The Structural Model of Business Performance Management in Small and Medium-Sized Enterprises in Mexico

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ABSTRACT

This research used a structural equation model (SEM) to examine the interrelationships among intellectual capital, business reengineering, business model, and business performance, based on the perceptions of 206 directors of small and medium-sized enterprises (SMEs) in Monterrey, Nuevo León, Mexico. This study found empirical evidence that business reengineering and intellectual capital directly influence business performance, and business model indirectly influences business performance.

JEL Classifications: M11, M20, M21

Keywords: *intellectual capital, business model, business reengineering and business performance.*

I. INTRODUCTION

Intellectual capital (IC) is known as a source of growth, innovation, and competitive advantage (Lev, 2001). A great part of the literature has emphasized the potential of IC to improve the competitive advantage of the SMEs and their wealth generated. It also suggests benefits for outgrowing the weaknesses that it has as SMEs (Berezinets, Garanina, and Ilina, 2016; Edvinsson and Malone, 1997; Firer, 2005; Jordão and Novas, 2017; Sullivan, 2000; Verbano and Crema, 2016).

Other authors like Pomar and Visbal (2011) mention that the social, political, and economic events on a worldwide level conveys as a consequence that the professionals seek new working tools that ensure great changes to develop dynamic companies and as a result, the processes are the targets of reengineering but not the organizations. Companies do not redesign their sales or manufacturing departments; instead, companies redesign the performance that the employees do in those areas. Reengineering demands that company managers and workers modify their way of thinking by replacing old practices with new ones. Constant improvement is the last stage of reengineering; once the project is completed, it is necessary to have continuous improvement in the human workforce, technological development, organizational structure, and reengineering process.

On the other hand, business models are a powerful tool used today to be more competitive and its use represents an empirical strategy for global companies. Nowadays, companies are developed in a highly competitive environment where globalization and international commerce play a leading role in the conquest of new markets; these business models help companies to maintain a long term position and develop stability, but yet they introduce a radical change in the game rules, like on reengineering, on workforce and on technological methods. This innovation is important to control the market focus on creating value for their clients (Wheelen and Hunger, 1999; Qian and Li, 2003; Bessant and Tidd, 2007; Prakash and Gupta, 2008; Villena Manzanares and Souto Pérez, 2015).

Intellectual capital (IC), business reengineering (BRE), and business model (BM) are part of the collective learning process that facilitates problem solving. It helps with the innovation process (Coheen and Caner, 2016; Alegrea and Chiva, 2008). As a result, innovation is defined in the literature as the creation or improvement (intellectual capital) of products, processes (reengineering), management systems or new ways of selling new products and existing ones (business model) (Gerwin and Barrowman, 2002).

Although, the economic business literature has given the importance of studying these variables, the research of knowledge on these variables where these different outcomes originate within the organizations is a continuous, central, and the most challenging topic of study and the beginning of the knowledge area (Pertusa-Ortega, Molina-Azorín, and Claver-Cortés, 2010).

However, the authors believe that it is necessary to measure whether SMEs are really improving. The measurement of organizational performance is important because it helps decision making based on correct and reliable information, which makes it a critical aspect of business management (Avci, Madanolu, and Okumus, 2011). It is not easy since it is one of the most complex duties that all supervisors must carry out. Managers evaluate people with different emotions, perceptions, and realities. Undoubtedly, the results of the assessment on organizational performance will provide the company with important information (González Mármol, 2010). Yet, all aspects that are related to the company's performance are subject to measurement

because it is important to verify and compare certain planned goals with current results (Lima and Corrar, 2006).

In addition, Sirgy (2002) and Perin and Sampaio (2004) indicate that both academic and business research on enterprise performance have increased due to a growing interest in understanding what influences the existence, changes or development of the enterprise. Definitely, the analysis of the performance of SMEs is of vital importance for decision making, as it will generate the necessary inputs to outline the best development strategies.

