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Administration and management model of ICT and its impact in the competitive performance of SME in Durango State

Modelo de administración y gestión de TIC y su impacto en el desempeño competitivo en PyME del Estado de Durango

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Abstract

The aim of the present article is to measure the impact between the administration and management of ICT´s and the impact in the competitive advantage in SME´s in the Durango state, México. The methodological development consisted in two stages: The first was carried out exploratory, developing the research model based in the balanced scorecard proposed by Kaplan & Norton, afterwards was validated through the Delphi method (expert method), in the second stage, the statistical analysis was made with structural equations, using partial least squares, with the software Smart PLS. The statistical analysis was applied to 100 responses of the statistical instrument. The main findings indicate that there is a positive and significant relation between the information, human and organizational capital, and the competitive performance in SME´s; the organizational capital has a positive and significant relation to the human capital; and the human capital has positive and significant relation to the information capital. Four of the hypothesis had positive results, with exception of the relation between the organizational capital and the competitive performance, due to the organizational capital does not receive the due importance from the SME´s in the Durango state.

Small and Medium Enterprises, Information and Communication Technologies, Competitive Performance

Resumen

El presente artículo tiene como objetivo medir el impacto entre la administración y gestión de TIC y el desempeño competitivo de PyME en el estado de Durango, México. El desarrollo metodológico constó de dos etapas: La primera se realizó de manera exploratoria, elaborando el modelo de investigación con base en el cuadro de mando integral propuesto por Kaplan & Norton, posteriormente validado mediante el método Delphi (método experto), en la segunda etapa se realizó un análisis estadístico mediante ecuaciones estructurales, utilizando mínimos cuadrados parciales, mediante el software Smart PLS. El análisis estadístico se aplicó 100 respuestas del instrumento estadístico. Los principales hallazgos indican que existe una relación positiva y significativa el capital de la información, humano organizacional y el desempeño competitivo de las PyME; el capital organizacional tiene una relación positiva y significativa sobre el capital humano; y que el capital humano tiene una relación positiva y significativa sobre el capital de la información. Cuatro de las hipótesis planteadas resultaron positivas, con excepción de la relación entre el capital organizacional y el desempeño competitivo, ya que no se le está dando la debida importancia al capital organizacional por parte de las PyME en el estado de Durango.

Pequeñas y Medianas Empresas, Tecnologías de la Información y Comunicaciones, Desempeño Competitivo

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Introduction

Today's society, immersed in the era of knowledge, is marked by a technological revolution (Castells, 2003, p. 7), the fourth industrial revolution through industry 4.0, the Internet of things and e-government have led to a rapid change in the competitive business environment, in which the different sectors of the economy interrelate.

For their part, SMEs are a transcendent link in the economy of a country, facilitating job creation, adaptation to customer needs and innovation (Fonseca, 2013), unfortunately the owners and shareholders of SMEs consider that the The cost of investing in ICT is very high and that the benefits will be reflected in the long term (Saavedra and Tapia, 2013), and that the cost of acquisition, as well as the maintenance of hardware and software is high (Cholán & Cano, 2016). That is why this research work is aimed at the owners and shareholders of companies, particularly SMEs, consider the use of ICT as a support in knowledge management, so that they can obtain better economic results and before Your clients; integrating an ICT environment with human capital and organizational capital in search of expanding its competitive advantage (Valdez & Pérez, 2017). The digital economy is innovating due to the rise of digital technologies and digital marketing, being part of a digital economy allows access to international markets, which makes it possible to explore new markets, have a broader field of action, based on the use of appropriate technology; which becomes more accessible every day, the implementation of ICT in SMEs strengthens competitiveness through social media strategies in a digital marketing strategy, which plays a relevant role in relation to economic performance (Oh, Roumani, Nwankpa, & Hu, 2016), through the use of software for customer relationship management (CRM) or enterprise resource management software (ERM), which is a leading factor in business performance (Wang & Gon 2017).

Framework

This research work is based on the Balanced Scorecard published by (Kaplan & Norton, 2004), using the learning and growth perspective to generate a model that aligns the factors:

Information capital, human capital and organizational capital; in such a way that it is possible to optimize business competitive performance.

