A Culture Model as Mediator and Repository Source for Innovation

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Abstract

As innovation has become one of the most important competitive advantages, academic practitioner's interest in the matter has increased. But, still the question "why lots of organizations fail in their path of article to be innovative" is remained unanswered. In this, among many factors influencing innovation capacity of an organization; culture is addressed. Culture is defined as a multi-facet; multi- level mediator and repository that can lead organizations strive toward innovativeness; to success or failure. In this study, a model is proposed to exhibit different levels and facets of culture and introduces various factors that influence culture. This model is based on an open system approach, in which organization is seen as an open system including internal and external relationships, systems, interactions etc. that both influences, and is influenced by, the environment. Further, we conclude that, the coordination these among factors are necessary for cultural integrity which can increase the innovative capacity of an organization. Since here, innovation is defined as " creation and/ or adoption of a novel thing (product, process, technology, etc.) for the organization that brings further value to the organization's stakeholders" this model can be applied for both organizations that attempt to innovate themselves or try to adopt an innovation form elsewhere.

Keywords: Culture model, Mediator, Repository source, Innovation

1. Introduction

In 21st century, steadiness is more interpreted as stagnation than stability and organizations that cannot change according to necessity are doomed to perish. As the business world is becoming more complex and competitive, competition is becoming global and low wage countries are reaching global markets, innovation is becoming leading company's weapon of choice against this unfair competition. Innovation is their source of competitive advantage to compensate growing labor cost. Although the necessity of innovation is now undoubtedly accepted, leaders know that, in order to have sustainable innovation, they need to foster "innovation culture".

Late prosperity toward cultures is due to the fact that culture is not a tangible and observable factor. This complicated phenomenon has been borrowed from anthropology and gradually, came to be used in almost all social and commercial groups, including the whole nation, organization, departments and even teams within organizations and vastly used in management studies and organizational sciences. Although there is still no consensus about what

this term indicates and includes but from the 80's vast intention was put to corporate culture and many researches were conducted through and varied definitions were proposed. Main reason for this interest, may reside in the fact that organizational culture plays a key role in organizational productivity.

Reviewing literature, we may conclude that many theorists suggest that organizational culture lies in different levels, and each level exhibits its own features. As Hellriegel and Woodman (2001) has stated: knowing about one organization's structure, information systems, strategic planning processes, markets, technology, goals, etc. can offer clues about its culture but not accurately. In this paper through literature review we are about to review factors affecting innovation culture, classify and organize them and finally propose a model containing these factors.

2. Contribution

In literature one important shortcoming as Dobni (2008) has mentioned is the uni- dimensional; cause and effect view of innovation which has led to a lack of consensus on innovation and difficulties in both comparing findings across studies and drawing unbiased conclusions." Also, you can find some models for innovation culture elements but most of them just refer to one level or one dimension and do not comprehend all the elements.

Robertson and Gatingnon (1986) proposed a groundbreaking model for explaining firm adoption status; including micro level variables (organization and innovation characteristics) and meso- level variables (characteristics of the industry) and many researchers have applied their model in various ways. Dobni (2008) Proposed a model containing four factors affecting the innovation culture:

(1) Intention for Innovation; (2) Infrastructure for Innovation; (3) Market orientation (influence) for innovation; (4) Implementation context for Innovation. He proposed that these factors through innovation culture affect the performance outcome. Martins and Terblanche (2003) proposed a model for micro level factors including: Strategy, Structure, Support Mechanisms, Behaviors that encourages Innovation and Communication.

Waarts and Van Everdingen (2005) proposed a model containing three levels:

Micro Level: Mostly about the organization itself;

Meso Level: Mostly about the industry characteristics;

Macro Level: Mostly about national characteristics.

This contextual shortcoming may cause confusion about the factors affecting innovation culture, the level they influence the innovation, their relationships, etc. So in this paper through literature review, we are about to find all the factors affecting innovation culture (mentioned in literature) and categorize them in order to find logical sense about their level, dimension, relationships and the way they affect the innovativeness and innovation capacity of an organization. The approach for finding these factors is an open system approach, which considers organization as an open system including internal and external relationships, systems and interactions. Which both influences, and is influenced by, the environment? Hence, to find these factors we should search not only the organization itself, but also all other determinants outside the organization.

