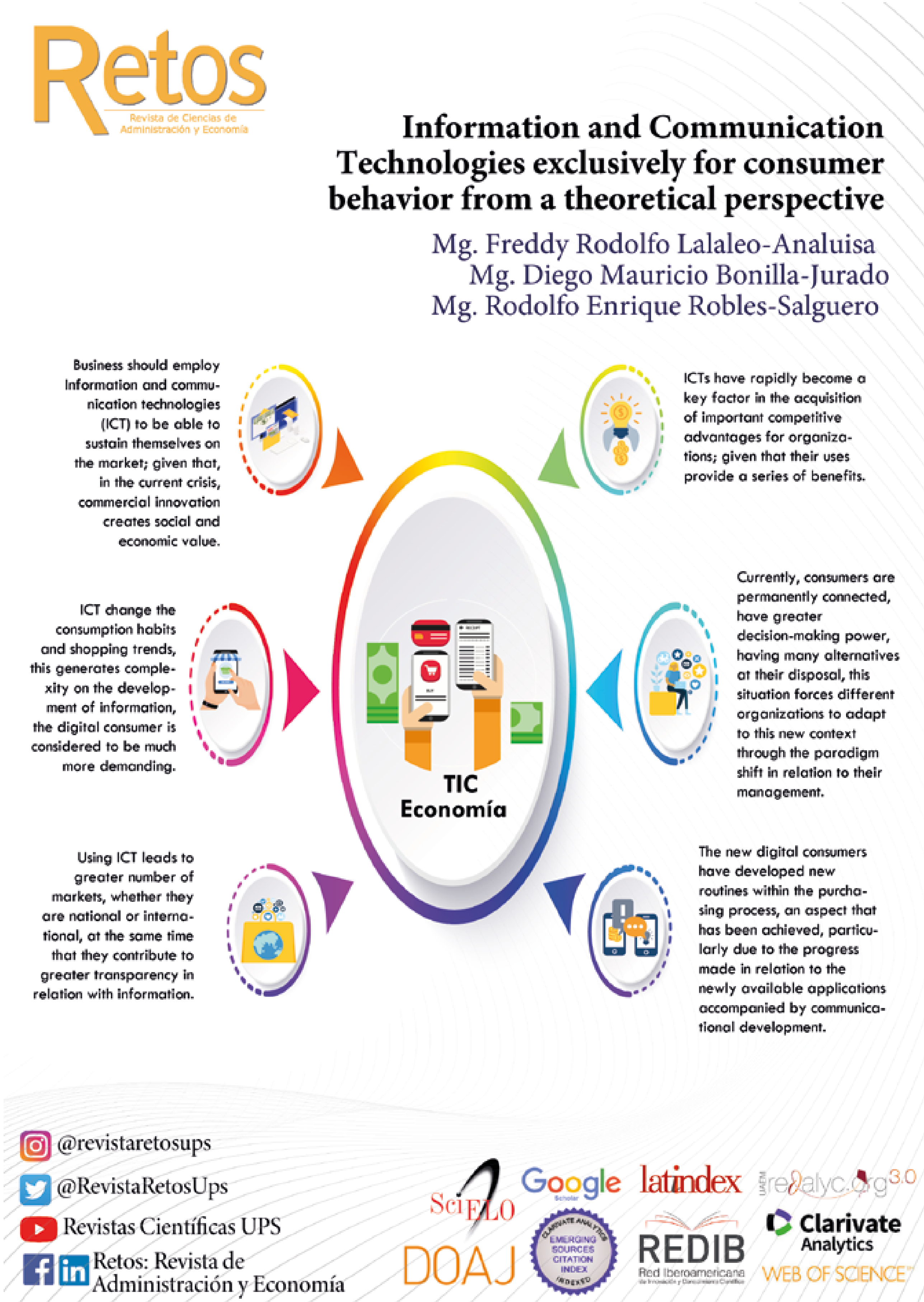


In contexts marked by a global pandemic (COVID-19), where the rationalization, efficiency, and adaptation of business resources, are essential for collapsed and restricted economies.

