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Competitive intelligence as a factor of the innovation capability in Mexican companies: A structural equations modeling approach

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Competitive intelligence as a factor of the innovation capability in Mexican companies: A structural equations modeling approach

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ABSTRACT In today's world markets, where rivalry is increasingly intense, companies face pressure to deliver better results in a shorter time. The continual technological change produces more efficient equipment, processes and products, new business relationships due to emerging and unexpected substitute products, as well as changing consumer preferences. In this constantly changing environment, companies need useful information to develop strategies, make decisions and implement them throughout the organization to increase their competitiveness and market share. This is not easy or straightforward, it begins at the company's strategy level and ends with the creation, development, and deployment of the technological capabilities necessary to provide agile and flexible responses to customers, market situations, and technological changes. The innovation capability of companies plays an important role, as it is a critical strength, technology-based and strategic in nature, with the purpose of creating and developing new products and improved processes. This is a continuous source of competitive advantage, and a necessary element for companies that operate in highly competitive environments and under growing rivalry, in order to improve technological innovations and developments. This information is essential for decision-making and one way to generate it is through methodologies, among which competitive intelligence stands out. This article presents an investigation using a structural equation modeling methodology to evaluate the relationships between competitive intelligence and innovation capability of Mexican companies. The empirical results show that competitive intelligence has an important indirect impact on three main functions of innovation capability: creation of new concepts, innovation and technological development, and development/improvement of ideas for products, processes, and equipment. The indirect effect is through knowledge management as a mediating factor.

KEYWORDS Competitive intelligence, innovation capability, structural equations modeling

1. INTRODUCTION

Business environments are characterized by their high volatility, turbulence and uncertainty. Some industries pose extreme dynamism, under increasing rivalry the emergence of technologies are the source of important disruptions. In such conditions, analysis and decision making are highly complex. Therefore, making the right decision depends on the analysis of the available information. But this is just the first problem, collecting data and producing useful information, adequately and on time, are difficult tasks. Nonetheless, the processes for data collection, and information and knowledge management, are not as effective as needed. This is even though it is clear that companies do not take advantage of the knowledge obtained by their experience, nor do they track environmental and competitiveness variables. In the search for explanations, the theory related to knowledge is developed in three fields of knowledge: competitive intelligence (CI), knowledge management (KM), and intellectual capital (IC).

CI is a process or practice that produces and disseminates actionable intelligence by planning, collecting, processing and ethical and legal analysis of the internal and external or competitive environment, in order to assist decision makers and to provide a competitive advantage to the company (Pellissier and Nenzhelele, 2013). Application of CI has increased in the last decades and it has become more formalized (Sewdass & Calof, 2020). CI is defined as a systematic effort with specific, ethical and timely objectives for the gathering, analysis and synthesis of relevant information regarding competitors, markets and the economic environment, which also constitute a good source of competitive advantage (Fleisher, 2009; Rodríguez & Chávez, 2011). This information leads to better business planning, including research, marketing and development projects. CI is a common practice because of the importance of tracking technology trends, the reduction of associated risks and the acquisition of the right technologies (Brody, 2008; Fuld, 2006).

KM research shows how the important role of good knowledge management contributes significantly to improving organizational performance (Sundiman, 2018). It has an utmost interest for information and business management, communication, industrial engineering, and psychology because of the contributions to the organization (Rodríguez Gómez, 2006). Among other functions, KM is dedicated to the development of the capabilities and activities required for the design and improvement of goods, process, and production technologies (Díaz, 2007). Two of the most important sources of competitive advantage are the knowledge and the capabilities to learn and execute plans.

IC can be defined as the sum of all of the intangible and knowledge-related resources that an organization is able to use in its production processes in the attempt to create value (Lerro et al., 2014). It is the set of intangible assets that, when well-managed, can be a source of sustainable competitive advantages. It is useful knowledge for the creation of value and increased profitability (Alama et al., 2006). IC has three widely accepted elements: human capital integrates attitudes, abilities, experiences of the people; structural capital includes intellectual property, such as patents, results of research and development, policies, strategies, and information, closely related to innovation capability; and relational capital deals with the value of the business relations with its environment, such as customers and suppliers (Hormiga et al., 2011; Díez et al., 2010).

Innovation capability (InC) is a firms' fundamental strategic asset to sustain competitive advantage (Ponta et al., 2020). It is the ability to continuously transform knowledge and ideas into new products, process, and system for the benefit of the firm, and is a set of organizational capabilities and resources. These are highly dynamic in nature with the purpose of managing and deploying innovation strategies, searching for the creation and development of the sustainable competitive advantage required for adequate and flexible responses to market challenges. Robledo et al (2010) includes the people abilities and their best organization (Lugones et al., 2007) in this as well.