A. Contributions and Benefits of This Study

While, historically, researchers and practitioners have paid more attention to multinationals, there is a growing consensus on the need to understand SMEs (Börjesson, Elmquist, and Hooge, 2014; Rosli and Sidek, 2013; Hilmi, Ramayah, Mustapha, and Pawanchik, 2010; Rheea, Parkb, and Lee, 2010; Prajogo and Ahmed, 2006). SMEs are different from large organizations. These differences exist in the responsiveness, fire-fighting mentality, resource limitations, informal strategies, and flexible structures (Hudson, Smart, and Bourne, 2001; Qian and Li, 2003). Therefore, they tend to have a failure rate higher than large organizations. In Mexico, 75% of start-up businesses failed within a two years period compared to the SMEs in USA where only 24% of all new businesses failed within the same two years period (Wheelen and Hunger, 1999).

This pervasive phenomenon has been prevalent despite the importance and strong influence that SMEs have not only on economic and social development (Xie et al., 2010) but also on technological development in a variety of countries and enterprises (Zhu, Yang, Tintchev, and Wu, 2006). Therefore, it is important to study emerging countries such as Mexico. To ensure continuity and achieving goals, organizations must have the tools to diagnose and evaluate organizational performance (Aguayo Delgado, 2014).

The National Institute of Statistics and Geography (INEGI, 2016) states that at present, SMEs are the base of the national economy due to trade agreements and their major impacts on employment and domestic production that Mexico has made in recent years. There are approximately 4,015,000 businesses in Mexico of which 99.8% are SMEs that generate 52% of the gross domestic product and 72% of the jobs in Mexico. SMEs are key actors in today's Mexican economy.

Actually, Nuevo Leon is one of the largest contributors in the Mexican economy, which contributes 7.5% of the country's gross domestic product. It produces 10.9% of the goods manufactured in Mexico and has an income per capita of US$15,975. Nuevo Leon is the second state in attracting foreign direct investment in the country. United States, Germany, Canada, France, England, and Japan are the largest business partners. Monterrey, the capital and the largest city of Nuevo León, keeps and preserves a solid manufacturing and industrial economy and has taken large steps towards a knowledge and service-based economy (Banco Bilbao Vizcaya Argentaria Bancomer, 2015). For this reason, it was decided to study SMEs in Monterrey, hoping the results can be used to influence other states and Latin American countries to follow their industrialization and ways of management.

The political, geographical, and economic characteristics of Monterrey and its current status as an industrialized economy make this study different from all of those previously investigated. It provides justification for the opportunity of investigating intellectual capital, business model, business reengineering, and business performance of SMEs in the Monterrey region of Mexico. The novelty of

the present study further strengthens its contribution, particularly within the context of SMEs located in the second largest economy in Latin America, Mexico (The World Bank, 2016; Oke, 2004; Larsen and Lewis, 2007; Segarra-Blasco, García-Quevedo, and Teruel-Carrizosa, 2008; Xie et al, 2010).

II. THEORETICAL FRAMEWORK

The theoretical framework defines the studied variables (intellectual capital, business model, business reengineering, and business performance). Subsequently, the theoretical basis of the proposed model is presented.

A. Intellectual Capital

According to Brooking (1997), IC comprises all the tacit and explicit knowledge that generates economic value for a company. However, according to Bueno Campos (1998), it comprises intangible organizational assets that are the basis of sustainable competitive advantages and are not reflected in traditional accounting and financial statements but contribute to value creation. Mainly, an intangible asset such as organizational knowledge has strategic value for SMEs (Cabrera and Galindo, 2000).

Bontis, Chua, and Richardson (2000) divide IC as follows: human capital, structural capital, and relational capital. Human capital includes subcomponents such as employees' abilities or satisfaction (Kaplan and Norton, 1996). Structural capital comprises all investments that are made to improve the experience and quality of the organization. Relational capital refers to the company's relationships with its customers, partners, suppliers etc., which is arguably your most important business asset. In summary, the definition of IC is the required level of workplace competence that is obtained from a combination of factors that determine the complexity, autonomy and responsibility of a job and the expected knowledge that is related to the ideal performance of those functions.

