**TOPIC: GLOBAL COMPETITION
INNOVATION AND CHANGE**

**MEASURING INNOVATION: CLUSTERS AND COMPETITIVENESS IN
JALISCO, MEXICO.**

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ABSTRACT

1

The aim of this paper is to identify the relationship between a set of variables that determine the level of innovation for competitiveness development in the Guadalajara information and communications technologies cluster. We applied 44 questionnaires of 12 dimensions and 32 indicators, distributed in: 22 managers(11 Back Office.-BO/11 Front Office.-FO) of the telecommunications firms and 22 managers (11 Back Office.-BO/11 Front Office.-FO) software developers companies into the ICT cluster, considering Innovation and Competitiveness for this research. The results indicate that the implementation of Strategy, Value Added, Creativity and National Government Policies contributes to the Innovation for the creation of competitive advantages, but with poor results mainly due to the low ratio of: business-institutes of higher education and government linkage , value-added product-service, incentives for the diffusion of intellectual property protection, incentives for creativity, creation policies clusters at regional and national levels. Finally, it was determined that software development companies have higher levels of innovation with respect to telecommunications firms, providing a basis for future studies about the degree of interrelationships among firms in the same cluster, and the contribution for IFC of BO and FO managers.
Keywords: Innovation, Cluster, Competitiveness.

INTRODUCTION

Since 90s, the Porter´s (Porter, 1998a,b; Porter, 1990) cluster definition as a *geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities*, remain a major source of innovation that drive regional and national competitiveness more applied in developed countries, but what happens in emerging countries?. Mexico currently has in several states, with various clusters such as textiles, clothing, logistics and food (Aguascalientes), automobile (Guanajuato, Coahuila), the footwear (Guanajuato), wine (Baja California), etc. . but, according to the report of the WEF (2011) Mexico is ranked 66/139 with an immediate drop of 6 positions and a loss of 14 places since 2006.

CONTEXTUAL REFERENCE

Innovation, competitive and clusters are three concepts that today are considered by governments, educational institutions and companies to gain competitiveness in the new global economy. In recent years, the state of Jalisco, Mexico, have been installed and developed various clusters such as that of information and communications technologies (ICT, Guadalajara and Ciudad Guzman), the footwear (Guadalajara), the furniture (Ocotlán) and more recently, the media (Chapala), the medical tourism, textiles, clothing, leather and jewelry (Guadalajara and its metropolitan area), however, there are no reports of the extent to which they are related within the cluster respective innovation and for competitiveness; such as the Mexican Institute for Competitiveness (IMCO, 2010; Mejía 2012), showing loss of Jalisco three places mainly by efficient and effective government indicators. This raises the following research question (**RQ**):

What is the conceptual model of measuring innovation for competitiveness (ex post) based on the design of cluster variables (CDV), which allows the managers of these companies, recognize, assess, decide and implement actions that transform these organizations in competitive?.

THEORETICAL FRAMEWORK

INNOVATION. It comes from the Latin *innovare*, meaning act or effect to innovate, become new or renewing. Depends on creativity from the individuals involved. Some actors in the innovations clusters are individuals working on their own, but the absolute majority work in an organizational context. (Lagnevick, *et al.* 2004). How the organization can stimulate and encourage creativity?. Robinson and Stern (1997) define the creativity company as *a company is a creative when its employees do something new and potentially useful without being directly shown or taught*. Some tools to stimulate the creativity are: alignment, sel-initiated activity, ufofficial activity, serendipity, diverse stimuli, within-company commmunication.All of them, require driving by innovation management and strategy.

2

Innovation Management. It refers to the importance of companies that constitute the cluster, to recognize and apply techniques to encourage creativity and innovation in a systematic way, based on creating added value to the company and the customer. Does the company use a tool to manage creativity and innovation?.Is systematic?. (Lagnevick, *et al.* 2004)

Innovation Strategy. There are three principal features of regional clusters that influence firm strategy (Enright, 1994). The first is that the resources and capabilities vital for firm to succeed can often be found within a región rather tan within a single firm. The second, is that the regional clusters often involve activities that are shared between firms within the cluster. The third feature is that a firm`s choice of strategy can be influenced by the strategic interdeoendencies, rapid information flows, and the unique mixture of competition and cooperation often found in regional clusters.