Although the purposes and the specific study are different, the factors that explain the creation and development of innovation capacities could be affirmed that they are common, but their relative importance is not conclusive. As for CI, it is less frequently applied because it is a newer field and its strategic focus and more specialized functions reduce the widespread use. Still, it is considered an important task because it has a great effect on the economic environment. This is because it has a continuous flow of innovations and technological developments that exert pressure on all competitors, driving innovation throughout the system (Fagerberg & Srholec, 2008).

This article presents an evaluation of structural relationships between CI, KM, and IC as influencing factors of InC of Mexican companies established in Torreon city, located in Northeast Mexico. The economy of the region is based on agricultural, textile, metallurgical, chemical, commerce, and services industries. The sector of maquiladoras, international companies, is devoted to textile, electronics, and automotive production.

Similar research was done in 2018 in companies from the Juarez city, Mexico-El Paso, Texas, USA, region (Poblano et al, 2019). Ciudad Juárez is an industrial city in northern

Mexico on the banks of the Rio Grande, and it is the largest city in the state of Chihuahua. It has an economy based on the manufacturing industry made up of more than 380 companies, which are located strategically at border bridges and in fast access areas.

Bases on the review of related studies, the hypotheses to be tested empirically are:

H_1: Competitive intelligence influences the innovation capability,

H_2: Competitive intelligence influences knowledge management,

H_3: Knowledge management influences innovation capability.

The factors are discriminated by their impact on innovation capabilities through structural equation modeling (SEM), so that companies can benefit from the knowledge of their current state and the possible measures for improvement.

Statistical analyses begin with the identification of outliers using the Mahalanobis distance method. The internal reliability of the questionnaire, the Kaiser-Meyer Olkin test, is measured for the suitability of the sample, and Bartlett's sphericity test for the correlations to determine the suitability of the model. Subsequently the regression weights and factor correlations are determined by means of the principal components extraction method and the rotation is performed by Promax. Then the convergent and discriminant validation is carried out, as well as the estimation of the adjustment indices for the validation of the questionnaire constructs.

The SEM uses a confirmatory approach for the analysis of theories that present relationships between observed variables (items) and latent variables or factors. Byrne (2010) begins with the specification of the model. For the specification of the model, Lomax & Schumacker (2012) recommend the definition of relationships with the variables of the theoretical model and for the determination of the best model, capable of producing the sample covariance matrix. To determine the differences between the real model and the data, all the parameters are considered free, restricted, or fixed and by their combination, the implicit variance-covariance matrix of the model is constructed. This is followed by identification, estimation, testing, and modification (Lomax & Schumacker, 2012). Statistical analyses were performed with Minitab v17, SPSSv.22, and Amos v.22.

Table 1 Dimensions and their critical factors.

Dimension	Critical Factors	Item Code	References
Competitive Intelligence	CI activity planning The collection of environmental information The analysis of information to generate intelligence, The administration of useful information (intelligence), Decision-making based on intelligence, CI staff talent management.	CI01, CI02, CI03, CI04, CI05, CI06, CI07	Stefanikova et al. (2015); Dishman y Calof (2008); Rodríguez y Tello (2012); Fleisher (2009); Nenzhelele (2014); Calof, (2014); Peyrot et al. (2002).
Knowledge Management	Information system, Human factor management, Employee empowerment, Organizational structure, Knowledge sharing.	KM01, KM02, KM03, KM04, KM05	Salojärvi et al. (2005); Ghannay et al. (2012); du Plessis (2007; Tzortzaki y Mihiotis (2014); Martins et al. (2003).
Intellectual Capital	HC: Professional level, Training and development, Attitude to share knowledge; SC: Information System, Staff participation, Ability to innovate; RC: Relationship with customers and suppliers, Strategic Alliances, Relationship with organisms (public & private).	IC01, IC02, IC03, IC04, IC05, IC06 IC07, IC08, IC09	Díez et al. (2010); Díaz (2007); Sveiby (2001); Boekestein (2006); Santos-Rodríguez et al. (2011); Huang et al. (2010); Kianto et al. (2017).
Innovation Capability	Generation of ideas, Generation of new concepts, Generation of new products, Generation of new processes, Intellectual property.	InC01, InC02 InC03, InC04 InC05	Robledo et al. (2010); Lugones et al. (2007); Güemes y Rodríguez (2007); Dodgson et al. (2008); Tidd y Bessant (2009).

Table 2 Sample characteristics (n=195).

