

# HOW IS RELATED THE DIGITAL MARKETING INNOVATION AND E-LEADERSHIP IN SMES TOWARDS A GENDER STUDY

## Cómo se relaciona la innovación en la mercadotecnia digital y el e-liderazgo en las PYMES

Hacia un estudio de género

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### ABSTRACT

This paper proposes a construct that relates three previously published models: leadership style, e-leadership skills, and innovation in digital marketing, as a model that reveals how their interrelationships depend on the gender of the manager, in order to achieve the improvement of small and medium enterprises within their digital marketing sector. To this end, documentary research was carried out to determine how gender responds to the aforementioned construct. Among the results, it stands out that there are noticeable differences between the way in which the gender of managers obeys different leadership styles, electronic leadership skills and digital marketing innovation for small and medium enterprises. It is concluded that female executives have greater transformational leadership, are more directed at the business intelligence of small and medium enterprises and the performance of the innovation model, compared to their male counterparts.

**KEYWORDS:** E-LEADERSHIP SKILLS, DIGITAL MARKETING INNOVATION, SME, GENDER.

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## RESUMEN

Este trabajo propone un constructo que relaciona tres modelos previamente publicados: estilo de liderazgo, habilidades de liderazgo electrónico e innovación en mercadotecnia digital, como un modelo que revela la manera en que las interrelaciones de estos dependen del género del gerente, a fin de lograr la mejora de la pequeña y mediana empresa dentro de su sector de mercadotecnia digital. Para ello, se hizo una investigación documental que sirviera para determinar cómo el género responde al constructo mencionado. Entre los resultados destaca que hay diferencias notorias entre la forma en que el género de los gerentes obedece a diferentes estilos de liderazgo, las habilidades de liderazgo electrónico y la innovación de mercadotecnia digital para las pequeñas y medianas empresas. Se concluye que las mujeres directivas tienen mayor liderazgo transformacional, están más dirigidas a la inteligencia empresarial de las pequeñas y medianas empresas y al rendimiento del modelo de innovación, en comparación con sus contrapartes masculinas.

**PALABRAS CLAVE:** ESTILOS DE LIDERAZGO, E-LIDERAZGO, INNOVACIÓN EN MERCADOTECNIA DIGITAL, PYME, GÉNERO.

Recepción: 9 de septiembre de 2017.

Dictamen 1: 5 de junio de 2018.

Dictamen 2: 18 de agosto de 2018.

Dictamen 3: 5 de septiembre de 2018.

DOI: <http://dx.doi.org/10.21696/rcsl9202019948>

## INTRODUCTION

The Leadership, electronic leadership and digital marketing innovation are three important concepts for the XXI century current SMEs, but does exist significant differences about their relationships based on the gender of the CEO? This study is aimed to determine such differences to contribute to both, basic and applied knowledge. It is not a matter of saying if one or the other style is better or worse but rather, establishing their differences in order to raise awareness of the scope and limitations of the CEOs' practices according to their gender and make complements in future studies.

### *Background: The leadership styles, e-leadership skills and digital marketing innovation*

There are a lot studies published about leadership styles (transformational, transactional, avoidant/passive) and gender (Eagly & Blair, 1990; Johnsson & Powell, 1994; Burke & Collins, 2001; Ali et al., 2014; Patel & Buiting, 2013; Gino & Wood, 2015; Górska, 2016; Radu et al. 2016; Sule et al. 2017) and how is very acknowledged the effectiveness of transformational leadership, for instance to innovate (Eagly & Johanssen-Schmidt, 2001; Wennberg et al., 2013; Al-Husseini & Elbetagi, 2014; Tajasom, et al., 2015; Lee & Pollitzer, 2016; Alsos et al., 2017; Gipson et al., 2017; Teymournejad & Elghaei, 2017; UN, 2017; Zhang et al., 2018; Hui et al., 2018). This has been proved in a number of settings and in many countries around the world with different models measuring the leadership like Multi-Factor Leadership Questionnaire (MLQ5X, Bass & Avolio, 2006), the Leadership dimensions questionnaire: test manual (Higgs & Dulewicz, 2015) or solving conflicts (Wen-Long & Chun-Yi, 2013; Okyere, 2018). In fact, the transformational leadership style is considered more aligned with the female than the male gender style (Eagly & Johanssen-Schmidt, 2001; Patel & Buiting, 2013; Mackowski (2015); Stemple et al. 2015).

The opposite of this, are the scarce works about leadership and gender, associated with information and communication technologies (ICT), that is evolving to a new concept: the e-leadership.

The e-leadership is the “key to using new digital technologies for innovation and transformation, managed in a relevant organizational context and embedded in the business strategy” (EUROCOM, 2015) considered as well as the “accomplishment

of a goal through the direction of human resources” (EUROCOM, 2012). It is “the new emerging context for examining leadership... it is defined as a social influence process mediated by advanced information technologies to produce a change in attitudes, feelings, thinking, behavior, and performance with individuals, groups, and/or organizations” (Avolio et al., 2001). The e-leadership is considered in the digital era, for: “managers, entrepreneurs, and business executives must have e-competences to grow, export and be connected to the global digital markets. In a digital economy, e-leadership skills are essential. Effective e-leaders are capable of leading teams and managing technology systems in ways that achieve both local and global demands” (EUROCOM, 2012). To achieve effectiveness in the use of information and communication technologies (ICT) (Qureshi, 2013; Del Valle, 2014) and in the e-leadership (EUROCOM, 2015) is necessary to develop three important skills, such as: strategic leadership, business savvy and digital savvy based on the e-leadership digital skills for the small and media sized enterprises (SMES) for the chief executive office (CEO) (ELDSME by EUROCOM, 2015) to apply, in our case to the digital marketing sector.

In a literature review for e-leadership made it by DasGupta (2011), he studied around seventy-seven journal articles and the term gender, only appeared in the works of: Bryant (et al., 2009) and D’Souza and Colarelli (2010). So, the importance to determine the leadership style, the e-leadership skills and how are both manifested, according to the manager’s gender.

According OECD (2005) 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”. Regarding the marketing innovation: “is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing”. As you see, digital marketing is itself, an innovation with several and innovative tools, for instance: planning and building a website, planning the content, blogging, paying the advertisement, the social networking, emailing, making video, making the web analytics, etc. considered in the digital marketing innovation model (DMIM) by Mejía-Trejo (2017).

All mentioned above, representing a great opportunity to be explored and offer a field of study of how the relationships among: leadership style, e-leadership skills and the digital marketing innovation are dependent to the manager’s gender for improving their SMEs digital marketing sector.