B. Business Model

To define business model, Garcés, López and Pailiacho (2017) note that a business model is a conceptual tool that, through a set of elements and their relationships, expresses the logic that is used by a company to generate profitable and sustainable income sources by generating and delivering value to one or more customer segments.

In addition, Macri, Tagliaventi, and Bertolotti (2002) add that a company is more entrepreneurial when it identifies and exploits new opportunities. For companies, this process is called corporate entrepreneurship or intrapreneurship. Its purpose is to develop new business management methods and it involves the changes in the companies' organizational behavioral patterns. Similarly, Den Hertog, Van der Aa, and de Jong (2010) propose a new method to assess innovation capabilities using a conceptual and theoretical framework for innovation, management, and administration in which they propose six dynamic innovation capabilities that mainly address issues, such as identifying users' needs, technological options, conceptualizing ideas, learning and adaptation, among others. Equally, Manrique Henao, Robledo Velásquez and Lema Tapias (2014) indicate that, in recent decades, the ability to access large amounts of information in developed countries has led to the development of methodologies and innovation model evaluations whose results are used as inputs in the formulation of public policies and business strategies.

Moreover, innovation is understood as the phenomenon that explains the production and transformation of scientific and technological knowledge into economic wealth, social welfare, and human development. Summarizing the information for this research, the business model is defined as an abstract representation (either in a textual or graphical manner) of all the related concepts and financial agreements of an organization and the main portfolio of products or services that are offered by the organization based on the necessary actions to reach its strategic goals and objectives.

C. Business Reengineering

Arana Solares, Alfalla Luque, and Machuca (2012) state that business reengineering is used to continuously improve the products and services that are offered to customers. It helps improve the competitive position of a company by facilitating the access and processing of the information that is available and is one of the main sources of sustainable competitive advantages. Furthermore, there are global management frameworks in the companies that seek to gain advantages through product differentiation and compete primarily through quality management. In addition, Ruiz Guerra, Martín López, and Molina Moreno (2012) indicate that this type of management is understood as the commitment to a quality-oriented organizational culture that covers all the processes developed by the company.

Moreno García and Parra Bofill (2017) state that if a company cannot change its taught processes regarding information technologies, then it cannot reengineer; a company also cannot reengineer if it compares technology to automation or examines the problems first and then seeks technological solutions for them. These authors mention that every reengineering study should therefore question the processes and the information systems, procedures, internal controls, and accounting systems based on the new sociocultural and technical environments and customer requirements. In accordance with the classic definition of process reengineering, redesigning strategic processes makes a company more efficient. In summary, business reengineering is the establishment of new sequences and novel interactions in business processes that improves measurables such as costs, quality, services, and speed.

D. Business Performance

This research defines business performance as management of business efficiency through the utilized processes, and it includes strategic planning, budgets, projections, and performance evaluation metrics.

According to Toro Zuluaga, Castaño Molano, and López Espitia (2017), both the globalization process and the current technological context make innovation a competitive factor for companies. In recent years, there has been a growing interest in understanding how business performance is affected by quality systems, which are understood as companies' abilities to obtain the expected operating and financial performance (Huerta Dueñas, Sandoval Godoy, and Preciado Rodríguez, 2017). However, according to Austin, Saleeshya, and Vamsi (2013), companies are forced to implement initiatives in their production processes in order to achieve better business performance and gain competitive advantages. Meanwhile, Abrego Almazán, Medina Quintero and Sánchez Limón (2015) posit that information generation has been tremendously strengthened within the company and in external sources. Therefore, information systems play an important role in business performance since helping an individual or an organization to operate complex or

laborious tasks is among companies' main objectives. That is why, in recent years, when implementing standardization to ensure quality, various industry-related organizations were developing different quality management models. Some were product-quality oriented and others were process-quality oriented, but they all resulted in improved productivity.

