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Ciencias Sociales, Humanidades y Artes

e-Business Innovation Conceptual Model: Towards a Reference Framework for SME's

Modelo Conceptual de Innovación por Negocios Electrónicos. Hacia un Marco de Referencia para las PyMES

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Abstract: The aim of this paper is to determine a construct of electronic business (e-business) innovation (eBIM) for SME's since throughout 2016, several academic models were presented to the main SME's experts in e-Business located in Guadalajara, México and their main CEOs considered most of them to lack clarity and to be impractical in their design, implementation, measurement and improvement. The methodology involved in this study is exploratory, descriptive and cross-sectional, and was applied during January-April, 2017 to 200 e-Business experts. It is based on documentary research to determine the main variables of the eBIM using the Delphi Panel method and the Analytic Hierarchy Process. We applied exploratory factor analysis to determine how the variables were grouped in factors of the final model. As a result, we obtained two visions, academic (literature review) and expert, with 19 variables and 3 factors to be included in the final eBIM proposal.

Keywords: e-Business Innovation, Conceptual Model, Framework, SMEs.

Resumen: El presente documento está orientado a determinar un constructo de innovación de negocios electrónicos (e-Business) (eBIM) para las Pymes. Esto se debe, a que durante el año 2016 se presentaron a los principales expertos de Pymes en e-Business ubicados en Guadalajara, México, varios modelos académicos cuyos principales CEOs consideraron que, la mayoría de ellos tenían falta de claridad, siendo impracticables para su implementación, medición y monitoreo. La metodología empleada es exploratoria, descriptiva y transversal aplicado durante el período Enero-Abril, 2017 a 200 expertos. Se basa en una investigación documental para determinar las principales variables del eBIM, utilizando el método de Panel Delphi y el Proceso de Jerarquía Analítica. Se aplicó análisis factorial exploratorio para determinar cómo se agruparon las variables en factores del modelo final. Como resultados se obtuvieron dos visiones: académica (revisión de literatura) y de expertos (CEOs) con 19 variables y 3 factores para ser incluidos en la propuesta final de eBIM, capaz de ser implementado por las Pymes de México.

Palabras clave: Innovación por Negocios Electrónicos, Modelo conceptual, Marco de Referencia, Pyme.

Introduction

According to the OECD (2005, par.146), innovation is *"the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations."* Innovation is an aspect of business strategy, or part of the set of investment decisions to create capacity for product development or to improve efficiency. It can create competitive advantages by repositioning

production or output in the value chain (OECD, 2005, par. 80). e-Business is defined as the integral practice of planning actions to address the market with strategy and tactics to use e-Business tools for achieving goal settings aligned with the mission and vision of the firm, all of which transfer a value proposition to the customer with performance and profitability monitoring. This concept requires involving tools, such as e-Media (e.g. Internet cloud, mobile), e-Marketing (promotion of products and/or services, capture and retention of the customer), and e-Commerce (transaction of a requirement of products and/or services with a payment) to be applied in different types of businesses: C2C (Consumer-to-Consumer), C2B (Consumer-to-Business); C2G (Consumer-to-Government); B2C (Business-to-Consumer); B2B (Business-to-Business); B2G (Business-to-Government); G2C (Government-to-Consumer); G2B (Government-to-Business); G2G (Government-to-Government) (Mejía-Trejo, 2017). The practice of e-Business offers firms a series of tools to increase the competitiveness in addition to the aforementioned, such as: e-customer relationship management (e-CRM), e-Enterprise Resource Planning (e-ERP); e-Sourcing Capability Model (e-SCM); e-Procurement; e-Supplier Relationship Management (e-SRM) and e-Security (e-SEC), amongst others all of which increase productivity, value added services, global competitiveness and sustainable development (Meier & Stormer, 2009). Hence, what about the criteria of e-Business Innovation Model (eBIM) to be implemented as a design, aligned with the competitiveness of the small and medium size enterprise SMEs?

As you can see, e-Business is itself an innovation (e-Business innovation) and a potential catalyst to improve the current place of Mexico's competitiveness (51/138 countries, WEF, 2017). In this sense, the web portal Millones de Voces (2017), reports a specialized sector with more than 200 small and medium enterprises (SMEs), firms specialized in the designing and the implementing of e-Business innovation, located within the Guadalajara Metropolitan Area, Mexico, with several recognized institutes that are teaching and training on e-Business issues. Such SME's are very interested in obtaining variables and factors capable of improving the eBIM since throughout 2016, several academic models were presented to the main SME's experts in e-Business, located in Guadalajara, México. Their CEOs considered most of them to lack clarity and to be impractical in their design, implementation, measurement, and improvement. To achieve its goal, this work is divided into the explanation of: *1)* Problem, hypotheses and rationale of the study; *2)* Literature review; *3)* Methodology based on two visions: the academic and the expert to obtain a final eBIM conceptual model, and the design of the final questionnaire; *4)* Results; *5)* Conclusions; *6)* Limitations and Future Studies.

Problem, hypotheses and rationale of the study

Our problem is described in the following research question: *"Which is the empirical model proposed for the e-Business Innovation Model (eBIM) able to be designed, implemented, measured and improved by SMEs?"* To solve this, it is necessary to propose a construct updated with all of the e-Business tools as variables to characterize the model. Hence, regarding the eBIM variables we proposed the following specific questions:

SQ1: *"Which are the variables proposed for the general empirical model?";*
SQ2: *"Which is the final questionnaire?";*
SQ3: *"Which are the new groups or factors as a result of the variables reduction of the final empirical eBIM?";*
SQ4: *"Which are the cumulative effects of the new groups of variables in the model?"*

Theoretical framework

In this section, we establish the importance of a model and e-Business, its definitions, and what the e-Business Innovation Model is.

The importance of a business model

A generally accepted definition of the term *"business model"* has not emerged yet; however, we can say that it describes the logic of a *"business system"* for creating value that lies behind the actual processes. A model, on the other hand, is only an artificial representation of reality. It, therefore, has to detract focus from certain aspects while concentrating on others; it is impossible for all the variables that comprise reality to be adequately and consistently represented, particularly if the goal is to control due to the effect of certain factors over others. Since a model can be descriptive or predictive, you should not rely solely on the outcomes of the model in decision making because a model cannot (and should not) be a complete and precise representation of reality (even for very simple social systems). Moreover, what is considered to be important for the model depends on the position of the observer (Petrovic *et al*., 2001).

The essence or core competency of the company's business mode is to know how it attracts, creates, stores, transforms, and delivers value. This logic influences important decisions, although in many cases it is very difficult to clearly and simply communicate their knowledge. This logic of the system, the business model, is based upon a complex mental model and that can only be really changed if the mental representation of the real world is altered first. The mental model can be described as a network of facts and concepts, and its content and structure contain our understanding of social and physical phenomena (Morecroft, 1994). The focus is on internal processes and design of infrastructure which enable the firm to create value. The decisive elements include product

or service delivery, administrative processes, resource flows, knowledge management, and logistic streams. A business model describes how an organization (enterprise, business unit) creates, delivers, and captures value. The process of business model construction is part of the business strategy. The business model must be evaluated against the current state of the business ecosystem (Korpela *et al*., 2013).

e-Business Model

Since IBM claimed that the *"...e-commerce business model or electronic business mode is the transformation of key business processes through the use of internet technologies..."* (Li, 2007), many things have taken place. For instance, the fastest and most efficient e-Business integration can put up a close connection among the enterprise, manufacturers, and customers. It can provide a simple communication method and significant economic returns. The genesis of e-Business comes from e-commerce (Osterwalder & Pigneur, 2002) and the continuous development of e-Business. Its focus has been gradually moved from the initial B2C to a more challenging type of business (B2B, B2G, etc.) consequently achieving efficient business, increasing the income, and reducing costs for getting greater business and competitive returns (Meier & Stormer, 2009). Today, the lot of operation modes of e-Business depends on disunity infrastructure, which results in the different contact information among the buyer, supplier, market, and service providers (Xueqiang, 2016). With the advent of e-Business, organizations have been fundamentally changing the way they conduct their business. From business operation to managerial control, to incorporate strategy, e-Business has become an integral part in organizations. As e-Business evolution continues with emerging technologies and business models, a solid understanding of e-Business innovation, process, and strategy proves invaluable for successful e-Business development and management (Lee, 2007). Connectivity through digital media (Internet, cloud, mobile) is very widespread in businesses of all sizes but small businesses in emergent countries like Mexico are slower than larger ones in adopting new digital media technologies and will have greater appeal to SMEs if their B2B, B2C and B2G activities can be more closely integrated. For SMEs to adopt e-Business and e-Commerce strategies and tools, benefits must outweigh investment and maintenance costs (OECD, 2004). e-Business can help drive business growth by expanding enterprises' market reach and saving on costs, e-Business strategies on the performance of SMEs being very positive in particular. SMEs are more sensitive to local environmental obstacles than bigger firms (costs of Internet access, business laws, prevalence of credit card use in the country, taxation of Internet sales) while bigger firms are more sensitive to international strategy and organization effects (OECD, 2015). Despite the advantages for SMEs, there are some barriers for its adoption such as the need for face to face interaction; concerns about privacy of data or security issues; customers not using the technology; finding staff with e-Commerce expertise;

prevalence of credit card use in the country; costs of implementing an e-Commerce site; making needed organizational changes; level of ability in using the internet as part of business strategy; cost of internet access; business laws not supporting e-Commerce, taxation of internet sales; inadequate legal protection for internet purchases (OECD, 2004).

