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INNOVATION RESULTS AND CUSTOMER KNOWLEDGE MANAGEMENT IN MÉXICO

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ABSTRACT

*Innovation in different Stages (**INNOVS**) is considered an important driver to create and increase the competitive advantage (OECD, 2005; White & Bruton,2011; INSEAD, 2013; Dussauge et al, 1992; Hill &Jones, 2011). By other hand, Knowledge management today, is considered a real factor for improving innovation in the firms (OECD, 2003; Canibano, et. al., 1999). Moreover, recent research (Gibbert, et al., 2002; Gebert et al. 2013) shows that driving the knowledge in the sense to obtain more precise information: for, from and about of the customers, the firms are more likely to sense emerging market opportunities before their competitors; this is called Customer Knowledge Management (**CKM**); so the question is: ¿how can innovation results or outcome items (**IOIT** as a stage of **INNOVS**), be improved by customer knowledge?. As a Hypothesis we proposed: given the **CKM** importance, this is present in at least on 50% of the variability of **IOIT** or innovation results.*
*This paper is aimed to resolve this; we proposed a conceptual model applied to the total population: 200 **CEOs** of the software developer sector in Guadalajara City, Jalisco, México (**SDSGC**). This model involves 4 independent variables/12 Dimensions/ 33 indicators from **CKM** with **INNOVS** that involves 6 independent variables/ 33 Dimensions/77 indicators. With this, we demonstrated the validity of the questionnaire what was designed on the Likert scale. After this, a pilot questionnaire was applied on a sample of 20 **CEO** as respondents and demonstrated its confidence using Cronbach's alpha for confidence test and running Multiple Regression Analysis (**MRA**) by Stepwise Method, to prove each variable to contrast.*
*The results obtained, allow us to measure the correlation level between the variables in study to discover **CKMADI** (**CKM** as a Driver of Innovation) and **CKMS** (**CKM** Support) are influencing the **IOIT,** between 36.5% and 40.3%. Therefore, this is the importance to integrate and increase them as competitive advantages in the **SDSGC**.*

Keywords: *Innovation Results, Customer Knowledge Management, Innovation Stages.*

1. INTRODUCTION

Today, are considered amongst others important key factor to develop competitiveness: the **CKM** (Garcia-Murillo & Annabi, 2002) and the **INNOVS** (Chesbrough et al. 2006). Therefore, this study is aimed to identify the **CKM** variables, dimensions and indicators that are predominant on the **INNOVS** of the 200 **CEOs** as a part of the **SDSGC**; they are considered as one of the most successful industrial sectors in the creation of innovation. This work is divided into the explanation of: **1)** introduction, **2)** contextual reference, **3)** problem, research questions, hypotheses and rationale for the study; **4)** literature review, which is a collection of concepts about **CKM** and **INNOVS**, closing with the design of the questionnaire; **5)** methodology; **6)** analysis of results; **7)** Conclusions; **8)** References.

2. CONTEXTUAL REFERENCE

One sector in México that is considered successful, fast-growing and highly dependent of **CKM** to drive the innovation in different stages is the **SDSGC**. According to INEGI (2014), into GC located in Jalisco state there are around 200 firms that are directly or indirectly related with SDSGC, which have

opportunities to develop them into the Digital Creative City program. The project, was officially announced on January 30, 2012 by President Felipe Calderon, to enable 1000 acres, with an early investment close to 1000 million USD looking for create 20,000 jobs in 10 years. Disney, Pixar Studios and Dreamworks already have shown interest in joining to the *Jaliwood* concept of Mexico, hence the importance of identifying and promoting in a systematic way, the major factors such as **CKM** to encourage the **INNOVS** in **SDSGC**. The Global Innovation Index Report (INSEAD, 2013) places México on site 63/142 that is reflected in its level competitiveness level, which is located on site 53/144 according to The Global Competitiveness Report 2012-2013 (WEF, 2013). Hence, the rationale for the study is to know the principal indicators for, from, about the customer (**CKM**) as information aimed to increase evenly the competitiveness by means of the innovation stages (**INNOVS**) in the **SDSGC**.