3. Innovation

"Innovation is probably best described as a pervasived attitude that allows business to see beyond the Present and create the future" (Ahmed, 1998). West and Farr (1990) define innovation as the intentional introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, organization or wider society.

Maybe the most comprehensive definition is: Innovation implies creating and implementing new combinations that really change existing practices. Whether this change emerges incrementally or radically and whether the innovation is evolutionary or revolutionary: (1) it is perceived as being new, (2) it combines existing resources and (3) it is (being) brought into practice (Van Duivenboden andThaens, 2008).

One common aspect in different researcher's (Steele and Murray, 2004), (Van Duivenboden and Thaens, 2008), (West and Farr, 1990) point of view about innovation is its newness. Newness of an innovation is not the matter of time elapsed between its introduction and use; it depends on the perception of the user about its novelty.

In literature one may find different factors have been mentioned as the circumstances, conditions and necessities to flourish and nurture innovation. Factors such as vision and mission, customer focus, management processes, leadership, support mechanisms, employee constituency (Martins and Terblanche, 2003) professional knowledge and capabilities (Lao and Ngo, 2004). But much of the extant literature points to culture as the linchpin to innovation in organizations (Schein, 1984), (Weick, 1985), (Tushman and O'Reilly, 2002). This innovation culture influences innovation in two ways; through socialization in which people just recruited get familiar with the ways

things get done in the organization and through basic values, assumptions and beliefs that become the guide for behaviors.

4. Culture

There is great diversity among definitions of culture. Maybe one of the most common definitions of organizational culture is 'the way we do things around here' (Bruke and Litwin, 1989). It simply describes different aspects of culture from strategy planning to environment interpretation, from input to output as culture is both an input and an output.

In organizations, actions and reactions, behaviors and decisions are predetermined by the patterns of basic assumptions; that have been formed by successful and unsuccessful experiences through time that are infiltrated into the deepest levels of organization and it member's mental models, value systems and decision processes.

As Ahmed(1998) has mentioned in literature another view to culture divides it to culture and climate; as it was mentioned in studies of researchers such as Lewin (leadership styles create social climates) and McGregor (theory X and Y). Although great diversity lies in literature but one thing in common in different author's (Hellriegel and Woodman, 2001), (Ahmed, 1998)) point of view is that culture is multi facet, multi- level phenomenon affecting all things done in an organization. Ahmed (1998) mentioned that culture has multiple elements which can serve to enhance or inhibit the tendency to innovate.

So we can conclude that culture is a primary determinant of innovation and possession of positive cultural characteristics provides the organization with necessary ingredients to innovate. A culture supporting innovation engages behaviors that would value creativity, risk taking, freedom, team work, to be value seeking and solution oriented, communicative, instill trust and respect, and be quick on the uptake in making decisions (Dobni, 2008).

5. Research Model

Dobni (2008) defined the innovation culture as a multi- dimensional context which includes the intention to be innovative, the infrastructure to support innovation, operational level behaviors necessary to influence a market and value orientation, and the environment to implement innovation". (Lao and Ngo, 2004) proposed that "Organizational culture is a mediator between the HR system and a firm's innovation performance".

Based on the (Lao and Ngo, 2004) viewpoint and (Dobni, 2008) comprehensiveness we define innovation culture as: "Innovation culture is a multi- dimensional, multi- level context which as a mediator, translates the intention and activities for innovation, to organization's innovativeness and as a repository maintains organization's experiences for further uses". This definition describes innovation culture as a context surrounding the organization, which plays a mediator role in success or failure of the organization's intentions and activities to be innovative. It also bolds its role as a repository, which through knowledge acquired and experience gained in the processes, culture changes organization's context (structure, norms, strategies, etc), so the organization can use this knowledge and experience in the future. As a multi- dimensional, multi- level context it includes every infrastructure, activity, system, behavior, values and conditions which an organization operates with or within.