e-Business Innovation Model definitions

We have to understand that business innovation *"is an organization's process for introducing new ideas, workflows, methodologies, services or products"* (TechTarget, 2017a). With the introduction of all e-media (internet, cloud, mobile) technology, e-Business innovation has, nowadays, extensive literature and there are as many definitions as there are people defining it in more or less complex degrees (See Table 1). The OECD defines e-Business as: automated business processes (both intra-and inter-firm) over computer mediated networks (OECD, 2004).

To determine the variables to explain the basis of the theoretical model, we reviewed 20 meaningful papers and we gathered all the variables related with e-Business Innovation. See Table 1.

Table 1.
Authors, definitions and variables related with of e-Business Innovation

No.	Year	Authors (Year)	Definition of e-Business Innovation	Main e-Business variables approximation
1	2017	Mejía-Trejo	*"…as the integral practice of planning actions to address the market with strategy (e-marketing, e-commerce, e-customer relationship, e-resourcing planning, e-supply chain management, e-procurement, e-supplier management and e-security) and tactics for achieving goal settings aligned with the mission and vision of the firm all of which transfer a value proposition to the customer, with performance and profitability monitoring. This concept requires to involve tools, such as e-Media (e.g. Internet cloud, mobile), e-marketing (promotion of products and/or services, capture and retention of the customer), and e-Commerce (transaction of a requirement of products and/or services with a payment) to be applied in different types of business: C2C; C2B; C2G; B2C;B2B;B2G; G2C; G2B; G2G"*	Planning (PLN); Market (EMK); Strategy (STG); Tactics (TAC); Goal Settings (GST); Mission & Vision (MVS); e-Business Tools (EBT); Value Proposition (VPR); Performance (PER); Profitability (PRO); e-Media (EMD); eMarketing (EMK); e-Commerce (ECO)
2	2017b	TechTarget	*"is the conduct of business processes on the Internet. These electronic business processes include buying and selling products, supplies and services; servicing customers; processing payments; managing production control; collaborating with business partners; sharing information; running automated employee services; recruiting; and more…"*	Buying Processes (BFN); Selling Processes (BFN); e-Payment Processes (EPY); managing production control (SCM); collaborating with business partners (SCM); sharing information (SCM); Running automated employee services (SCM)
3	2016	Pfisterer, Radonjic-Simic, & Reichwald	*"…e-Business is conducting core business activities in a way that is enabled by the integrated use of information technology for processing and communication of information"*	Goal Settings (GST); Value Proposition (VPR); Revenue Model (PRO); Value Arquitecture (INF); Infraestructure (INF); Business functionalities (BFN); Electronic Market places (EMK); Smart Cities Arquitectures (INF)
4	2016	Xueqiang	*"… (It is done) in order to let enterprises obtain highly efficient business, increase the income and reduce costs for getting greater business and competitive returns. The designers of E-Business solution scheme need to consider crossing different network configurations from the various private internal network of enterprises to Extranet of sharing information data among them…"*	Web Services (BFN); Web Page (BFN); the business to costumer (TOB); the enterprise to the enterprise (TOB); Electronic Data Interchange (EDI); Electronic Application Integration (EAI); Universal Description, Discovery and Integration (UDDI)

Table 1.
Authors, definitions and variables related with of e-Business Innovation... continuation

No.	Year	Authors (Year)	Definition of e-Business Innovation	Main e-Business variables approximation
5	2015	Putra & Hasibuan	*"e-Business has been identified as a tool that could improve an enterprise's operational efficiency and competitiveness in the global market…"*	Factors that drive and hinder adoption of e-Business among SMEs (O&T); Profiling of SMEs based on their capacity or readiness to adopt e-Business (CHM); Implementation models that are inherently centered on specific technologies or e-Business applications (BFN)
6	2015	Ciamiene & Stankeviciute	*"…it can be described as a set of processes and tools that allow companies to use internet-based information technologies to conduct business internally and externally... that enhances organizational competencies, providing organizations new opportunities to deliver goods and services and adds value through improvements in supply chain efficiency and effectiveness"*	Type of Business (TOB); e-Commerce (ECO); e-marketing (EMK), supply chain management (SCM), Enterprise resource planning system (ERP), Customer Relationship Management (CRM)
7	2014	Gil-Pechuán, , Palacios-Marqués, Peris-Ortiz, Vendrell, Ferri-Ramirez	*"e-Business is composed of several strategies, such as: On-line social networks; electronic Word of Mouth (eWom), Crowdsourcing; Websites; SEO; User Experience; Security"*	On line social networks (OSN); Electronic Word of Mouth (EWM); Crowdsourcing (CRS); Websites (BFN); Search Engine optimization (SEO); User Experience (USE); Security (SEC)
8	2014	Martínez-López	*"E-Business (EB), or e-commerce, is the sharing of business information, maintaining of business relationships, and conducting of business transactions by means of digital telecommunications networks…"*	Value Creation and Value Capture (VPR); Business Performance (PER); Strategy (STG); Market (EMK); Product Innovation Enhancement (PIE); Supply Chain Management (SCM); Enterprise Resource Planning (ERP); Online Consumer Behavior (OCB); e-Tailing (ETL); Multichannel Marketing (EMK); Pricing in Marketplaces (EMK); Consumer Avoidance Behaviors (CAB); e-Human Resources (ORG); Knowledge Management (KMG); Outsourcing (OUT); Customer Relationship (CRM); e-NNovation (ENN); Electronic Word of Mouth (EWM); Qualitative Analysis for Business Decisions (OCB); Ethics (ETH); e-Image (IT&L)

Table 1.
Authors, definitions and variables related with of e-Business Innovation... continuation

No.	Year	Authors (Year)	Definition of e-Business Innovation	Main e-Business variables approximation
9	2013	Korpela, Kuusiholma, Taipale, & Hallikas	*"e-Business is considered an e-Business ecosystem because it improves the traditional, thoroughly defined collaborative environments, such as centralized models (client-server), distributed models (such as peer-to-peer), and hybrid models (such as web services) and develops them further into its own model…"*	Customer Value (VPR); Data Model (BFN); Process Model (BFN); Network Collaboration (CRM, ERP, SCM, SRM); People Capabilities (CHM); Network Value Competitiveness (CRM,ERP, SCM, SRM); e-Commerce (ECO)
10	2012	Barnes	*"…(e-) Business model innovation refers to those reconfigurations in business strategies and operations that convert resources into business value… Firms will innovate different business models to suit their particular strategic business needs. Indeed, accommodating e-Business in business models is a continual process that is developed in cumulative stages…"*	Performance Monitoring (PER)
11	2011	Tawab, Kazemina, & Habib	*"It is considered an ecosystem… a network of rapidly growing technology which caters to online businesses in both sectors of Business to Consumer (B2C) and Business to Business (B2B)…"*	Technology Acceptance Model (CHM); Perceived Usefulness (USE); Perceived Ease of Use (USE)
12	2009	Meier & Stommer	*"It is a set of Support Processes involving: Strategic Planning, Organization and Human Resources, Security Management, Controlling, Cultural Administration and Value Chain. The Value Chain is composed of: e-Products & e-Services, e-Procurement, e-Marketing, e-Contracting, e-Distribution, e-Payment, e-Customer Relationship Management"*	Strategic Planning (STG); Organization & Human Resources (ORG); Security Management (SEC), Controlling (BFN); Cultural Administration (CHM); Value Chain (VPR); e-Products & e-Services (PIE), e-Procurement (EPR); e-Marketing (EMK); e-Contracting (ECR); e-Distribution (EDS), e-Payment (EPY), e-Customer Relationship Management (CRM)
13	2009	Rappa	*"…defines the e-Business model in its most basic sense as a method of doing business by which a company can sustain itself by generating revenue…"*	Type Model Business (TOB), we have: Brokerage Model (BKM); Advertising Model(EMK); Infomediary Model (INF); Merchant Model (CRM); Manufacturer Model (SRM); Affiliation Model (EMK); Community Model (CMM); Subscription Model (EMK); Utility Model (PRO)