The scope of cost management demands the study of production, of procurement and commercialization costs, primary links in all productive chain.

Cost accounting overcomes the limitations of legal, financial or traditional accounting, achieving the generation of techniques and work methodologies to support the process of product costing.

The viability of the organizations before the global economy demands recognizing that decisions add value. Cost management is not enough for determining profitability. Management methods, quality, productive flexibility and innovation are also important.



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Retos
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Consumer ethnocentrism and purchasing intention in developing countries

Dra. Catalina González-Cabrera
Lcda. Karen Trelles-Arteaga

Consumer ethnocentrism represents beliefs about the appropriateness and morality of buying foreign-made products. consumers with a high level of ethnocentrism qualify as "incorrect" the purchase of imported products because this damages the domestic economy.

This study aims to measure, through a questionnaire, the level of consumer ethnocentrism in young Ecuadorian university students and its effect on the purchase intention of both domestic and imported products, in order to identify the interaction of the construct in developing economies, and also possible predictors and conditioning factors of the relationship.

The results were that consumer ethnocentrism influences the purchase intention of domestic products, as in the case of this study, national footwear. However, it does not have an influence on the perception of quality of national and foreign made products.

The negative relationship between purchasing habit and the intention of buying national products was proved. In short, people with high levels of consumption prefer imported goods: they usually present conspicuous consumption values, "imported is better".

Finally, the moderating roll of ethnocentrism on consumers on the effect of the purchasing habits of domestic footwear. On the habitual consumer, ethnocentrism conduct does not motivate the purchase of domestic products. This may be due to the fact that they have a higher purchasing power and are more interested in the brand image and the social status that it can represent.

The results of this study are important in the crisis caused by the Covid-19 pandemic, where a preference to consume the domestic products has been proved. Now more than ever, greater value should be given to entrepreneurs, artisans and national producers.

Basic writing rules

Universidad Politécnica Salesiana del Ecuador

1. General information

"Retos" is a bilingual scientific publication by the Universidad Politécnica Salesiana de Ecuador, which has been edited on a bi-annual basis since January 2011. The journal focuses on Development and transdisciplinary issues including Public Administration, Social Economics, Marketing, Tourism, Entrepreneurship, Management, Administrative and Economic Science, etc.

It is an arbitrated Scientific Journal that uses an external evaluation system known as *peer-review*, employing *double-blind review*, in accordance with the American Psychological Association (APA) style rules. By using this system, the authors have access to an objective, impartial and transparent review process, which facilitates their publication being included in databases, repositories, and international indexed references.

"Retos" is indexed in the selective directory and catalog of the Online Regional Information System for Scientific Journals in Latin America, the Caribbean, Spain, and Portugal (Latindex), in the REDALYC Scientific Information System, the Directory of Open Access Journals in repositories, libraries, and specialized catalogs in Ibero-America.

The Journal is published with two different editions: printed (ISSN: 1390-62911) and electronic (e-ISSN: 1390-8618), in Spanish and English, and each article is identified with a DOI (Digital Object Identifier System).

2. Scope and policies

2.1. Themes

Original contributions in Development issues, as well as related fields: Public Administration, Social Economics, Marketing, Tourism, Entrepreneurship, Management...and all other disciplines related to the central thematic issue.

2.*2. Contr*ibutions

"Retos" preferably publishes the results of empirical research about Development, written in Spanish and/or English, while reports, studies, and proposals are also accepted, as well as reviews of state-of-the-art literature.

All of the publications must be original, never have been published in any other journal, and not be undergoing any arbitration or publication processes. Contributions to the journal can include any of the following:

- **Research:** 5,000 to 6,500 words of text, including the title, abstracts, keywords, tables, and references.
- **Reports, Studies, and Proposals:** 5,000 to 6,500 words of text, including the title, abstracts, tables, and references.
- **Reviews:** 6,000 to 7,000 words of text, including tables and references. Justified, current, and selective references shall be evaluated, and should include around 70 publications.

"Retos" is published bi-annually (20 articles per year), in April and October, and each edition has two sections with five articles each, the first containing a **Monograph** theme edited by subject matter experts, and a second **Miscellaneous** section, made up of diverse contributions related to the publication's theme.