E. Relationships Between Variables

This section presents some research that supports the validity of the model. Ríos Manríquez, Ferrer Guerra, and Regalado Hernández (2010) recently analyzed the strategies that Mexican companies follow to establish a global presence. Their analysis was conducted with 15 companies that were listed on the Mexican Stock Exchange and that could be considered as the benchmark Mexican companies. The authors found that to attain sustained growth in the search for competitive advantages, the company management needs to create strategies and internal and external policies (business model) to compete in the market and transforming management into a strategic direction leads the company to achieve its goals through a cycle of continuous and dynamic improvements (business reengineering). The key to business success lies in the efficient and effective results that are achieved by management through the implementation of strategic policies that are related to distribution channels, such as the relationships between customers and suppliers, the product, etc., in order to have a competitive advantage over other companies. Similarly, Fleitman (2010) shows that knowledge, implementing continuous improvement processes (business reengineering), organizational development, pursuing quality, excellence, process reengineering, systems evaluations and using new technologies are not ends themselves but means that will enable companies to be more competitive every day.

Máynez-Guaderrama, Cavazos Arroyo, Torres Arguelles, and Escobedo Portillo (2013) conducted a quantitative study and the actual information was examined in two stages. In the first stage, a confirmatory factor analysis (CFA) was used; and in the second stage, a structural equation system based on covariances was used. Three hypotheses were tested in this research as follows:

H1: The personalization capacity (which is part of relational capital) is a predictor of the perceived operational performance.
H2: The reconfiguration capacity (business reengineering) is a predictor of the perceived operational performance.
H3: Perceived operating performance (business model) is a predictor of the perceived competitive advantage.

The companies that participated in the study were from the automotive, medical, electrical, computing, telecommunications, and other industries that were located in Ciudad Juárez, Chihuahua, Mexico. A selective nonprobabilistic sample was used since the intention was to have participants that were representatives of the study population and the subjects included managers, supervisors, analysts, engineers, and technicians. The data was collected using a self-administered questionnaire that was individually answered at the workplace during the months of May and June in 2012. The total number of usable questionnaires was 252, which is 95.46% of those that were received. The questionnaire included items that were measured on a 5-point Likert scale. Once the reliability and validity of the measurement model were determined, the hypotheses were tested. The statistical

indices for goodness of fit of the structural model show good fits with the following scores: NFI (Normed Fit Index) equal to .892, NNFI (Non-Normed Fit Index) equal to .951, CFI (Comparative Fit Index) equal to .958, IFI (Incremental Fit Index) equal to .959, MFI (McDonald Fit Index) equal to .882, and RMSEA (Root Mean Squared Error of Approximation) equal to .047. The three hypotheses were significant at a level of $p < .001$. The three proposed relationships between the constructs of the model were statistically significant. Both the personalization capacity (a dimension of intellectual capital) and the reconfiguration capacity (business reengineering) directly and significantly affect the perceived operating performance. The perceived operational performance has a direct, positive and significant effect on the perceived competitive advantage.