Table 1.
Authors, definitions and variables related with of e-Business Innovation... continuation

No.	Year	Authors (Year)	Definition of e-Business Innovation	Main e-Business variables approximation
14	2008	Desai & Currie	*"the value proposition in application service provision. The framework uses 6 constructs, namely, Market Positioning, Customer Requirements, Products and Services, Value Proposition, Delivery and Pricing"*	Market Positioning (EMK); Customer Requirements (CRQ); Product & Services (PIE); Value Proposition (VPR); Delivery and Pricing (EMK)
15	2007	Chaffey	*"…It is a concept enhancing the competitiveness of an organization by deploying innovative information and communications technology throughout an organization and beyond, through links to partners and customers…"*	Infrastructure (INF); Environment (O&T); Strategy (STG); Supply Chain Management (SCM); e-Procurement (EPR); e-Marketing (EMK); Customer Relationship (CRM); Change Management (CHM); Analysis & Design (BFN); Implementation & Maintenance (PLN)
16	2002	Osterwalder & Pigneur	*"it is based on an e-Business Model Ontology involving 4 elements: product innovation (with target customer segment; value proposition; capabilities), customer relationship (with information strategy, feel & serve, trust & loyalty), infrastructure management (resources, value configuration, partner network), financials (with revenue model, cost structure, profit & loss)"*	Product Innovation (PIE); Customer Relationship (CRM); Infraestructure Management (INF); Financials (PRO); Target Customer Segment (EMK); Value Proposition (VPR); Capabilities (CAP); Information Strategy (STG); Feel&Serve (EMK); Trust & Loyalty (IT&L); Resources (RSC); Value Configuration (VPR); Partner Network (CRM, SCM, ERP, SRM); Revenue Model (PRO); Cost Structure (CST); Profit & Loss (PRO)
17	2001	Gordijn, J. & Akkermans,	*"… model(s) that show how a network of actors (a value constellation) creates, exchanges and consumes objects of value by performing value adding activities…. is an important baseline for the development of e-commerce system applications"*	Actor (VPR); Value Object (VPR), Value Offering (VPR); Value Activity; (VPR), value port (VPR); Value interface (VPR); value exchange (VPR)
18	2001	Dubosson-Torbay, M., Osterwalder, A. & Pigneur, Y..	*"… is nothing else than the architecture of a firm and its network of partners for creating, marketing and delivering value and relationship capital to one or several segments of customers in order to generate profitable and sustainable revenue streams…"*	Product innovation (PIE); Customer Relationship (CRM), Infrastructure management (INF), Financials (PRO); Revenue (PRO)
19	2001	Amit & Zott	*"…E-Business has the potential of generating tremendous new wealth, mostly through entrepreneurial start-ups and corporate ventures. It is also transforming the rules of competition for established businesses in unprecedented ways…"*	Virtual Markets (EMK); Value Chain (VPR); Resource View of the Firm (RSC); Value Creation (VPR); Lock-in (LCK); Novelty (NOV); Efficiency (EFF)
20	2001	Petrovic, Kittl & Teksten	*"It is an improvement of the original business model of the firm… It includes e-Commerce and e-Market"*	Value Model (VPR); Resource Model (RSC); Production Model (SCM); Customer Relationshp Model(CRM); Revenue Model (PRO); Capital Model (PRO); Market Model (EMK); Mission (goals, vision & value proposition, MVS); structure or actors, governance and focus (ORG); Processes or customer orientation, coordination mechanisms (USE)

Source: several authors with own adaptation.

Notes: Brokerage Model (BKM); Business Functionalities (BFN); Crowdsourcing (CRS); Change Management (CHM); Community Model (CMM); Consumer Avoidance Behaviors (CAB); Cost Structure (CST); Customer Relationship Management (CRM); Customer Requirements (CRQ); e-Business Tools (EBT); e-Distribution (EDS); e-Contracting (ECR); e-Commerce (ECO); e-Human Resources (ORG); e-Marketing (EMK); e-Media (EMD); e-Procurement (EPR); e-Tailing (ETL); Efficiency (EFF); e-Image (IT&L); Electronic Application Integration (EAI); Electronic Data Interchange (EDI); Electronic Word of Mouth (EWM); e-NNovation (ENN); Enterprise resource planning system (ERP); e-Payment Processes (EPY); Ethics (ETH); Goal Settings (GST); Knowledge Management (KMG); Image, Trust & Loyalty (IT&L); Infrastructure Management (INF); Lock-in (LCK); Market (EMK); Mission & Vision (MVS); Novelty (NOV); On line social networks (OSN); Online Consumer Behavior (OCB); Opportunities & Threats (O&T); Outsourcing (OUT); Performance (PER); Planning (PLN); Product Innovation Enhancement (PIE) ; Profitability (PRO); Resources (RSC); Security (SEC); Search Engine

optimization (SEO); Strategy (STG); Supply Chain Management (SCM); Tactics (TAC); Type of Business (TOB); Universal Description, Discovery and Integration (UDDI); User Experience (USE); User Experience (USE); Value Proposition (VPR)

As a result of the literature review, we made a table to show the eBIM variables per author, a standardization, and a summary of them based on its total frequency as an academic vision approach. See Table 2.

Table 2.
Searching the variables representing the eBIM factor as academic vision

Item	eBIM		Number of Author (according Table 1)																			
1	Variables	Standardization	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL Frequency
2	Planning	PLN	X				X										X						3
3	e-Marketing	EMK	X		X			X		X				X	X	X	X	X	X		X	X	11
4	Strategy	STG	X							X				X			X	X					5
5	Tactics	TAC	X																				1
6	Goal Settings	GST	X		X																		2
7	Misssion-Vision	MVS	X																			X	2
8	e-Business Tools	EBT	X																				1
9	Value Proposition	VPR	X		X					X	X				X	X		X	X		X	X	10
10	Performance	PER	X							X		X											3
11	Profitability	PRO	X		X										X			X		X		X	6
12	eMedia	EMD	X																				1
13	eCommerce	ECO	X					X			X												3
14	Business Functionalities	BFN		X		X	X		X		X			X			X						7
15	e-Payment	EPY		X										X									2
16	Infrastructure Management	INF			X										X		X	X		X			5
17	Electronic Data Interchange	EDI				X																	1
18	Electronic Digital; Electronic Application Integration	EAI				X																	1
19	Universal Description, Discovery and Integration	UDDI				X																	1
20	Drive and Hinder Adoption of E-Business	O&T					X										X						2
21	Type of Business	TOB				X		X							X								3
22	Supply Chain Management	SCM		X				X		X	X						X	X				X	7
23	Enterprise Resource Planning System	ERP						X		X	X							X					4
24	Customer Relationship Management	CRM						X		X	X			X	X		X	X		X		X	9
25	Supplier Relationship Management	SRM									X				X			X					3
26	On Line Social Networks	OSN							X														1
27	Electronic Word of Mouth	EWM							X	X													2
28	Crowdsourcing	CRS							X														1
29	Search Engine Optimization	SEO							X														1
30	User Experience	USE							X				X										2

Table 2.
Searching the variables representing the eBIM factor as academic vision... continuation

Item	eBIM		Number of Author (according Table 1)																				
	Variables	Standardization	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL Frequency
31	Security	SEC							X					X									2
32	Product Innovation Enhancement	PIE								X				X		X		X		X			5
33	On Line Consumer Behavior	OCB								X												X	2
34	eTailing	ETL								X													1
35	Consumer Avoidance Behaviors	CAB								X													1
36	eHuman Resources	ORG								X				X								X	3
37	Knowledge Management	KMG								X													1
38	Outsourcing	OUT								X													1
39	eNNovation	ENN								X													1
40	Ethics	ETH								X													1
41	Cultural Administration	CAD												X									1
42	e-Procurement	EPR												X			X						2
43	e-Contracting	ECR												X									1
44	e-Distribution	EDS												X									1
45	Brokerage Model	BKG													X								1
46	Affilliation Model	AFF													X								1
47	Community Model	CMM													X								1
48	Subscription Model	SUB													X								1
49	Utiliity Model	UTY													X								1
50	Customer Requirements	CRQ														X							1
51	e-Procurement	EPR															X						1
52	Change Management	CHM					X				X		X	X			X						5
53	Capabilities	CAP																X					1
54	Image Trust&Loyalty	IT&L								X								X					2
55	Resources	RSC																X			X	X	3
56	Partner Network	PTN																X					1
57	Cost Structure	CST																X					1
58	Lock-In	LCK																			X		1
59	Novelty	NOV																			X		1
60	Efficiency	EFF																			X		1
61	Production Model	PRM																				X	1
															TOTAL								147

Source: author's elaboration.

