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# ORGANIZATIONAL CULTURE AND KNOWLEDGE MANAGEMENT: EVIDENCE FROM BOLIVIA AND MEXICO

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## *ABSTRACT*

Intangible assets, especially knowledge and culture management, have been traditionally considered by various companies as valuable resources that can be used to generate a competitive advantage. However, it is unclear how these assets work hand-in-hand – and which type of culture is the most appropriate for the development of knowledge. This study aims to analyze whether or not both flexible and rigid cultures can be implemented by companies in order to promote the development and transfer of knowledge within an organization. A sample of 167 companies from Mexico and Bolivia was obtained, applying a quantitative and correlational investigation. Using Pearson correlation and stepwise regression, it was found that these variables are positive and significant, and that there is a moderate effect of the rigid organizational culture in the relationship between flexible culture and knowledge management. From a holistic perspective, both cultures – flexible and rigid – are necessary as a means to improve the development and transfer of knowledge among employees within an organization.

**Contribution/Originality:** This paper analyzes the moderating effect of rigid culture on the relationship between flexible organizational culture and knowledge management in Bolivian and Mexican organizations, finding that rigidity plays an important role in the development of knowledge in countries where bureaucracy is the predominant organizational culture.

## 1. INTRODUCTION

The relevance of intangible assets for the generation of an organization's value was postulated by Penrose (1959). This premise was strengthened with the arrival of the knowledge era (Brooking, 1997), although it is possible to find its origins in Machlup (1962) and Drucker (1969). Today, more than ever, it is understood that the above significantly determines which companies (Stewart, 1998; Obeso, 2003) view knowledge as one of their

principal resources used to generate a competitive advantage (Nonaka and Takeuchi, 1995; Grant, 1996a; Bueno, 1999; Roos *et al*., 2001).

In order to achieve this objective, there is a need to leverage other intangible elements of great relevance, such as organizational culture (Barney, 1986). Organizational culture has been viewed as a strategic element (Schein, 1992; Cameron and Quinn, 2006) that can greatly benefit the development of knowledge management within an organization (Davenport and Pusak, 1998; Jassawalla and Sashittal, 2002; Lai, 2002; Glibsy and Holden, 2003; Lin and Lee, 2004; Lai and Lee, 2007; Wang *et al*., 2011).

Knowledge management refers to a process that includes the planning and control of knowledge within an organization (Bueno, 1999) in order to improve its performance (Edwards *et al*., 2005). With the intent of achieving this aim, Nonaka (1994) proposed the creation of the Theory of Organizational Knowledge, which involves epistemological elements of Japanese culture – for example, knowledge types and steps of knowledge management processes – which are explained in detail by Nonaka and Takeuchi (1995). It is possible to observe the essential participation of culture within each of these stages: socialization, externalization, combination and internalization of knowledge.

A brief explanation of the study variables will be presented in order to provide context to the present investigation. Later on, the formulation of the problem and its respective hypotheses will be presented, as will the method, results and conclusions.

## 2. LITERATURE REVIEW

### *2.1. Organizational Culture (OC)*

Culture was born out of the interaction between human beings within social groups (Schein, 1992), as a method of perceiving reality in a collective way (Hofstede, 1980). Although its beginnings date back to the origin of societies, it was not until Tylor (1920) that the study of culture was viewed from an anthropological perspective – where it was more so considered to be a set of beliefs and customs that are acquired within a social group.

In anthropology, culture can be understood as certain traditions and lifestyles which are socially acquired by members of a society or group, including its repetitive patterns of thinking, feeling and acting – in other words, their behavior (Harris, 2001). Therefore, culture is a learned variable, which is based on symbols that are used to convey meanings and are shared with the members within a social group. It is a system that encompasses everything that defines human groups (Kottak, 2011). For this reason, culture – as a social aspect – can be studied in any group, which makes it a multidisciplinary variable (Tunal and Camarena, 2007). This is why it has been studied by experts within diverse disciplines, such as anthropology (Pettigrew, 1979; Hofstede, 1980; Harris and Sutton, 1986; Erez and Earley, 1993), psychology (Eckensberger, 1990; Shweder, 1991; Greenfield, 2000; Heine and Ruby, 2010; Berry *et al*., 2011), philosophy (Cassirer, 1967) and economics (Scott, 1997; Throsby, 2001; Gibson and Kong, 2005; Palma and Aguado, 2010). It was not until the late 1970s that culture began to take on higher relevance in diverse organizations (Podestá, 2009) and with such heterogeneity – conceptually, with a diversity of models, and with a multidisciplinary approach – which led to no consensus regarding its definition (Chan *et al*., 2004), but rather the highlighting of a variety of concepts (Kroeber and Kluckhohn, 1952).