3. PROBLEM, RESEARCH QUESTIONS, RATIONALE FOR THE STUDY AND HYPOTHESIS

So, our problem is described in a general question as **GQ: ¿Which is the model that relates variables, from CKM to improve IOIT (INNOVS results)?** The rationale of the study is due the interest of the 200 CEOs from **SDSGC**, to identify what they have at this moment as competitive advantages to make decisions based on **CKM** to improve the **IOIT.**
The general hypothesis, **GH:** from the current knowledge and importance given by **SDSGC** firms to the **CKM**, this is present in at least on **50%** of the variability in their **IOIT** results.

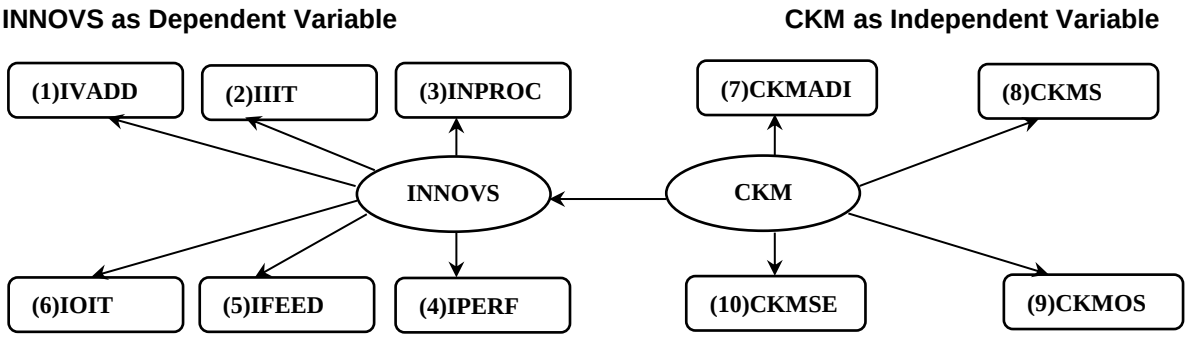
4. LITERATURE REVIEW

We have the **INNOVS** as a matter of study in several stages that we have proposed like a system, involving: value added to several agents apart the customer (Bonel, et al., 2003) the relation value-price (Gale & Chapman, 1994), the customer emotions and desires to identify the attributes of products and services (Chaudhuri, 2006). The early phase of innovation that recognize the idea (Kausch, et al,,2012), the tangible (Shipp, 2008; McKinsey, 2008) and intangible resources (Afuah, 1997; Canibano, 1999; Shipp, 2008; Lev, 2000; Howells, 2000 Popadiuk & Wei-Choo, 2006) As part of the procces, is impotant to consider the concepts like Research, Deevelopment and Innovation (R&D+i) (Shipp, 2008, McKinsey, 2008; OECD, 2005 Chesbrough, et al. 2006) and the lifecycle product (Gale & Chapman, 1994), the design, prototype and pre-production (Nicolai et al., 2011; Chesbrough, et al., 2006; Shipp,2008; McKinsey, 2008). The cycle of customer since the early innovation until the obsolete state of a product, is described by Rogers Model (1983) and Mejía-Trejo & Sánchez-Gutierrez (2013a); the efforts of the technology (Dussauge et al., 1992). The novelty, training and type of innovation is considered as primary prerogatives (OECD, 2005; Afuah, 1997) to determine the attributes and characteristics in the new product and service development (Shipp, 2008; McKinsey, 2008; Lev, 2001; Dussauge et al.,, 1992). The results must be measured, by means of indicators (Bermúdez-García, 2010) aimed to reinforce the agreements amongst the government, the firm and the universities (Smith & Leydesdorff, 2010).