CLUSTER. It's defined in the *Concise Oxford Dictionary* as a *group of similar things growing together.*
In a cluster, we`ll find companies producing products and services for consumers, suppliers of specialized inputs, components, machinery and services located up or downstream in the value added chain, but lso in related industries (Lagnevick, *et al.* 2004) If we want to analyse the strenght and potential of a cluster we can use the analysis dimensions developed by Michel J. Enright (2000), as follows: *Geographic Scope. Density. Activity Base. Depth. Growth Potential. Innovative Capability. Industrial Organization. Co-ordination Mechanisms.*

Type of Knowledge. There are two principal types by codification: explict and tacit (Nonaka and Takeuchi, 1995). Both kinds of knowledge are necessary in the innovation process, and this is one of the main reasosn why geography matters. By Jhonson and Lundvall (1994) we can distinguishing further four types of knowledges: know-what (knowledge of facts and transfer of codified knowledge); know-why (scientific knowledge about basic principles, rules and ideas); know-who (knowledge about specific and selective social relations.Building of trust in relations. These four types of knowledge differ in regard to knowledge creation and knowledge transfer.

 Policies for Development. The role of the government is important in innovation clusters, especially the ability to make *anticipatory institutional changes* at higher subsystem levels. When the government anticípate changes in the innovation landscape, they can undertake actions that lead to institutional change (Lagnevik, et al. 2004). Cluster dynamics in creating innovation by government is also summarized by Porter (Porter, 1998c). Government should: *stablish a stable and predictable economic environment*,
Improve the ability; quality and efficiency of general-puprpose input and institution; stablish overall rules and incentives governing competition that encourage productivity growth; facilitate cluster development and upgrading; develop and implement a positive, distinctive, and long-term economic upgradong programme wich mobilizes relations government-business-institutions and citizens.
By PECyTI (2008-2012), we have: *incentives for diffusion and intellectual protection; strengthen state and national systems of science and technology; to increase the scientific infrastructure, technological innovation, physical and human regional/national resources.*

COMPETITIVENESS. According OECD (2009), is defined as *the ability of firms, regions and nations to generate relatively higher income and levels of sustainable employment for the benefit of shareholders at the time that they are exposed to international competition*. Competitiveness is an multidimensional issue, with differents perspectives about use Ambastha & Momaya, 2004. Porter (1998c) notes that international competitiveness is described from a *macroeconomic analysis of certain factors such as available and affordable labor, abundant natural resources budget deficit, exchange rates, interest rates, low unit labor costs, management practices, the competitive advantages derived of different, a positive trade balance, and a high and increasing industry productivity*. Flanagan (*et al.,* 2005) afirms that *the main objective derived from the competitiveness of a nation is human development, as well as improving quality of life of its inhabitants.* Another approach is the perspective of the industry level, considered as the extent to a business sector that satisfies the needs of consumers through offering a proper mix ratio of manufactured goods based on service features and characteristics such as cost, value, and originality. In other words, it must satisfy the requirements of its constituents, and to that end, seek to offer attractive return on investment (Flanagan *et al.*, 2005). Schuller, & Lidbom (2009) afirm that competitiveness depends on market's performance where an elevated efficiency could be considered the key to success. Kay (1993) described trough four factors: *the capacity to innovate, key internal and external relationships referring the strategically relations both, Reputation and Strategic assets*. It is necessary to understand competitiveness not exclusively as productivity,

rather than the ability of a company to design, produce and/or market products superior to those offered by competitors, considering the perceived value for customers Vilanova, et al. (2009).

To make the proposed conceptual model is necessary to discover the CDV, so in the literature review are analyzed the following works:

- Cluster and Innovation: Lagnevik, et. al. (2004), OECD (2009), Diaz, C. and Arechavala, R. (2007), Asheim, et. al. (2006); PECyTI (2008-2012)
- Competitiveness: Porter, M.E. (1998b,1998c, 2005); (D) Sánchez, J. (2010). (E) Sánchez, J. (et. al., 2011); Azua, J. (2008); IMCO (2010)