Characteristics	Frequency	Percentage	Accumulative %
Gender			
Male	148	75.8	75.8
Female	47	24.2	100.0
Age			
Less than 25	76	38.9	38.9
Range 25 - 35	65	33.4	72.3
Older than > 35	54	27.7	100.0
Experience in related position			
< 1	77	39.5	39,5
2 - 7	55	28.2	67.7
> 7	63	32.3	100.0

2. METHODS AND DISCUSSION

The methodology has a quantitative focus, used data gathered and statistical analyses to test hypotheses and obtain an enhanced understanding of the phenomena (Malhotra, 2008; Hernández et al., 2014). The scope was correlational with the purpose of determining the relation between two or more factors and variables in their specific context. The design was non-experimental and transversal, correlational-causal, collecting data in a single trial (Hernández et al., 2014).

In the literature review of the four dimensions (latent variables), the most frequent critical factors mentioned were selected, subsequently, for each of the factors. Items were established for their measurement, yielding a set of 26 items for IC, KM, IC and InC (Table 1). Data collection was carried out through a questionnaire, which was previously validated in content, reliability, and construct (Poblano Ojinaga, 2019).

The questionnaire used five Likert scale categories, ranging from 1, which means "strongly disagree" to 5, "strongly agree". The sample size was 195, Table 2 presents its demographic characteristics.

The collection of sample data was carried out through non-probabilistic convenience sampling. The sample elements were selected because they were determined through a census and willingness to participate (Malhotra, 2008). The questionnaire was given

Table 3 Sample correlation matrix for data (n = 167).

	CI01	CI02	CI03	CI04	CI05	CI06	CI07	KM01	KM02	KM03	KM04	KM05	In01	InC02	InC03	InC04	InC05
CI01	1.000																
CI02	.694	1.000															
CI03	.530	.667	1.000														
CI04	.430	.492	.733	1.000													
CI05	.419	.549	.592	.684	1.000												
CI06	.403	.523	.652	.587	.600	1.000											
CI07	.494	.513	.536	.491	.502	.650	1.000										
KM01	.351	.398	.453	.377	.407	.524	.432	1.000									
KM02	.282	.285	.296	.285	.336	.357	.471	.473	1.000								
KM03	.306	.433	.419	.410	.419	.433	.462	.379	.520	1.000							
KM04	.288	.360	.414	.400	.429	.423	.449	.384	.331	.470	1.000						
KM05	.261	.367	.494	.492	.461	.483	.409	.435	.370	.446	.598	1.000					
InC01	.220	.345	.331	.246	.251	.269	.229	.299	.248	.340	.537	.413	1.000				
InC02	.141	.297	.313	.277	.304	.287	.183	.338	.126	.288	.490	.376	.710	1.000			
InC03	.049	.156	.265	.208	.124	.273	.149	.188	.151	.233	.249	.284	.407	.585	1.000		
InC04	.073	.188	.275	.269	.193	.288	.244	.194	.245	.315	.307	.378	.405	.464	.522	1.000	
InC05	.025	.172	.206	.146	.067	.222	.164	.093	.053	.248	.232	.281	.274	.401	.479	.401	1.000
s.d	0.567	0.522	0.523	0.522	0.511	0.545	0.521	0.553	0.536	0.504	0.589	0.556	0.580	0.570	0.666	0.569	0.861
means	4.545	4.449	4.383	4.449	4.449	4.377	4.371	4.425	4.503	4.401	4.341	4.377	4.395	4.257	4.120	4.210	3.868

Table 4 Convergent validity.

DIMENSION		Factor Loading	AVE	CR	Cronbach's Alpha
Competitiva Intelligence					
Item	CI01	.731			
	CI02	.822			
	CI03	.869			
	CI04	.806			
	CI05	.781			
	CI06	.775			
	CI07	.707	**0.62**	**0.92**	**0.90**
Knowledge Management					
Item	KM01	.695			
	KM02	.815			
	KM03	.748			
	KM04	.680			
	KM05	.679	**0.53**	**0.85**	**0.80**
Innovation Capability					
Item	InC01	.732			
	InC02	.842			
	InC03	.783			
	InC04	.715			
	InC05	.666	**0.56**	**0.86**	**0.80**

to 195 people (Managers and supervisors) from 14 multinational companies that produce auto parts, textiles and electronics (Lloret-Segura et al., 2014).