By other hand, the competitiveness recognizes the potential of the **CKM** and **INNOVS** (Hill & Jones, 2011, Loudon & Loudon, 2012). Many authors have tried to identify different senses of CKM information like: for, from, about and to co-create (Nambisan, 2002; Desouza, et al., 2007; Nicolai, et al., 2011). Even more, there are efforts to determine the Negative side effects of Customer Integration (Kausch et al.,2012). The importance of how the knowledge can be supported by means of the human resources, the exchange amongst them, the rewards (Nicolai et al., 2011; OECD, 2003; Gebert,et al., 2013; Gloet & Samson ,2013) and the influence of the Information and Communication Technologies (ICT) (Laudon & Laudon ,2012) is evident to boost the innovation stages. The firm must keep special care about the internal and external sources of information and how to extract them for **CKM** process (Baker & Hart, 2007; Garcia-Murillo & Annabi, 2002; Geber, et al., 2013). It´s important to remark the results around the terms of satisfaction, experience and performance as principal indicators of the **CKM** (Garcia-Murillo & Annabi, 2002).
Finally, like an autocontrolled system there must be an information feedback of innovation, by means of capital investment (Lev, 2001;Shipp (2008); Nicolai; et al., 2011), the improvement to the firm due the product, service, process, marketing, organizational, technology, infrastructure and other aspects of the innovation (Dussauge et al., 1992; OECD, 2005; Chesbrough et al., 2006; White & Bruton, 2011), value added (Bonel, et al., 2003; Gale & Chapman (1994) and the kind of leadership that boost the innovation

(Mejía-Trejo,et al. 2013b). As a result of the documentary analysis and making several groups of concepts, we obtained the **Figure 1.**

Figure 1.-GENERAL CONCEPTUAL MODEL



Source: Mejía-Trejo et al. 2014

Notes: (1).-Innovation Value Added (**IVADD**); **(2)**.-Innovation Income Items (**IIIT**); **(3)**.- Innovation Process (**INPROC**); **(4)**.- Innovation Performance (**IPERF**); **(5)**.- Innovation Feedback Items (**IFEED**); **(6)** Innovation Outcome Items or Results of Innovation (**IOIT**); **(7)**.- **CKM** as a Driver of Innovation (**CKMADI**) ; **(8)**.- **CKM** Support (**CKMS**); **(9)**.- **CKM** other Sources of Knowledge (**CKMOSK**); **(10)**.- **CKM**, Satisfaction, Experience and Performance (**CKMSEP**).

5. METHODOLOGY

This is a descriptive and transversal study; it is based on documental research, taking a previous conceptual model and questionnaire designed by Mejía (et al., 2014) to obtain: 4 independent variables/12 Dimensions/ 33 indicators from **CKM** and **INNOVS** that involves 6 dependent variables/ 33 Dimensions/77 indicators. This study is especially focused at the stage **IOIT**. The subjects of the study were the managers from 200 **CEOs** in **SDSGC**. The results were analyzed through statistical inference tools like: Cronbach's Alpha in pilot test and **MRA** with Stepwise method, contained in the SPSS 20 program.

6. ANALYSIS OF RESULTS

About the statistical inference tools from SPSS 20 program, were obtained:

I. The questionnaire confidence to 20 CEOs of **SDSGC** by Cronbach's Alpha test **=.947**

Table 1.- CRONBACH'S ALPHA TEST

Cronbach's Alpha	Standardized Alpha	N of Cases	N of Variables
.947	.948	20	110

Source: SPSS 20 as a result of the research and adapted by the authors

According by Hinton (et al. 2004), we have: • 0.90 and above shows excellent reliability; • 0.70 to 0.90 shows high reliability; • 0.50 to 0.70 shows moderate reliability; • 0.50 and below shows low reliability.

II. **MRA** by Stepwise Method was practiced with the next results:

II.1 Correlations amongst the variables are shown in **Table 2.**

Table 2.-PEARSONS CORRELATION

		IOIT	**CKMADI**	**CKMS**	**CKMOSK**	**CKMSEP**
Pearson Correlation Coefficient	**IOIT**	1.000	**.604**	**.554**	.527	.017
	CKMADI	**.604**	1.000	.679	.628	.073
	CKMS	**.554**	.679	1.000	.718	.091

	CKMOSK	.527	.628	.718	1.000	.194
	CKMSEP	.017	.073	.091	.194	1.000

Source: SPSS 20 as a result of the research and adapted by the authors.
As a general rule, predictor variables can be correlated with each other as much as 0.8 before there is cause for concern about multicollinearity (Hinton, et al. 2004; Hair et al., 2010).