3. Presentation, structure, and submission of manuscripts

Papers are to be presented with Arial 10 typeface, single line spacing, all justified, without indentation or blank spaces between paragraphs. A space is only to be included between the major sections (title, authors, abstracts, keywords, credits, and epigraphs). All margins on each page must be 2 cm.

The papers are to be presented in Microsoft Word format (.doc or .docx), and the file is to be anonymous in the File Properties such that the author(s) is(are) not identified.

Manuscripts are to be submitted only through the OJS (Open Journal System), in which all authors must first register. Original papers sent via email or another interface are not accepted.

3.1. *Manusc*ript Structure

For papers that are empirical research, the manuscripts are to follow IMRDC structure, while Notes and Contributions epigraphs are optional. Papers that constitute reports, studies, proposals, and reviews are afforded greater flexibility in terms of epigraphs, especially in relation to Materials and Methods, Analysis and Results, and Discussion and Conclusions. All types of papers are required to include References.

1) **Title (Spanish) / Title (English):** Concise but informative, the first line in Spanish and the second, in English. Maximum 80 characters are accepted, including spaces. The Editorial Board is allowed to propose changes to the author's title.
2) **First and last names:** of each of the authors, organized in order of priority. Maximum three authors are accepted per original paper, although justified exceptions may be allowed, based on the theme, complexity, and length. The names are to be followed by the professional category, workplace, each author's email address and ORCID number. It is mandatory to include whether the author has a doctorate degree (Dr. before the name).
3) **Abstract (Resumen, Spanish) / Abstract (English):** This section can contain a maximum of 230 words, first in Spanish and then in English. The abstract shall concisely contain the following, and in this order: 1) Justification of the theme; 2) Objectives; 3) Methods and sample; 4) Main results; 5) Main conclusions. It should be written impersonally "This paper analyzes..." In the abstract, automatic translation is not accepted due to its poor quality.
4) **Keywords (descriptores, Spanish) / Keywords (English):** Six keywords are to be included for each language, and must be directly related to the paper's theme. This requirement shall be scored based on whether the keywords can be found in the UNESCO Thesaurus.
5) **Introduction and State of the Question:** The section proposes the question, the context of the issue surrounding it, justification, basis, and proposal for the study, using bibliographic references, including the most important up-to-date literature on the theme, both nationally and internationally.
6) **Material and Methods:** This is to be composed in such a way that the reader can easily understand how the research was performed. As appropriate, describe the method, sample, sampling, and refer to the type of statistical analysis used. If it is an original method, present the reasons for applying it, and describe any possible limitations.
7) **Analysis and Results:** This section should seek to highlight the most important observations, and without including any value judgments, describe the methods used. Throughout the text, essential tables and figures shall be included in a logical sequence, without repeating any data.
8) **Discussion and Conclusions:** This section summarizes the most important findings related to any observations from relevant studies, pointing out contributions and limitations, without repeating data from other sections. The discussion and conclusions paragraph is to include inferences and new lines of research for the future.
9) **Contributions and acknowledgment (optional):** The Science Editors Board recommends that the author(s) specify the financing source for their research. Priority shall be given to work endorsed by competitive national or international projects. Regardless, for the manuscript to be scientifically evaluated, it is to be anonymized

with an XXXX only for the initial evaluation, in order to avoid identification of any of the authors or research teams, which are to be named in the Cover Letter and later, in the final manuscript.

10) **Notes** (optional) are included, only if necessary, at the end of the article (before the references). They are to be included manually, since the Word footnotes are not recognized by the layout systems. Note numbers are to be included using superscript, both in the text and in the final note. Notes including simple bibliographic references (without comments) are not allowed, since these are supposed to be included in the references.

11) **References:** Bibliographic references are to follow the text references. Under no circumstances should references be included that have not been cited in the text. There should be enough references in order to contextualize the theoretical framework, and be based on criteria of contemporary relevance and importance. They are presented alphabetically, according to the author's last name (if the last name has more than one word, based on the first word of the last name).