The use of ICT in everyday life is becoming more common every day, from the use of a cell phone, to the implementation of computer systems that automate our environment such as the use of the Internet of things, or the automation of domestic spaces intelligent with the use of home automation, in the business environment there is a wide range of options available in the market that adapt to the needs and economic capacity of SMEs, the colles range from websites, social networks, marketing tools, applications in the cloud, cybersecurity tools and electronic commerce, among others (Andalucía es Digital, 2016); Furthermore, the use of ICT in the company contributes to promoting innovation, reducing costs and supplies, opening new distribution channels on a global scale and having more efficient processes (Patiño, 2012).

However, to carry out a correct management of ICT in the company it is necessary that its use be part of a technological planning, included in the business strategic planning, in search of a company being more competitive and profitable (Solleiro & Castañón, 2005), companies that carry out a technological escalation are capable of making their organizational, financial and productive capital more efficient; adopting technological changes (Vázquez, 2015). There are external and internal factors that affect innovation and the adoption of ICT (Vargas 2020), so unfortunately some companies see investment in ICT, more as a cost than as an investment, or are unaware of the potential of integrating ICT into their operations, that is why through the planning, management and administration of ICT in the company, it seeks to have an impact on its competitive performance.

The competitive performance of a company is determined through its competitiveness (Osorio, 2016), business competitiveness is obtained by having internal and external factors to obtain a greater benefit from them and thus generate competitive advantages, these aspects can be empower through the use of ICT, integrating business processes with the industrial structure and those with external market factors (Scheel, 2005).

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The companies that have their capacities supported by externally oriented ICT, have a greater probability of providing a competitive advantage in contexts of low dynamism (Neirotti & Raguseo, 2016), for their part (Cao & Dowlatshahi, 2005) state that ICT have a positive influence on business performance, despite the fact that SMEs do not yet recognize investment in ICT as a factor of competitiveness (Fonseca, 2013), so it seeks to encourage its planning and adoption as a tool for managing and controlling the business capital, in search of increasing profitability through quality of service, giving feedback through sales support (Bracamontes, Azpeitia, Tapia, & Rivera, 2018).

The second construct of the model is human capital, the authors (Estrada & Dutrénit, 2007) express human capital, through tacit and individual learning variables, which shows a predominance over other types of capital and which exerts an influence positive on almost all innovative objectives; for their part (Tapia, & Luna, 2009) define human capital as the set of productive capacities that an individual acquires by accumulating general or specific knowledge. The level of integration between human resources and business strategy is significant and strong when senior management considers human resources as a strategic resource (Azhdar, Farhad & John, 2004).

The third construct of the model is organizational capital, which contributes to the achievement of a competitive advantage, through organizational attributes, such as financial access, operational efficiency, cost structures, personnel skills, supported by quality strategies and customer service and innovation (Suárez & Martín, 2006), organizational capital makes the difference in intangible elements, such as the acquisition of knowledge, communication and decision-making, staff motivation, innovation initiatives and in the development of competitive advantages (Tapia & Luna, 2009).

The fourth construct of the model is competitive performance, which is obtained in a sustained manner, through the implementation of strategies that exploit internal business strengths, through responses to opportunities provided by the environment, neutralizing external threats and avoiding internal weaknesses (Hit, Turk, Hoskisson, Baysinger & Mc Williams, 1991), it is important to consider that the level of quality of products or services is linked to the previous expectations and perceptions of users (Gómez, Ruiz, González & Rosas, 2019) . The competitive advantage of a company is based on being creative and entrepreneurial, generating value in its resources in ways that other companies cannot anticipate (Barney, 2001), by integrating competitiveness and business strategy, competitive advantages emphasize the way in which A company develops the ability to manage intangible resources, such as knowledge and experience (know how) in the production and commercialization of its goods and services, in search of obtaining an advantage over its competitors (Heredia, Ruíz & Castillo, 2018).

Methodology

The methodology of this research work is based on (Hernández, 2014), the research philosophy is positivism, it is an exploratory-correlational type of research, with a deductive research approach, the research strategy is the theoretical and empirical confrontation on a transversal time horizon; which consisted of two phases: 1) Qualitative stage, in which a robust theoretical support was investigated about the issues to be addressed, through the literature review, five constructs were proposed, and 19 variables were selected; As a result of this, the conceptual research model was elaborated in the Atlas TI software, and later the theoretical research model, which is shown in Figure 1, and contains five hypothetical relationships between constructs, in an ICT management environment.