II.2 **Table 3** shows the set of variables entered/removed (a)

Table 3.- VARIABLES ENTERED/REMOVED

Model	Variables Entered	Variables Removed	Method
1	**CKMADI**		Stepwise (Criteria: Probabilityof- F-to-enter <=.050, Probabilityof- F-to-remove >=.100).
2	**CKMS**		

(a) Dependent Variable: **IOIT**
Source: SPSS 20 as a result of the research.

• The Variables Entered/Removed table shows that the Stepwise method of regression has been used.
• Notice that SPSS has entered into the regression equation the two variables: **CKMAD**I and **CKMS** that are significantly correlated with **IOIT**

II.3 **Table 4** shows the Model Summary where we can see Model 1 the independent variable **CKMADI** accounts for 36.5 % of the variance and Model 2 with the independent variable **CKMS** accounts for 40 % of the variance in the scores of **IOIT** dependent variable respectively.

Table 4.- MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error for estimate
1	.604 (a)	**.365**	.362	.557
2	.635 (b)	**.403**	.397	.541

(a) Predictors: (Constant),**CKMADI** ;
(b) Predictors: (Constant), **CKMADI, CKMS**
Source: SPSS 20 as a result of the research.

• The R value (0.604) in Model 1 is the multiple correlation coefficient between the predictor variables and the dependent variable. As **CKMADI** is the only independent variable in this model we can see that the R value is the same value as the Pearson's correlation coefficient in our pairwise correlation matrix.
• In Model 2 the independent variables **CKMADI** and **CKMS** are entered, generating a multiple correlation coefficient, R=.635.
• The Adjusted R Square adjusts for a bias in R square and is usually used.
• The Std. Error of the Estimate is a measure of the variability of the multiple correlation.

III. Using the Stepwise method SPSS produces an **ANOVA** for each model

III.1 **Table 5** shows the Analysis of Variance (**ANOVA**).

Table 5 confirms Model 1: F (1,198)= 113.673; p<0.01 and Model 2: F (2,197)= 66.567; p<0.01

Table 5.- ANOVA (a)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	35.288	1	35.288	113.673	.000(b)
	Residual	61.467	198	.310		
	Total	96.755	199			

2	Regression	39.018	2	19.509	66.567	.000(c)
	Residual	57.737	197	.293		
	Total	96.755	199			

(a) Dependent Variable: **IOIT**;
(b) Predictors: (Constant),**CKMADI** ;
(c) Predictors: (Constant), **CKMADI, CKMS**
Source: SPSS 20 as a result of the research.

• Dividing the Sums of Squares by the degrees of freedom (df) gives us the Mean Square or variance. We can see that the Regression explains significantly more variance than the error or Residual.
• We calculate R2 by dividing the Regression Sum of Squares by the Total Sum of Squares. The values for Model 1 have been used as an example: 35.288/96.755= 0.3647

III.2 Due to the Stepwise Method we had the **Table 6** that shows the calculus of Coefficients.

Table 6.- COEFFICIENTS BY STEPWISE METHOD (a)

Model	Unstandardized Coefficients		Standardized Coefficients	t.	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.775	.209		8.487	.000
CKMADI	.539	.051	.604	10.662	.000
2 (Constant)	1.558	.212		7.344	.000
CKMADI	.377	.067	.422	5.627	.000
CKMS	.222	.062	.268	3.568	.000

(a) Dependent Variable: **IOIT**
Source: SPSS 20 as a result of the research.

• The Unstandardized Coefficients B column gives us the coefficients of the independent variables in the regression equation for each model.
Model 1: **IOIT** = 1.775 + .539 **CKMADI**
Model 2: **IOIT** = 1.558+ .377 **CKMADI**+ .222 **CKMS**

• The Standardized Beta Coefficient column informs us of the contribution that an individual variable makes to the model. The beta weight is the average amount the dependent variable increases when the independent variable increases by one standard deviation (all other independent variables are held constant). As these are standardized we can compare them.
• t tests are performed to test the two-tailed hypothesis that the beta value is significantly higher or lower than zero. This also enables us to see which predictors are significant.
• By observing the Sig. values in our research we can see that for Model 1 the **CKMAD**I scores are significant ($p < 0.05$). However, with Model 2 both **CKMADI** scores ($p < 0.05$) and **CKMS** ($p < 0.05$) are found to be significant predictors.
• We suggest to use Model 2 because it accounts for more of the variance.
• The Unstandardized Coefficients Std. Error column provides an estimate of the variability of the coefficient.