The search criteria and selection of variables, involving the relationship of each generation in innovation to raise the competitiveness of companies that are related within a cluster. The next stage was to ask the order of importance of CDV to 6 experts from ICT cluster, using Saaty's theorem (Analysis Hierarchical Process, AHP). They were questioned about the importance of each of the CDV using the criteria of: *firm* (F), *political environment* (E) and *institutions of higher education* (A). Results are shown on **Table 1.**

Table 1.- AHP over principal CDV

Objective	IFC	
Criteria	*firm* (F), *political environment* (E) and *institutions of higher education* (A)	**%**
Alternatives	**Strategy**	**0.1073**
	Value Added	**0.0991**
	Creativity	**0.0855**
	National Government Policies	**0.0758**
	Impact of the cluster	0.0711
	Institutions	0.0590
	Technological readiness	0.0555
	Higher education and training	0.0545
	Goods market efficiency	0.0470
	Market size	0.0457
	Infrastructure	0.0440
	Financial market sophistication	0.0378
	Health and primary education	0.0328
	Business sophistication	0.0328
	Future policies changes	0.0323
	Macroeconomic stability	0.0317
	Role of Small & Medium Enterprises	0.0311
	Labor market (efficiency)	0.0289
	Barriers to the cluster development	0.0282
	Knowledge	0.1072

Source: Own production

The IFC levels proposed in this research are taken from previous work by Lugones (2004) who, based on results of their study in product companies in Colombia, provides innovative activity classification shown in **Table 2.**

Table 2.- IFC levels proposed to determine the Conceptual Model

Firms	Type	Description	IFC level
Innovatives	ICS	Innovative Companies in the strict sense.	>1000
Non-Innovatives	CMI	Companies with minor innovations	>=901<=999
	PIF	Potentially innovative firms	>=811<=900
	NNC	Non-innovative companies.	<=810

Source: Lugones (2004). Scoring results of field study with own production

RESEARCH QUESTIONS AND HYPOTHESES

To solve the **RQ,** are proposed:

Q1: What are the dimensions and indicators of CDV variables in the generation of IFC?.

Q2: What is the relationship between CDV, to the generation of IFC?

Q3: Which of the CDV and its dimension is the most influential in the creation of IFC?

Q4: What level of IFC have the ICT companies, subjects of study?

The approach of general hypotheses to answer **Q2**:

H1: To greater value added (V), greater levels of IFC.

H2: To greater government policies (P) , greater levels of IFC.

H3: To greater strategy, greater levels (S) of IFC.

H4: To greater creativity, greater levels (C) IFC.

HG: The relationship between cluster firms and the creation of the IFC, depends on the CDV: value added (V), national government policies (P), strategy (S) and creativity (C).

METHODOLOGY

This is a non-experimental, transactional, exploratory, correlational and explanatory for the discovery of the major CDV and is performed by 7 steps (see **Scheme 1**)

Scheme 1.- Methodology Conceptual Research Model

Stage 1 .-CONTEXTUAL FRAMEWORK
State of the clusters and global processes and Mexico, components of CDV and its relationship to innovation for competitiveness

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Step 2 .- LITERATURE REVIEW
1 .- Literature review: clusters, innovation, competitiveness, CDV, other models of innovation and critical for determination and justification of CDV, by:
1a.-Frequency Analysis by author clusters, innovation, competitiveness: 20 initial variables.
1b.-Theorem`s Saaty with 6 discovering ICT experts as a key organizational innovation development as well as 4 independent CDV: value added (V), national Government policies (G), strategy (S), creativity (C). that generate IFC.
3.-Proposed *ex ante* conceptual model
4 .- Defining Research Question (**RQ**): What is the conceptual model of measuring innovation for competitiveness (ex post) based on the design of cluster variables (CDV), which allows the managers of these companies, recognize , assess, decide and implement actions that transform these organizations in competitive?

Step 4: DATA PROCESSING, ANALYSIS AND INTERPRETATION OF RESULTS
1.-Application of descriptive statistics for the dependent variable and CDV of IFC: (V), (G) (S), (C) represented in 12 dimensions and 44 surveys collected (22 BO/22) specialists from 22 companies ICT.
2.-Application of statistical inference by simple linear regression (RLS) to CDV and IFC for bivariate behavior separately. It reaches 100% **SO2.**
3.-Application of inferential statistics for multiple linear regression (MLR) to determine behavior of the overall CDV independent and most influential variable and dimension. It reaches 100% **SO3**.
4.-Application of cluster analysis to identify groups of ICT companies and IFC standards proposed by the *ex ante* conceptual model. Reached 100% **SO4**

Step 5. CONCEPTUAL-MODEL
1.-Presentation of 6 / 12 size with high dispersion recommendation for improvement: linking business-policy institutes of higher education, government, value-added incentives diffusion-intellectual property protection, incentives to creativity, creating clusters policies, system IFC regional / national.