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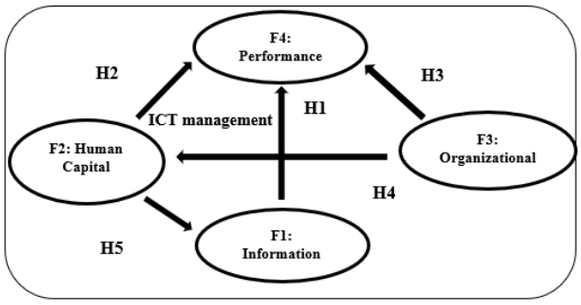

Figure 1 Proposed theoretical model
Source: Own elaboration based on (Kaplan & Norton, 2004)

2) Quantitative stage, in which, as a first step, the proposed model was validated using the expert method (Delphi), initially summoning 30 experts in the areas of ICT and Administration from different educational institutions, of which 27 complied with the argumentation coefficients (Ka), knowledge (Kc) and competence (K) (Landeta, 1999; Gordon, 1994). Once the model was validated, three variables were eliminated at the discretion of the 27 selected experts, subtracting a total of 19 variables at the end of this stage.

Population object of study and data collection

Through the sampling obtained in the National Statistical Directory of Economic Units of INEGI, 2341 economic units were located with the characteristics of SMEs in Mexico, which includes from 11 to 250 workers (Cámara de Diputados, 2002), located in the state of Durango ; excluding those of legislative, governmental and justice administration activities. Table 1 shows the population under study of the research.

Geographic coverage	Durango, Mexico
Total universe	2341
Study population	SMEs affiliated to CANACO, CANACINTRA, COPARMEX and the Council of Young Entrepreneurs
Sample calculation method	Simple random with finite population
Sample size	100 companies
Sample error	± 10.0%
Confidence level	95%
Data collection period	November 2019 to March 2020

Table 1 Study population
Source: Self made

To determine the sample size, a simple random one with a finite population was used, where: N = 2341; Z = 95%; p = 0.5; q = 0.95; e = 0.1; Therefore, the result of the calculation for the sample size was 96 companies, carrying out the study with 100 samples.

The data collection was carried out in situ, carrying a mobile device for the response of the statistical instrument, and digitally through email and WhatsApp; It is worth mentioning that 100% of the responses were obtained through a digital form prepared in Google Forms, which were contacted personally and through the business chambers CANACO, CANACINTRA, COPARMEX and the Council of Young Entrepreneurs of the State of Durango. Initially, a pilot test was applied, which consisted of 55 surveys in order to make inferences and correct interpretations when applying the instrument (Martín, 2004). The reliability of the pilot test of the instrument was analyzed with the IBM SPSS V. 25 software, obtaining a Cronbach's Alpha = 0.900, so the instrument is reliable (Nunnally & Bernstein, 1994), the KMO indices = 0.794 and Bartlett = 0.000; indicate that the matrix does not correspond to an identity, therefore, the factor items are related, which shows that the factorial model is adequate to explain the data (Suárez, 2007) (Fernández, 2011). Once the pilot test was validated, the population sample was completed, applying a number of 169 surveys, of which 69 were not in the range of SMEs, the survey of the population sample of 100 companies was answered by 76 men and 24 women; managers, owners or directors of SMEs.

The questionnaire included a series of multiple-choice questions corresponding to the factors and items of the model, established using the Lickert scale, which is a scale of apparently equal intervals, belongs to what has been called ordinal scale and uses series of items or statements on which a response is obtained from the subject (Ospina, Sandoval, Aristizábal & Ramírez, 2005), for the scale values 1 was considered as the minimum value and 5 as the maximum value.

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Instrument validation

For the modeling of the theoretical model in the Smart PLS software, structural equations have been used, with an approach based on the analysis of variance. Structural equation models are considered among the most powerful tools to study causal relationships through non-experimental data, they are considered a combination of factor analysis and multiple regression, they consist of two components: Measurement model and structural model (Medrano, & Muñoz, 2017). Additionally, structural equation models using partial least squares is a useful statistical instrument for modeling structural equations that social science researchers can consider when searching for behaviors (Cepeda, Nitzl, & Roldán, 2018), to develop the model Theoretical, multivariate analysis includes the application of statistical methods, which simultaneously analyze multiple variables (Hair, Hult, Ringle & Sarstedt, 2017). Previous research and works on the subject have been reviewed during the quantitative stage of the research, to give strong support to the elaboration of the constructs, as well as their latent variables, through the analysis of concepts and their respective relationships.