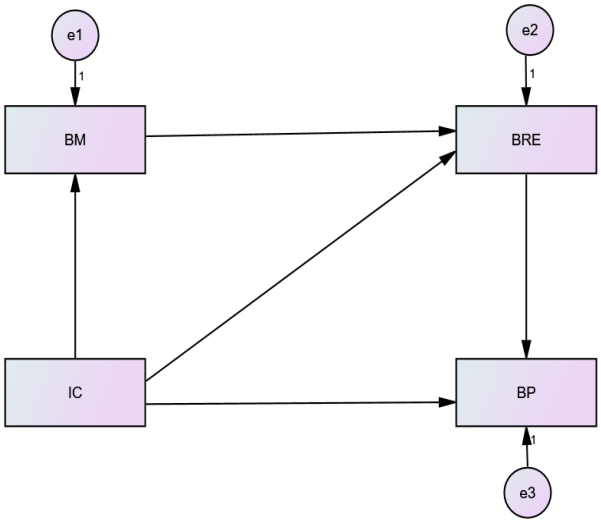
In addition, Schroeder, Bates, and Junttila (2002) studied the learning abilities of employees (human capital) based on cross-training, which helped them to provide better customer and supplier services and gave them a competitive edge over the competition. They associated this advantage with the measured performance of the company. They found that employees with higher skills significantly affected company performance. Likewise, Ochoa Jiménez, Jacobo Hernández, and Leyva Osuna (2014) indicate that, within the organization, performance is associated with the individual, thus providing for better individual performance. The employee must ensure use of efficient technologies and processes. This can be applied at the individual, group, organization, and social levels, providing that a common goal is sought. Similarly, Hernández and Rodríguez (2008) state that the main function of the human resources department is to find, maintain, and develop the human capital of the company by motivating and integrating (through values) the mission and vision of the company. This is accomplished by using competitive economic compensation and performance recognition systems that help improve the quality of life by linking the development plans and programs with those of individuals in such a manner that both sides achieve the best results.

As shown in the presented research, there are three variables that are constant in business performance research: business model, intellectual capital, and business reengineering.

F. Research Problem

This section describes the three hypotheses of the research model that will be tested using SEM: (a) intellectual capital directly influences business model, (b) intellectual capital and business model directly influence business reengineering, and (c) intellectual capital and business reengineering directly influence business performance.

Figure 1
Research model



The variables in the model: e1 = Error 1, e2 = Error 2, e3 = Error 3, IC = Intellectual Capital, BM = Business Model, BRE = Business Reengineering, and BP = Business performance.

III. METHOD DESCRIPTION

This study is quantitative, descriptive, transversal, and causal and was conducted in 2017. In the sample collection process, at The National Technological Institute of Mexico in Nuevo Leon campus, the authorization of the director was requested through a letter signed by the head of the research and industrial engineering projects. This office turned over the request to the director of Nuevo Leon CAINTRA (SMEs organization) that have 2,500 affiliated companies in the Nuevo Leon area. A group of students who performed professional residences in these companies was provided with 10 surveys each, totaling 233 surveys that involved 233 SMEs. The surveys were applied physically to directors in their facilities and in their free time while other directors scheduled appointments in order not to obstruct daily productive work of the company. The 233 sample represents 9.32% of the population. Using a level of trust of 95% with .5 positive variability and a 5% error, the ideal sample should be at least 181. In this research, 233 companies and directors were studied, hence having a representative sample. The final sample (after removing outliers) consisted of 206 SMEs directors in Monterrey, Nuevo León.

The data was collected using a questionnaire that was created by Sánchez Valdez (2018) with a 5-point Likert scale where 1 = *Never*, 2 = *Rarely*, 3 = *Sometimes*, 4 = *Very often*, and 5 = *Always*. There were four constructs and each construct had 16 questions, totaling 64 items. The reliability of the instrument was measured for each construct with the following Cronbach's alphas: (a) business model .921, (b) intellectual capital .937, (c) business reengineering .931, and (d) business performance .929.

The characteristics of the sample are as follows: (a) age: 20 to 30 years 48.3%, 31 to 40 years 28.6%, 41 to 50 years 19.7%, and 51 to 60 3.4%; (b) gender: men 79.3% and women 20.7%; (c) academic level: middle school .5%, high school 13.8%, undergraduate 69.0%, and graduate 16.7%; (d) area of responsibility: sales 3.9%, production 33.3%, purchasing 8.8%, administration 12.7%, and other areas 41.2%; (e) job position: operators 17.9%, supervisors 59.0%, managers 22.1%, and directors 1%; and (f) sector: sales 5.4%, manufacturing 89.6%, and service 5.0%.