### *Background: The context of the SMEs*

In the sense of those e-leadership skills in the real world of the marketing sector necessities and as an opportunity to apply all the concepts mentioned above, we can say that the SMEs play an important role within the emergent economies just like Mexico (EUROCOM, 2015). For instance, according INADEM (2016), in Jalisco (a state of México), the size occupied personnel of the SMEs representing the 24.6% (see table 1) and they have the 2.4% as economic unit participation.

TABLE 1. ECONOMIC UNITS IN JALISCO STATE, MEXICO

Size	Economic Units		% Occupied personnel**
	Quantity**	Participation (%)**	
Micro	357 321	97.6%	75.4
Small	7 322	2.0	135
Media	1 464	0.4	11.1
Total	366 107	100	100

Note: The total economic units in Mexico are 5 039 911 (IIEGJ, 2017).

Source: \* IIEGJ (2017); \*\* INADEM (2016) and with own adaptation.

The 8 786/366 107 SMEs as economic units in Jalisco, Mexico are distributed in 20 activity areas (IIEGJ, 2017), and they require the implementation of digital marketing innovation activities through the leadership skills (EUROCOM, 2012). In this sense, the web portal Millones de Voces (2017), reports a sector of digital marketing agencies with more than 200/8 786 SMEs firms located at Guadalajara, Jalisco, Mexico. All of them have been working under e-infrastructure, saving costs of operations and all of them require to be aligned with the goals posed by their CEOs.

### *Objective: the research question*

So far, one remarkable note is that, most of the studies are generalized with the gender issue. Thus, we proposed the following research question: Regarding the leadership style and e-leadership skills on digital marketing innovation for SMEs, how are their relationships dependent by the manager's gender?

To solve the research question, this work proposes to use three known previously published models, such as: the multi-factor leadership questionnaire (MLQ5X by Bass & Avolio, 2006) the e-leadership digital skills for the SMEs (ELDSME,

EUROCOM, 2015) and the digital marketing innovation Model (DMIM by Mejía-Trejo, 2017).

This research is divided into the explanation of: rationale of the study; methodology; the literature review; results; discussion; limitations; conclusion and future studies.

## RATIONALE OF THE STUDY

The research is important for the development of the SMEs digital marketing practices, due to the leadership style, e-leadership skills under manager's gender, might be all a different influence, over the digital marketing innovation. This represents the opportunity to disclose what stages of digital marketing innovation are willing to be developed, either with transformational, transactional leadership, or passive/avoidant style and how the e-leadership skills (strategic leadership, business savvy and digital savvy) are interacting according the manager's gender, for the improvement of the digital marketing agencies SMEs sector, So, the subject of study are the digital marketing agencies SMEs represented in 100 CEOs (50 male/50 female), requiring to know how their leadership styles, the e-leadership skills are interacting by manager's gender, for the improvement of their own SMEs sector.

## METHODOLOGY

To solve the research question, it shall be necessary to involve the three mentioned models in a solid construct: The MLQ5X and ELDSME models as independent factors and DMIM as dependent factor, and to pose the following specific questions (SQ):

SQ1: Which are the variables and factors involved in the final construct? SQ2: What is the design of a tool capable to measure the relationship among variables and factors? SQ3: How are the main relationships among the variables of MLQ5X-ELDSME-DMIM construct, regarding the manager's gender?

Applying the equation of finite and known population (8 786 economic units) the sample size is approach 100 (96). So, the subject of study are digital marketing agencies SMEs represented in 100 CEOs (50 male/50 female), requiring to know how their leadership styles, the e-leadership skills are interacting by manager's gender, for the improvement of their own SME.

## LITERATURE REVIEW

We shall describe the three models mentioned above, as basis of this research: MLQ5X, Multifactor-Leadership Questionnaire Model (Bass & Avolio, 2006); ELDSME, e-Leadership Digital Skills for the SMEs Model (EUROCOM, 2015), and DMIM, Digital Marketing Innovation Model (Mejía-Trejo, 2017).

### *MLQ5X. Multifactor-Leadership Questionnaire Model (Bass & Avolio, 2006)*

Leadership, According to DRALE (2017), means: 1. m. lead. 2. m. Status of superiority which is a company, a product or an industry, within its scope. Today, we have recognized the advantage represented transformational leadership in innovation processes, due to the work of Avolio & Bass (2004). Sample's report (2007), for example, has the following profile of transformational leader: "creating greater alignment around strategic visions and missions, their behavioral factors are associated with increased sales, transformational leadership explains between 45% and 60% levels of organizational performance; create greater unit cohesion, commitment and lower turnover, predicted higher levels of innovation in teams of R&D products, transformational leaders create safer working environments" and the female managers are found to exhibit a transformational leadership style, whereby, entails characteristics such as inspirational motivation, intellectual stimulation and individualized consideration and is suggested to benefit the innovation (Ritter-Hayashi et al., 2016).

Hence, we suggested to identify according the manager gender, the level of transformational and transactional leadership qualities of the leaders of the SME organization using the tool known as the Multifactor Leadership Questionnaire (MLQ5X).

This questionnaire has 4 variables that identifies the style of leadership currently is practicing into the SME by the CEO (Transformational/Transactional/Passive-Avoidant Behavior and Outcomes of Leadership style) with 12 dimensions and 45 indicators.(See Figure 1, and Appendix)

Hence, we proposed the hypothesis 1: The Leadership Style practiced by the females SME- CEOs digital marketing agencies is more Transformational than Transactional or Passive-Avoidant style.

*ELDSME. e-Leadership Digital Skills  
for the SMEs Model (EUROCOM, 2015)*

According to EUROCOM (2012): “The demand appears to be significant for e-leaders. Of the approximately 255 000 vacancies for the EU-27 in 2012, we find 76 000 vacancies for ICT management and business architecture skills. Furthermore, the gap is disproportionately affecting small and medium-size enterprise: 70% of vacancies can be found in SMEs which demand ICT skills in much greater numbers than large enterprises”. Furthermore, it is considered of crucial importance for companies and industry to reach the excellence in their business operation, being the key in the use of the new digital technologies for innovation and transformation, including the organizational context and deeply embedded in the business strategy. In this sense, the e-Leadership has to be described with several special skills required of an individual to initiate and achieve digital innovation. In other words, e-leadership is: “a key ingredient to foster Europe’s competitiveness and innovation potential” (EUROCOM, 2015). The model is described since the skills represented in the following three variables:

- Strategic Leadership (STL): Lead inter-disciplinary staff, and influence stakeholders across boundaries (functional, geographic).
- Business Savvy (BSY): Innovate business and operating models, delivering value to organizations.
- Digital Savvy (DSY): Envision and drive change for business performance, exploiting digital technology trends as innovation opportunities.