As can be observed, the conceptualization of an e-Business Innovation Model is still dispersed and we need to determine the variables of the study. Therefore, we gathered a group of **6 e-Business experts**: 1 software designer of e-Business systems, 1 consultant of e-Business services, 1 professor of information and communications technologies (**ICT**), 1 **CEO** of an **SME** of e-Business programming services, 1 programing manager of e-Business services (front office), and 1 support manager of programming e-Business services. This group of experts focused their experience and attention to determine the main variables and factors and a suggested order to be involved for the **eBIM**. To achieve it, we applied a qualitative analysis using a focus group with Delphi Panel and Analytic Hierarchy Process (**AHP**, Saaty, 1997). The results are shown in Table 3.

Table 3.
Focus Group by Delphi Panel and AHP to determine the main groups of Variables of eBIM under Academic and Expert Visions

Alternatives	Objective: e-Business Innovation Factor							
	Order Suggested by expert vision	Variables	Factor as Academic Vision		Factor as Expert Vision		%Difference >[2.0] (Academic Vision-Expert vision)	Resulting Vision Issues
			Frequency	%	Factor suggested	AHP weighed as Expert Vision (%)		
	1	MVS	2	2.82	STR	2.5	0.32	ACD-EXP
	2	ETH	1	1.41		3.9	-4.49	EXP
	3	VPR	10	14.08		9.9	5.38	ACD
	4	EMK	11	15.49		9.56	6.69	ACD
	5	O&T	2	2.82		6.3	-3.48	EXP
	6	KMG	1	1.41		1.5	-2.19	EXP
	7	GST	2	2.82		2.7	0.12	ACD-EXP
	8	PLN	3	4.23		6.1	-1.87	ACD-EXP
	9	CST	1	1.41	IO&M	5.98	-3.83	EXP
	10	BFN	7	9.86		8.1	1.76	ACD-EXP
	11	CHM	5	7.04		1.9	5.14	ACD
	12	EBT	1	1.41		3.1	-1.69	ACD-EXP
	13	STG	5	7.04		3.2	3.84	ACD
	14	ORG	3	4.23		3.9	0.33	ACD-EXP
	15	INF	5	7.04		5.8	1.24	ACD-EXP
	16	TAC	1	1.41		6.89	-5.48	EXP
	17	SEC	2	2.82		5.97	-3.15	EXP
	18	PER	3	4.23	KPI	6.5	0.13	ACD-EXP
	19	PRO	6	8.45		6.2	1.25	ACD-EXP
		TOTAL	71	100		100		

Source: author's elaboration.
Notes: ACD. Academic Vision; EXP. Expert Vision; STR. Strategy Factor; IO&M. Implementation, Operation & Maintenance ; KPI. Key Performance Indicators

Searching for the final model

We then proceeded to explain each of these variables to determine our general conceptual model of eBIM in the order suggested to be implemented as follows:

eBIM variable: Mission-Vision (MVS)

Mission. It is a written declaration of an organization's core purpose and focus that normally remains unchanged over time. It is the cause of the business firm's day-to-day operational objectives. Vision is the effect of the business firm. It defines the high-level goals for the future. The main

question to answer is: Which is the mission and vision involved in the e-BIM? (Petrovic, Kittl & Teksten, 2001; Mejía-Trejo, 2017).

eBIM variable: Ethics (ETH)

e-Business is a central element of the contemporary marketplace and models of e-Business continue to evolve with ethical implications. There are several ways in which the technologies involved in e-Business have intensified ethical concerns about privacy, security, and other social norms in business. The main question is: What are we doing to ensure the ethics in the eBIM? (Martínez-López , 2014).

eBIM variable: Value Proposition (VPR)

It is the reason why customers turn to one company over another to solve their problems or to satisfy their needs. It consists of a selected bundle of products and/or services that caters to the requirements of a specific Customer Segment. In this sense, it is an aggregation, or bundle, of benefits that a company offers customers. The main question is: What is the value proposition inserted in the e-BMI? (Mejía-Trejo, 2017; Pfisterer, Radonjic-Simic, & Reichwald, 2016); Ciarniene & Stankeviciute, 2015; Martínez-López, 2014; Korpela, Kuusiholma, Taipale, & Hallikas, 2013; Desai & Currie, 2008; Osterwalder & Pigneur, 2002; Gordijn & Akkermans, 2001; Amit & Zott, 2001; Petrovic, Kittl & Teksten, 2001).

eBIM variable: e-Marketing (EMK)

It is everything about the digital marketing issues from market segmentation as a target to the application of different digital marketing tools such as: Web site design, Search Engine Optimization, Search Engine Marketing, Videoblogs, e-Mail Marketing, etc. It comprises the heart of any business model. Without (profitable) market, no company can survive for long. In order to better satisfy the market, a company may group them into distinct segments with common needs, common behaviors, or other attributes. The main question is: Which is the main e-marketing, in segment and tools, to be applied for the e-BMI? (Mejía-Trejo, 2017; Pfisterer, Radonjic-Simic, & Reichwald, 2016; Ciarniene & Stankeviciute, 2015; Martínez-López, 2014; Meier & Stormer, 2009; Rappa 2010; Desai & Currie, 2008; Chaffey, 2007; Osterwalder & Pigneur ,2002; Amit & Zott, 2001; Petrovic, Kittl & Teksten, 2001).

eBIM variable: Opportunities & Threats (O&T)

e-Business offers an opportunity for SMEs to significantly further their growth as it has been identified as a tool that could improve an enterprise's operational efficiency and competitiveness in the global market (Chaffey,

2007). Despite the promised potentials of e-Business, its adoption among SMEs has been lower compared to that of larger enterprises. According to Putra and Hasibuan (2015) we have to consider the profiling of SMEs based on their capacity or readiness to adopt e-Business and to determine the factors (opportunities and threats) that drive and hinder adoption of e-Business among SMEs and the implementation models that are inherently centered on specific technologies or e-Business applications. The main question is: Taking into account the profiling of the SME, which opportunities and threats lead to implementing the eBIM?

eBIM variable: Knowledge Management (KMG)

Extreme customization is not always the optimum competitive strategy. Therefore, it is necessary to create several processes´ that create, store, distribute, and preserve knowledge management for both capture and retention of customers and suppliers. This concept includes the alignment of knowledge management and business strategies in organizations. The main question is: How should knowledge management be implemented in the eBIM? (Martínez-López, 2014).

eBIM variable: Goal Settings (GST)

All e-Businesses require objectives to be reached, for instance: The branding value; The number (real and potential) of customers database; The sales; The new product and services under innovation. The main question is: Which goals should we use for the e-BIM? (Mejía-Trejo, 2017; Pfisterer, Radonjic-Simic, & Reichwald, 2016).

eBIM variable: Planning (PLN)

This is the step where all the tools and techniques of the tactics is programmed logistically to be implemented in the practice. This is your overall strategy for e-Business. Defining a strategy to integrate communications across different employee-customer-supplier touchpoints is often forgotten. Moreover, planning involves setting goals, creating a coherent strategy to achieve them and putting in place evaluation tools in place to make sure you're on track. The main question is: What about the schedule and times to implement the e-Business tools to obtain results in the e-BMI? (Mejía-Trejo, 2017; Putra & Hasibuan, 2015; Chaffey, 2007).