Once the theoretical framework was structured, the conceptual data were validated, in order to apply a confirmatory analysis of the hypotheses raised, PLS is increasingly used among the research community, when studying social sciences and market studies (Martínez & Fierro, 2018); since it is possible to determine the degree of relationship between variables.

Regarding the sample size and the existing relationships in the structural model, the proposed model has five causal relationships, corresponding to the five hypotheses raised (Marcoulides & Saunders, 2006), for this type of studies the recommendation for sample size is of 70 observations. For its part, (Hoyle, 1995) recommends a sample size of 100 to 200 observations, to potentiate the statistical levels, this aspect is fulfilled, since it was obtained with a sample of 100 valid responses from the statistical instrument.

Reflective Measurement Model

In order to obtain a reliable model, by analyzing the reliability results; as well as the criteria of convergent and discriminant validity of the indicators, it was determined that six variables did not meet the consistency requirements of the model. To determine the reliability of each construct, and the consistency of their respective indicators, the factorial loads or weights were analyzed by running the Smart PLS and Bootstraping algorithm, with a maximum of 5000 iterations, for the interpretation of the results (Carmines & Zeller, 1979) consider values greater than 0.707 as adequate, for their part (Bagozzy & Yi, 1998) consider a value of 0.6 for an exploratory study as acceptable. Based on (Hair, Ringle & Sarstedt, 2011), who propose that the indicators with factor loadings between 0.4 and 0.7 should be considered to eliminate from the model, in order to increase the composite reliability, six variables were eliminated in order not to lose the meaning of the construct (Hair, Hult, Ringle & Sarstedt, 2017), which were (CH1, CI1, CI3, CI4, CO5 and DC1). Figure 2 shows the final version of the model in the Smart PLS Software, which met the criteria of reliability, convergent and discriminant validity (Ibid.), The values in parentheses correspond to the T-statistic value, which must be higher to 1.96 (Wong, 2019, p. 37), to consider a high significance of the factorial load ($p < 0.05$); With respect to the values in the arrows of the internal model, they correspond to the value of the path coefficient (Path) for the endogenous variables, which manifest the hypothetical relationships proposed and must have a value greater than 0.2 to be considered significant (Chin , 1998).

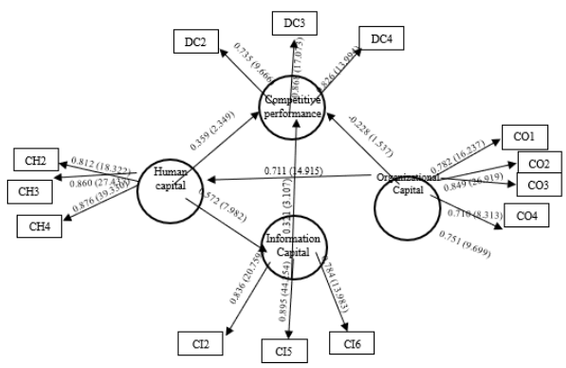

Figure 2 Path model (Path)
Source: Own elaboration, from results obtained from Smart PLS 3 Software

Convergent validity test

Next, Table 2 shows the reliability values, convergent validity and internal consistency of the model indicators, which represents that a set of variables represents a single construct (Henseler, Ringle & Sinkovics, 2009). These values comply with what is proposed by (Hair, Hult, Ringle & Sarstedt, 2017), which corroborates the correct reliability parameters of the model.