6. Levels of Research Model

Nano Level: About personal characteristics and the people who build organizations and other communities;

Micro Level: About characteristics of the organization itself;

Meso Level: About characteristics of the environment in which the organization operates.

Macro Level: About national characteristics.

Insert Table 1 about here.

In Table 1, you can find the whole picture of our model and its elements. Further by defining each level we will explain each element and some indictors to see how it works.

Going through different levels you can find that the essence of these factors change from traits/ behaviors to infrastructure/ systems and to conditions. And in different levels, organization's control over these factors may vary dramatically.

Nano Level

People as Nano particles of an organization which build social groups play a key role in shaping the characteristics of that group. So organizations as social groups should consider the type of employees that are in line with the organizations direction. An organization which wants to be innovative but suffers the insufficiency of creative people, will encounter serious problems.

Diverse range of researches - from psychology to management- has found that some personal characteristics will lead to more personal creativity. Ahmed(1998) in reviewing culture and climate for innovation has mentioned some of these personal traits as: high valuation of aesthetic qualities in experience; Broad interests; Attraction to complexity; High energy; Independence of judgment; Intuition; Self- confidence; Ability to accommodate opposites; Firm sense of self as creative (Bresnahan,1997). Persistence; Curiosity; Intellectual honesty; Internal locus of control (reflective/ introspective). So having innovative people will foster innovation culture. Although it appears that there is a general agreement that personality affects creativity and innovation, and this relationship bolds the necessity of having a good source of creative people in order to be innovative; but trying to make an innovative organization just through personal traits of organization's employees seems to be insufficient, as personal characteristic is just one of the necessities for innovativeness. These personal traits can be used in recruitment and socialization processes of the organization. With recruiting employees with certain characteristics and helping they get familiar with the ways things are done in the organization, organization can foster innovation from early stages.

Micro level

This level refers to organization traits itself; these traits are mostly visible artifacts that can be controlled by management. By affecting deeper values and beliefs, they affect the culture of the organization. Hence to be innovative, some systems, infrastructures, behaviors and activities should be aligned with the conditions fostering innovation. These traits can be categorized as:

7. Strategy

To effectively use culture over the long term, organizations need to also possess certain values and assumptions about accepting change. These values must be driven by the strategic direction in which the company is moving (Ahmed, 1998). Having a clear corporate philosophy enables individuals to coordinate their activities to achieve common purposes, even in the absence of direction from their managers (Ouchi, 1985). An innovation strategy is a strategy that promotes the development and implementation of new products and services (Robbins, 1996). The indicators include:

Mission and Vision are the origin of creativity and innovation in shared vision and mission, which are future oriented. Furthermore, the vision and mission of an innovative organization are said to be customer- and market-oriented, focusing on solving customers problems (Covey, 1993).

Goals and Objectives are personal and organizational goals emphasizing on quality rather than effectiveness improve innovation capacity (Arad and Schneider, 1997). "It appears that reflecting the value of purposefulness in the goals and objectives of organizations has an influence on creativity and innovation (Martins and Terblanche, 2003)".

Market Orientation: "The antecedents of an innovation culture are similar to those of a market-oriented culture. Market orientation is a response partially derived from the organization's innovation culture (Dobni, 2008)". A market- oriented culture seems to underlie organizational innovativeness (Hurley, Hult and Knight, 2004). A market- oriented culture is also foundational in supporting innovation (Marinova, 2004). Market orientation includes three components: customer orientation, competitor orientation, and inter- functional coordination. Glor (1997) mentioned that in marketing, the common view is that customer orientation enhances innovativeness because it involves doing something new or different in response to market conditions.

8. Structure

The structure seems to emphasize certain values which have an influence on the promotion or restriction of creativity and innovation in organization (Martins and Terblanche, 2003). A flat structure, autonomy and work teams will promote innovation, whereas specialization, formalization, standardization and centralization will inhibit innovation (Arad and Schneider, 1997). Innovation is increased by using more participative structures. Decentralization will increase the likelihood of more frequent and effective communication which will result to knowledge sharing in ways that promote innovation, risk taking, and proactive behavior. High levels of centralization and formalization have been found to be associated with lower rates of innovation adoption (Martins and Terblanche, s2003).Generally it can be said that innovation is enhanced by organic structures rather than mechanistic structures (Ahmed ,1998). Values like rigidity, control, predictability, stability and order (mostly associated with hierarchical structures) will hinder creativity and innovation (Arad and Schneider, 1997). Therefore, more flexibility and autonomy and less Centralization may lead to more innovation.