The Mahalanobis Distance method eliminated 28 questionnaires. Using the remaining 167 questionnaires, the Cronbach alpha gave a 0.91, indicating it is reliable (Tavakol & Dennick, 2011). The Kaiser-Meyer-Olkin test gave 0.880, indicating low partial correlations, measuring as a common factor. Chi-Square = 1466.491, DF = 136, and a p-value = 0.000 meaning that the correlations matrix is not an identity one, with high correlations, which is acceptable (Levy et al., 2003).

In the initial factorial analysis, the IC was eliminated because the items do not comply with the convergent validity criteria, although in the literature report an impact of intellectual capital on competitive intelligence (Santos-Rodrigues, 2011; Wang y Chen, 2013; Sivalogathasan & Wu, 2013). A correlation matrix of the data are presented in Table 3.

Table 5 Discriminant validity.

	CI	InC	KM
CI	**0.62**		
InC	0.16	**0.56**	
KM	0.39	0.21	**0.53**

The correlations and factor loading (FL) were determined using the principal axes method to extract the factors and the Promax method for their rotation. The FL indicates the correlation between the factor and the variable, observing that for all the items it was greater than 0.60, exceeding the recommended level (Lin, 2007). Convergent and discriminant validity was measured with the above information. Convergent validity is the degree to which multiple attempts to measure the same concept agree (Table 4). The composite reliability values (CR) show the degree to which the indicators explain the latent construct, where values in a range of 0.85 to 0.92 were obtained. In all cases this exceeded the recommended level of 0.70. Likewise, the average variances extracted (AVE) reflected the total amount of variation in the indicators, explained by the latent construct. Values ranged between 0.53 and 0.62, exceeding the recommended level of 0.5 (Lin, 2007).

Discriminant validity is the degree to which the measures of the concepts are different, for which the squared correlations of the construct are compared between the mean variance extracted for the construct. Discriminant validity occurs when the elements on the

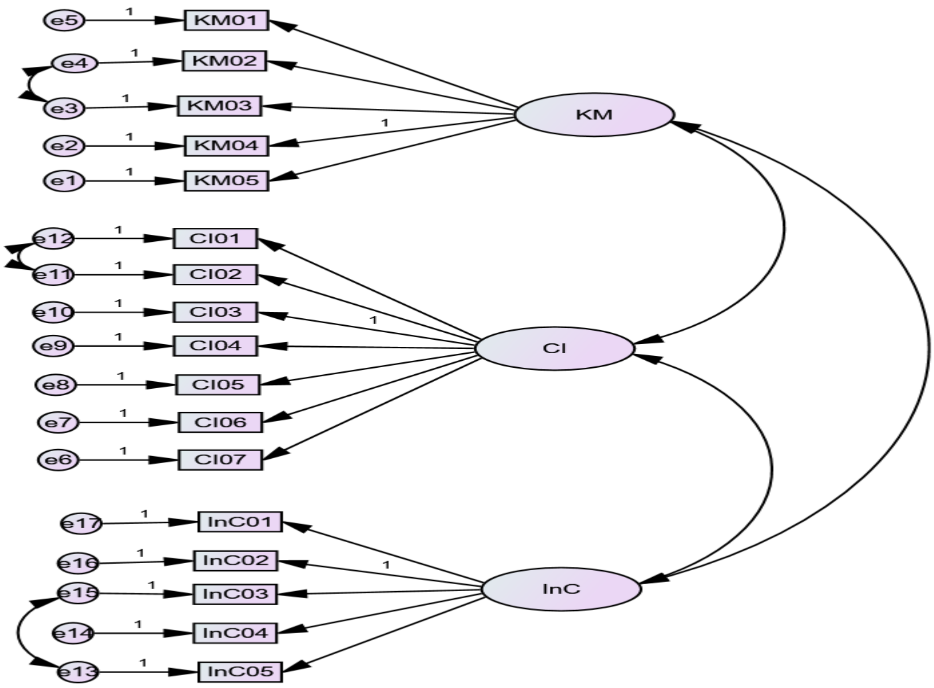

Figure 1 Measurement model of CI, KM and InC.

diagonal (AVE) are greater than the elements below the diagonal (Matzler & Renzl, 2006). The results show that the square correlations for each construct are less than the mean variance extracted (Table 5).

The analyses show that the results met the criteria of convergent and discriminatory validity. Therefore, the confirmatory factor analysis (CFA) was carried out with the three factors and their 17 corresponding items (Figure 1). The CFA results for the measurement model show a Chi-square = 224.274, p-value = 0.000 and CMIN / DF = 1.985 value less than the recommended value of 3. Given AGFI = 0.82, greater than 0.80; the comparative adjustment index, CFI = 0.92, is higher than the recommended 0.9 (Chau & Hu, 2001). The root of the mean square error of approximation, RMSEA = 0.077, was less than the proposed 0.08 limit (Browne & Cudeck, 1993), and since the variance-covariance data fit the structural model well, the construct is valid.