Organizational culture (OC) is an element that impacts individuals, groups and organizational behavior (Hartnell *et al*., 2011). It could be conceptualized as a collective program that differentiates the participants of a social group from another (Hofstede, 1980), which includes human nature, time, activity and relationships (Kluckhohn and Strodtbeck, 1961). At the same time, it shares certain norms, values, and symbols that guide the decisions made by persons within a group (Parsons and Shils, 1951; Robbins, 2002).

OC is an organizational capital (Hartnell *et al*., 2011) and an intangible asset (Davis and Newstrom, 1999). It was generated as a social system (Hofstede *et al*., 1993) through meanings that were learned by a group as an answer to their problems of adaptation. It has also been proven as an efficiency; therefore, it is often taught to new

members of a group, as an adequate way to perceive, think and feel (Schein, 1992), granting identity and a sense of belonging to employees and members of an organization (Cameron and Quinn, 2006).

In this regard, OC has been studied by various authors including Deshpandé *et al.* (1993); Olson (1971); Frost *et al.* (1985); Handy (1988); Alvesson and Olof (1992); (Schein, 1992); Erez and Earley (1993); Denison (2000); Cameron and Quinn (2006) where the Competitive Values Framework, used by Cameron and Quinn, has gained relevance (Naranjo *et al.*, 2011). This perspective has been reported through empirical evidence in various contexts (e.g., (Cameron and Freeman, 1991; Zammuto and Krakower, 1991; Khazanchi *et al.*, 2007; Ojeda *et al.*, 2010; Hartnell *et al.*, 2011; Arciniega, 2013; Flanigan, 2016).

Cameron and Quinn (2006), within their book *"Diagnosing and Changing Organizational Culture"*, analyze the following question: What differences exist between successful companies and others? Here, these authors conclude that culture is a strategic element that can allow an organization to differentiate and become successful. This theoretical proposal is based on the *Competing Values Framework*, through which *the Organizational Culture Assessment Instrument* (OCAI) was proposed as a way to diagnose the culture of an organization. This instrument is based on six dimensions: dominant characteristics, organizational leadership, management of employees, organizational glue, strategic emphases and criteria of success.

It is important to note that the general purpose of this model is to diagnose and facilitate the cultural change of a particular organization (Cameron and Quinn, 2006) through two basic dimensions: flexibility and discretion, and stability and control. This is done with the purpose of developing four quadrants or types of cultures: clan, adhocracy, market and hierarchy. Therefore, in this research, flexibility (flexible culture) and control (rigid culture) are both established as study criteria. In fact, empirical evidence has been reported using this conceptual scheme (Nuñez *et al.*, 2016; Ramírez *et al.*, 2017). This taxonomy is defined below.

### *2.2. The Flexible Organizational Culture (FOC)*

Organizations with flexible cultures are characterized by their openness, adaptability, and lack of formality and structure. This implies a strategic orientation and allows the participation of personnel, the empowerment and establishment of self-directed teams, and the promotion of innovation and creativity, where it is possible to highlight clan and adhocracy cultures (Cameron and Quinn, 2006).

*The clan culture.* According to Cameron and Quinn (2006), clan culture is founded on the premise of sharing common values and aims, promoting cohesion, and participation in the manner of a family. It is a place where leaders are considered mentors with strong loyalty, and where they care immensely about the growth of human resources and fostering teamwork so that it may be used as a culture of collaboration (Tharp, 2010).

*The adhocracy culture.* Organizations have had to adapt to changes in the knowledge era (Machlup, 1962; Drucker, 1969; Obeso, 2003). This is how the adhocracy culture has emerged to describe dynamic, entrepreneurial and creative organizations that take risks, where employees are empowered, and where new leaders are trained through the development of innovation, freedom and creativity (Cameron and Quinn, 2006; Tharp, 2010).

### *2.3. The Rigid Organizational Culture (ROC)*

Rigid cultures focus on the control of an organization with the purpose of efficiency, achievement of defined objectives, compliance with standards, specialization of work, and well-defined hierarchies, as a method of becoming competitive within a market (Cameron and Quinn, 2006).

*The Hierarchy Culture.* Hierarchy culture is founded on the bureaucracy exposed in Weber (1968). In essence, the hierarchy culture focuses on the need to achieve certain stability within an organization (Hartnell *et al.*, 2011). Based on this, its main premise is control (Tharp, 2010), where formality, rules, and operating procedures are established as norms and are highly valued. In addition, it is where workers are required to follow the rules, and where staff is fully qualified to perform their respective tasks (Cameron and Quinn, 2006).

*The Market Culture*. Finally, market culture seeks to achieve organizational objectives (Hartnell *et al*., 2011) that involve a focus on remaining competitive (Tharp, 2010). For this reason, it is characterized by the achievement of difficult objectives, specifically those that are financial – highlighting the emphasis on energetic competitiveness and profit orientation (Cameron and Quinn, 2006).