So far, we have Hypothesis 1 (H1): *¨The list variables (8) of: MVS, ETH, VPR, EMK, O&T, KMG, GST, PLN have enough significant variance to be grouped into an independent factor which we can call Strategy (STR).¨*

eBIM variable: Costs (CST)

This element measures all the costs the firm incurs in to create, market, and deliver value to its customers. It sets a price tag on all the resources, assets, activities, and partner network relationships and exchanges that cost the company money. The main question is: How much is the cost for implementing the eBIM in order for it to be profitable? (Osterwalder & Pigneur, 2002).

eBIM variable: Business Functionalities (BFN)

It deals with the way an e-Business scenario exists (or should exist) and what should be reached by the collaboration in this specific scenario (i.e., definition of business goals). The organization aspect, on the other hand, deals with the how from an organizational perspective, describing how organizations (i.e., involved parties) are structured and connected to achieve the defined business goals. The architecture aspect also deals with how, but from a conceptual perspective. The main question is: Which business functionalities are going to be exploited for the eBIM? (TechTarget, 2017a; Xueqiang, 2016; Putra & Hasibuan, 2015; Gil-Pechuán, Palacios-Marqués, Peris-Ortiz, Vendrell, Ferri-Ramirez, 2014; Korpela, Kuusiholma, Taipale, & Hallikas, 2013; Meier & Stormer, 2009; Chaffey, 2007).

eBIM variable: Change Management (CHM)

The human resource is considered one of the most valuable assets of e-Business firms. To deal with several changing environments that affect these human resources, we have to consider the change management scope. Change management is a collective term for all approaches to prepare and support individuals, teams, and organizations in making organizational change to adapt the e-Business issues in the firm. It includes methods that redefine the use of resources, business processes, budget allocations, or other modes of operation that significantly change a company or organization. The main question is: What and how many changes must we conduct to implement the eBIM? (Putra & Hasibuan, 2015; Korpela, Kusiholma, Taipale, & Hallikas, 2013; Tawab, Kazemina, & Habib, 2011; Meier & Stormer, 2009; Chaffey, 2007).

eBIM variable: e-Business Tools (EBT)

It is suggested that each Type of Business (**TOB**) such as B2B, B2C, B2G, etc., be configured on its own e-Business tools mix as a strategy such as: e-Marketing (EMK); e-Word of Mouth (EWM); Crowdsourcing (CRS); Universal Description, Discovery and Integration (UDDI); On Line Social Networks (OSN); Search Engine Optimization (SEO); User Experience (USE); Image, Trust & Loyalty (IT&L);

Online Consumer Behavior (OCB); Consumer Avoidance Behaviors (CAB); Community Model (CMM); e-Commerce (ECO); e-Tailing; e-Payment; Electronic Data Interchange (EDI); Electronic Application Integration (EAI); Product Innovation Enhancement (PIE); Customer Requirements (CRQ); Customer Relationship Management (CRM); Enterprise Resourcing Planning (ERP); Supply Chain Management (SCM); Supplier Relationship Management (SRM); Brokerage Model (BKM); e-Procurement; e-Contracting; e-Distribution; Knowledge Management (KMG); Security (SEC), etc. The main question is: For each TOB, what kind of e-Business tools are we ready to use in the e-BMI? (Mejía-Trejo, 2017).

eBIM variable: Strategy (STG)

According to the Type of Business (**TOB**), this stage represents how to achieve the goal settings to capture or retain a customer or supplier. It is suggested to consider capturing the promotion, commerce, and design techniques and for retention, customer, enterprise and supply techniques. Finally, for investment, the brokerage techniques. The main question is: How to achieve the goal settings for the **e-BMI?** (Mejía-Trejo, 2017; Martínez-López, 2014; Meier & Stormer, 2009; Chaffey, 2007; Osterwalder & Pigneur, 2002).

eBIM variable: Organization (ORG)

The e-Business implementation has several important deep impacts in SMEs organization such as human resources, strategy, the IT department, technology implied with the customer and suppliers, trust, business environment, trust, operation and maintenance, performance and profitability metrics, amongst many other aspects. Implementing e-Business applications will require organizational restructuring and alignment, process redesign, new job descriptions, and revised and/or reviewed policies. All of the organizations, no matter their size, will also have to examine legal, tax and security issues. It is a fact that e-Business is changing all the rules and models. An organization's ability to embrace new technology and business models is key to increasing the organization's productivity. The main question is: How will the organization be affected with the implementation of the eBIM? (Martínez-López, 2014; Meier & Stormer, 2009; Petrovic, Kittl & Teksten, 2001).

eBIM variable: Infraestructure (INF)

This concept involves: software, hardware architecture, content and data used to deliver e-Business services to employees, customer and suppliers. An adequate e-Business infrastructure is vital for all organization's performance because it affects directly the quality of service experience

in terms of speed, functionality and responsiveness. A key performance decision is to decide which elements are located inside the firm and which are managed externally as a third-party managed application, data servers and networks, for instance. Another vital aspect is being flexible enough to consider new technologies to support changes required by the e-Business to compete effectively. The main question is: What kind of infrastructure is adequate to support eBIM operations? (Pfisterer, Radonjic-Simic, & Reichwald, 2016; Rappa, 2010; Chaffey, 2007; Osterwalder & Pigneur, 2002; Dubosson-Torbay, Osterwalder, & Pigneur, 2001).

eBIM variable: Tactics (TAC)

According to the Type of Business (TOB), this represents all of the activities to be implemented to follow the strategies involving mainly the use of e-Business tools (EBT). The main question is: How to design the best tactics for the e-BMI? (Mejía-Trejo, 2017) See Table 4.

Table 4.
Tactics are a function of EBT vs. Strategy according to the TOB

TOB	STRATEGY (STG)						
	Capture Customer & Suppliers			Retention Customer & Suppliers			
	Promotion	Commerce	Design	Customer	Enterprise	Supply	Brokerage
EBT (e-Business Tools)	EMK	ECO	PIE	CRM	ERP	SCM	BKM
	EWM	e-Tailing	CRQ	OCB-CAB		SRM	
	CRS	e-Payment					
	UDDI	EDI		e-Procurement			
	OSN	EAI		e-Contracting			
	SEO			e-Distribution			
	USE			e-Payment			
	IT&L						
	OCB-CAB						
	CMM						
	KMG						
	SEC						

Source: author's elaboration.

eBIM variable: Security (SEC)

By default, the Internet is an open high risk environment and also the main place where e-Business is growing. Therefore, it is of vital importance to highlight the security aspects that are related to infrastructure based mainly on hardware, software, and security policies of the SME. The main question is: How should the hardware, software and security policies practiced by the SME be for implementing the eBIM? (Gil-Pechuán, Palacios-Marqués, Peris-Ortiz, Vendrell, Ferri-Ramirez, 2014; Meier & Stormer, 2009).

So far, we have Hypothesis 2 (H2): *¨The list variables (9) of: CST, BFN, CHM, EBT, STG, ORG, INF, TAC, SEC have enough significant variance to be grouped into an independent factor that we can call Implementation, Operation & Maintenance (IO&M).¨*

eBIM variable: Performance (PER)

It implies knowing how well the e-Business is working. Practically, it involves the measurement and assessment of all the previous stages supported by web analytics to obtain a full control of e-Business practice. The main question is: Which is the performance of the e-BMI? (Mejía-Trejo, 2017; Martínez-López, 2014; Korpela, Kuusiholma, Taipale, & Hallikas, 2013).

eBIM variable: Profitability (PRO)

It is expressed in terms of return on investment (ROI) about how the e-Business is working, at short, medium, or long terms. The main question is: What is the return of investment for the e-BMI? (Mejía-Trejo, 2017; Pfisterer, Radonjic-Simic, & Reichwald, 2016; Rappa, 2010; Osterwalder & Pigneur, 2002; Dubosson-Torbay, Osterwalder, & Pigneur, 2001; Petrovic, Kittl & Teksten, 2001).

So far, we have Hypothesis 3 (H3): *¨The list variables (9) of: PER, PRO have enough significant variance to be grouped into an independent variable which we can call Key Performance Indicator (KPI).¨* Therefore, the final eBIM *ex ante*, is shown in Figure 1.