The hypothetical model has three latent variables (or factors) and 17 observed variables (items). It shows three structural relationships: competitive intelligence influences innovation capability (H1); competitive intelligence influences knowledge management (H2) and knowledge management influences innovation capability (H3).

For the model identification, the number of free parameters to estimate must be equal to or less than the number of different values in the matrix S. Since the number of estimated values (153) was greater than the number of free parameters, the model was identified and the estimation of the parameters followed.

For the estimation of the parameter, the regression weights and the structural coefficients of the hypothetical model indicate that, with the exception of the IC - InC, they were significant because the p-value was less than $\alpha = 0.05$. This was run with AMOS v.22 with a maximum likelihood method for normally distributed, ordinal, or moderately abnormal data. For the model test, given the set of fit indices used and the values presented in Table 3, the degree to which the variance-covariance data fit the hypothetical structural model was acceptable. The fit seemed reasonable, although modification could improve the model fit.

For modifying the model to improve its fit, additional parameters were included such as modification indices, with three covariances between errors, e3-e4, e11-e12, and e13-e15. In the maximum likelihood method, the factorial loads are statistically significant, different from 0.00 ($p < 0.05$), except for the path between competitive intelligence and innovation capability. Furthermore, given that Chi-square = 224.74, the p-value = 0.000 and CMIN / DF; AGFI; RMSEA, meet the corresponding criteria, presented in Table 6.

Finally, Figure 2 presents the hypothetical structural model, which shows three factors

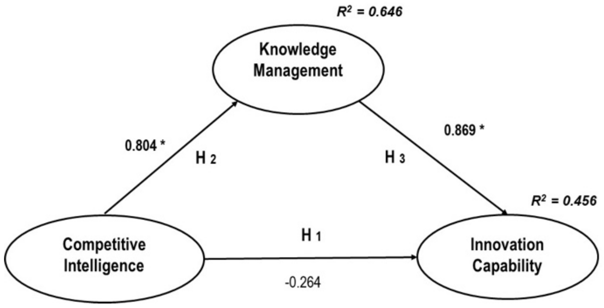

Figure 2 Hypothetical structural model (Pv < 0.001*).

with their structural coefficients and the SMC (R2) for the endogenous variables KM and InC. Assuming that the estimates are an effect of the latent variables of the three hypotheses raised in the study, H2 and H3 have significant structural coefficients, which indicate that there is enough evidence to accept that CI influences KM, and KM also has an influence on the InC.

CI has a positive effect on KM, and the latter has a positive effect on the InC, results coinciding with Sundiman, (2018) and Le & Lei (2019). There is also evidence that the real effect is enhanced with careful KM (de Almeida et al., 2016)

In addition, H1 is rejected for not having sufficient statistical evidence that CI has a significant direct effect on the InC in Mexican companies. In this case, the empirical results coincide with those reported by Güemes & Rodríguez (2007) that CI activities are not formally carried out in Mexican companies to improve the innovation of products and services. Poblano et al., (2019) report the same in plants located in Ciudad Juárez, Mexico, mainly because IC is still a relatively young discipline (Alnoukari Hanano, 2017) in most Mexican companies.

However, although there is no direct effect of CI on InC, there is a significant indirect effect through KM (Table 7). This means that it becomes the mediating variable between CI and InC. These results support the importance of integrating KM and CI with the intention of obtaining better results and being a source of competitive advantage for companies (Dhujahat et al., 2017; Sundiman, 2018; Sharp, 2008; González- Gutiérrez, 2011; Rothberg and Erickson, 2013).

On the other hand, when analyzing the results of the total direct and indirect effects, high values are observed in the indirect effects, with the value of 0.698 between CI and InC. Table 7 presents the standardized effects between factors and the corresponding regression weights. The indirect effects (estimated with the bootstrap method) come from the use of CI and KM practices.

CI has a significant impact on three functions of KM: the activities for the shared use of knowledge and the learning obtained by experience (KM05, 0.600); the system for the management of innovation- (KM04, 0.588); and the measures taken for people empowerment (KM03, 0.507). Also an important indirect impact of CI on InC is observed in three functions. The production of new concepts (InC02, 0.384); analysis and decision making for innovation and technology development (InC01, 0.339); and on the development and improvement, ideas for products, processes and equipment (InC03, 0.276). These effects were statistically significant at a level of 0.05

Finally, the factor loadings indicate a high correlation between CI and InC, specifically, of the CI factors. The ones with the greatest impact are the collection and analysis of information from the environment, formally and systematically, for strategy purposes.