A. Results and Analysis

Descriptive statistics

This section provides the arithmetic means (M) and standard deviations (S) of each construct. By analyzing the responses of the 206 directors, the arithmetic means were obtained for business model (M = 3.63, S = .65), intellectual capital (M = 4.00, S = .63), business reengineering (M = 3.93, S = .69), and business performance (M = 4.25, S = .60).

Table 1 shows the frequency distribution of the business model construct and that most companies *very often* (50%) have a business model.

Table 1
Frequencies (f) of the innovative business model

Scale	*F*	%
Rarely	10	4.9
Sometimes	68	33.0
Very Often	103	50.0
Always	25	12.1
Total	206	100.0

Table 2 shows that most of the surveyed directors *very often* (57.3%) perceive that SMEs have good intellectual capital.

Table 2
Frequencies of intellectual capital

Scale	*F*	%
Rarely	2	1.0
Sometimes	38	18.4
Very Often	118	57.3
Always	48	23.3
Total	206	100.0

Table 3 shows the frequencies of business reengineering by employees and that changes in work tasks and more efficient activities are *very often* (54.4%) promoted (business reengineering).

Table 3
Frequencies of business reengineering

Scale	*F*	%
Rarely	5	2.4
Sometimes	38	18.4
Very Often	112	54.4
Always	51	24.8
Total	206	100.0

Table 4 shows the frequencies of the perception of SMEs' performance and that most directors view that SMEs *very often* (50%) have good performance.

Table 4
Business performance frequencies

Scale	*F*	%
Rarely	3	1.5
Sometimes	15	7.3
Very Often	103	50.0
Always	85	41.3
Total	206	100.0

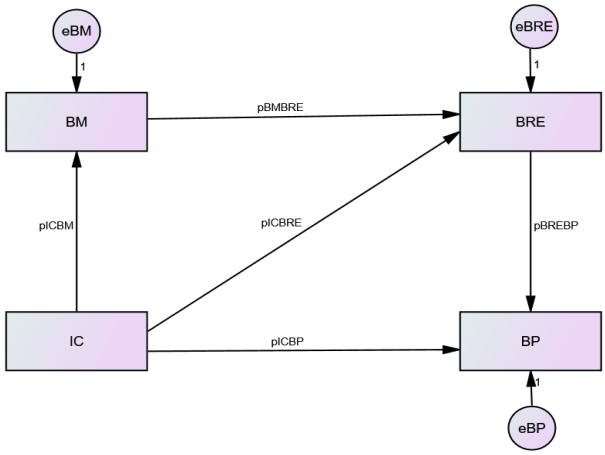
B. Model Analysis

Pérez, Medrano, and Sánchez Rosas (2013) mention that when SEM is used, the following steps are usually followed: specification, identification, parameter estimation, fit assessment, and interpretation of results.

Regarding the specification of the model, the intent is to prove the following: (a) intellectual capital directly influences business model, (b) intellectual capital and business model directly influence business reengineering, and (c) intellectual capital and business reengineering directly influence business performance.

The model is specified using structural equations that describe the direct relationships between variables. More specifically, one equation is used for each endogenous variable, and the standardized coefficients are used. The equations are the following.

Figure 2
Model with standardized coefficients



The variables in the model are: BM= pICBM+ eBM (Business model = probability of intellectual capital and business model + error of business model), BRE= pBMBRE + pICBRE + eBRE (Business reengineering = probability of business model and business reengineering + probability of intellectual capital and business reengineering + error of business reengineering), BP= pICBP + pBREBP + eBP (Business performance= probability of intellectual capital and business performance + probability of business reengineering and business performance + error of business performance)