The questionnaire identifies what the e-leadership CEO skills are currently appearing in the SME (see figure 1, and appendix).

Hence, we proposed the hypothesis 2: The e-leadership skills practiced by the female SME-CEOs digital marketing agencies are more of Strategic Leadership Skill than Business Savvy or Digital Savvy type.

*DMIM. Digital Marketing Innovation Model (Mejía-Trejo, 2017)*

According to the OECD (2005) innovation is defined as a: “implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations and it involves the innovation of: product, service,



marketing, process and organization” and, is not limited to the male gender. Several authors suggest the empowerment of the female innovation, for instance Ritter-Hayashi (et al., 2016): “We suggest that the level of women’s economic opportunity in the country, within which firms operate, moderates the effect of gender diversity on a firms’ likelihood to innovate”. Akulava (2015) affirms: “The results suggest that the propensity to innovate is higher among companies with a presence of a female owner... the results show that having a female as the only, or one of the, owner(s) increases the propensity of going into uncertainty and implementation of a new good/service by 4.5% in the CIS (Commonwealth of Independent States) region and 6.7% in the non- CIS block”. It is a remarkable fact that this finding contradicts the literature on gender differences in the willingness to take on risk that mostly demonstrates that women, on average, are more risk-averse than men (IFC, 2014). Other studies, complement the skills of female managers when they claim: “the women entrepreneurs tended to focus their innovation efforts on business organization rather than on products and processes, more so than their male counterparts. They were also more likely to have cohesive and collaborative management structures... females seemed to be more active than their male counterparts in using ICT tools including the social media networking to market products and services”, furthermore: “fewer women business obtained patents compared with their men business owners” UNCTAD (2013), despite several external barriers, for female managers, such as: insufficient access to capital, limited access to new markets and ICT s, cultural constraints, lack of capacity-building, access to education. etc.

However, “women scores less than men, when assessing the level of innovation of their own business” (EUROCOM, 2008). Thus, is very important to promote female entrepreneurship and, in particular, seeking to support women innovators/inventors who wish to become entrepreneurs.

Regarding the digital marketing matter, this is itself an innovation, defining it through the DMIM as: “a process to design the strategy and tactics in a planned implementation, selecting a set of digital marketing tools. These should be based on mission-vision, the market segmentation, goal settings and value proposition of the firm, with the performance monitoring and the profitability of the digital campaign design, in a permanent way” (Mejía-Trejo, 2017, Mejía-Trejo et al., 2016. See table 2). In this latest definition, we consider that exist several issues to be disclosed and aligned when the female manager is involved.

TABLE 2. DMIM VARIABLES DESCRIPTION

Variables	Dimension	Indicators	Main question
Market (MAR)	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 firm's campaign, day-to-day operational objectives Vision. It is the effect of the firm's campaign. It express' the high-level goals for the future.	Which is the mission and vision involved in the digital campaign?
	Value Proposition (VAL)	It is the reason why customers turn to one company over another solving their problems or satisfying 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, is an aggregation, or bundle, of benefits that a company offers customers.	What is the value proposition inserted in the digital campaign?
	Market Segmentation (MKT)	It is all about of the market segmentation as target. 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.	Which is the main market to be attended for the digital campaign?
Strategic Planning (SPN)	Goal Settings (GDT)	All digital marketing campaign requires objectives to be reached, for instance: <ul style="list-style-type: none"> <li>• The branding positioning;</li> <li>• The number (real &amp; potential) of customers database;</li> <li>• The sales; -The product &amp; services (current and new ones) information.</li> </ul>	Which goals should we use for the digital campaign?
	Strategy (STG)	This stage represents the how to do, to achieve the GST, just like: <ul style="list-style-type: none"> <li>• Awareness. Acquisition strategy to build awareness off-site and in offline media to drive to web presences.</li> <li>• Engagement &amp; Loyalty. Capture and retention as a growth strategy to build customer and fan relationships to encourage repeat visits and sales.</li> <li>• Desire &amp; Experience. Strategy based on the sample and testing of a service or a product, with a novelty presentation to increase the sensations and emotions, in order to be acquired.</li> <li>• Effectiveness on Call to Action. Conversion strategy to achieve marketing goals of leads &amp; sales on web presences and offline.</li> </ul>	How to do, to achieve the goal settings for the digital campaign?

TABLE 2. DMIM VARIABLES DESCRIPTION

(continuación)

Variables	Dimension	Indicators	Main question	
Model Performance (MPE)	Tactics (TAC)	This represents all the activities to be implemented to follow the strategies, involving mainly, the use of the digital marketing tools (DMT), for instance:	What activities must to implement the DMT we need to do for the digital campaign?	
<b>Strategy</b>				
DMT	Awareness	Engagement & Loyalty	Desire & Experience	Effectiveness on Call to Action
	SEO/SEM	Content Marketing	Augmented Reality	Home & Site-Wide Page
	Affiliate & Partner Marketing	Newsletters & eMail Marketing	Virtual Reality	Landing page design
	On line Advertising	e-Contact Strategy	Wearable Marketing	Search and Browse Page
	On line PR	Customer Service & Support		Basket and Checkout
	Social Media	Mobile Marketing		Social Commerce
		Social CRM		
		Blogging		
Digital Marketing Tools (DMT)		It involves all the digital marketing tools, like: Search Engine Optimisation (SEO); Search Engine Marketing (SEM); Affiliate and Partner Marketing; Online advertising; Online Public Relations; Social Media Marketing; Home & Site-Wide Page Effectiveness; Landing Page Design Effectiveness; Search and Browse Page Efficiencies; Category and Product Page Efficiencies; Basket and Checkout Efficiency; Social Commerce; Content Marketing; Newsletters; eMail marketing; e-Contact Strategy; Customer and Service Support; Mobile Marketing; Augmented Reality; Virtual Reality; Wearable Marketing; Social CRM, etc.	What kind of digital marketing tools are we ready to use in the digital campaign?	