### *2.4. Knowledge Management (KM)*

The first references of knowledge study can be traced back to Greek philosophy (e.g., Plato and Aristotle), as well as within philosophical doctrines (i.e., rationalism, empiricism and idealism). This variable has been associated in previous decades with the economy (Schumpeter, 1934; Machlup, 1962; Drucker, 1969) and with various organizations (Penrose, 1959; Nonaka, 1991; Kogut and Zander, 1992; Nonaka and Takeuchi, 1995; Teece *et al*., 1997).

Given the vast number of proposals and models on knowledge management (KM) available at the present time, it is important to note that there is no definition fully accepted by the academic community on this variable, which has generated a mosaic of theoretical and empirical approaches on KM. In fact, the field of KM is in an embryonic stage, with its participation in the academic community around the world steadily increasing (Serenko *et al*., 2010; Serenko and Dumay, 2015). However, the relevance of knowledge has been previously proposed by Drucker (1969) and Machlup (1962), particularly since 2007, when it began to have a greater presence within publications focused on management (Akhavan *et al*., 2016).

KM has become a strategic tool for organizations (Omotayo, 2015), since companies, on average, only use 20% of their knowledge (Brooking, 1997). This has made academics and professionals agree that much of the knowledge in an organization is tacit (Buckman, 2004; Moorandian, 2005; Massaro *et al*., 2015). Therefore, the use of this variable within existing companies has become a necessity (Obeso, 2003) due to KM's processes of creation, capture, diffusion, development and the practice of knowledge. This, with the purpose of improving individual and group performance, has oriented the achievement of organizational objectives (Edwards *et al*., 2005). This allows the creation of a synergy between the processing of information and the creative and innovative abilities of employees within an organization (Suppiah and Sandhu, 2011).

Within the different models that have described this variable, the SECI Model suggested by Nonaka and Takeuchi (1995) is considered one of the most relevant models on KM. Japanese companies largely consider KM as a knowledge creation process. These authors presented the idea that this variable is the best approach to creating knowledge, spreading it through an organization and translating it into its services and products.

This theoretical proposal arose with Nonaka (1991) and Nonaka (1994) where – under an epistemological approach – knowledge management was perceived as a process that converts tacit knowledge (individual) into explicit knowledge (collective). Therefore, rather than the creation of knowledge, this refers to the conversion of tacit to explicit knowledge so that it can be shared and applied by the organization to create new understanding (Nonaka *et al*., 1998).

Nonaka and Takeuchi (1995) argued that tacit knowledge is something that belongs to an individual, but that is difficult to explain and is not contained in a manual; which is why it cannot be easily socialized. In contrast, explicit knowledge is the antithesis of tacit knowledge in that it characterizes the rational component, which can be easily articulated in words and numbers, so it can be transmitted and processed collectively within an organization (Bratianu, 2010). Both have distinctive characteristics between them, but they complement each other to favor the creation and conversion of knowledge in organizations; therefore, explicit knowledge, without tacit understanding, loses its meaning (Al Saifi, 2015). For this reason, knowledge must be part of a process that involves four steps, whose initials are SECI (socialization, externalization, combination and internalization of knowledge). This model represents how individual knowledge becomes social knowledge. Through these four steps, tacit knowledge

becomes explicit knowledge, which generates value for the organization at hand (Nonaka, 1994). The SECI steps are described below.

*Socialization (SO).* This first stage of the SECI process consists of sharing experiences, rational models and individual technical skills through the use of language. In the case of organizations, this stage works through observation, imitation, and practice; however, the essence of this stage is experience (Nonaka and Takeuchi, 1995).

*Externalization (EX).* Tacit knowledge is articulated explicitly; that is, knowledge becomes explicit through the expressions of the language, such as concepts, analogies, hypotheses, models and metaphors. However, these elements are unable to be considered as objectives, causing subjective differences between people (Nonaka and Takeuchi, 1995).

*Combination (CO).* In this third stage of the process, the aim is to systematize knowledge by combining different forms of explicit knowledge. This is because people within organizations exchange knowledge through documents, meetings and virtual interactions, including the use of the telephone and computer systems (databases), allowing the formation of new knowledge (Nonaka and Takeuchi, 1995).

*Internalization (IN).* This last stage is based on the idea that explicit knowledge becomes tacit; that is, all the experiences of the previous stages are internalized by the individual, through mental models and know-how, to become valuable assets for their organization. At the end of this internalization stage, socialization begins again, and so does the process of knowledge creation in order to form a continuous spiral (Nonaka and Takeuchi, 1995).

### *2.5. Organizational Culture (OC) and Knowledge Management (KM)*

Organizational culture and knowledge management, from a theoretical background, have several elements in common. First, it is necessary to recognize that both variables are valuable intangible assets for organizations; and so can be theoretically addressed by the same approximations. For example, when both are considered by the Resources Based Approach (Barney, 1991), such variables can be seen as resources capable of generating sustained competitive advantages that are recognized as rare, valuable, non-transferable and difficult to reproduce. In addition, through the Dynamic Capabilities Approach proposed by Teece *et al.* (1997), these can be seen as necessary elements when considering changes within an organization. Finally, with Knowledge Based Approach (Grant, 1996b), culture is considered a basic element that intervenes in the process of the development and transmission of knowledge within companies.