9. Technology

"Although unnecessarily, technology and innovation are often seen as interrelated concepts. In so called technological innovations technology is the trigger for innovation. It can also be that certain (non technological)

ideas that were developed in the past can be realized in the present because modern technology finally enables implementation of these ideas in practice. Then technology is one of the supportive factors that can be used to proceed to other kinds of innovations (Van Duivenboden and Thaens, 2008)." Availability of proper technology is an indicator for innovation in production or process both in creation and adoption. Lack of proper technology will hinder creative ideas to result in innovation and finally will estrange employees to be creative again.

10. Human Resources

Past studies suggested that an internally consistent HR system which emphasizes investing in human capital, compensating people for performance, and committing to team development is critical for the success of innovation-oriented firms. By building such a HR system, a firm would be able to develop an organizational culture with an innovative and entrepreneurial orientation. To achieve performance in product innovation, an innovation- oriented organizational culture must be supported by an HR system that facilitates the development of new products and services (Lao and Ngo, 2004).

In literature three sets of HR practices have been highlighted in order to foster innovation culture. They are:

1) Training: Based on (Leede, de Looise and Alders n. d.) founding that argues that high- performing organizations spend more time on education and training not just on technical, task related skills, but also on communication and team skills, (Lao and Ngo ,2004) have concluded that training- focused HR practices should be linked to innovation performance.

2) Reward System: Reward is said to be a powerful conditioner of people's behavior. Hawk (1995) suggests that reward systems must be aligned to the chosen direction because 'by changing their cultures without changing their reward system, companies run the risk of sending their employees terribly mixed signals'.

Lao and Ngo (2004) have concluded that performance- based reward system by representing a commitment to employees provides incentives for creativity and innovation, and hence reinforces innovative performance. So pay for performance is often found in HR systems that would support innovations.

3) Team development: Martins and Terblanche (2003) have mentioned that cooperative teams are identified by some authors as having an influence on the degree to which creativity and innovation take place in organizations. Cross- functional teams which encourage social and technical interaction between developers and implementers can improve and promote creativity and innovation. These teams should be cross functional, encourage diversity and reinforce individual talents so members could complement each other and cover shortcomings. .

Norms and Behaviors

Norms and Behaviors are mostly about invisible, unwritten parts of culture that have shaped through years based on organization's past experiences. This part is the hardest part to change as it cannot be easily recognized; it is based on beliefs and infiltrated to mental models. These norms can cultivate or inhibit innovation without even being noticed.

Trust

When the degree of emotional safety that employees experience in their working relationships is high, trust makes new ideas surface easily (Ahmed, 1998). Cultures with transparent communication based on trust, have a positive influence on innovation (Robbins and Judge, 2009); Employees should feel emotionally safe and therefore be able to trust one another to be able to act creatively and innovatively (Martins and Terblanche, 2003).

Communication

An organization culture that supports open and transparent communication, based on trust, will have a positive influence on promoting creativity and innovation (Robbins, 1996). An open door communication policy, including open communication between individuals, teams and departments to gain new perspective is necessary for creativity and innovation (Martins and Terblanche, 2003).

Risk Taking

As mentioned above innovation always accompanies ambiguity and facing these ambiguities, it is inevitable to take risks. "Without knowing that risk tolerance exists within the organization, employees tend not to be willing to try and innovate, or engage in activities that are a departure from tradition (Ahmed, 1998)". Cultures that encourage using traditional experienced methods, signal employees that they will be blamed for failures caused by taking risks, so employees should be assured that risk taking is not a reproved action. But employees should also know levels of risk they can take safely and red lines they need organization's ratification passing them. "The best way for leaders

to define the action space, is not to be so precise as to discourage innovation, but to stipulate a broad direction which is consistent and clear (Ahmed, 1998)".