TABLE 2. DMIM VARIABLES DESCRIPTION

(continuación)

Variables	Dimension	Indicators	Main question
	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 digital marketing. Defining a strategy to integrate communications across different customer touchpoints is often forgotten. 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.	What about the schedule and times to implement the digital marketing tools, for obtaining results in the digital campaign?
	Performance (PER)	It implies to know how well the digital campaign is working on. Practically, it involves the measurement and assessment of all the previous stages. Its support is the web analytics to obtain a full control of the digital campaign.	Which is the performance of the digital campaign?
	Profitability (PRO)	It is expressed in terms of return on investment (ROI) about how the digital campaign is working on, at short, medium or long terms.	What is the return of investment for the digital campaign?

Source: own.

Hence, we proposed the hypothesis 3: The DMIM variable most practiced by the females SME-CEOs digital marketing agencies is more of Strategic Planning for business, than Market or Model Performance.

Therefore, the final MLQ5X-ELDSME-DMIM construct *ex ante*, is showed in Figure 1.

Thus, we answered the SQ1: “Which are the variables and factors involved in the final construct?”

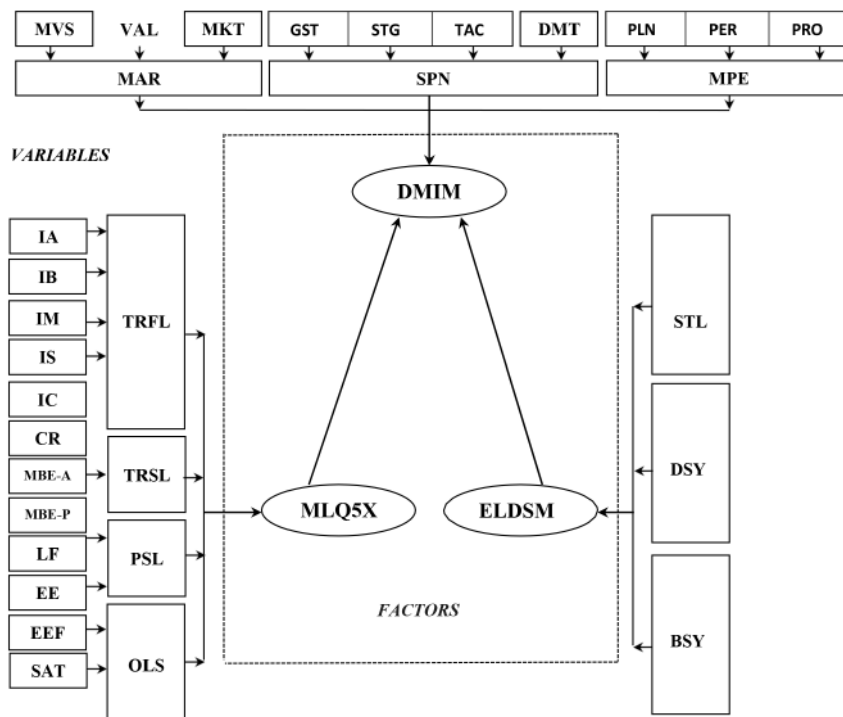
The final questionnaire identifies what elements are considered by the SME-CEOs digital marketing agencies (see figure 1, and appendix).

Thus, we answered the SQ2: “Which is the final questionnaire?”

## RESULTS

The final questionnaire proposed (shown in the Appendix) containing the 10 variables of MLQX, ELDSME and DMIM construct including the Gender variable (GEN, coded as: 0 female/1 male), applied as a pilot to 24 SME-CEO digital marketing agencies (12 female /12 male both, each one from Mexico City and

FIGURE 1. GENERAL CONCEPTUAL MODEL OF MLQ5X, ELDSME AND DMIM *EX ANTE*



Notes:

DMIM: Digital Marketing Innovation Model; MVS: Mission-Vision; VAL: Value Proposition; MKT: Market Segmentation; GST: Goal Settings; STG: Strategy; TAC: Tactics; DMT: Digital Marketing Tools; PLN: Planning; PER: Performance; PRO: Profitability; MAR: Market; SPN: Strategic Planning; MPE: Performance; MLQ5X: Multi-Factor Leadership Questionnaire; IA: Idealized Influence Idealized Attributes; IB: Idealized Behaviors; IM: Inspirational Motivation; IS: Intellectual Stimulation; IC: Individual Consideration; CR: Contingent Reward; MBE-A: Management by Exception: Active; MBE-P: Management by Exception: Passive; LF: Laissez- Faire; EE: Extra Effort; EEF: Effectiveness; SAT: Satisfaction; TRFL: Transformational Leadership; TRSL: Transactional Leadership; PSL: Passive / Avoidant Leadership; OLS: Outcomes of Leadership Style.

ELDSME: Digital Skill SMEs; STL: Strategic Leadership; DSY: Digital Savvy; BSY: Business Savvy

Source: own.

Monterrey City, México), for data error correction, and verification of: normal distribution, linearity, homoscedasticity and multicollinearity conditions, as a basis to proceed with the following tests. Approved all the above, we proceeded to do the confidence test through the Alpha Cronbach's obtaining .848 (high confidence).

After this, we proceeded to apply this final questionnaire as a survey to 100 SME-CEOs (50 female/50 male) as digital marketing agencies located at Guadalajara, Mexico, during January to April 2017.

As Hair (et al., 1999) recommending, we practiced Multiple Discriminant Analysis Method for mutually events. It is a technique that allows us to classify individuals into groups determined by a categorical variable (nonparametric predictor variable), taking into account certain metric variables of the interval type. In our case, the gender variable (GEN) is nonparametric and is the basis of the groups and it depends on independent parametric variables or predictors (TRFL, TRSL, PSL, OLS, STL, DSY, BSY, MAR, SPN, MPE) main components of MLQ5X-ELDSME-DMIM construct, and mutually exclusives. Thus, we obtained several important tables with the following descriptions:

Table 3 shows the differences between the explanatory variables and, although its visualization is of limited utility, reveals that the youngest gender group is the female group for approximately 7 years than the male group. Observe for instance, the female gender case, the highest and lowest levels, represented in Strategic Planning (4.212) and Model Performance (2.900), and the male gender case with Business Savvy (4.222) and Model Performance (3.626). But the following studies shall confirm what variables have a highest influence by GEN (see table 3).