OC can be oriented towards the accomplishment of the objectives established by the organization (Robbins, 2002; Podestá, 2009) and, considering that the generation and development of knowledge has become one of the core resources required to compete (Brooking, 1997; Obeso, 2003; Lee and Sukoco, 2007), both variables from a strategic perspective, are oriented towards the common objective since these are advantageous to the companies (Al Saifi, 2015).

Different investigations have shown the interconnection between OC and KM. According to Rai (2011), OC can be considered a factor of relevance in the building and strengthening of KM, impacting the way members learn, generate, acquire and share knowledge. In addition, OC is crucial for KM (Lai and Lee, 2007) because it can become the main element its development (Davenport and Pusak, 1998).

Knowledge is a description of experience, values, and contextual information, integrating not only documents or repositories, but also routines, processes, practices and norms. It is rooted in the subconscious of organizational members (Rai, 2011). Consequently, it is possible to observe that the process of KM involves culture. In fact, Paliszkiewicz *et al.* (2017), with a sample in Georgia, found that aspects of knowledge are related to and affect the OC: however, the theoretical and empirical evidence is oriented towards the conception of OC as an independent variable because culture allows for the transmission of knowledge and meanings (Geertz, 1973; Harris and Sutton, 1986) that distinguish a social group (Robbins, 2002).

It should be noted that various aspects of culture can be considered the most important for the development of KM (Seyedyousefi *et al.*, 2016). In this regard, Jacks *et al.* (2012), through a meta-analysis of ISI Journals between 2000 and 2010, discovered that national and organizational culture each have an impact on KM, especially with elements such as trust and openness. In addition, Al Saifi (2015) proposed a conceptual model based on Schein (1992) where the levels of OC (artifacts, beliefs, values, and assumptions) can be associated with the KM process (creation, sharing, and application).

Some authors have found a significant relationship between OC and KM (e.g., (Jassawalla and Sashittal, 2002; Lai, 2002; Glibsy and Holden, 2003; Lin and Lee, 2004; Lai and Lee, 2007; Palanisamy, 2007; Wang *et al.*, 2011)). In Latin America, these variables have been studied from a theoretical (e.g., (Pérez and Coutín, 2005; Rojas, 2012)) and empirical perspective in Colombia (e.g., (Quiroga, 2007; López *et al.*, 2011; Marulanda *et al.*, 2016)) and Mexico (Nuñez *et al.*, 2016).

The extent of the relationship and the type of culture best associated with KM is still unclear. It becomes more evident when trying to group the different visions of OC in a dichotomous taxonomy. Organizations need to form cultures that favor the dissemination of knowledge among employees in order to gain a competitive advantage (Rai, 2011). When considering that intangibles generate these advantages (Penrose, 1959; Barney, 1991) and knowledge stands out as one of the main assets (Brooking, 1997; Stewart, 1998; Obeso, 2003), an adequate organizational culture is required to generate and transmit knowledge.

Considering Cameron and Quinn (2006) as a starting point, cultures can be categorized into two types: flexible and rigid, which include the cultures of clan and adhocracy, as well as market and hierarchy, respectively. Flexible organizational culture (FOC) stands for the development of the individual, participation and innovation; whereas, the rigid organizational culture (ROC) is delimited by the existence of a hierarchical structure, by roles and norms, and to guarantee efficiency and positioning within the market.

This classification of OC – flexible and rigid – is not different from other models, because a certain parallel has been found in the taxonomies of this variable (Handy, 1988; Sainsaulieu, 1990; Deshpandé *et al.*, 1993; Denison, 2000; Iivari and Huisman, 2007). In fact, FOC can answer to what Davenport and Pusak (1998) call *culture friendly with knowledge*, because this can favor the process of creation, storage, recovery, transfer and application of knowledge (Palanisamy, 2007). On the other hand, ROC can be identified as an *unfriendly culture with knowledge*. In the case of culture, this can be referred to what Barney (1991) calls *competitive rigidity*, which can be the consequence of an organizational culture that goes against the objectives of a corporation (Mihi, 2008) when a company tries to achieve its objectives through knowledge.

From this perspective, it is not intended to affirm that hierarchical and market cultures are good or bad, but by their very nature, these may not favor knowledge management. However, due to the fact that ROC allows efficiency, they might still be present, even if FOC is dominant. An important role played by ROC within KM is not ruled out.