Step 6. –CONCLUSIONS
1.-interest of managers from IFC to boost your company but less linkage with institutions of higher education and government; discovery of CDV (S), (V), (C), (G); (S) as the most relevant and its dimensions: implementation, negative correlation (G), indicating disruption of IFC policies, ex-post 12-dimensional model, recommendations for improvement of CDV in 6 dimensions, low levels of ICT cluster IFC; Kaxan, Susoc, Telcel and Nextel

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Stage 3.-METHODOLOGY
1.- To solve the **RQ,** are proposed:
Q1: What are the dimensions and indicators of CDV variables in the generation of IFC?.
Q2: What is the relationship between CDV, to the generation of IFC?
Q3: Which of the CDV and its dimension is the most influential in the creation of IFC?
Q4: What level of IFC have the ICT companies, subjects of study?
2.-GO approach general purpose: To determine the conceptual model of measuring innovation for competitiveness (ex post) based on the design of cluster design variables (CDV), which allows the managers of these companies, recognize, evaluate, decide and implement actions to transform these organizations in competitive
2.1 .- The paper that follows should:
SO1.-Determine the dimensions and indicators of CDV in the generation of innovation for competitiveness (IFC);
SO2.-Determine the relationship of the CDV generated IFC;
SO3.-Determine CDV and its most influential in the generation of IFC;
SO4.-Determine the level of innovation in ICT firms, the study subjects.
3 .- Justification: what helped?, To which sector benefits?, What problem does it solve? what brings in knowledge and how?
4.-This is study is non-experimental, transactional, exploratory, correlational and explanatory
5 .- The approach of general hypotheses and to answer **Q2**:
H1: To greater value added (V), greater levels of IFC.
H2: To greater government policies (P) , greater levels of IFC.
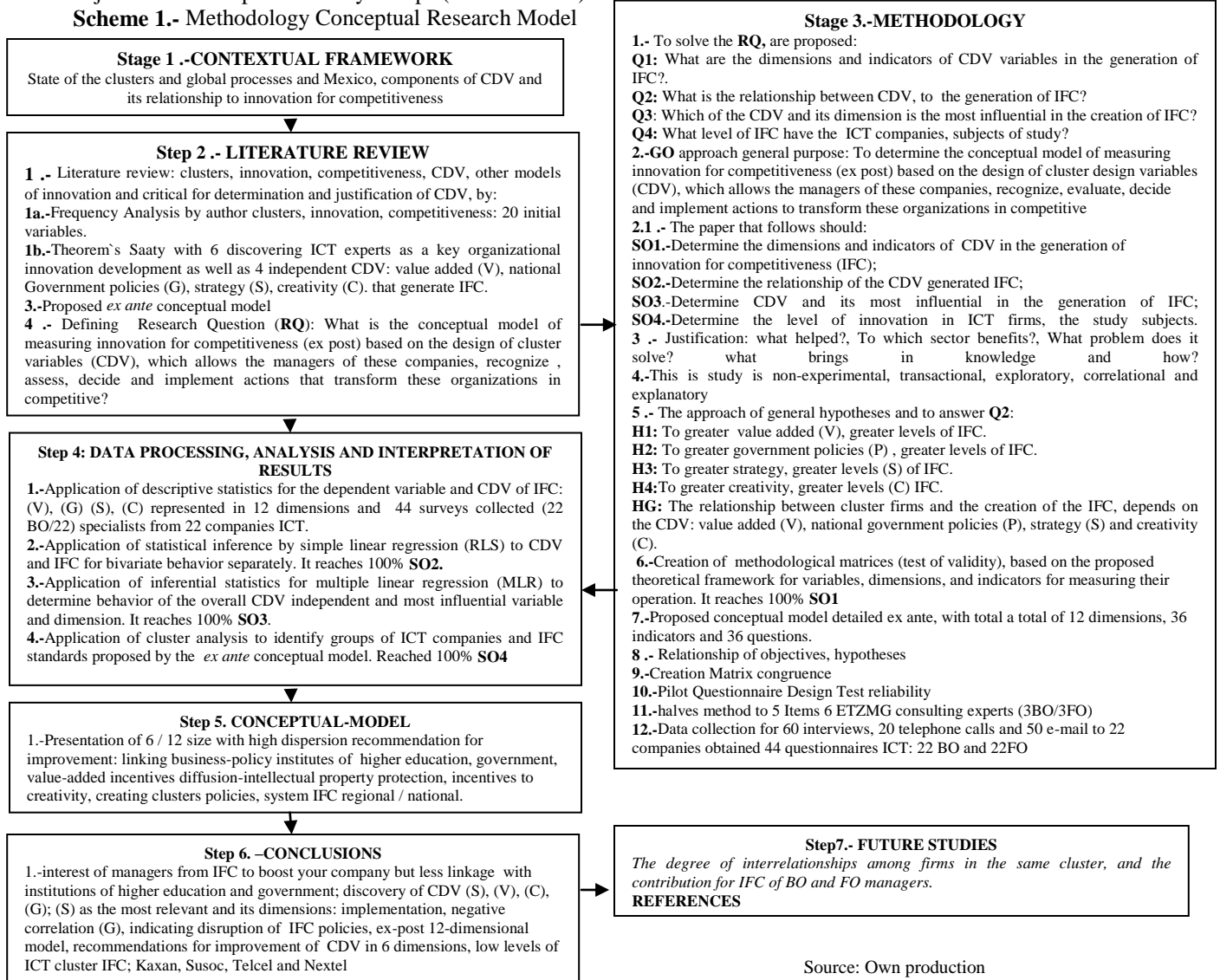**H3:** To greater strategy, greater levels (S) of IFC.
H4: To greater creativity, greater levels (C) IFC.
HG: The relationship between cluster firms and the creation of the IFC, depends on the CDV: value added (V), national government policies (P), strategy (S) and creativity (C).
6.-Creation of methodological matrices (test of validity), based on the proposed theoretical framework for variables, dimensions, and indicators for measuring their operation. It reaches 100% **SO1**
7.-Proposed conceptual model detailed ex ante, with total a total of 12 dimensions, 36 indicators and 36 questions.
8 .- Relationship of objectives, hypotheses
9.-Creation Matrix congruence
10.-Pilot Questionnaire Design Test reliability
11.-halves method to 5 Items 6 ETZMG consulting experts (3BO/3FO)
12.-Data collection for 60 interviews, 20 telephone calls and 50 e-mail to 22 companies obtained 44 questionnaires ICT: 22 BO and 22FO