IV. When variables are excluded from the model their beta values, t values and significance values are shown in the Excluded Variables on **Table 7**.

Table 7.- Excluded Variables (a)

Model	Beta in	T	Sig.	Partial Correlation	Collineartity
					Tolerance
1 **CKMS**	.268 (b)	3.568	.000	.246	.538
CKMOSK	.244 (b)	3.445	.001	.238	.606
CKMSEP	-.027(b)	-.474	.636	-.034	.995

2	**CKMOSK**	.156 (c)	1.909	.058	.135	.448
	CKMSEP	-.038 (c)	-.689	.492	-.049	.992

(a) Dependent Variable: **IOIT**
(b) Predictors in the Model: (Constant) **CKMADI**
(c) Predictors in the Model. (Constant) **CKMADI,CKMS**
Source: SPSS 20 as a result of the research.

• The Beta In value gives an estimate of the beta weight if it was included in the model at this time.
• The results of t tests for each independent variable are detailed with their probability values.
• From Model 1 we can see that the t value for **CKMS** is significant ($p < 0.05$). However as we have used the Stepwise method this variable has been excluded from the model.
• As **CKMS** has been included in Model 2 it has been removed from this table.
• As the variable **CKMADI** scores is present in both models it is not mentioned in the Excluded Variables table.
• The Partial Correlation value indicates the contribution that the excluded predictor would make if we decided to include it in our model.
• Collinearity Statistics Tolerance values check for any collinearity in our data. As a general rule, a tolerance value below 0.1 indicates a serious problem.

Since same **Table 3**, **GH** is explained because of **40.3%** of our model detects the variability on the dependent variable **IOIT.**

7. CONCLUSIONS

We solved **GQ:** ¿Which is the model that relates variables, from **CKM** to improve **IOIT** (**INNOVS** results)? by literature review, when we proposed a complete Innovation Stages (**INNOVS**) described with 6 variables: **IVAAD, IIIT**, **INPROC**, **IOIT**, **IPERF**, **IFEED**. By other hand, we discover Customer Knowledge Management (**CKM)** and its components, such as: **CKMADI**, **CKMS**, **CKMOSK** and **CKMSEP**. The rationale of the study is the interest of 200 **CEOs** from **SDSGC,** in stage **IOIT** to improve it by mean of **CKM** components. The three more correlated variables, were: **CKMADI**, **CKMS**, **CKMOSK**, but the first two, were the most significatives around **IOIT.** This is because the sector has encouraged the results of innovation in **CKMADI** with dimensions such as: *Information from Costumer* (Nambisan,2002; Desouza et al., 2007; Gibbert, et. al, 2002); *Information about the Customer* (Nambisan, 2002; Gibbert, et. al, 2002); *Information for Customer* (Nambisan, 2002; Desouza, et al., 2007; *Information as a Customer Co-creator* (Nicolai, et al., 2011; Desouza, et al., 2007; Gibbert, et. al, 2002) and considering the *Negative side effects of Customer Integration* (Kausch, et al., 2014). About **CKMS**, involves the dimensions: *Knowledge Incentives* (Nicolai, et al., 2011; OECD, 2003; Gloet & Samson, 2013); *Knowledge Fluence* (Nicolai, et al., 2011; OECD, 2003) and *Knowledge and ICT* (Laudon & Laudon, 2012; Mejía-Trejo & Sánchez-Gutierrez, 2013) more than other else stages.