Latent variable	Item or Indicator	Factorial Loads> 0.7	Convergent validity Indicator Reliability> 0.5	AVE > 0.5	Internal consistency Composite Reliability 0.7-0.9	Cronbach's alpha 0.7-0.9
Competitive performance	Image of the company and its products (brand)	0.735	0.540	0.659	0.852	0.738
	Productivity	0.868	0.753			
	Business profitability	0.826	0.682			
Human capital	Staff training	0.812	0.659	0.722	0.886	0.807
	Interpersonal and business skills	0.860	0.739			
	Leadership competencies	0.876	0.767			
Organizational Capital	Innovation strategies	0.782	0.611	0.600	0.857	0.777
	Quick adaptation to market needs	0.849	0.720			
	Learning environments	0.710	0.504			
	Knowledge management and transmission	0.751	0.564			
Information Capital	Technological planning	0.836	0.698	0.705	0.877	0.789
	Acquisition, assimilation and development of technology	0.895	0.801			
	Electronic commerce	0.784	0.614			

Table 2 Indicator Reliability and Composite Reliability
Source: Own elaboration based on (Hair, Hult, Ringle & Sarstedt, 2017), using data obtained from Smart PLS 3 Software

Discriminant validity test

Through statistical analysis, the discriminant validity of the model was corroborated, in order to determine to what extent a construct is different from the other constructs of the model (Martínez & Fierro, 2018).

Fornell-Larcker criterion

The first discriminant validity test was performed using the Fornell-Larcker criterion, which is based on the amount of variance captured by a construct with respect to its indicators (Martínez & Fierro, 2018), and which must be greater than the shared with other constructs. The Fornell-Larcker criterion establishes that the square root of the AVE of each construct must be greater than the correlation with any other construct, the required values were met satisfactorily, as shown in Table 3.

Constructs	Human capital	Organizational Capital	Information Capital	Competitive performance
Human capital	0.850			
Organizational Capital	0.711	0.775		
Information Capital	0.572	0.454	0.839	
Competitive performance	0.381	0.173	0.423	0.812

Table 3 Discriminant Validity (Fornell-Larcker)
Source: Own elaboration from results obtained from Smart PLS 3 Software

Cross factorial loads

The analysis of crossed factorial loads was located in the parameters established with the criterion of (Barclay, Higgins & Thompson, 1995), where the factorial loads of a construct must have a higher value for their own variable, compared to the loads of the variables of the other constructs evaluated in the model. Table 4 shows the results of the model's cross factorial loads.

Variables	Construct			
	Human capital	Organizational Capital	Information Capital	Competitive performance
Staff training	0.812	0.627	0.489	0.148
Interpersonal and business skills	0.860	0.549	0.474	0.479
Leadership competencies	0.876	0.639	0.496	0.332
Technological planning	0.522	0.462	0.836	0.365
Acquisition, assimilation and development of technology	0.489	0.387	0.895	0.373
Electronic commerce	0.422	0.278	0.784	0.324
Innovation strategies	0.527	0.782	0.218	-0.014
Quick adaptation to market needs	0.589	0.849	0.332	0.105
Learning environments	0.484	0.710	0.353	0.206
Knowledge management and transmission	0.590	0.751	0.477	0.222
Image of the company and its products (brand)	0.270	0.160	0.397	0.735
Productivity	0.369	0.184	0.341	0.868
Business profitability	0.282	0.071	0.288	0.826

Table 4 Cross Factor Loads
Source: Own elaboration from results obtained from Smart PLS 3 Software

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HTMT ratio

The last discriminant validity test applied to the model was using the HTMT Ratio, whose values must be below 1 (Gold, Malhotra & Sesgars, 2001). In order to detect the lack of validity, it must be identified that the correlations that measure the same construct, which must be greater than the correlations that measure different constructs (Henseler, Ringle & Sartedt, 2016). The results obtained showed the validity using the HTMT Ratio, as shown in Table 5.

Constructs	Human capital	Organizational Capital	Information Capital	Competitive performance
Human capital				
Organizational Capital	0.895			
Information Capital	0.714	0.563		
Competitive performance	0.485	0.250	0.552	

Table 5 HTMT ratio
Source: Own elaboration from results obtained from Smart PLS 3 Software

Collinearity statistic and t statistic

The next action carried out was to corroborate that the variables of each construct did not present collinearity (VIF), considering the criterion of (Hair, Hult, Ringle & Sarstedt, 2017), the results obtained show that the variables of the constructs did not present collinearity (3.3 > VIF> 0.2), as shown in Table 6. Regarding the values obtained for the statistical T of the exogenous variables, they show that the internal model is significant, due to the fact that it has values much higher than 1.96 (Wong, 2013) , which is fulfilled in the model when carrying out a bootstraping or resampling process, as shown in Table 6.