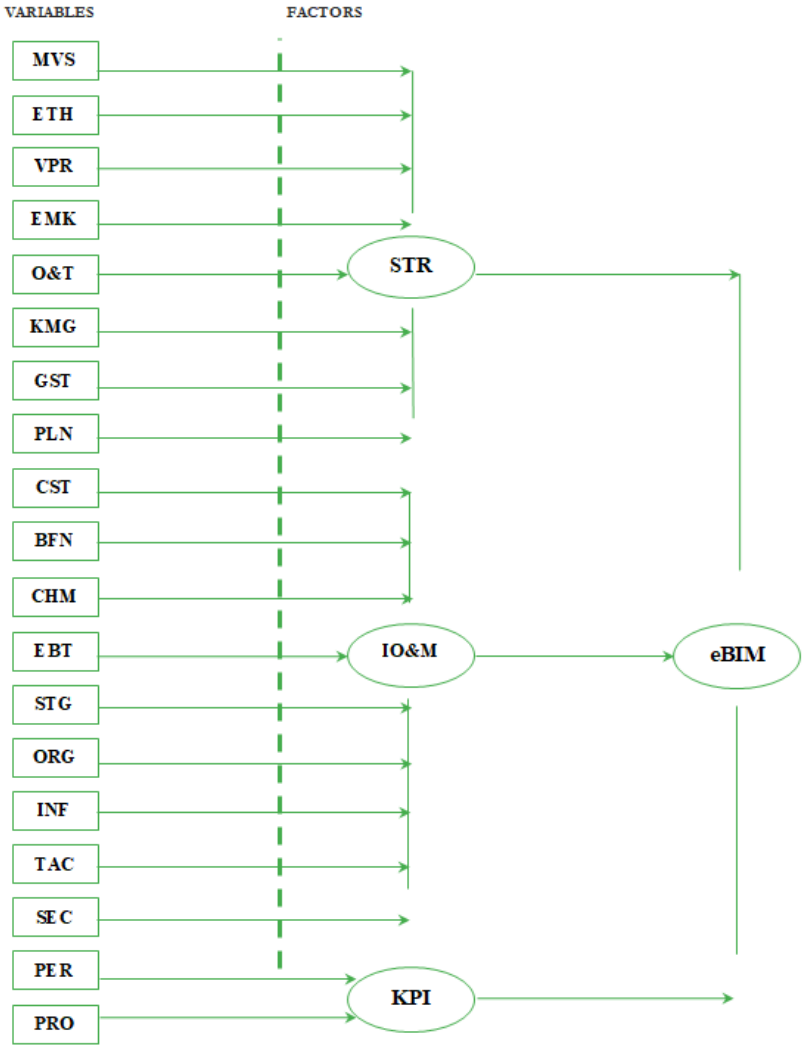

Figure 1.
General Conceptual *ex ante* of eBIM
Source: author´s elaboration.

The final questionnaire applied is shown in Figure 2. Appendix. Questionnaire Proposal.

Methodology

So far, to apply these concepts we summarized the features of the subject of study. See Table 5.

Table 5.
Technical Research Data

Technical Research Data	
Features	**Survey**
-Literature Review	By own author through 20 meaningful papers about e-Business
-Academic and Expert vision for searching the variables as support of the Theoretical Framework -Final questionnaire Likert scale design	6 e-business experts in Focus Group-**AHP**: 1 software designer of e-Business systems, 1 consultant of e-Business services, 1 professor of information and communications technologies (**ICT**), 1 **CEO** of **SME** of e-Business programming services, 1 programing manager of e-Business services (front office), 1 support manager of programming e-Business services.
Pilot survey for reliability and validity test. Scope	6 e-Business experts aforementioned tested during Oct-Nov, 2016.
Final survey introducing the theoretical mode. Sample unit	The 200/400 e-Business SMEs firms specialized in the design and the implementation of e-Business innovation, located in the Guadalajara Metropolitan Zone, including: SME CEOs (50), back office/ front office managers (50), software designers (50), and directors of business consultant firms (50) all of them grouped in a cluster called: "*Digital Creative City*" placed in Guadalajara, Mexico. The period of survey was: January 2017-June 2017.
Final survey introducing the theoretical mode. Collection method of data	e-Mail / and direct interview inquiry.
Data Analysis	-Test of validity data was done through the Focus Group-AHP producing the Theoretical Framework. -Cronbach's Alpha for test confidence with Pilot Survey through 6 e-Business specialists . -Exploratory Factor Analysis using Rotation Method: VARIMAX. With Extraction Method: Principal Component Analysis. Final Survey based on 200 e-Business specialists.

Source; author's elaboration.

Results

According to the methodology, the result for the Cronbach's Alpha confidence test is shown in Table 6.

Table 6.
Cronbach's Alpha Test

Cronbach's Alpha	N of Variables
.850	19

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

We proceeded to apply the Exploratory Factor Analysis, in order to determine the variance contribution of each dimension and, hence, how these dimensions are reduced to identify the underlying variables: STR, IO&M and KPI. This reduction was made using the Hair (*et al*., 2014) criteria. See Table 7.

Table 7.
Exploratory Factor Analysis Conditions

Exploratory Factor Analysis Conditions: Fundamental Tests		
Test	**Value**	**Result**
Factor Loadings (Hair *et al.*, 2014, p. 117) (at least, 50%+1) in the matrix correlations.	+-0.3 to +-0.4 are considered to meet the minimal level of structure (Our case) at least 50%+1	**OK**
Anti-image Correlation Matrix. (Hair *et al.*, 2014, p.90)	All the diagonal values >=0.05	**OK**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy Test (KMO). It is calculated using correlations and partial correlations to test whether the variables in our sample are adequate to correlate. That is, it calculates whether variables are so highly correlated that we cannot distinguish between them (multicollinearity). A general rule is that a KMO value should be greater than 0.5 for a satisfactory factor analysis to proceed. The higher the value the better. (Hinton *et al.*, 2004, p.349).	0.602>0.05	**OK**
Bartlett test of sphericity. Statistical test for the overall significance of all correlations within a correlation matrix. (Hair *et al.*, 2014, p.90). It allows us know if there is a relationship between the variables. If no relationship is found, then there is no point in proceeding with the factor analysis. We may simply have very few participants for us to find the effects we are looking for and, therefore, insufficient power for a factor analysis. A p value < 0.05 indicates that it makes sense to continue with the factor analysis (Hinton *et al.*, 2004, p.349).	Sig.0.250 >0.05	**OK**
Communality. (Hair et al., 2014, p.91; Hinton *et al.*, 2004, p. 249).	1	**OK**
Rotation Method: VARIMAX. Extraction Method: principal component analysis with variance extraction>=0.6. (Hair *et al.*, 2014, pp. 93-108). This rotates the factors in such a way that when the final factors are produced they are not correlated (i.e. orthogonal) to each other. (Hinton, 2004, p. 346). *Principal Component Analysis* analyses the total variance and attempts to explain the maximum amount of variance by the minimum number of underlying factors. As it produces more and more factors to explain all the variance, some factors explain a lot more variance than do others (Hinton *et al.*, 2004, p.340).	Rotation method: VARIMAX. Principal Component Analysis, with Variance Extraction >=0.6	**OK**

Source: SPSS 20 IBM, Hair *et al.*, 2014; Hinton *et al.*, 2004 with own adaptation.

In order to answer the question, *"Which is the empirical model proposed for the e-Business Innovation Model (eBIM) able to be designed, implemented, measured, and improved by the SMEs?"* we applied the reduction of variables by means of exploratory factor analysis looking for variability in one variable common to other variables. The aforementioned means that they are linked by an underlying factor. At first, SPSS 20 IBM assumes (in a principal component analysis) that 100 % of the variance of each variable is common variance, so it gives each variable a communality of 1.000. However, when it has extracted the factors, it works out how much of the variability of each variable can really be explained by the extracted factors and gives an updated value of communality (Hinton *et al.*, 2004, p. 349). See Table 8.

Table 8.
Communalities

Exploratory Factor Analysis Conditions: Communalities		
Test	**Value**	**Extraction**
MVS	1.000	.824
ETH	1.000	.811
VPR	1.000	.763
EMK	1.000	.712
O&T	1.000	.811
KMG	1.000	.783
GST	1.000	.774
PLN	1.000	.761
CST	1.000	.683
BFN	1.000	.728
CHM	1.000	.871
EBT	1.000	.917
STG	1.000	.718
ORG	1.000	.863
INF	1.000	.765
TAC	1.000	.819
SEC	1.000	.814
PER	1.000	.789
PRO	1.000	.802

Extraction Method: Principal Component Analysis. Source: SPSS 20 IBM with own adaption.