TABLE 3. GROUP STATISTICS

Gender		Mean	Std. Deviation	Valid	
				Unweighted	N (listwise) Weighted
Female	Age	35.73	5.345	50	50.000
	Transformational Leadership	3.905	.5018	50	50.000
	Transactional Leadership	3.678	.6152	50	50.000
	Passive/Avoidant Leadership	3.870	.5899	50	50.000
	Outcomes of Leadership Styles	3.722	.5477	50	50.000
	Strategic Leadership	3.735	.5879	50	50.000
	Digital Savvy	4.035	.6308	50	50.000
	Business Savvy	3.838	.5939	50	50.000
	Market	3.836	.8130	50	50.000
	Strategic Planning	4.212	.6755	50	50.000
	Model Performance	2.900	.6511	50	50.000

TABLE 3. GROUP STATISTICS

*(continuación)*

Gender		Mean	Std. Deviation	Valid	
				Unweighted	N (listwise) Weighted
Male	Age	42.85	10.444	50	50.000
	Transformational Leadership	3.451	.4395	50	50.000
	Transactional Leadership	3.466	.5415	50	50.000
	Passive/Avoidant Leadership	3.544	.6153	50	50.000
	Outcomes of Leadership Styles	3.334	.6479	50	50.000
	Strategic Leadership	4.211	.5664	50	50.000
	Digital Savvy	3.993	.6146	50	50.000
	Business Savvy	4.222	.6416	50	50.000
	Market	3.908	.8646	50	50.000
	Strategic Planning	4.003	.7518	50	50.000
Model Performance	3.626	.7742	50	50.000	
Total	Age	39.29	2.678	100	100.000
	Transformational Leadership	3.678	.5217	100	100.000
	Transactional Leadership	3.572	.5864	100	100.000
	Passive/Avoidant Leadership	3.707	.6217	100	100.000
	Outcomes of Leadership Styles	3.528	.6279	100	100.000
	Strategic Leadership	3.973	.6221	100	100.000
	Digital Savvy	4.014	.6200	100	100.000
	Business Savvy	4.030	.6447	100	100.000
	Market	3.872	.8358	100	100.000
	Strategic Planning	4.108	.7188	100	100.000
Model Performance	3.263	.7998	100	100.000	

Source: SPSS 20 as a result of the research.

Table 4 provides findings about which explanatory variables will be useful in the discriminant function, based on the following rules of interpretation: lower lambda= higher significant (Sig.); higher lambda= lower significant (Sig.); higher f= higher significant (Sig.); lower f= lower significant (Sig.). Observe that age variable is the most significant (see table 4).

TABLE 4. TESTS OF EQUALITY OF GROUPS MEANS

	Wilks' Lambda	F	df1	df2	Sig.
Age	.978	24.738	1	98	.000
Transformational Leadership	.809	23.093	1	98	.000
Transactional Leadership	.967	3.365	1	98	.070
Passive/Avoidant Leadership	.931	7.313	1	98	.008
Outcomes of Leadership Styles	.903	10.470	1	98	.002
Strategic Leadership	.852	16.981	1	98	.000
Digital Savvy	.999	.117	1	98	.733
Business Savvy	.910	20.645	1	98	.000
Market	.998	.187	1	98	.667
Strategic Planning Model	.979	2.149	1	98	.146
Performance	.792	25.775	1	98	.000

Source: SPSS 20 as a result of the research.

We selected the analysis by stepwise method, so, table 5, shows a list of the most significant variables, in which it is observed that a significant difference is created, after the third variable was entered. The p value is < 0.005 and all are significant (see table 5).

TABLE 5. VARIABLES ENTERED/REMOVED A, B, C

Step	Entered	Wilks' Lambda							
		Statistic	df1	df2	df3	Exact F			
						Statistic	df1	df2	Sig.
1	Age	.978	1	1	98.000	24.738	1	98.000	0.000
2	Model Performance	.882	2	1	98.000	26.152	2	97.000	0.000
3	Transformational Leadership	.869	3	1	98.000	19.628	3	96.000	0.000
4	Business Savvy	.823	4	1	98.000	18.998	4	98.000	0.000

At each step, the variable that minimizes the overall Wilks Lambda is entered:

- a) Maximum number of steps is 14
- b) Minimum partial F to enter is 3.84
- c) Maximum partial F to remove is 2.71
- d) F level, tolerance, or VIN insufficient for further computation

Source: SPSS 20 as a result of the research.



Table 6 shows the variables included in each step. The tolerance measures the degree of independence of the explanatory variables (in other words, they must be not similar). A tolerance of 0.7-1 is ideal. Less than 0.69 creates problems. The variables shown are the most important for the prediction of the discriminant function (see table 6).

TABLE 6. VARIABLES IN THE ANALYSIS

	Step	Tolerance	F to Remove	Wilks' Lambda
1	Age	1.000	24.738	
1	Age	.992	43.563	.978
	Model Performance	.990	11.405	.907
3	Age	.971	46.344	.972
	Model Performance	.992	10.998	.893
	Transformational	.978	5.930	.882
	Leadership	.970	3.222	.778
4	Age	.968	50.233	.992
	Model Performance	.990	42.777	.890
	Transformational	.983	35.766	.785
	Leadership	.970	15.772	.662
	Business Savvy	.960	2.6773	.441

Source: SPSS 20 as a result of the research.

Table 7 shows the measurement of the relationship between the predictor variable and the group elements. Higher the eigenvalue value, the more variance the function explains in the dependent nonparametric variable GEN, and is proven with the canonical high rated correlation value (.842) (see table 7).

TABLE 7. EIGENVALUES

Function	Eigenvalue	% Variance	Cumulative %	Canonical Correlation
1	2.430a	100	100	.842

First 1 canonical discriminant functions were used in the analysis.

Source: SPSS 20 as a result of the research.

Table 8 tell us how well our prediction model fits to be statistically significant (see the Sig.<0.001) (see table 8).

TABLE 8. WILKS' LAMBDA

Test of Function(s)	Wilks' Lambda	Chi -square	Df	Sig.
1	.292	114.629	10	.000

Source: SPSS 20 as a result of the research.

The table 9 is showing what variables are the most discriminant, among the two groups of the dependent non parametric variable GEN (0 female/ 1 male), considering the dependent metric variable with the highest absolute value (Hair et al., 1999), showed through the independent parametric variable Business Savvy (.971) (see table 9).

TABLE 9. STANDARDIZED CANONICAL DISCRIMINANT FUNCTIONS COEFFICIENTS

	Function
	1
Age	.589
Transformational Leadership	.789
Transactional Leadership	.198
Passive/Avoidant Leadership	.335
Outcomes of Leadership Styles	.411
Strategic Leadership	.328
Business Savvy	.971
Market	.131
Strategic Planning	.438
Model Performance	.935

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function.

Source: SPSS 20 as a result of the research.