1. Business model (BM): BM= pICBM+ eBM
(Business model = probability of intellectual capital and business model + error of business model)
2. Business reengineering (BRE): BRE= pBMBRE + pICBRE + eBRE
(Business reengineering = probability of business model and business reengineering + probability of intellectual capital and business reengineering + error of business reengineering)
3. Business performance (BP): BP= pICBP + pBREBP + eBP
(Business performance= probability of intellectual capital and business performance + probability of business reengineering and business performance + error of business performance)

The model is overidentified since the degrees of freedom are greater than zero, which indicates that the model can be estimated and contrasted. Hair, Anderson, Tatham, and Black (2007) note that the goodness of fit index can be used to evaluate the fit of the model. The criteria used most often are selected from the list as follows: the Chi squared (X^2), the comparative fit index (CFI), the goodness of fit index (GFI) and the root mean squared error of approximation (RMSEA).

Table 5
Goodness of fit statistics

Statistic	Abbreviation	Criterion
Absolute fit		
Chi-squared	X^2	Significance level > .05
Ratio chi-squared/degrees of freedom	X^2/df	Less than 3
Comparative fit		
Comparative fit index	CFI	≥ .95
Tucker-Lewis index	TLI	≥ .95
Normed fit index	NFI	≥ .95
Parsimonious fit		
Parsimonious normed fit index	PNFI	Close to 1
Other		
Goodness of fit index	GFI	≥ .90
Adjusted goodness of fit index	AGFI	≥ .95
Root mean squared residual	RMR	Close to zero
Root mean squared error of approximation	RMSEA	< .10

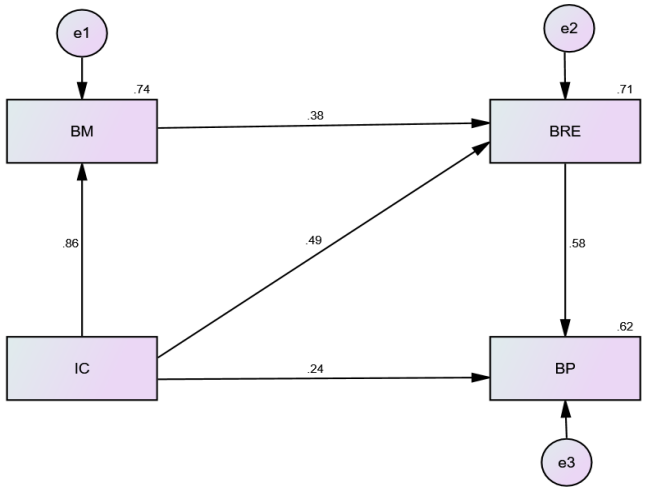
C. Assumptions

Before the statistical tests are carried out, it is necessary to examine the data to ensure that the normality criterion is met. The Mahalanobis distance criterion was used to remove outliers. The dataset was cleaned to ensure normality and 27 outliers were eliminated, which left a dataset with 206 responses.

D. Interpretations of results

The structural equations and the Amos software were used on the null hypotheses and a good fit was found for the theoretical and empirical model, and the results are as follows: $X^2 = 2.104$, $p = .147$, RMSEA = .073, GFI = .995, NFI = .997, and CFI = .998.

Figure 3
Research model with the AMOS software results



x2 = 2.104 p = .147 RMSEA = .073 GFI = .995 NFI = .997 CFI = .998

Table 6 shows the total effect of IC on BP (β = .714), BM on BP (β = .579), and BRE on BP (β = .579). The proportion of explained variance in the model was acceptable since 62% of the variability of business performance was explained.

Table 6
Total (T), direct (D) and indirect (I) effects of the variables that were included in the model

	IC	BM	BRE
	T = .858		
BM	D = .858	0	0
	I = 0		
	T = .820	T = .383	
BRE	D = .491	D = .383	0
	I = .328	I = .0	
	T = .714	T = .221	T = .579
BP	D = .240	D = .000	D = .579
	I = .474	I = .221	I = .000

The direct effect and coefficient of determination (R^2) of each endogenous variable are analyzed for the following hypotheses.