However, the other excluded variables and dimensions, such as: **CKMOSK** with *Internal Sources of Knowledge* (Baker & Hart, 2007); Garcia-Murillo & Annabi, 2002); *External Sources of Knowledge* (Baker & Hart, 2007; Garcia-Murillo & Annabi, 2002) and **CKMSEP** with *Paradigm and Performance* (Garcia-Murillo & Annabi, 2002), present great chances to improve **IOIT** by **SDSGC.**

Finally, **GH:** from the current knowledge and importance given by **SDSGC** firms to the **CKM**, this is present in at least on **50% of the variability** in their **IOIT** results, we obtained in **Table 4,** the variability is in a range of **36.5%** - **40.3%** in the relationship**: CKM-IOIT. So, the GH is rejected.**

Future studies are suggested to determine the impact of these **CKM** indicators over the other **INNOVS** components, such as: **IVAAD, IIIT**, **INPROC**, **IPERF**, **IFEED**, to be able to determine integral actions to improve all the Innovation Stages (**INNOVS**).

8. REFERENCES

Afuah, Allan, La Dinámica de la Innovación Organizacional. El Nuevo Concepto para Lograr Ventajas Competitivas y Rentabilidad, Oxford University Press, México, 1997

Baker, Michel and Hart, Susan, Product Strategy and Management, Pearson, USA, 2007

Bermúdez-García, J. Cómo Medir la Innovación en las Organizaciones, Escuela de Postgrado de la UPC; Cuadernos de Investigación EPG(11), España, 2010.

Bonel-Cerdán, J. I., Bonel-Cerdán, F. J., & Fontaneda-González, I., Aplicación del nuevo modelo estratégico de Creación de valor al análisis del éxito Empresarial del e-business. V Congreso de Ingeniería de Organización, Page11, 2003.

Canibano, Leandro, García-Ayuso, M., Sánchez, Paloma and Olea, Marta "Measuring Intangibles to Understand and Improve Innovation Management.Preliminary Results" Paper presented at the *OECD International Symposium. Measuring and Reporting Intellectual Capital: Experience, Issues, and Prospects*, Amsterdam. 9-11 June, 1999.

Chaudhuri, Arjun, Emotion and Reason in Consumer Behavior, Butterworth-Heinemann (is an imprint of Elsevier), Burlington, MA. USA, 2006.

Chesbrough, Henry, Vanhaverbeke, Wim and West, Joel, Open Innovation. Researching a New Paradigm. Oxford University Press, Oxford, 2006

Desouza, Kevin, C., Awazu, Yukika, Jha, Sanjeev, Dombrowski, Caroline, Papagari, Shridhar., Baloh, Peter, Kim, Jeffrey,Y., Customer-Driven Innovation. March, 2014; http://faculty.mu.edu.sa/public/uploads/1357394142.956332024697.pdf

Dussauge, Pierre,. Hart, Stuart and Ramantsoa, Bernard, Strategic Technology Management. John Wiley, Chichester:1992

Gale, Bradley, T., and Wood, Chapman, R. Managing Customer Value.Creating Quality and Service That Customer can see, Free Press, New York, 1994.

Garcia-Murillo, M., and Annabi, H."Customer Knowledge Management" *Journal of the Operational Research Society*, Volumen 53, Number 8, Pages 875-884, 2002.

Gebert, Henning, Geib, Malte, Kolbe, Lutz and Riempp, Gerold, Towards Customer Knowledge Management: Integrating Customer Relationship Management and Knowledge Management Concepts. March, 2014; Institute of Information Management. University of St. Gallen.St. Gallen, Switzerland: file:///C:/Users/jmt/Desktop/Towards_customer_knowledge_management.pdf

Gibbert, Michael, Leibold, Marius and Probst, Gilbert, "Five Styles of Customer Knowledge Management, and How Smart Companies Use Them To Create Value", *European Management Journal*, Volume 20, Number 5, Pages 459 – 469, 2002.

Gloet, M., & Samson, D. "Knowledge Management to Support Systematic Innovation Capability 46th Hawaii International Conference on System Sciences Hawaii", *Hawaii International Conference on System Sciences*, Pages: 3685-3694, 2013

Hair, Joseph, F., Akderson,Rolph, E., Tatham, Ronald,L, Black, William, C. ,Multivariate Data Analsys, 7th Ed., Pearson, Prentice Hall,USA,2010

Hill, Charles, W., & Jones, Gareth, R. Administración Estratégica un Enfoque Integral. (9a. ed.), CENGAGE Learning, México, 2011

Hinton, Perry, R., Brownlow, Charlotte, McMurray, Isabella and Cozens, Bob, SPSS Explained. Routledge Taylor & Francis Group, New,York, USA, 2004.