Step7.- FUTURE STUDIES
The degree of interrelationships among firms in the same cluster, and the contribution for IFC of BO and FO managers.
REFERENCES

Source: Own production

RESULTS

In order to operationalize the CDV, methodological matrices are created as evidence of validity, based on theoretical framework to explain the origin of variables, dimensions and indicators for measurement. It reaches 100% of **Q1**and **SO1**.On the other hand, was initially proposed by the conceptual model detailed *ex ante*, with a total of 12 dimensions, 32 indicators, generating the questionnaire design is performed pilot reliability test by the method of the 2 halves with 3 ICT companies through 6 experts (3 BO.-Back Office / 3 FO.-Front Office). Descriptive statistics is applied to the dependent variable IFC and independent variables (V), (P), (S), (C) obtaining by simple linear regression (RLS) to CDV and IFC for bivariate behavior separately. The positive correlations of variables are: S (r = 0923) V (r = 0846) C (r = 0706), while (P) with inverse (r =- 0.199). In testing hypotheses, only **H2** is rejected; so **Q2** and **SO2** are reached at 100%. By statistical inference by multiple linear regression (**MLR**) is determined by the behavior of independent CDV: *strategy* (S) and its dimensions: *implementation of the strategy* as the most influential.So **Q3** and **SO3** are reached 100%.See **Tables: 3,4**