Participation and innovation, characteristic elements of FOC, favor the creation and dissemination of knowledge (Rai, 2011; Seyedyousefi *et al.*, 2016) through free interaction of individuals and creativity. Nevertheless, the existence of a certain control is required through the participation of ROC, as well as through a moderating effect on the relationship between flexible culture and knowledge management. In the present investigation, a moderator is understood as an aspect that affects the method and strength of a relationship between variables (Baron and Kenny, 1989).

In addition, due to the diversity of elements and approaches used to interpret an OC, it is still unclear how KM influences culture (Alavi *et al.*, 2005; Leidner and Kayworth, 2008; Jacks *et al.*, 2012). The evidence reflects that FOC favors KM; however, more studies are required in order to understand what role ROC plays with respect to KM. The cultural approach allows knowledge to be disseminated to all parts of an organizational hierarchy (Seyedyousefi *et al.*, 2016), which is a characteristic of the rigid organizational culture. There is need to postulate the

existence of controls and norms that allow flexible cultures to regulate the generation of ideas, creativity and participation.

Given these ideas, the following research questions are proposed: How are organizational culture and knowledge management associated? How do the types of organizational culture influence KM? How does the rigid culture moderate the relationship between flexible culture and knowledge management?

To answer these proposed questions, the following hypotheses are presented, and are expressed in the hypothetical model Figure 1.

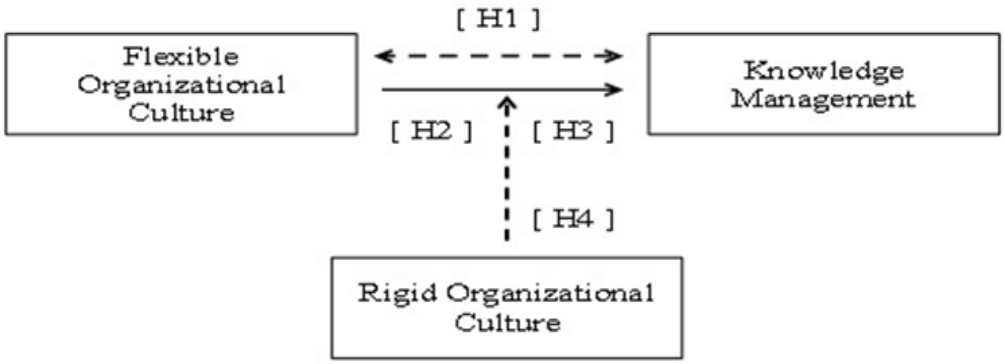


**Figure-1**. Hypothetical model.

As an empirical test, we considered studying a sample of companies from two Latin American countries, Mexico and Bolivia. This is because, culturally, countries within Latin America share common elements: most are primarily Spanish speaking, were colonies (Fernández-Serrano and Liñán, 2014), and are characterized by having an indigenous past and multicultural societies (Stavenhagen, 2002; Barabas, 2014). In addition, there is a medium and high power distance, according to the evidence shown by Hofstede and Hofstede (2005).

However, in spite of the above, from a cultural point of view, such countries are not completely homogenous, which makes them special (Fernández-Serrano and Liñán, 2014). Regarding organizational culture, differences are reflected in the study of Mexico and Bolivia. Farías (2016) showed that these countries have cultural differences, as reported by Ogliastri *et al.* (1999).

It should be noted that studies exist, which have addressed organizational culture in Mexico (Hofstede and Hofstede, 2005)De La Garza *et al.*, 2014). In the case of Bolivia, the empirical evidence is not substantial (Dias and Santini, 2014). There are still many areas of opportunity to study these variables within this context.

The development of knowledge in Latin America is low compared to developed countries, which occurs both socially and organizationally (Inter-American Development Bank [IDB], 2010). It has a cultural connotation (Coombe, 2016) which has been proven in the studies of Hofstede and Hofstede (2005) because the cultures of the countries in this region are distinguished by being rigid and hierarchical, which has prevented the promotion of knowledge within organizations.

Based on the above, this research is planned – without trying to differentiate the variables between the countries of study – to test the theoretical hypotheses, which are presented below:

### *2.6. Hypothesis*

*$H_1$: Organizational Culture and Knowledge Management are associated in a significant and positive way.*

*$H_2$: Flexible culture has a significant and positive influence on knowledge management.*

*$H_3$: Rigid culture has a significant and negative influence on knowledge management.*

*$H_4$: Rigid culture moderates, significantly and positively, the relationship between flexible culture and knowledge management.*

## 3. METHODOLOGY

### 3.1. Research Design

This research is quantitative and correlational with a non-experimental design.

### 3.2. Measurement Instrument

In the present investigation, two quantitative measurement instruments were used. Firstly, for the measurement of OC, an Organizational Culture Assessment Instrument (OCAI) was administered in its Spanish version, which is composed by 24 items, based on Cameron and Quinn (2006) and four types of organizational cultures are distinguished: clan, market, adhocracy and hierarchy. Secondly, with respect to KM, a questionnaire based on Mihi *et al.* (2011) was utilized, which focuses on the SECI model (socialization [SO], externalization [EX], combination [CO] and internalization [IN]), composed by 11 items. In both cases, a Likert-Type scale with 5 points was used, ranging from 1 (*Totally disagree*) to 5 (*Totally Agree*).