The table 10 shows in order, what independent parametric variable has a highest absolute value, and this, high correlation with the dependent non parametric variable GEN. In this case, is Model performance (.329). There are variables not mentioned in the stepwise method (see table 10).

TABLE 10. STRUCTURE MATRIX

	Function
	1
Model Performance	.329
Age	.325
Transformational Leadership	.311
Strategic Leadership	.267
Outcomes of Leadership Styles	.210
Business Savvy	.201
Passive/Avoidant Leadership	.175
Transactional Leadership	.119
Strategic Planning	.095
Market	.028
Digital Savvy	.022

Note: change of sign among the variables of both tables (10 and 11) might be for collinearity.  
 Source: SPSS 20 as a result of the research.

Table 11 reports the degree of confidence in model predictions. In our case, of the 50 respondents who are female, in the cross-validated model, it was correctly predicted 47 of them, so their accuracy is 94%. For the other 50 that are male, 82% was predicted. Therefore, the model is accurate in 88% of cases. As you observe, the higher percentage value is on the female part, so, the explanation of the variables, corresponds to the female predicted group (see table 11).

TABLE 11. CLASSIFICATION RESULTS (A),(C)

Original	Count	Predicted Group			Total
		Gender	Female	Male	
		Female	48	2	50
		Male	4	46	50
	%	Female	96	4	100
		Male	10	90	100

TABLE 11. CLASSIFICATION RESULTS (A),(C)

		Predicted Group			
		Gender	Female	Male	Total
Cross-Validated	Count	Female	47	3	50
		Male	9	41	50
	%	Female	94	6	100
		Male	18	82	100

a) 93.0% of original grouped cases correctly classified

b) Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

c) 88.0% of cross-validated grouped cases correctly classified.

Source: SPSS 20 as a result of the research.

Finally, table 12 shows the data of Coefficients used to make a projection of the model (see table 12).

TABLE 12. CLASSIFICATION FUNCTION COEFFICIENTS

	Predicted Group	
	Female	Male
Age	3.077	2.176
Model Performance	3.985	2.165
Transformational Leadership	3.325	-2.186
Business Savvy	6.851	-4.234
(Constant)	-10.235	-5.267

Fisher's linear discriminant functions.

Source: SPSS 20 as a result of the research.

According table 12, the discriminant function equation for female predicted group, is:

$$Z = 3.077 (\text{age}) + 3.985 (\text{model performance}) + 3.325 (\text{transformational leadership}) + 6.851 (\text{business savvy}) - 10.235$$

The male predicted group, is:

$$Z = 2.176 (\text{age}) + 2.165 (\text{model performance}) - 2.186 (\text{transformational leadership}) - 4.234 (\text{Business Savvy}) - 5.267$$

The function with higher score, would be a part of the predicted group. Thus, we answered the SQ3: how are the main relationships among the variables of MLQ5X-ELDSME-DMIM construct, regarding the manager's gender? Finally, the research question: regarding the leadership style and e-leadership skills on digital marketing innovation for SMEs, how are their relationships dependent by the manager's gender? It is answered according the last three specific questions that allows affirm: Finally, the research question: Regarding the leadership style and e-leadership skills on digital marketing innovation for SMEs, how are their relationships dependent by the manager's gender? It is answered according the last three results to the specific questions, that allows us affirm: The female manager's gender showed a more transformational leadership style, with e-leadership skill more aimed to business savvy and more aimed to model performance in their digital marketing innovation model, being in average, seven years youngest than the male manager gender.

## DISCUSSION

Regarding the table 11, about the highest value in cross-validated count corresponds to the female part (94.0) with at least 88% grouped cases correctly classified, we are able to affirm about the dependent nonparametric variable female GEN (gender), the following issues:

- a) For the MLQ5X factor, the leadership style most correlated variable, with highest absolute value is the independent parametric variable Transformational Leadership (.329, see Table 10) (observe: Transactional Leadership (.119), Passive/Avoidant Leadership (.117).

We conclude as a first insight, that the MLQ5X (Avolio & Bass, 2004), determining the Transformational Leadership in this research is still valid despite the fact that the most of the relationships are supported for virtual means by the females SMEs CEO digital marketing agencies. Hence, the highest values on transformational leadership shall be support to solving conflicts (Wen-Long & Chun-Yi, 2013), a support to the innovation processes having high expectations on the alignment around strategic visions and missions, increasing at the same time: the levels of organizational performance and sales. This is a first insight of Transformational Leadership

style supported by ICT, and is highly expected the foster of unit cohesion, the commitment and lower turnover, predicted higher levels of innovation in teams of R&D products, creating safer working environments (Sample, 2007). It is also expected great levels of intellectual stimulation, inspirational motivation and individualized consideration suggested to benefit the innovation (Ritter-Hayashi et al. 2016).

Thus, the hypothesis 1: The Leadership style practiced by the females SME- CEOs digital marketing agencies is more Transformational than Transactional or Passive-Avoidant style, is accepted.

- b) For ELDSME factor, the e-leadership skill most discriminant variable, is the independent parametric variable Business Savvy (.971, see Table 9).

Thus the hypothesis 2: The e-leadership skills practiced by the females SME-CEOs digital marketing agencies is more of Strategic Leadership Skill than Business Savvy or Digital Savvy type, is rejected.

This issue is a first insight and is consistent if we observe the nature of the Transformational Leadership style and its relationship with the e-leadership skill Business Savvy, when it is aimed to: “innovate business and operating models, delivering value to organizations” EUROCOM (2015). This data would be used to guarantee the fill the 70% of vacancies in SMEs which demand ICT skills in much greater numbers than large enterprises (EUROCOM, 2012), through specific training and preparation to the females SME-CEOs digital marketing agencies.

- c) For DMIM factor, the independent parametric variable most correlated is Model Performance (.329 see table 10).

Thus, the hypothesis 3: The DMIM variable most practiced by the females SME-CEOs digital marketing agencies is more of Strategic Planning for business, than Market or Model Performance, is rejected.

According to the main feature of Transformational Leadership about the innovation processes' and the female innovation empowerment (Ritter-Hayashi et al., 2016; Akulava, 2015), might be increased offering to the females SME-CEOs digital marketing agencies an economic opportunity to thrive. This is a first contradictory insight, because this finding is opposite to the literature on gender differences in the willingness to take on risk that mostly demonstrates that women, on average, are more risk-averse than men (IFC, 2014). However, these results are evidence about the how the complimentary skills of female managers as entrepreneurs, are tended to

focus their innovation efforts on business organization more so than their male counterparts (UNCTAD, 2013). If we analyze the DMIM (Mejía-Trejo, 2017) the efforts on business organization are supported on dimensions, such as: Planning (PLN), Performance (PER) and Profitability (PRO). Due that “women score less than men when assessing the level of innovation of their own business” (EUROCOM, 2008) is very important to promote female entrepreneurship and, in particular, seeking to support women innovators/ inventors who wish to become entrepreneurs.