Construct	Variables	Collinearity Statistics 3.3> VIF> 0.2	Statistical T => 1.96
Human capital	Staff training	1.579	18.407
	Interpersonal and business skills	1.857	28.021
	Leadership competencies	1.964	38.169
Information Capital	Technological planning	1.685	21.119
	Acquisition, assimilation and development of technology	2.186	43.153
	Electronic commerce	1.588	14.297
Organizational Capital	Innovation strategies	2.024	16.304
	Quick adaptation to market needs	2.285	26.912
	Learning environments	1.344	8.294
	Knowledge management and transmission	1.384	9.962
Competitive performance	Image of the company and its products (brand)	1.237	9.168
	Productivity	1.934	17.791
	Business profitability	1.823	13.613

Table 6 Collinearity statistic (VIF) and T statistic
Source: Own elaboration from results obtained from Smart PLS 3 Software

Significance of the structural model

To analyze the standardized Path coefficients of the structural model, a bootstraping or resampling process was performed. The values of the Path coefficients vary between -1 and +1, and as the result increases, the hypothesis will have a higher prediction among the analyzed constructs; On the contrary, the lower the value, the hypothesis will have less convergence, if the Path coefficient presents an opposite sign to the proposed hypothesis, the hypothesis will not be valid (Martínez, & Fierro, 2018).

In order to check the hypotheses raised for the research model, and determine their affirmation or rejection, as well as their respective implications, the values obtained for the Path coefficients presented four positive signs and one negative sign. The values of R^2 in the endogenous variables of 0.25, 0.50, and 0.75; They are considered to have a weak, moderate and substantial significance (Hair, Ringle & Sarstedt, 2011), so once the values for the Path coefficients were analyzed, four positive relationships greater than 0.2 were obtained; which were CI → DC = 0.321, CH → DC = 0.359, CO → CH = 0.711, CH → CI = 0.572; manifesting feasible relationships between the constructs, so these hypotheses are validated. Regarding the relationship CO → DC = -0.228, a negative sign was obtained, with a value p = 0.27; Therefore, it does not appear viable and the hypothesis is rejected, the values of the Path coefficients are presented in Table 7.

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Predictive validity of the structural model

To consider the predictive validity of the model, f² was used, which shows that both an exogenous latent variable contributes to the R² value of an endogenous latent variable (Wong, 2019, p. 38), the authors (Hair, Hult, Ringle & Sarstedt, 2017) establish the prediction effect values of f² = 0.02 (small), 0.15 (medium) and 0.35 (large), so based on the values obtained for f², the following prediction effects are established : CI → small DC, CH → small DC, CO → CH large, CH → large CI; Regarding the effect of CO → DC, it presents a negative value and a value p = 0.127; so its prediction effect is discarded.

Predictive relevance and significance level of the structural model

To corroborate the predictive relevance of the model, the Q² coefficient of Stone-Geisser's Q² (Stone, 1974), and (Geisser, 1974), obtained through the Blindfolding process in Smart PLS, was used, by which predictive relevance is assessed of the structural model (Chin, 1998). The values considered to determine the predictive relevance of the structural model were 0.02 as small, 0.15 as medium, and 0.35 as large values (Hair, Hult, Ringle & Sarstedt, 2017). A large predictive relevance value for Human Capital, a medium predictive relevance value for Information Capital was obtained; and a small predictive relevance value for Competitive Performance, as shown in Table 7, as well as the values of the Path coefficients, from the research model. Figure 3 corresponds to the structural model in Smart PLS, by calculating the coefficients of R².

Construct	Human capital	Information Capital	Competitive performance
Predictive Relevance (Q^2)	0.354	0.217	0.127
Path coefficients	0.506	0.327	0.233

Table 7 Predictive Relevance of Structural Model Constructs Using Stone-Geisser's.
Source: Own elaboration from results obtained from Smart PLS 3 Software.