To verify the reliability, which refers to the degree of consistency of an instrument, the Cronbach's $\alpha$ test was used (Hair *et al.*, 2004). Both questionnaires were validated, where satisfactory results were reported in terms of reliability for the OC (Cameron and Freeman, 1991; Zammuto and Krakower, 1991; Choi *et al.*, 2010; Strack, 2012) and KM (Mihi *et al.*, 2011; Nuñez *et al.*, 2016).

In this study, regarding the reliability of the OC, favorable values of Cronbach's alpha analysis were obtained for clan ($\alpha$ = .815), adhocracy ($\alpha$ =.755), market ($\alpha$ =.764) and hierarchy ($\alpha$ =.748); while on the taxonomy of flexible culture and rigid culture, the results were 0.754 y 0.816, respectively. In the case of KM, the alpha values were for socialization ($\alpha$ = 0.70), externalization ($\alpha$ = 0.728), combination ($\alpha$ = 0.781) and internalization ($\alpha$ = 0.65). According to Guilford (1946) and Trobia (2008), a reliability greater than 7.0 is acceptable. It should be noted that all results are satisfactory. In the case of internalization, the result is acceptable because "values of .60 to .70 are deemed the lower limit of acceptability" (Hair *et al.*, 2014).

Regarding validity, the knowledge management questionnaire was validated by Mihi *et al.* (2011), while in the case of organizational culture, this was validated by Choi *et al.* (2010) and Strack (2012). In this study, we found that the variance of the four cultures obtained a value of 0.55 (KMO = .885; Bartlett test of sphericity [$X^2$ = 1724; *df* = 276; $p < .001$]), which also occurred in knowledge management in the four stages of the SECI model (KMO = .858; Bartlett test of sphericity [$X^2$ = 620; *df* = 55; $p < .001$]). It is important to note that, according to Hair *et al.* (2005) values close to 0.5 are considered acceptable for validity.

### 3.3. Study Sample

The questionnaires were administered by a non-probabilistic convenience sample consisting of 167 companies from Mexico and Bolivia. See Table 1.

## 4. RESULTS AND DISCUSSION

In order to test the first hypothesis of this study, a Pearson correlation was used. The first is used to measure the level of association between variables, while the second is a technique that allows the estimation of effects and the relationships between multiple variables (Ho, 2014). Subsequently, hypotheses $H_2$-$H_4$ were tested by Stepwise regression, which is used to detect the main effects and interaction between the study variables (Cohen and Cohen, 1983). In this case, it had the function of measuring the influence of the independent variables on the dependent variable, as well as the moderating effect. To probe these hypotheses, a Statistical Package for the Social Sciences (SPSS) version 25 was utilized.

The correlation shows that there are significant relationships among the study variables. In Table 2, it was observed that, considering the variables by themselves [OC <--> KM], significant and positive values were obtained ($r$ =.761; $p < 0.01$). This – within the Latin American context – corroborates the approaches that propose

the existence of a relevant relationship between OC and KM (Jassawalla and Sashittal, 2002; Lai, 2002; Glibsy and Holden, 2003; Lin and Lee, 2004; Lai and Lee, 2007; Palanisamy, 2007; Rai, 2011; Wang *et al.*, 2011; Al Saifi, 2015; Paliszkiewicz *et al.*, 2017).

**Table-1.** Characteristics of the studied companies.

| Characteristics | n | % |
|---|---|---|
| Country | | |
| Mexico | 103 | 61.7 |
| Bolivia | 64 | 38.3 |
| Activity | | |
| Industry | 35 | 21.0 |
| Commercial | 43 | 25.7 |
| Services | 89 | 53.3 |
| Number of employees | | |
| 1-10 | 41 | 24.6 |
| 11-50 | 45 | 26.9 |
| 51-250 | 25 | 15.0 |
| More than 250 | 56 | 33.5 |
| Market orientation | | |
| National | 119 | 71.3 |
| International | 17 | 10.1 |
| Both | 31 | 18.6 |

The findings of the correlations support $H_1$, which allow testing of the following hypotheses, because the existence of a significant relationship among the variables is one of the basic criteria to perform stepwise regression.