- d) The equations for projections of each predicted group based on the mean variables (see Table 12)

$$Z = 3.077 (\text{age}) + 3.985 (\text{model performance}) + 3.325 (\text{transformational leadership}) + 6.851 (\text{business savvy}) - 10.235.$$

The male predicted group, would be:

$$Z = 2.176 (\text{age}) + 2.165 (\text{model performance}) - 2.186 (\text{transformational leadership}) - 4.234 (\text{business savvy}) - 5.267$$

The function with higher score, would be a part of the predicted group.

- e) Our final conclusion is: The female manager’s gender showed a more transformational leadership style, with e-leadership skill more aimed to business savvy and more aimed to model performance in their digital marketing innovation model, being in average, seven years youngest than the male manager gender.

## STUDY LIMITATIONS

The first limitation is that the final questionnaire was applied to SMEs CEOs digital marketing agencies, and the results could be different with operative managers, customers and/or suppliers to analyze the results obtained.

The second limitation is the location of the survey which it involved only the Guadalajara city. For future studies, it is important to consider other regions of Mexico (and the rest of the world, as be possible).

The third limitation consisted in the sampled companies, for the SMEs CEOs as specialist of digital marketing were from 20 to 250 workers, excluding the companies from 1 to 10 workers, which represent an important quantity of the total digital marketing agencies SMEs. For future studies it could be interesting to involve suppliers and customers into the MLQ5X-ELDSME-DMIM construct.

## CONCLUSION AND FUTURE STUDIES

Finally, we have the following conclusions:

- a) The research questions, specific questions and hypotheses, were satisfactorily resolved, based on the MLQ5X-ELDSME-DMIM construct.
- b) On the case of female managers SME-CEOs of digital marketing agencies, we have:
  - The recognition of leadership style: mainly Transformational Leadership Style.
  - ELDSME (e-Leadership Skill), is clearly Business Savvy type: *Innovate business and operating models, delivering value to organizations.*
  - DMIM Stage (Digital Marketing Innovation Model), more oriented to Model Performance, based on: Planning (PLN); Performance (PEF) and Profitability (PRO).
- c) This construct represents a great opportunity for female managers SME-CEOs, in the digital marketing sector, since it allows to diagnose in a clear and concise way, which elements are found with strengths and which represent weaknesses in order to make the decisions for the improvement of their own SMEs.

It is very important to the sector of digital marketing to do strategic planning to develop the rest of the DMIM variables, and how DMIM would improve the MLQ5X and ELDSME as a construct. In other words as further studies with this construct, we suggested the how the leadership and innovation must be managed for the improvement of different SMES indicators such as: productivity, competitiveness, trademark position, sales, incomes, etc.

Finally, it would be interesting to do an exploratory factor analysis, to reduce the original variables into the MLQ5X-ELDSME-DMIM construct, and a confirmatory factor analysis to search underlying relationships among the variables MLQ5X-ELDSME-DMIM through structural equations analysis, using techniques based on license software, such as: EQS, LISREL, AMOS.



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# APPENDIX

## FINAL QUESTIONNAIRE PROPOSED

### MULTI-FACTOR LEADERSHIP QUESTIONNAIRE (MLQ5X AS INDEPENDENT FACTOR) (BASS & AVOLIO, 2006)

Variable	Dimension	Item	Indicator (Likert scale: 5)	
Transformational Leadership (TRFL)	Idealized Influence Idealized Attributes (IA)	1	Instills pride in me for being associated with him/her.	
		2	Goes beyond self-interest for the good of the group.	
		3	Acts in ways that builds my respect.	
		4	Displays a sense of power and confidence.	
	Idealized Influence Idealized Behaviors (IB)	5	Talks about their most important values and beliefs regarding education.	
		6	Specifies the importance of having a strong sense of purpose.	
		7	Considers the moral and ethical consequences of decisions.	
		8	Emphasizes the importance of having a collective sense of mission.	
	Inspirational Motivation (IM)	9	Talks optimistically about the future.	
		10	Expresses confidence that goals will be achieved.	
		11	Talks enthusiastically about what needs to be accomplished.	
		12	Articulates a compelling vision for the future.	
	Intellectual Stimulation (IS)	13	Re-examines critical assumptions to question whether they are appropriate.	
		14	Seeks differing perspectives when solving problems.	
		15	Suggests new ways of looking at how to complete assigned tasks.	
		16	Gets me to look at problems from many different angles.	
		17	Treats me as an individual rather than just a member of the group.	
		Individual Consideration (IC)	18	Helps me to develop my strengths.
			19	Spends time teaching and coaching.
			20	Considers me as having different needs, abilities and aspirations from others.

MULTI-FACTOR LEADERSHIP QUESTIONNAIRE  
(MLQ5X AS INDEPENDENT FACTOR)

(BASS & AVOLIO, 2006)

*(continuación)*

Variable	Dimension	Item	Indicator (Likert scale: 5)	
Transactional Leadership (TRSL)	Contingent Reward (CR)	21	Makes clear what one can expect to receive when performance goals are achieved.	
		22	Provides me with assistance in exchange for my efforts.	
		23	Discusses in specific terms who is responsible for achieving performance targets.	
		24	Expresses satisfaction when I meet expectations.	
	Management by Exception: Active (MBE-A)	25	Focuses attention on irregularities, mistakes, exceptions, and deviations from standards.	
		26	Concentrates his/her full attention on dealing with mistakes, complaints and failures.	
		27	Keeps track of all mistakes.	
		28	Directs my attention toward failures to meet standards.	
Passive / Avoidant Leadership (PSL)	Management by Exception: Passive (MBE-P)	29	Fails to interfere until problems become serious.	
		30	Waits for things to go wrong before taking action.	
		31	Demonstrates his firm belief that "what is not broke do not fix".	
		32	Demonstrates that problems must become chronic before taking action.	
	Laissez-Faire (LF)	33	Avoids getting involved when important issues arise.	
		34	Is absent when needed.	
		35	Avoids making decisions.	
		36	Delays responding to urgent questions.	
	Extra Effort (EE)	37	37	Get others to do more than they expected to do.
			38	Heighten others' desire to succeed.
			39	Increase others' willingness to try harder.
Outcomes of Leadership Style (OLS)	Effectiveness (EFF)	40	Are effective in meeting others' job-related needs?	
		41	Are effective in representing others to higher authority?	
		42	Are effective in meeting organizational requirements?	
		43	Leads a group that is effective.	
	Satisfaction (SAT)	44	Uses methods of leadership that are satisfying.	
45		Work with others in a satisfactory way.		