3. CONCLUSIONS

Although IC was discarded and a relationship with InC couldn't be verified, the contents of the former and reports in the literature indicate there has to be a direct effect, mainly with relational capital. This has a close relation with CI, since people have to have a deep understanding of the competitive environment, strategy formulation and deployment, and the management of knowledge. A relationship of structural capital with innovation is also observed, although it might be explained by the management of research and development, intellectual property such as patents and the learning obtained by experience. This focus also might explain the elimination of IC. For the people interviewed, there was no evident relation of its theoretical contents with innovation.

Table 6 Fit indexes of the measurement model.

Fit Index	**Chi-square**	**DF**	**CMIN/DF**	**CFI**	**RMSEA**	**AGFI**
Initial Model	290.264	116	2.502	0.875	0.095	0.77
Modified Model	224.74	113	1.985	0.920	0.77	0.817
Criteria			<3.0	>0.90	< 0.08	>0.80

Table 7 Standardized total, direct and indirect effects.

Relationship	Total Effects	Direct Effects	Indirect Effect
CI -- KM	**0.804**	0.804	0
CI -- InC	0.434	-0.264	**0.698**
KM -- InC	**0.869**	0.869	0

It seems that a formal integration of CI and KM and the description of the mediating effect of CI on InC is pertinent. This opens another research possible for the development of a system tracking competition variables such as emergent products and technologies and competitiveness, and feed them in an effective way to the functions that use them, such as design, engineering, marketing. The characterization of the indirect effects of CI on InC is also important. This could be through KM as an intermediate variable (mediator), which helps to explain how or why an independent variable influences a result (Glunzler et al., 2013). This assumption needs to be verified, including the mediating effect to gain a better comprehension of this phenomena. In this sense, it is suggested that future studies may consider the use of analytical and statistical methods to test relationships and measure IC practices, and move towards causals models (Calof & Sewdass, 2020), such as SEM which has proven to be a powerful tool for this purpose.

Likewise, these results may justify continuing with studies that evaluate the effect of CI on the InC of organizations considering the possibility of including a greater number of measurable variables than those considered in this study for the latent variables analyzed. However, in studies where a wide variety of variables are used only some of the CI measures had statistically significant correlations greater than .30, and it may not be enough to advance in the theory. Still, this could indicate that looking for a midpoint in the number of variables would be adequate. Even so, these studies indicate that further research in this direction is needed.

Table 8 Standardized indirect effects.

Variable	Competitive Intelligence	Knowlege Management
KM	0.000	0.000
InC	**0.698**	0.000
InC01	0.339	0.678
InC02	0.384	0.767
InC03	0.276	0.552
InC04	0.249	0.498
InC05	0.195	0.390
KM01	0.495	0.000
KM02	0.405	0.000
KM03	0.507	0.000
KM04	0.588	0.000
KM05	0.600	0.000

This paper constitutes evidence that SEM is a powerful tool for the determination of total or partial effects, direct or indirect, between a measurable variable and a latent variable, as in the effects between latent variables or constructs.

4. FUTURE RESEARCH

Although the main limitation of the study is the size of the sample, several aspects indicate that the study is still valid. These include the internal consistency of the questionnaire (Cronbach's Alpha) and KMO greater than the recommended of .70; compliance with cases of convergent validity and discriminant validity; and compliance with the model fit criteria.

On the other hand, to validate and generalize the results obtained, it is necessary to carry out the study with a larger sample of Mexican companies. It could also be a line of research to compare the results obtained from Mexican companies with transnational exporting companies located in Mexico.

The study of the effect of CI on InC, through the mediating effect of KM, in organizations that have developed an efficient system, raises another possible line of research

5. REFERENCES

Alama Salazar, Elsa; Martín de Castro, Gregorio; López Sáez, Pedro; (2006). Capital intelectual. Una propuesta para clasificarlo y medirlo. Academia. Revista Latinoamericana de Administración, segundo semestre, 1-16. http://www.redalyc.org/articulo.oa?id=71603702.

Alnoukari, M., & Hanano, A. (2017). Integration of business intelligence with corporate strategic management. Journal of Intelligence Studies in Business, 7(2).

Brody, R. (2008). Issues in Defining Competitive Intelligence: An Exploration. Journal of Competitive Intelligence and Management, 4 (3), 3–16.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage focus editions*, *154*, 136-136.

Byrne, B. (2010). Structural Equation Modeling With AMOS: Basic Concepts, Applications, Programming, 2nd edition.