**Table-2.** Correlation of variables.

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. CLAN | 1 | | | | | | | | | |
| 2. ADHOC | .607** | 1 | | | | | | | | |
| 3. MARK | .516** | .647** | 1 | | | | | | | |
| 4. HIER | .596** | .611** | .690** | 1 | | | | | | |
| 5. SO | .532** | .577** | .364** | .415** | 1 | | | | | |
| 6. EX | .451** | .532** | .516** | .540** | .428** | 1 | | | | |
| 7. CO | .429** | .463** | .431** | .555** | .289** | .611** | 1 | | | |
| 8. IN | .536** | .633** | .480** | .529** | .477** | .539** | .534** | 1 | | |
| 9. FLEX | .888** | .905** | .652** | .674** | .620** | .550** | .498** | .654** | 1 | |
| 10. RIG | .606** | .684** | .916** | .922** | .424** | .575** | .538** | .550** | .721** | 1 |

Note: CLAN = Clan culture; ADHOC = Adhocracy Culture; MARK = Market Culture; HIER = Hierarchy Culture; SO = Socialization of Knowledge; EX = externalization of Knowledge; CO = Combination of Knowledge; IN = Internalization of Knowledge; FLEX = Flexible Organizational Culture; RIG = Rigid Organizational Culture.
** $p < 0.01$ (two tails).

On the other hand, using linear regression, it was found that the dimensions of organizational culture, both flexible and rigid, influenced knowledge management along with the use of control variables: country and number of employees. These findings showed there is a direct influence of OC on KM: CLAN-SO, which empirically supports $H_2$ The current results show empirical evidence of the proposals of certain researchers who expressed the need for more studies to explain how the OC influences the KM (Alavi *et al.*, 2005; Leidner and Kayworth, 2008). In addition, the findings are in agreement with reports from authors such as Seyedyousefi *et al.* (2016); Jacks *et al.* (2012) who found that OC has a significant influence on KM; nonetheless, the rigid culture, also positively influencing KM, contradicts $H_3$, whereby this hypothesis is rejected (see Tables 3-6). This reflects the regulations, controls (ROC) and allows the development of the stages of the KM process. Regarding $H_4$, through the use of stepwise regression, it was found that there is a significant and positive moderating effect of ROC in the relationship between FOC and the dimensions of KM (see Tables 3-6). Finally, in order to present the results, a

format proposed by Nicol and Pexman (2010) was applied, which follows APA format to present hierarchical regression analysis; likewise, control variables were used within the first step.

In addition, the results showed that there is a moderating effect; however, this does not happen in all dimensions, especially in the stage of externalization, where only favorable results were found in two cases. Thus, the last research hypothesis was partially tested. It reflects the need to study these variables in another direction, where cultures should be considered under an integrative approach. This is "holistic" and not separatist, because in order for the KM process to take place, the participation of both flexibility and cultural rigidity is required.

**Table-3.** Moderating effect: socialization as DV.

| **Socialization (SO)** | | | | |
|---|---|---|---|---|
| **Steps** | **Predictor Step** | **Beta** | **ΔR²** | **F-Change** |
| 1 | Control Variables | | | |
| | Country | -0.096 | | |
| | Number of employees | -0.126 | | |
| | CLAN | 0.465*** | 0.315 | 25.004*** |
| 2 | CLANxMARKET | 0.327* | 0.32 | 5.091* |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | CLAN | 0.465*** | 0.315 | 25.004*** |
| 2 | CLANxHIER | .371* | 0.024 | 5.960* |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | Control Variables | | | |
| | Country | -0.057 | | |
| | Number of employees | -0.213 | | |
| | ADHOCRACY | 0.524*** | 0.391 | 34.849*** |
| 2 | ADHOCxMARKET | 0.045 | 0 | 0.07 |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | ADHOCRACY | 0.524*** | 0.391 | 34.849*** |
| 2 | ADHOCxHIER | 0.215 | 0.007 | 1.996 |

Note: CLAN = Clan culture; ADHOC = Adhocracy Culture; MARKET = Market Culture; HIER = Hierarchy Culture; SO = Socialization of Knowledge. ADHOC: Adhocracy; HIER: Hierarchy. DV: Dependent variable.
* $p < 0.01$.

**Table-4.** Moderating effect: Externalization as DV.

| **Externalization (EX)** | | | | |
|---|---|---|---|---|
| **Steps** | **Predictor Step** | **Beta** | **ΔR²** | **F-Change** |
| 1 | Control Variables | | | |
| | Country | -0.026 | | |
| | Number of employees | .187* | | |
| | CLAN | .515*** | 0.23 | 16.244*** |
| 2 | CLANxMARKET | .656*** | 0.084 | 19.789*** |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | CLAN | .515*** | 0.23 | 16.244*** |
| 2 | CLANxHIER | 0.717 | 0.091 | 21.607*** |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | Control Variables | | | |
| | Country | 0.015 | | |
| | Number of employees | 0.087 | | |
| | ADHOCRACY | .552*** | 0.291 | 22.323*** |
| 2 | ADHOCxMARKET | .595** | 0.047 | 11.476** |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | ADHOCRACIA | .552*** | 0.291 | 22.323*** |
| 2 | ADHOCxHIER | .593*** | 0.057 | 14.098*** |