E-LEADERSHIP DIGITAL SKILLS FOR THE SMES  
(ELDSME AS INDEPENDENT FACTOR)  
(EUROCOM, 2015)

Variable	Dimension	Item	Indicator (Likert scale: 5)
Strategic Leaders-hip (stl)	Not mentioned	46	As strategic leadership, your firm foster the forecasting needs for information.
		47	As strategic leadership, your firm foster the understanding customer needs.
		48	As strategic leadership, your firm foster the solution orientation.
		49	As strategic leadership, your firm foster the communication.
		50	As strategic leadership, your firm foster the creativity.
		51	As strategic leadership, your firm foster the Independent learning.
		52	As strategic leadership, your firm foster the team leading.
		53	As strategic leadership, your firm foster the vision of different cultures and the internationalization.
		Digital Savvy (DSY)	Not mentioned by the authors
55	As digital savvy, your firm foster the cloud computing & virtualization.		
56	As digital savvy, your firm foster the Mobile app design and Development.		
57	As digital savvy, your firm foster complex business systems.		
58	As digital savvy, your firm foster the web development & tools.		
59	As digital savvy, your firm foster the IT architecture, plat-form Architecture.		
60	As digital savvy, your firm foster the security skills.		
61	As digital savvy, your firm foster the ERP systems.		
62	As digital savvy, your firm foster the social media.		



E-LEADERSHIP DIGITAL SKILLS FOR THE SMES  
(ELDSME AS INDEPENDENT FACTOR)

(EUROCOM, 2015)

(continuación)

Variable	Dimension	Item	Indicator (Likert scale: 5)
Business Savvy (bsy)	Not mentioned by the authors	63	As business savvy, your firm foster the customer relations & sales.
		64	As business savvy, your firm foster the partnership establishment.
		65	As business savvy, your firm foster the business development.
		66	As business savvy, your firm foster the organisational change.
		67	As business savvy, your firm foster the project management.
		68	As business savvy, your firm foster the process optimization.
		69	As business savvy, your firm foster the strategic marketing.
		70	As business savvy, your firm foster the agile methodology.
		71	As business savvy, your firm foster the business analytics.
		72	As business savvy, your firm foster the market analysis.
		73	As business savvy, your firm foster the financial skills.

DIGITAL MARKETING INNOVATION MODEL  
(DMIM AS DEPENDENT FACTOR)  
(MEJÍA-TREJO, 2017B)

Variable	Dimension	Item	Indicator (Likert scale: 5)
Market (MAR)	Mission- Vision (mvs)	74	As a market, your firm considers the mission and vision in the digital campaign design.
		75	As a market, your firm considers the trademark in the digital campaign design.
	Value Proposition (VAL)	76	As a market, your firm identifies and applies the value proposition in the digital campaign design.
	Market Segmentation (MKT)	77	As a market your firm, considers an specific market segmentation as a target to be attended in the digital campaign design.
Strategic Planning (SPN)	Goal Settings (GST)	78	As strategic planning, your firm considers, as a goal to reach, the increasing of the branding positioning in the digital campaign design.
		79	As strategic planning, your firm considers, as a goal to reach, the increasing of the number (real & potential) of customers database in the digital campaign design.
		80	As strategic planning, your firm considers, as a goal to reach, the increasing of sales in the digital campaign design.
		81	As strategic planning, your firm considers, as a goal to reach, the increasing the product & services (current and new ones) information in the digital campaign design.
	Strategy Target (STG)	82	As strategic planning, your firm considers, as a strategy target, the foster of awareness in the digital campaign design.
		83	As strategic planning, your firm considers, as a strategy target, the foster of engagement & loyalty in the digital campaign design.
		84	As strategic planning, your firm considers, as a strategy target, the foster of desire & experience in the digital campaign design.
		85	As strategic planning, your firm considers, as a strategy target, the foster of effectiveness on call to action in the digital campaign design.

DIGITAL MARKETING INNOVATION MODEL  
(DMIM AS DEPENDENT FACTOR)

(MEJÍA-TREJO, 2017B)

*(continuación)*

Variable	Dimension	Item	Indicator (Likert scale: 5)
Strategic Planning (SPN)	Tactics (TAC)	86	As strategic planning, your firm considers, as a tactics, the use of Digital Marketing Tools for each strategy such as Awareness, the following list: the SEO/SEM or Affiliate & Partner Marketing or On line Advertising or On line PR or Social Media in digital campaign design.
		87	As strategic planning, your firm considers, as a tactics, the use of Digital Marketing Tools for each strategy such as Engagement & Loyalty, the following list: Content Marketing or Newsletters or eMail Marketing or e-Contact Strategy or Customer service & support or Mobile Marketing or Social CRM or Blogging in digital campaign design.
		88	As strategic planning, your firm considers, as a tactics, the use of Digital Marketing Tools for each strategy such as Desire & Experience, the following list: Augmented Reality or Virtual Reality or Wearable Marketing in digital campaign design.
		89	As strategic planning, your firm considers, as a tactics, the use of Digital Marketing Tools for each strategy such as Effectiveness on Call to Action, the following list: Home & Site-Wide Page or Landing page design or Search and Browse Page or Basket and Checkout or Social Commerce in digital campaign design.
	Digital Marketing Tools (DMT)	90	As strategic planning your firm considers, the constant surveillance to determine what kind of digital marketing tools are ready to use, in the digital campaign design.
Model Performance (mpe)	Planning (PLN)	91	As planning, your firm considers strong programs, with schedule and times to implement the digital marketing tools, in order to obtain remarkable results, in digital campaign design.
	Performance (PER)	92	As performance, your firm considers the KPIs for performance monitoring to determine on real time, the current performance and is supported from the Web Analytics, in digital campaign design.
	Profitability (PRO)	93	As profitability, your firm considers the current profitability analysis on real time in the digital campaign design.

Source: Bass & Avolio, 2006; EUROCOM, 2015; Mejía-Trejo, 2017, with own adaptation.