Calof, J. (2014). Evaluating the Impact and Value of Competitive Intelligence From The users

Perspective - The Case of the National Research Council ' s Technical Intelligence Unit, 4 (2), 79–90

Chau P., & Hu P. (2001). Information technology acceptance by individual professional: a model comparison approach, Decision Sciences 32 (4) 699–719.

de Almeida, F. C., Lesca, H., &Canton, A. W. (2016). Intrinsic motivation for knowledges haring–competitive intelligence process in a telecom company. Journal of Knowledge Management.

Díaz, V. (2007). Gestión del conocimiento y del capital intelectual: Revista EAN, (61), 39–68.

Díez, J. M., Ochoa, M. L., Prieto, M. B., & Santidrián, A. (2010). Intellectual capital and value creation in Spanish firms. Journal of Intellectual Capital, 11(3), 348–367. http://doi.org/10.1108/14691931011064581

Dishman, P. L., & Calof, J. L. (2008). Competitive intelligence: a multiphasic precedent to marketing strategy. European Journal of Marketing, 42(7/8), 766-785.

Dodgson, M., Gann, D. M., & Salter, A. (2008). *The management of technological innovation: strategy and practice*. OUP Oxford.

du Plessis, M. (2007),"The role of knowledge management in innovation", Journal of Knowledge Management, Vol. 11 Iss 4 pp. 20 – 29

Fagerberg, J., & Srholec, M. (2008). National innovation systems, capabilities and economic development. Research policy, 37(9), 1417-1435.

Fleisher, C. S. (2009). Examining Differences in Competitive Intelligence Practice: China, Japan, and the West By, 3000, 249–261. http://doi.org/10.1002/tie

Fleisher, C. S. (2009). Examining Differences in Competitive Intelligence Practice: China, Japan, and the West By, *3000*, 249–261.

Fuld, L.M. (2006). The Secret Language of Competitive Intelligence. New York: Crown Business.

Ghannay, J. C., & Mamlouk, Z. B. A. (2012). Synergy Between Competitive Intelligence and Knowledge Management-a key for Competitive Advantage. Journal of Intelligence Studies in Business, 2(2).

Güemes, D., y Rodríguez, M. (2007). La relación entre la inteligencia competitiva y la capacidad innovadora de las empresas mexicanas Puzzle: Revista Hispana de La Inteligencia Competitiva, 6(26), 21–27.

Gunzler, D., Chen, T., Wu, P., & Zhang, H. (2013). Introduction to mediation analysis with structural equation modeling. Shanghai archives of psychiatry, 25(6), 390.

Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2014). Metodología de la investigación. 6ª. Edicion, Editoril Mc Graw Hill education, México D.F.

Hormiga, E., Batista-Canino, R. M., & Sánchez-Medina, A. (2011). The role of intellectual capital in the success of new ventures. International Entrepreneurship and Management Journal, 7(1), 71–92. http://doi.org/10.1007/s11365-010-0139-y

Huang, G. L., Hsu, H. L., & Cheng, W. S. (2010). The key factors to the successful generation of intellectual capital: The bank corporate loans department example. International journal of electronic business management, 8(2), 81.

Kianto, A., Sáenz, J., & Nekane, A. (2017). Knowledge-based human resource management practices, intellectual capital and innovation.

Le, P. B., & Lei, H. (2019). Determinants of innovation capability: the roles of transformational leadership, knowledge sharing and perceived organizational support. *Journal of Knowledge Management.*

Lerro, A., Linzalone, R., Schiuma, G., Kianto, A., Ritala, P., Spender, J. C., & Vanhala, M. (2014). The interaction of intellectual capital assets and knowledge management practices in organizational value creation. Journal of Intellectual capital.

Levy Manquin, J. P., Varela Mallou, J., & Abad Gonzalez, J. U. L. I. O. (2003). Analisis Multivariable Para Las Ciencias Sociales/Jean-Pierre Levy Mangin, Jesus Varela Mallou Y Julio Aban Gonzalez..(Etal) (No. Ha29. 5. S62. A52 2003.).

Lin, H. F. (2007). Predicting consumer intentions to shop online: An empirical test of competing theories. Electronic Commerce Research and Applications, 6(4), 433-442.

Lloret-Segura, S., Ferreres-Traver, A., Hernández-Baeza, A., & Tomás-Marco, I. (2014). El análisis factorial exploratorio de los ítems: una guía práctica, revisada y actualizada. Anales de psicología, 30(3), 1151-1169.