3.2. Rules for references

Periodical publications

Journal article (one author) Valdés-Pérez, D. (2016). Incidencia de las técnicas de gestión en la mejora de decisiones administrativas [Impact of Management Techniques on the Improvement of Administrative Decisions]. *Retos*, *12*(6), 199-2013. https://doi.org/10.17163/ret.n12.2016.05

Journal article (up to six authors): Ospina, M.C., Alvarado, S.V., Fefferman, M., & Llanos, D. (2016). Introducción del dossier temático "Infancias y juventudes: violencias, conflictos, memorias y procesos de construcción de paz" [Introduction of the thematic dossier "Infancy and Youth: Violence, Conflicts, Memories and Peace Construction Processes"]. *Universitas*, *25*(14), 91-95. https://doi.org/10.17163/uni.n25.%25x

Journal article (more than six authors): Smith, S.W., Smith, S.L. Pieper, K.M., Yoo, J.H., Ferrys, A.L., Downs, E.,... Bowden, B. (2006). Altruism on American Television: Examining the Amount of, and Context Surronding. Acts of Helping and Sharing. *Journal of Communication*, *56*(4), 707-727. https://doi.org/10.1111/j.1460-2466.2006.00316.x

Journal article (with no DOI). Rodríguez, A. (2007). Desde la promoción de salud mental hacia la promoción de salud: La concepción de lo comunitario en la implementación de proyectos sociales. *Alteridad*, *2*(1), 28-40. (https://goo.gl/zDb3Me) (2017-01-29).

Books and chapters of books

Complete books: Cuéllar, J.C., & Moncada-Paredes, M.C. (2014). *El peso de la deuda externa ecuatoriana*. Quito: Abya-Yala.

Chapters of a book: Zambrano-Quiñones, D. (2015). *El ecoturismo comunitario en Manglaralto y Colonche*. En V.H. Torres (Ed.), Alternativas de Vida: Trece experiencias de desarrollo endógeno en Ecuador (pp. 175-198). Quito: Abya-Yala.

Electronic media

Pérez-Rodríguez, M.A., Ramírez, A., & García-Ruíz, R. (2015). La competencia mediática en educación infantil. Análisis del nivel de desarrollo en España. Universitas Psychologica, 14(2), 619-630. https://doi.org.10.11144/Javeriana.upsy14-2.cmei

All reference that have a DOI (Digital Object Identifier System) must be included in the References (which can be obtained at http://goo.gl/gfruh1). All of the journals and books that do not have a DOI are to appear with a link (to the online version, if available, shortened using Google Shortener: http://goo.gl) and the date of query in said format.

Journal articles are to be listed in English, except for those that are available in Spanish and English, in which case, both languages are to be included in brackets. All internet addresses presented are to be shortened in the manuscript, except for the DOI, which are to be included in the established format (https://doi.org/XXX).

3.3. Epigraphs, Tables, and Graphs

The epigraphs in the article's body are in Arabic numbers. These are to avoid all capital letters, underlining, or bold text. Numbering should use maximum three levels: 1. / 1.1. / 1.1.1. A carriage return is to be used at the end of each epigraph.

Tables are to be included in the text in Word format, according to their order of appearance, with Arabic numbering and captioned with a description of their content.

Graphics or figures should be kept to a minimum and incorporated into the text, in accordance with their order of appearance, with Arabic numbers and captions with a short description. Quality should be no less than 300 ppp, if necessary, using TIFF, PNG, or JPEG formats.

4. Submission process

The papers are to be submitted in two files through the journal's OJS system:

1) **Cover letter and title page,** which includes the title in Spanish and English, first and last names of the authors (standardized format) with ORCID number, abstract in Spanish and English, keywords in Spanish and English, and a declaration that the manuscript constitutes an original contribution that has not been sent for evaluation in another journal, confirmation of the authorship, acceptance (as the case may be) of formal changes to the manuscript according to the rules, and partial transfer of copyright to the publishing house (use the official format).
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All authors are to register on the OJS platform, even if only one of them will be in charge of correspondence. No author can submit two manuscripts simultaneously, with a penalty of not being able to participate in four consecutive editions (2 years).

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