H1: Intellectual capital (IC) is not a predictor of business model (BM).

According to the path analysis, IC is a significant predictor of BM (β = .933 and p = .000). The direct effect (β) is equal to .858 and R^2 is equal to .736, which indicates that IC explains 74% of BM's variance.

H2: Intellectual capital (IC) and business model (BM) are not predictors of business reengineering (BRE).

The regression coefficients show that IC is a significant predictor of BRE (β = .506, p = 0.000) and BM is a significant predictor of BRE (β = .362, p = 0.000). Table 6 shows the total, direct, and indirect effects. The direct effect of the standardized coefficient of IC on BRE is β = .491 and that of BM on BRE is β = .383. The R^2 value is .710, which indicates that IC and BM explain 71% of the variance of BM.

H3: Intellectual capital (IC) and business reengineering (BRE) are not direct predictors of business performance (BP).

This hypothesis was tested using IC and BRE as direct predictors of business performance. According to the path coefficients analysis, IC is a significant predictor of BP (β = .227, p = 0.001) and BRE is also a significant predictor of BP (β = .532, p = 0.000). The direct effect of IC on BP is β = .240, and the direct effect of BRE on BP is β = .579. R^2 is .620, which indicates that IC and BRE explain 62% of the variance of BP.

IV. DISCUSSION AND CONCLUSIONS

This research proposed and analyzed an empirical model in which intellectual capital and business reengineering directly influence business performance, and the business model indirectly influences business performance, which is based on the perceptions of SMEs directors in Monterrey, Nuevo León, Mexico.

Cassol, Reis Gonçalo, Santos, and Lima Ruas (2016) analyzed a strategic management model with intellectual capital as the promoter of innovation (business model) with respect to absorptive capacity practices. The results empirically proved that the intellectual capital model can be fostered by practices that stimulate innovation and that there is a relationship between the studied constructs. Therefore, intellectual capital was the best predictor of business model.

Ibarra-Cisneros and Hernández-Perlines (2019) studied the influence of intellectual capital on the performance of small and medium manufacturing companies in the region of Baja California, Mexico. The independent variable was intellectual capital and the following dimensions were used: (a) human capital, (b) organizational capital, (c) technological capital, (d) social capital, and (e) customer capital. The dependent variable was company performance and the result was that the intellectual capital variable explained 65.5% (R^2) of the variation of the dependent variable, organizational performance. The standardized beta (β) showed that organizational capital was the best predictor (β = .595), customer capital was the second-best predictor (β = .175), and social capital (β = .169) was the third best predictor.

Ortiz García (2016) researched the owners of family businesses in Southern Huasteca in the state of San Luis Potosí and Sierra Sur in the state of Oaxaca using a stratified sample with 205 owners of family businesses. The standardize coefficients of the endogenous variables were the following: (a) administrative management .44, (b) operational management .72, (c) business performance .63, and (d) business competitiveness .64. The results showed that business reengineering processes positively and significantly impacted the administrative and operational management, and this improvement significantly affected business performance.

Basurto Gutiérrez (2016) conducted research using survey data from 134 company directors from Monterrey, Nuevo León who attended training at The Institute of Public Accountants of Nuevo León and The Employers Confederation of

the Mexican Republic. The research studied whether strategic planning was a primary predictor of innovation and social responsibility, which were also second level predictors of competitive advantages and the latter was a predictor of enterprise performance. The results showed that the reengineering process (competitive advantage) was a good predictor of business performance.

In accordance with the authors that were mentioned above, this research found that business reengineering and intellectual capital significantly influenced business performance (R^2 = .62). It also found that intellectual capital significantly influenced business model (R^2 = .74) and intellectual capital, and business model significantly influenced business reengineering (R^2 = .71). Therefore, our results confirm the existing theory. This research provides empirical evidence that business reengineering and intellectual capital directly influence business performance, and business model indirectly influences business performance.

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