Lomax, R. G., & Schumacker, R. E. (2012). A beginner's guide to structural equation modeling. New York, NY: Routledge Academic. 3rd ed.

Lugones, G., Gutti, P., & Le Clech, N. (2007). Indicadores de capacidades tecnológicas en América Latina. CEPAL.

Malhotra, N. (2008). Investigación de mercados, quinta edición, editorial Pearson Educación.México ISBN:978-970-26-1185-1

Martins, E. C., & Terblanche, F. (2003). Building organisational culture that stimulates creativity and innovation. *European journal of innovation management*.

Matzler, K., & Renzl, B. (2006). The relationship between interpersonal trust, employee satisfaction, and employee loyalty. Total quality management and business excellence, 17(10), 1261-1271.

Pellissier, R. & Nenzhelele, T.E., (2013). 'Towards a universal definition of competitive intelligence', SA Journal of Information Management 15(2), Art. #559, 7 pages. http://dx.doi. org/10.4102/sajim.v15i2.559

Peyrot, M., Childs, N., Van Doren, D., & Allen, K. (2002). An empirically based model of competitor intelligence use. Journal of Business Research, 55(9), 747–758.

Poblano Ojinaga, E. R. (2019). Modelo Estructural de los Factores Críticos de Éxito de la Inteligencia Competitiva basado en la Administración del Conocimiento. Tesis Doctoral. Departamento de Ingeniería Industrial y Manufactura. Universidad Autonoma de Cd. Juárez. México.

Poblano-Ojinaga, E.R. López, R.R. Gómez, J.A.H. and Torres-Arguelles, V. (2019). Effect of competitive intelligence on innovation capability: An exploratory study in Mexican companies. Journal of Intelligence Studies in Business 9(3): 62-67.

Ponta, L., Puliga, G., Oneto, L.,& Manzini, R. (2020). Identifying the Determinants of Innovation Capability with Machine Learning and Patents. IEEE Transactions on Engineering Management.

Robledo, J., López, C., Zapata, W., & Pérez, J. D. (2010). Desarrollo de una Metodología de Evaluación de Capacidades de Innovación. Perfil de coyuntura económica, (15), 133-148.

Rodríguez Gómez, D. (2006). Modelos para la creación y gestión del conocimiento: una aproximación teórica.

Rodríguez M., & Tello M. (2012). Applying patent analysis with competitive technological intelligence: The case of plastics. Journal of International Business Studies, vol. 2, no 1, pp. 51–58.

Rodríguez, M., y Chávez, S. M. (2011). Propuesta de integración de la Inteligencia Competitiva y Tecnológica con el Kansei Engineering en el diseño de estufas de inducción magnética, 6(73), 827–844.

Salojärvi, S., Furu, P., & Sveiby, K. E. (2005). Knowledge management and growth in Finnish SMEs. Journal of knowledge management, 9(2), 103-122.

Santos-Rodrigues, H., Figuera-Dorrego, P., & Fernández-Jardón, C. (2011).La influencia del capital intelectual en la capacidad de innovación de las empresas del sector de automoción de la Eurorregión Galicia Norte de Portugal. Servizo de Publicacións da Universidade de Vigo.

Sewdass, N., &Calof, J. (2020). Contemporary Practices of Intelligence Support for Competitiveness. Форсайт, 14(3 (eng)).

Sharp S., (2008), "Competitive Intelligence Advantage: How to Minimize Risk, Avoid 2New Jersey.

Sivalogathasan, V., & Wu, X. (2013). Intellectual capital for innovation capability: a conceptual model for innovation. International Journal of Trade, Economics and Finance, Vol. 4, No. 3, June 2013

Stefanikova, Ľ., Rypakova, M., & Moravcikova, K. (2015). The impact of competitive intelligence on sustainable growth of the enterprises, 26(15), 209–214.

Sundiman, D. (2018). The effect of knowledge management on the strategic management process mediated by competitive intelligence in the small business company. Jurnal Manajemen Dan Kewirausahaan, 20(2), 105-115.

Sveiby, K. E. (2001). Knowledge Management–Lessons from the Pioneers.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International Journal of Medical Education, 2, 53–55.

Tidd, J., & Bessant, J. (2009). Innovation - What it is and why it matters. *Managing Innovation: Integrating Technological, Market and Organizational Change*, 3–43.

Tzortzaki, A. M., & Mihiotis, A. (2014). A review of knowledge management theory and future directions. Knowledge and Process Management, 21(1), 29-41.

Wang, D., & Chen, S. (2013). Does intellectual capital matter? High-performance work systems and bilateral innovative capabilities. International Journal of Manpower, 34(8), 861-879.