Note: CLAN = Clan culture; ADHOC = Adhocracy Culture; MARKET = Market Culture; HIER = Hierarchy Culture; EX = externalization of Knowledge. DV: Dependent variable; ADHOC: Adhocracy; HIER: Hierarchy
* $p < 0.0$

**Table-5.** Moderating effect: combination as DV.

| Combination (CO) | | | | |
|---|---|---|---|---|
| **Steps** | **Predictor Step** | **Beta** | **ΔR²** | **F-Change** |
| 1 | Control Variables | | | |
| | Country | -0.01 | | |
| | Number of employees | .199* | | |
| | CLAN | .501*** | 0.216 | 14.988*** |
| 2 | CLANxMARKET | .430** | 0.036 | 7.80** |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | CLAN | .501*** | 0.216 | 14.988*** |
| 2 | CLANxHIER | .780*** | 0.107 | 25.717*** |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | Control Variables | | | |
| | Country | 0.024 | | |
| | Number of employees | 0.094 | | |
| | ADHOCRACY | .487* | 0.226 | 15.848*** |
| 2 | ADHOCxMARKET | .443* | 0.026 | 5.625* |
| | Predictor step | Beta | ΔR² | F-Change |
| 1 | ADHOCRACY | .487* | 0.226 | 15.848*** |
| 2 | ADHOCxHIER | .735*** | 0.087 | 20.501*** |

Note: CLAN = Clan culture; ADHOC = Adhocracy Culture; MARKET = Market Culture; HIER = Hierarchy Culture; CO = Combination of Knowledge; ADHOC: Adhocracy; HIER: Hierarchy. DV: Dependent variable.
* $p < 0.01$

**Table-6.** Moderating effect: Internalization as DV.

| Internalization (IN) | | | | |
|---|---|---|---|---|
| **Steps** | **Predictor Step** | **Beta** | **ΔR²** | **F-Change** |
| 1 | Control Variables | | | |
| | Country | 0.005 | | |
| | Number of employees | 0.04 | | |
| | CLAN | .551*** | 0.288 | 22.017*** |
| 2 | CLANxMARKET | .538*** | 0.056 | 13.932*** |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | CLAN | .551*** | 0.288 | 22.017*** |
| 2 | CLANxHIER | .530*** | 0.148 | 42.519*** |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | Control Variables | | | |
| | Country | 0.052 | | |
| | Number of employees | -0.062 | | |
| | ADHOCRACY | .629*** | 0.404 | 36.776*** |
| 2 | ADHOCxMARKET | 0.261 | 0.009 | 2.487 |
| | Predictor Step | Beta | ΔR² | F-Change |
| 1 | ADHOCRACY | .629*** | 0.404 | 36.776*** |
| 2 | ADHOCxHIER | .415** | 0.028 | 7.84** |

Note: CLAN = Clan culture; ADHOC = Adhocracy Culture; Market = Market Culture; HIER = Hierarchy Culture; IN = Internalization of Knowledge. DV: Dependent variable.
* $p < 0.01$

## 5. CONCLUSION

In the present study, it was possible to prove the established hypotheses; furthermore, the objectives were also achieved. In other words, this study shows empirical evidence on how intangible resources, such as OC and KM, have a relevant relationship with each other, especially when considering culture under an integrative approach. In addition, this research is a continuation of the studies that support intangible assets as valuable resources that can be a source of sustained competitive advantage for companies (Barney, 1991).

From the literature review on taxonomies of the organizational culture, it is possible to find different authors and models (Handy, 1988; Deshpandé *et al.*, 1993; Denison, 2000; Cameron and Quinn, 2006). They present congruencies to each other by integrating cultures into two organizational subcultures: flexible and rigid. Regarding the relationship of OC and KM, this classification can respond to what Davenport and Pusak (1998)

considered as friendly cultures with knowledge. The quantitative empirical evidence showed three things: 1) culture, in general, is associated with KM, having a positive and meaningful vision; 2) both cultures – flexible and rigid – affect the KM in a positive and meaningful way; 3) the rigid organizational culture partially moderated, in some cases, the relationship between OCF and KM.

The sample obtained, composed by companies in Mexico and Bolivia, showed that culture plays a relevant role within the stages of the KM process (socialization, externalization, combination and internalization), by associating and also as an independent variable. This evidence reflects how intangible assets can generate competitive advantages in Latin America, a context in which these elements have received little relevance. Considering that the cultures of Latin America (Hofstede, 1980) are characterized by being rigid – high masculinity and distance of power, as well as low acceptance of uncertainty – they present favorable indicators of flexible cultures (i.e., teamwork, participation and promotion of creativity). This could become a starting point for the Latin American region in order to gain access to the knowledge economy, due to its traditional problems in guiding employees towards improving organizational performance (Ogliastri *et al.*, 1999).

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