Tabla 3.-ANOVA Dependent CDV: IFC

Model		Suma de Cuadrados	Gl	Media Cuadrática	F	Sig.
1	Regresión	124816,644	1	124816,644	243,236	,000(a)
	Residual	21552,356	42	513,151		
	Total	146369,000	43			
2	Regresión	143107,348	2	71553,674	899,452	,000(b)
	Residual	3261,652	41	79,552		
	Total	146369,000	43			
3	Regresión	145595,863	3	48531,954	2510,911	,000(c)
	Residual	773,137	40	19,328		
	Total	146369,000	43			
4	Regresión	146369,000	4	36592,250	23493401574615660,000	,000(d)
	Residual	,000	39	,000		
	Total	146369,000	43			

a Predictive Variables: (Constant), **Strategy;** b Predictive Variables: (Constant), Strategy, Government Policies; c Predictive Variables: (Constant), Strategy, Creativity, National Government Policies; d Predictive Variables: (Constant), Strategy, Value Added, Creativity, National Government Policies;   e. Dependant Variable: IFC; Source: Own

Table 4.- ANOVA Independent CDV: Strategy

Modelo		Suma de cuadrados	GL	Media cuadrática	F	Sig.
1	Regresión	105666,337	1	105666,337	344,413	,000(a)
	Residual	12885,663	42	306,801		
	Total	118552,000	43			
2	Regresión	114682,486	2	57341,243	607,568	,000(b)
	Residual	3869,514	41	94,378		
	Total	118552,000	43			
3	Regresión	117262,829	3	39087,610	1212,798	,000(c)
	Residual	1289,171	40	32,229		
	Total	118552,000	43			
4	Regresión	117912,956	4	29478,239	1799,017	,000(d)
	Residual	639,044	39	16,386		
	Total	118552,000	43			
5	Regresión	118552,000	5	23710,400	23303732539925620,000	,000(e)
	Residual	,000	38	,000		
	Total	118552,000	43			

a Predictive Variables: (Constant), **Implementation;** b Predictive Variables: (Constant), Implementation, Planning; c Predictive Variables: (Constant), Implementation, Planning, Coordination Mechanisms,Industrial Organization; d Predictive Variables: (Constant), Implementation,Planning, Coordination Mechanisms,Industrial Organization; e Dependent Variable (CDV): **Strategy**
Source: Own

Taking reference **Table 2**, we determine the IFC classification. So, **Q4** and **SO4** are reached at 100%. See **Table: 5**
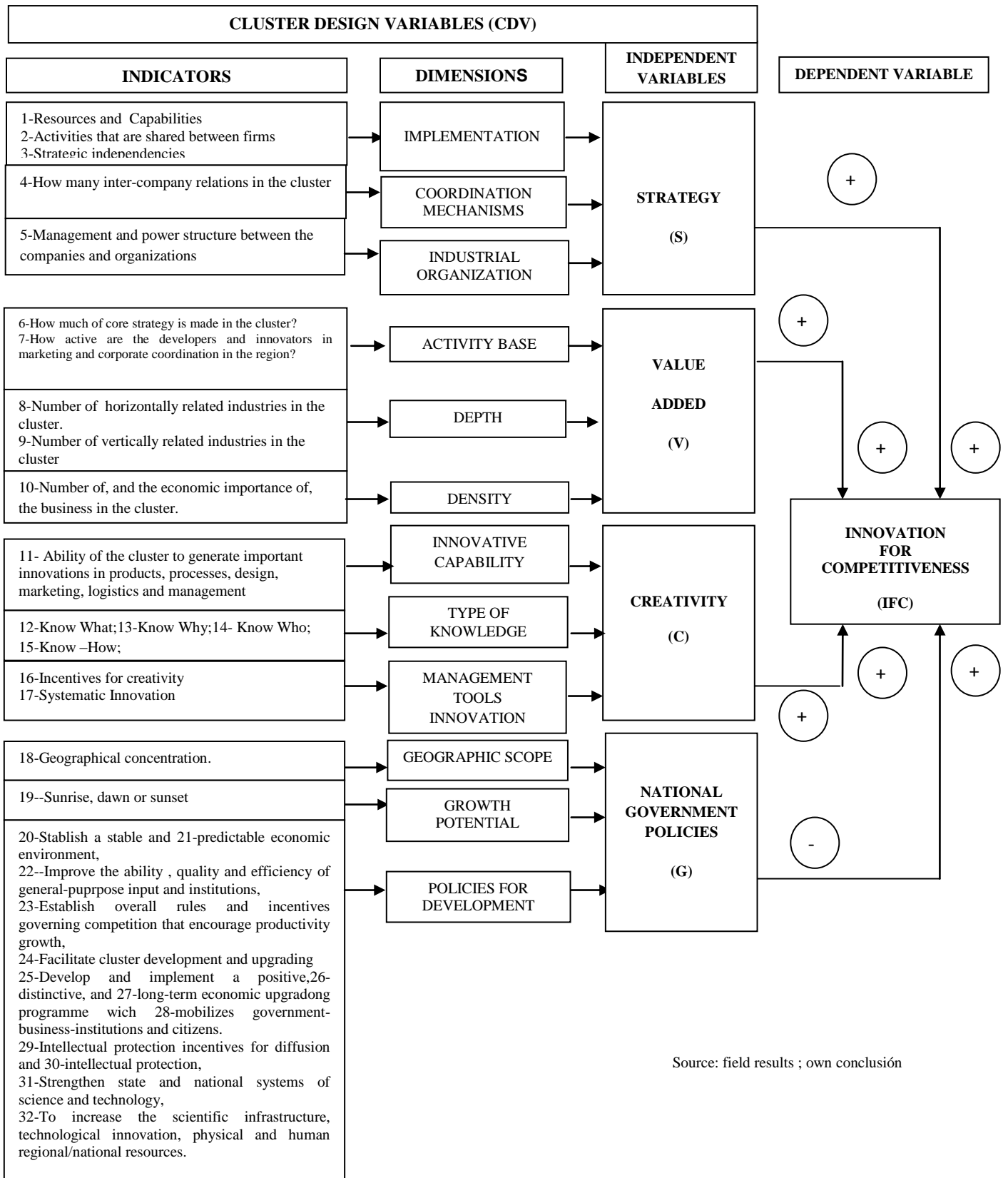
Tabla 5.-CDV and IFC Score