By observing our example, we can see that all the variance of MVS is initially given a communality value of 1.000 but after extracting the factors we find it has a communality of 0.824. This indicates that 82.4% of its variability is explainable by the factors. Using our criterion of selecting eigenvalues over 1, we can see from the highlighted numbers in the Total Variance explained in three components (or variables) that have been produced that have eigenvalues greater than this amount (Hinton *et al.*, 2004, p. 350). See Table 9.

Table 9.
Total Variance Explained

Exploratory Factor Analysis Conditions:

Total Variance Explained

Component	Initial Eigenvalue			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% Of variance	Cumulative %	Total	% Of variance	Cumulative %	Total	% Of Variance	Cumulative %
1	**12.32**	**48.291**	**48.291**	12.32	48.291	48.291	10.32	40.24	39.489
2	7.67	17.91	66.201	7.67	17.91	66.201	6.678	29.567	60.066
3	5.113	19.99	**86.191**	5.113	19.99	86.191	4.33	16.384	79.454
4	0.991	4.96	91.151						
5	0.983	2.99	94.141						
6	0.86	1.1	95.241						
7	0.688	1.09	96.331						
8	0.525	0.999	97.33						
9	0.205	0.893	98.223						
10	0.162	0.704	98.927						
11	0.112	0.485	99.412						
12	0.071	0.299	99.711						
13	0.058	0.2	99.911						
14	0.042	0.09	100.001						
15	0.032	0.08	100.081						
16	5.70E-16	7.00E-02	1.00E+02						
17	3.89E-16	5.00E-03	1.00E+02						
18	1.31E-17	4.00E-03	1.00E+02						
19	-4.57E-18	3.00E-05	1.00E+02						

Extraction Method: Principal Component Analysis. Source: SPSS 20 IBM with own adaption.

According to Hinton *et al.* (2004, p. 350), to understand the last table, we shall describe it as the Initial Eigenvalues Total column that shows the eigenvalues we are interested in. Only three factors have eigenvalues greater than 1. The % of Variance column shows how much variance each individual factor can explain. Had we chosen to select all factors that accounted for more than 5% of variance, we would have had four factors rather than three. If this was the case we would produce another factor analysis; however, this time we want three eigenvalue factors over 1. The Cumulative % column shows the amount of variance accounted for by each consecutive factor added together. From our example, we can see that factor 1 has an eigenvalue of 12.32 which accounts for 48.291% of the variance. Our criterion for factor selection is eigenvalues greater than 1, therefore, we have three factors which can explain a cumulative 86.191% of the variance in the data. You can see that the Extraction Sums of Squared Loading values are exactly the same as the Initial Eigenvalues; nonetheless, only the three factors that have been extracted are shown. The rotation method changes the eigenvalues and variances explained by each factor but keeps the total variance the same. The extracted factors

are shown in the Rotation Sums of Squared Loadings column. The Scree Plot is then shown in Figure 3.

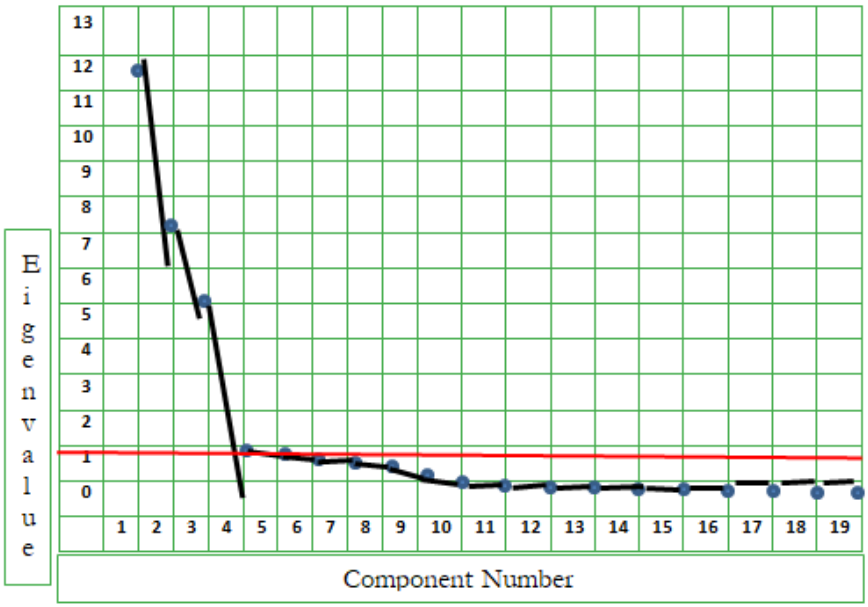

Figure 3.
The Scree Plot
Source: SPSS 20 IBM.

The factors are the X-axis and the eigenvalues are the Y-axis. The factor with the highest eigenvalue is the first component and the second component has the second highest eigenvalue. Remember that by observing where the line starts to level out, there is a criterion for selecting how many factors to extract. The scree plot depicts the amount of variance explained by each factor and can aid judgment regarding factor extraction. We can see that our plot is starting to level out at the 3 variables. The scree plot indicates that 3 variables could be chosen. We might wish to re-run the factor analysis specifying 3 variables. The Component Matrix details the factor loadings onto our three factors before they have been rotated. As we have selected the Principal Component Analysis with a Varimax rotation, the Rotated Component Matrix gives us a clearer picture than the Component Matrix of our factor loadings onto the three factors. See Table 10.

Table 10.
Rotated Component Matrix (a)

ID	FACTORS Proposed name by Expert Vision specialists	Variables	Component (Variables)		
			1	2	3
1	STRATEGY (STR)	MVS	.735	.492	-.192
2		ETH	.843	-.035	.272
3		VPR	-.773	.371	-.139
4		EMK	.607	.106	.109
5		O&T	.718	.069	-.210
6		KMG	.978	-.073	-.322
7		CHM	.867	-.234	.345
8		BFN	-.776	.567	.765
9		CST	.654	.556	.452
10		GST	.543	.443	.230
11		EBT	.432	.342	.299
12		STG	.876	.776	.654
13		TAC	.654	.599	.476
14	IMPLEMENTATION, OPERATION AND MAINTENANCE (IO&M)	PLN	-126	-.837	.739
15		ORG	.128	.779	-.210
16		INF	-.663	.871	-.239
17		SEC	-.275	.629	.247
18	KEY PERFORMANCE INDICATORS (KPI)	PER	.016	-.072	.859
19		PRO	.318	.389	-.710

Source: SPSS 20 IBM.
· Extraction Method: Principal Component Analysis.
· Rotation Method: Varimax with Kaiser Normalization.
· (a). Rotation converged in 30 iterations.

We now have a much clearer picture of our three variables. Rotation has shown that different dimensions load onto different variables. We can now look at the dimensions loading onto each factor and choose suitable names for factors. Variable 1 seems to be related to variables that assess Strategy (STR); Variable 2 is related to Implementation, Operation & Maintenance (IO&M). Variable 3 involves everything about the Key Performance Indicators (KPI). Therefore, the final reduced empirical model is shown in Figure 4.