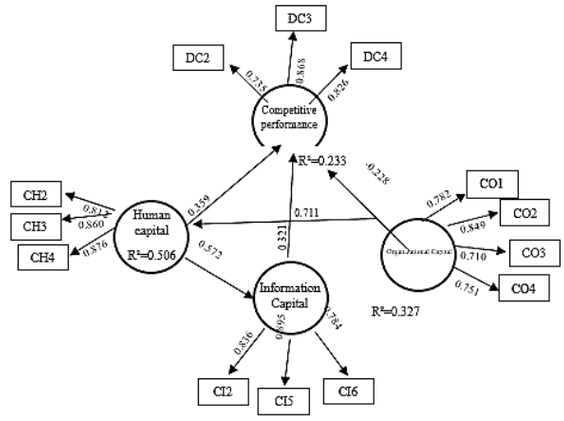

Figure 3 Coefficients of the R² of the Research Model
Source: Own elaboration, from results obtained from Smart PLS 3 Software

The coefficient of R² indicates the amount of variance of a construct that is explained by the predictive variables of the endogenous construct, whose values range between zero and one (Martínez & Fierro, 2018), the higher the value of R², the greater the predictive capacity is presented, (Falk & Miller, 1992) pose a minimum value of R² of 0.10; Chin (1998) considers 0.67, 0.33 and 0.10 as substantial, moderate and weak; while Hair et al. (2017) suggest values of 0.75, 0.50, 0.25 as substantial, moderate and weak. Through the analysis of the coefficient of R², the results suggest that there are three positive and significant relationships, with a moderate significance and are presented below:

– Organizational capital is related to human capital.

– Human capital is related to information capital.

– Human capital, information capital and organizational capital are related to competitive performance.

Therefore, based on the coefficients of R², it is determined that organizational capital explains 50.6% of the variance of human capital, while organizational capital, through human capital, explains 32.7% of the variance of the capital of the Information, on the other hand, human capital, information capital and organizational capital, explain 23.3% of the variance of competitive performance, based on what is established by (Hair, Hult, Ringle & Sarstedt, 2017). Figure 3 shows the statistically significant relationships through the analyzed model.

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Results

In the present research work, five hypotheses were proposed, which were expressed in a theoretical way, for later, by means of structural equations, they were contrasted by means of a statistical analysis. Next, in Table 8, the contrasts of the research hypotheses are shown, which include the factors: Organizational Capital, Human Capital, Information Capital and Competitive Performance. Of the five hypotheses raised, four were accepted, and one was rejected.

Hypothetical relationships	Path coefficients (standardized β)	Student t statistic => 1.96	P value <0.05	Effects (f^2)	Hypothesis contrast
Information Capital → Competitive Performance	0.321	3.111	0.002	0.090	Accepted
Human Capital → Competitive Performance	0.359	2.388	0.017	0.070	Accepted
Organizational Capital → Competitive Performance	-0.228	1.526	0.127	0.033	Rejected
Organizational Capital → Human Capital	0.711	14.997	0.000	1.023	Accepted
Human Capital → Information Capital	0.572	8.000	0.000	0.486	Accepted

Table 8 Path coefficients (standardized regression coefficients)
Source: Own elaboration from results obtained from Smart PLS 3 Software

The statistical analysis using partial least squares shows that there is a positive and significant relationship between information capital and the competitive performance of SMEs in the state of Durango (H1: $\beta = 0.321$; $t = 3.111$; $p = 0.002$; $f^2 = 0.09$), derived from this, it is inferred that the information capital positively influences the competitive performance of the SME in the state of Durango with a small predictive effect, which coincides with the results obtained empirically, so that the SMEs in the state of Durango that invest in the planning, management and use of ICT, have a better competitive performance compared to those that do not make such investment. In a complementary way, there are economic alternatives for digital marketing that replace traditional marketing, promoting making the most of available business technological resources (Lizama, Matos & Beltrán, 2020), in search of a competitive advantage.