Item	Firm ICT	SD/TC	S	C	V	P	IFC	IFC Classification
1	Kaxan	SD	770	179	103	60	1112	ICS
2	Susoc	SD	776	173	98	50	1097	ICS
3	Nextel	TC	740	155	99	58	1052	ICS
4	Telcel	TC	698	157	104	54	1013	ICS
5	Masfusion	SD	588	124	74	202	988	CMI
6	Quantum Software	SD	579	124	74	202	979	CMI
7	Hildebrando	SD	559	139	70	191	959	CMI
8	Level-5	SD	547	128	74	199	948	CMI
9	Aportia	SD	540	131	75	200	946	CMI
10	e-ngenium	SD	538	121	71	190	920	CMI
11	Maxcom	TC	537	121	71	190	919	CMI
12	Nasoft	SD	519	127	86	187	919	CMI
13	Innevo	SD	536	119	70	193	918	CMI
14	Marcatel	TC	535	121	71	190	917	CMI
15	Estrasol	SD	526	119	70	193	908	CMI
16	Alcatel-Lucent	TC	524	100	54	179	857	PIF
17	Ericsson	TC	514	99	54	188	855	PIF
18	Bestel	TC	469	109	72	159	809	NNC
19	Iusacel-Unefon	TC	469	109	72	159	809	NNC
20	Telmex	TC	465	109	72	159	805	NNC
21	Sky	TC	458	103	65	171	797	NNC
22	Alestra	TC	477	114	48	140	779	NNC
	TOTAL		12364	2781	1647	3514	20306	

Notes: SD.-Software Developer Firms; TC-Telecommunications Co.; By Table 4, Lugones (2004) : ICS.- Innovative Companies in the strict sense.; CMI.- Companies with minor innovations; PIF.- Potentially innovative firms; NNC.- Non-innovative companies. Source: Own by field results

In this way, we obtained the *ex post* conceptual model answering the **RQ at 100%.** See **scheme 2**

We obtained 6 / 12 high dispersion indicators explaining the low level of IFC and hence competitiveness, which are: *business-institutes of higher education and government linkage , value-added product-service, incentives for the diffusion of intellectual property protection, incentives for creativity, creation policies clusters at regional and national levels* .