Meso Level:

This level includes elements of environment surrounding the organization. Organizational environment is all elements that exist outside the boundary of the organization and have the potential to affect all or part of the organization (Daft, 2008). Two factors in this level affect the innovation culture of the organization; Industry and Market.

Industry:

Competitiveness of an industry is an important factor for an organization's innovativeness. Being in an industry which other companies strive to innovate will be a key factor forcing other organizations to be more innovative. As (Steele and Murray ,2004) surveyed companies in UK based on their R& D expenditure as the indicator of their willingness for innovation, they realized that industries (such as construction) with lower portion of R& D in their budget; tend to be less innovative as well. Competitive intensity, in a competitive environment enables firms to identify competitors' strengths and weaknesses, and anticipate customer needs and competitors' actions, in turn, is important for product innovation, enabling firms to differentiate new products and   gain an innovation edge over rivals (Read, 1996) .

Waarts and Van Everdingen (2005) through reviewing literature have concluded that severe competition generally increases the likelihood of innovation adoption. The lower the technology turbulence, the stronger the relationship between market orientation and innovation consequences (Read, 1996). In these environments market orientation is less likely to lead to innovative behavior because innovations are often not driven by customer needs but rather by R& D efforts (Glor, 1997).

Market

Top management has to ensure that realistic and accurate assessments of the markets are made for the planned innovation. Highly innovative firms are close to the end users, and are accurately able to assess potential demand (Ahmed .1997). Different factors affecting this adaption rate. Demographic, economic, geographic and legal factors often affect the adoption of different products differently (Lock and Kirkpatrick, 1995). Also the product characteristics and its relative advantage, as perceived by members of a social system, are positively related to its rate of adoption (Read, 1996). Differences in new product diffusion patterns tend to vary across product categories (Waarts and Van Everdingen, 2005).

Macro Level

In macro level, lays the national characteristics which will influence the innovation culture of an organization. National culture reflects patterns of thinking, feeling, and acting rooted in common values and conventions of a society, so as corporations are part of societies; corporate cultures will be influenced by national cultures to varying extent (Hofstede , 2001).

Reviewing literature we can find out that most of national culture studies was conducted around Hofstede dimensions. (Waarts and Van Everdingen ,2005) in their paper about " Influence of national culture on the adoption status of innovation" have mentioned that so far, the cultural dimensions of Hofstede(1983)have been applied in innovation studies explaining national innovativeness, cross- national consumer innovativeness and business- to-business adoption and diffusion. Initial model included four dimensions: power distance, individualism, uncertainty avoidance and masculinity (Hofstede, 1983).

Power Distance Index (PDI): According to Hofstede, organizations in countries with high power distance are often characterized by centralized decision structures, authority, the use of formal rules, and the sharing of information is constrained by hierarchy. High levels of centralization and formalization have been found to be associated with lower rates of innovation adoption (Read, 1996).

Uncertainty Avoidance Index (UAI): Organizations in countries with a high uncertainty avoidance index generally show characteristics such as the resistance to innovations, highly formalized management and the constraining of innovations by rules (Hofstede,2001). In high UAI cultures, risk- adverse attitudes imply that companies will not take unnecessary risks and only adopts innovations if its value has already been proven in the market.

Masculinity Index (MAS): This Index expresses to what extent a national culture is characterized by masculine relative to feminine values. Feminine cultures are characterized by values like equality, solidarity, social relationships and managers' use of intuition and seeking consensus. In contrast, ambition, competition, material values and the focus on performance characterize masculine cultures. (Hofstede, 2001) suggests that in

organizations in masculine cultures emphasis is on rewards and recognition of performance, and moreover training and improvement of the individual, both characteristics that are common to innovative organizations. West and Farr, (1990) suggested a positive relationship between achievement motivation and innovativeness. Hence, masculinity may affect the firm adoption status positively.