Howells, Jeremy, The Nature of Innovation in Services. OCDE Innovation and productivity in Services Workshop,Australia. Organisation for Economic Co-operation and Development, 2000

INEGI, Innovación, Investigación y uso de TICs (Sector Privado), Enero de 2014, from Subportal Ciencia y Tecnología; Establecimientos Grandes, http://www.inegi.org.mx/Sistemas/temasV2/Default.aspx?s=est&c=190

INSEAD, The Global Innovation Index 2013.The Local Dynamics of Innovation. INSEAD, Geneve, 2013.

Kausch, Christoph, Enkel, Ellen and Gassmann, Oliver, Integrating Customer Knowledge in the Early Innovation Phase. March 2014 http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.380.2564&rep=rep1&type=pdf

Laudon, Kenneth and Laudon, Jay. Management Information Systems. Managing the Digital Firm. Prentice Hall, USA, 2012.

Lev, Baruch. Intangibles: Management, Measurments and Reports. Brookings Institution Press, Washington,D.C., 2001.

McKinsey Global Survey Results: Assessing Innovation Metrics, McKinsey Global Survey Results: Assessing Innovation Metrics. December, 2013,

http://innovbfa.viabloga.com/files/McKinseyQuaterly___assessing_innovation_metrics___oct_2088.pdf.
Mejía-Trejo, J., and Sánchez-Gutiérrez, J. Patente nº MX/a/2013/011807. México, 2013a.
Mejía-Trejo, J., Sánchez-Gutiérrez, J.and Ortiz-Barrera, M. Leadership and Value Creation on Innovation: The Case of Software Developer Sector in Guadalajara, April, 2014, Social Sciences Research Network, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2390787, 2013b.
Mejía-Trejo, J., Sánchez-Gutiérrez, J. and Haro-Beas, J.F. "Customer Knowledge to improve the Innovation: The Relationship in México" *The 13th International Conferenceof the Society Global Business and Economic Development. Managing the Intangibles: Business and Entrepeneurship Perspectives in a Global Context.Ancona, Italy .* Pages*:1099-1108, 2014*
Nambisan, Satish, "Designing Virtual Customer Environments for New Product Development: Toward a Theory", *Academy of Management Review*, Volume 27, Number 3, Pages 392-413, 2002
Nicolai, J., Keld, L., & Pedersen, T. (2011). Linking Customer Interaction and Innovation:The Mediating Role of New Organizational Practices. Organization Science, 22(4), 980-999.
OECD, Knowlegde Management. Measuring Knowledge Management in the Business Sector, Organisation for Economic Co-operation and Development. Paris,France, 2003.
OECD,Guidelines for Collecting and Interpreting Innovation Data, Organisation for Economic Co-operation and Development. París, France, 2005.
Popadiuk, Silvio., & Wei-Choo, Chun, "Innovation and knowledge creation: How are these concepts related International", *Journal of Information Management,* Volume 26, Pages 302-312, 2006
Rogers, Everett, Diffusion of Innovations (1983), Jan 2014; http://www.valuebasedmanagement.net/methods_rogers_innovation_adoption_curve.html
Shipp, Stephanie, "Measuring Innovation and Intangibles: A Business Perspective", *IDA Document D-3704. Institute for Defense Analyses Science & Technology Policy Institute*, USA, 2008.
Smith H. Lawthon, and Leydesdorff, Loet., The Triple Helix in the context of global change: dynamics and challenges; Feb 2014, http://www.leydesdorff.net/th11/th11.pdf
White, Margaret, A., & Bruton, Garry,D, The Management of Technology and Innovation. South-Western Cengage Learning. Mason, OH, 2011
WEF. World Economic Forum, The Global Competitiveness Report 2012-2013.Ed: World Economic Forum, Geneve, 2013.

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