In the same way, it is concluded that there is a positive and significant relationship between human capital and the competitive performance of SMEs in the state of Durango (H2: $\beta = 0.359$; $t = 2.388$; $p = 0.017$, $f^2 = 0.07$), with a small predictive effect, which coincides with the results obtained empirically, therefore, SMEs that have trained human resources and that work effectively, will obtain greater profitability. Regarding the impact of organizational capital on competitive performance, the statistical data obtained show that there is no positive and significant relationship in SMEs in the state of Durango ($\beta = -0.228$; $t = 1.526$; $p = 0.127$; $q = 0.033$); which contrasts with the literature review, these results generate an area of opportunity for future lines of research, due to the fact that due importance is not being given to organizational capital by the entrepreneurs that make up SMEs in the state of Durango, opening a gap in areas of opportunity that allow a positive impact on business competitive performance, based on new skills in staff, raising awareness among managers and owners of SMEs, as well as their human capital, regarding the importance of optimizing organizational capital. Likewise, it is concluded that there is a positive and significant relationship between organizational capital and human capital of SMEs in the state of Durango ($\beta = 0.711$; $t = 14.997$; $p = 0.000$; $f^2 = 1.023$), with a large predictive effect ; In this sense, in this sense it is possible to infer that SMEs in the state of Durango that have efficient organizational capital are companies that have organized and efficient human capital. Finally, it is concluded that there is a positive and significant relationship between human capital and the information capital of SMEs in the state of Durango ($\beta = 0.572$; $t = 8.000$; $p = 0.000$; $f^2 = 0.486$), with a predictive effect large, which coincides with the results obtained empirically, in this sense, it is possible to infer that SMEs in the state of Durango that invest time and financial resources in their personnel, will be able to carry out better planning, management and use of ICT, in seeks to obtain a better competitive performance since human development is supported by digital technologies (Gabdullin, 2020). In the same way, if the company has technologies adapted to its capacities and needs, but the development of human and technical resources is scarce, innovation processes and competitive performance will be limited (Romero, 2020), in such a way that the ICT investment will not have served its purpose.

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On the other hand, the current industry demands a skilled and dynamic workforce, otherwise there is the risk of technological unemployment, where the unskilled human resource will be displaced due to automation (Gaxiola, 2020), part of the indirect effects Industry 4.0.

Conclusions

Faced with the highly competitive and changing environment of today's market, companies that have adapted to the circumstances have benefited from their income, which is why SMEs that have acquired, managed or developed technology, and that lead to carry out strategies such as e-commerce and social media marketing; They have a greater adaptation to the current market, disrupted by online and home services, therefore these companies have benefited in their competitive performance compared to companies that do not implement these measures, implementing efficient technological planning supported by strategic planning. business. Consequently, not planning, managing and administering ICT in companies, linked to innovation strategies, will be leading to losing a business competitive advantage in a globalized and fiercely competitive environment, a changing environment, derived from the pandemic caused by the virus SARS-CoV-2 (COVID-19), since companies that have adapted to provide products and services through technological platforms, which have overcome the face-to-face barrier of trade and services, have a huge market niche that is looming long-term, as shown by large digital companies such as Amazon, which expects to close 2020 with an increase in sales (Expansión, 2020), despite the pandemic caused by COVID-19, even small stores that started to perform sales and delivery services via digital applications.

Regarding SMEs that carry out planned actions to train their personnel, implement actions to develop leadership skills and interpersonal and business skills constantly, obtain better results in their competitive performance.

That is why business owners, managers and directors must assess the importance of their human capital, seeking their constant training, not only in matters of their work environment, it is necessary to focus on making staff feel part of the company, human resources committed to the development and business image, all this always trying to be carried out in a friendly and comfortable environment for the worker, seeking human development and the development of leadership, negotiation and problem solving skills of the staff, with the aim that human capital can perform its tasks in an optimal way, given the different circumstances that arise during the performance of their functions.

Organizational capital is a pillar that supports optimal business performance, in relation to competitive performance, the findings of this research show that SMEs in the state of Durango have not dedicated sufficient efforts to optimize their processes, seeking process optimization strategies , either in the accounting, logistics, supply, sales and marketing areas; as well as the development of organizational skills in the staff, seeking a comparative and competitive advantage, considering providing quality and warmth in customer service.

Additionally, it is concluded that SMEs in the state of Durango that carried out various customer service strategies, as well as innovation strategies that quickly adapt to the changing needs of the markets; and that promote learning environments for their human resources, claim to obtain better results in the performance of their human resources, since when human resources are optimally directed, organized and supervised, they are oriented to have a better image towards captive and potential clients , provide a better image of the company, and by fulfilling the personnel with their functions in an efficient and orderly manner, and the business results lead to better competitive performance. Finally, it is pertinent to comment that the implementation of ICT in industry does not always bring benefits to workers, since aspects such as automation have reduced the number of jobs derived from technological unemployment, which is the reason for a different line of research.

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