Scheme 2 .- Detailed Conceptual Model *ex post*

CLUSTER DESIGN VARIABLES (CDV)

INDICATORS	DIMENSIONS	INDEPENDENT VARIABLES	DEPENDENT VARIABLE

1-Resources and Capabilities
2-Activities that are shared between firms
3-Strategic independencies
→ IMPLEMENTATION →

4-How many inter-company relations in the cluster
→ COORDINATION MECHANISMS →

5-Management and power structure between the companies and organizations
→ INDUSTRIAL ORGANIZATION →

STRATEGY (S)

6-How much of core strategy is made in the cluster?
7-How active are the developers and innovators in marketing and corporate coordination in the region?
→ ACTIVITY BASE →

8-Number of horizontally related industries in the cluster.
9-Number of vertically related industries in the cluster
→ DEPTH →

10-Number of, and the economic importance of, the business in the cluster.
→ DENSITY →

VALUE ADDED (V)

11- Ability of the cluster to generate important innovations in products, processes, design, marketing, logistics and management
→ INNOVATIVE CAPABILITY →

12-Know What;13-Know Why;14- Know Who; 15-Know –How;
→ TYPE OF KNOWLEDGE →

16-Incentives for creativity
17-Systematic Innovation
→ MANAGEMENT TOOLS INNOVATION →

CREATIVITY (C)

18-Geographical concentration.
→ GEOGRAPHIC SCOPE →

19--Sunrise, dawn or sunset
→ GROWTH POTENTIAL →

20-Stablish a stable and 21-predictable economic environment,
22--Improve the ability , quality and efficiency of general-puprpose input and institutions,
23-Establish overall rules and incentives governing competition that encourage productivity growth,
24-Facilitate cluster development and upgrading
25-Develop and implement a positive,26-distinctive, and 27-long-term economic upgradong programme wich 28-mobilizes government-business-institutions and citizens.
29-Intellectual protection incentives for diffusion and 30-intellectual protection,
31-Strengthen state and national systems of science and technology,
32-To increase the scientific infrastructure, technological innovation, physical and human regional/national resources.
→ POLICIES FOR DEVELOPMENT →

NATIONAL GOVERNMENT POLICIES (G)

INNOVATION FOR COMPETITIVENESS (IFC)

(+) (+) (+) (+) (+) (+) (+) (-)

Source: field results ; own conclusión

CONCLUSIONS AND RECOMMENDATIONS:

To determine the conceptual model of measuring innovation for competitiveness (*ex post*) based on the design of cluster variables (CDV), which allows the managers of these companies, recognize, evaluate, decide and implement actions that transform a such organizations, be competitive, the study concluded:

1 .- Remarkable inclination of the ICT cluster managers to generate IFC more importance to the business relationship, a situation that shows the waste of resources and opportunities to the relationship with the government policy environment and institutions of higher education to contribute to IFC.

2.-The determination of CDV: S, V, C, P to be those with more references and in order of importance of experts in the ICT cluster.

3.-The finding of CVD: S and its dimension: strategy implementation, as the most influential, to generate IFC.

4.-Positive correlation for the generation of CVD IFC: S, V, C, although not with P, the latter circumstance as a result of low or no coordination of the plans at the state and federal levels.

5 .-The *ex post* conceptual model and measurement of levels of IFC with a total of 12 dimensions, 32 indicators, which are considered useful for its comprehensiveness and depth.

6.-The discovery of 6 dimensions urgent to correct: *business-institutes of higher education and government linkage , value-added product-service, incentives for the diffusion of intellectual property protection, incentives for creativity, creation policies clusters at regional and national levels.*

7.-Low levels IFC (4,590 points; 58% of Design), showing that the command staff, has average shares of IFC, but insufficient in the CVD. S = 42% ;V = 43% ;C = 50%; P = 37%

8 .- Kaxan, Susoc, (SD) and Telcel, Nextel (TC) as companies found with higher levels of ICT firms into the cluster with IFC recorded. Despite the size of the dominant ICT company, Telmex is non-innovative.

9.- Software development companies have notorious higher levels of innovation with respect to telecommunications firms.

FUTURE STUDIES

Finally, evidence 9 is providing a basis for future studies about the degree of interrelationships among firms in the same cluster, and the contribution for IFC of BO and FO managers.

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