Long- term Orientation Index (LTO): Long- term orientation is a newly defined dimension in the Hofstede scheme. Cultures with a long- term orientation are characterized by values like persistence, adaptations of traditions to new circumstances, personal adaptability, and the idea that most important events in life will occur in the future. Companies in cultures with a long- term orientation focus on future results, and are more receptive to in- depth investments in long- term changes of the firm than companies operating in a short- term orientation culture with a focus on the past and quick wins.

11. Conclusion

In today's turbulent and competitive world, organizations have become interested in innovation as a competitive advantage; but trying to be innovative, organizations may fail. Searching for reason, literature suggests culture as a factor in this process. Reviewing literature, different researchers have approached culture from different aspects, so we can conclude that culture has different levels and dimensions. But as most of the extant models, have a unidirectional view toward culture; literature still lacks a comprehensive model that clarifies different aspects and levels of innovation culture.

We defined innovation culture as a context which plays a mediating and repository role in transferring organization's effort to the result which is success or failure. This definition describes innovation culture as a context surrounding the organization, which plays a mediator role in success or failure of organization's intention and activities to be innovative. It also bolds its role as a repository, which through knowledge acquired and experience gained in the process, culture changes organization's context (structure, norms, strategies, etc); so the organization can use this knowledge and experience in the future. In this paper we reviewed literature to find factors affecting innovation culture and organized them to propose a model for better understanding of the innovation culture. The model proposed includes four levels for these factors and several dimensions for each level.

In the first level it lies personal traits which will lead to creativity, in literature we can find that creative employees are considered as a resource for innovation and lack of that will lead to less innovation.

In the second level, Micro level, we introduced organizational factors affecting innovation culture. This level is especially in the interest of organization's researchers, so the literature is richer here. This level includes seven different dimensions; these dimensions are varied and diverse and include different areas of management science; from tangible factors such as structure and strategy to intangible factors such as norm and behaviors. Different indicators for each dimension are introduced to give better perception of the issue.

Third level or Meso level contains factors from organizations environment, two dimensions lie in this level, Market and Industry. From market, rate of adoption affects innovation culture, if an innovation is not adopted in the market this will inhibit organization from further innovations and will hinder innovation culture. Or if the organization works in an industry which competitiveness is not a vital factor, it may affect the intention of the organization to be innovative, but if the competitiveness of the industry is high, the organization will be forced to innovate to survive and this affects the innovation tendency and innovation culture.

In macro level, we used national culture factors and for this purpose we used Hofstede national culture dimensions. Reviewing literature you can find that different nations differ in rate of innovation and this is said to be related to national characteristics and Hofstede dimensions are credited in literature for interpreting these characteristics. So we introduced these factors.

In this paper main focus was to find factors influencing innovation culture and design a model to as a mediator and repository. But some issues still remained unaddressed; definitely there are more factors remained unnoticed that should be found and be included in the model in further studies. Also relationships between these factors were not studied in this review, but it seems to be an important factor, especially for measuring organizations cultural integrity.

Some factors seem to affect each other especially in micro level, some factors like trust, leadership and involvement. Also different levels also may have influence over each other. Macro level seems to have influence on Meso, Micro and Nano level. Meso level may affect Micro level and Nano level affects Micro level. Further studies can be about finding empirical evidence for that. So a subject for further research can be analyzing these relationships.

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Table 1. The proposed model

Industry		Market	
Competitiveness of Industry		**Market Rate of Adoption**	
PDI	**UAI**	**MAS**	**LTO**
- Power Distance Index	- Uncertainty Avoidance Index	- Masculinity Vs. Femminiy	- Long Term Orientation Vs. Short Term Orientation

Table 2.

Personal Traits	
• High valuation of aesthetic qualities in experience • Broad interests • Attraction to complexity • High energy • Independence of judgment • Intuition • Self- confidence	• Ability to accommodate opposites • Firm sense of self as creative • Persistence • Curiosity • Energy • Intellectual honesty • Internal locus of control (reflective/ introspective)

Strategy	Structure	Technology	Human Resources	Norms and Behaviors
Mission & Vision Goals & objectives Market- Orientation	Centralization Flexibility Autonomy	Availability of proper technology	- Training - Reward System - Team Development	Trust Risk-taking Communication