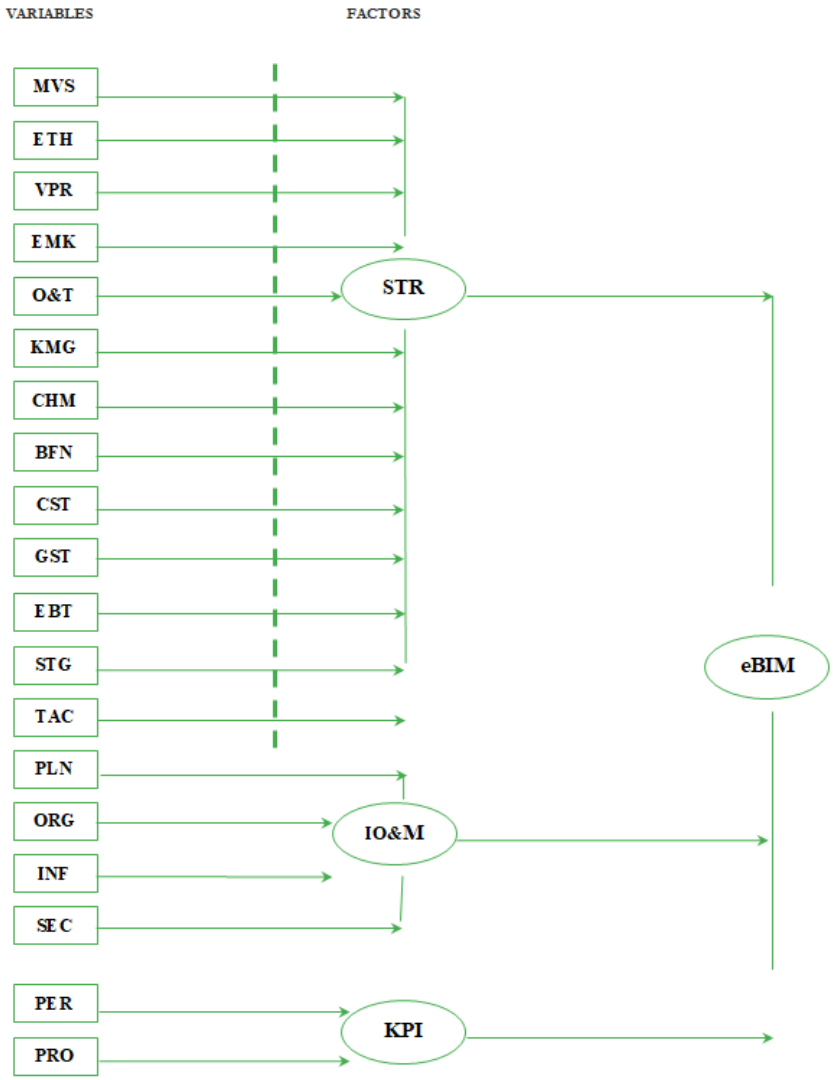

Figure 4.
General Conceptual *ex post* of eBMI
Source: author's elaboration.

Conclusions

Here are the main findings:

1. For the 200 small and medium-sized enterprises (SMEs) specialized in the design and implementation of e-Business innovation (eBIM), located in the Guadalajara Metropolitan Area in Mexico, the research question "*Which is the empirical model proposed for the e-Business Innovation Model (eBIM) able to be designed, implemented, measured, and improved by the SMEs*?" is solved when the specific questions are answered as follows:
SQ1: "*Which are the variables proposed for the general empirical model?*" We showed the proposal of 19 variables and 3 factors in Table 3. About SQ2: "Which is the final questionnaire?"

It is shown in detail in the Figure 2. Appendix. Questionnaire Proposal. Regarding SQ3: "*Which are the new groups or factors as resulting from the variables reduction of the final empirical eBIM?*" We determined 3 groups called by Expert Vision: Strategy (STR), Implementation, Operation & Maintenance (IO&M) and Key Performance Indicators (KPI); Finally the SQ4: "*Which are the accumulative effects of the new groups of variables in the model?*" We found 86.191% of variance in these 3 aforementioned variables (see Table 8).

2. According to Table 3, using the focus group technique and the AHP we obtained the visions: academic and expert. It is interesting to observe the common interest of both (ACD-EXP), in 9/19 the variables: MVS, BFN, GST, EBT, ORG, INF, PLN, PER and PRO. However, the lack of interest or lack of knowledge still persists to practice 4/19 variables in the sector of: CHM, VPR, EMK, STG. On the other hand, the expert vision claims to incorporate in the academic vision concepts regarding 6/19 variables: ETH, O&T, KMG, CST, TAC, SEC. The expert vision suggested 3 underlying factors to group the variables: STR (8/19); IO&M (9/19); KPI (2/19).
3. Based on Table 9, the final empirical model showed other groups for the variables. This was reached when we solved the hypotheses such as:

    - H1: "*The list variables (8) of: MVS, ETH, VPR, EMK, O&T, KMG, GST, PLN have enough significant variance to be grouped into an independent factor which we can call Strategy (STR).*" It is rejected because PLN belongs to the IO&M factor and STR additionally integrates the CHM, BFN, CST, EBT,STG, TAC. Therefore, it summarizes 13 variables.

      H2: "*The list variables (9) of: CST, BFN, CHM, EBT, STG, ORG, INF, TAC, SEC have enough significant variance to be grouped into an independent factor which we can call Implementation, Operation & Maintenance (IO&M).*" It is rejected because CST, BFN, CHM, EBT, STG, TAC belongs to STR and IO&M and additionally integrates PLN. Hence, it summarizes 4 variables.

      H3: "*The list variables (2) of PER, PRO, have enough significant variance to be grouped in an independent factor which we can call Key Performance Indicator (KPI).*" It is accepted thereby summarizing 2 variables.

4. The main contributions of this work, are:

    a) The final questionnaire as a new scale to measure the design, the implementation, and the measurement of an e-Business Innovation Model (e-BIM) to the SMEs.

It is possible to increase and adapt each indicator according to the new SMEs ongoing necessities.

A final simple and clear model based on 3 clear factors: Strategy (STR), Implementation, Operation & Maintenance (IO&M), and Key Performance Indicators (KPI) with 19 detailed and explained indicators validated not only with the academic vision but with the expert vision highly recommended to be designed, implemented and measured in a real SMEs circumstances.

Table 4 is specially highlighted with how Tactics (TAC) is a function of e_Business Tools (EBT) vs. the Type of Business (TOB) to decide the Strategy (STR) to capture and retain a customer and suppliers showing all the available EBTs for today and future configurations.

b) For future studies, it is suggested to either do a cluster analysis to determine groups of the size of SMEs practicing the eBIM process or a multidimensional analysis to identify what kind of firms are willing to develop the STR, IO&M, KPI variables or structural equations modeling to determine what underlying dimensions are more meaningful to refine the model.

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Appendix

e-Business INNOVATION MODEL (eBIM) FACTOR		
	Variable	Indicators measured in the Likert Scale Your Firm:
1	Mission-Vision (**MVS**)	1. It considers the mission and vision involved in the design of the **eBIM**
2	Ethics (**ETH**)	2. It considers the ethics involved in the design of the **eBIM**
3	Change Management (**CHM**)	3. The Change Management involved in the design of the **eBIM**
4	Value Proposition (**VPR**)	4. It identifies and applies the value proposition involved in the design of the **eBIM**
5	Electronic Marketing (**EMK**)	5. It has a specific market segmentation as a target to be attended involved in the design of the **eBIM** 6. It considers several and different e-Business tools, as a support of **eBIM**
6	Business Facilities (**BFN**)	7. It specifies and plans the introduction of Business facilities involved in the design of the **eBIM**
7	Opportunities & Threats (**O&T**)	8. It is analyzing and planning the opportunities and threats involved in the design of the **eBIM**
8	Knowledge Management (**KMG**)	9. It is analyzing and planning the knowledge management involved in the design of the **eBIM**
9	Goal Settings (**GST**)	10. It determines goal settings to capture and/or retain customers and suppliers involved in the **eBIM** design
10	Electronic Business Tools (**EBT**)	11. According to the Type of Business, it determines what e-Business tool is appropriate to be applied in the **eBIM** design
11	Strategy (**STG**)	12. It determines the strategies to be applied for customer and supplier in the **eBIM** design, the following: -For Capture: Promotion, Commerce and Design Techniques -For Retention: CRM, ERP, SCRM/SRM
12	Organization (**ORG**)	13. It determines the changes and/or adjustments in the organization involved in the **eBIM** design.
13	Infrastructure (**INF**)	14. It is analyzing and planning the changes and/or renewals to the infrastructure involved in the **eBIM** design
14	Costs (**CST**)	15. It is analyzing and planning all the costs involved in the **eBIM** design
15	Planning (**PLN**)	16. It is designing a strong program, with schedule and times to be implemented as e-Business Tools in order to obtain results in the **eBIM** design
16	Tactics (**TAC**)	17. It considers the use of e-Business Tools for each strategy involved in the in the **eBIM** designs such as: -For Capture: Promotion, Commerce and Design Techniques -For Retention: CRM, ERP, SCRM/SRM
17	e-Business Tools (**EBT**)	18. It is in constant surveillance to determine what kind of e-Business Tools are involved to use in the **eBIM** design.
18	Performance (**PER**)	19. It determines the key performance indicators involved in the **eBIM** using Web Analytics.
19	Profitability (**PRO**)	20. It determines a profitability analysis, on permanent way on real time, the current profitability of the **eBIM** for competitiveness.

Figure 2.
Questionnaire Proposal
Source: author's elaboration.

Author notes

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