Organizational unlearning and radical innovation: conceptualizing a new relationship

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Abstract

Purpose – Literature establishes that innovation is one of key factors that contribute positively to both firm performance and sustaining competitive advantage. In the domain of innovation management and organizational learning a number of researches have been made in explaining that how organizational learning positively affects the innovation outcome however a few researches have conceptualized the link between 'organizational unlearning' and innovation outcome. This research aims to contribute to the body of knowledge by conceptualizing relationship between organizational unlearning and a specific innovation outcome: radical innovation.

Design/Methodology/Approach – Based principally on the logical support from the relevant literature, this study conceptually develops a new and unique argument that links-up organizational unlearning with innovation outcome.

Findings – The research contributes to two key academic streams i.e. innovation management and learning perspective on an organization. Backed up by literature it attempts to develop theoretical arguments on how organizational learning and most importantly organizational unlearning relate to two popular types of technical innovation i.e. radical innovation and incremental innovation.

Practical Implications – For producing radical innovations, organizations should first 'unlearn' new knowledge and discard the previous so that the radical innovation they intend to develop fundamentally appears to be radically innovative.

Originality Value – This conceptually grounded study is unique and first of its kind to conceptualize the possible positive transformation of organizational unlearning into radical innovation. Based on principal conceptual congruency between the underlying logics of organizational unlearning and radical innovation, it reports a positive relationship between both of these.

Keywords Innovation, Organizational unlearning, Organizational learning, Radical innovation, Incremental innovation

Research Type Conceptual Paper

1.0. INTRODUCTION

In today's highly turbulent and dynamic conditions, environment changes that are discontinuous are difficult to manage for the firms because such disruptive changes force firms to renew their set of products and services regularly as these can become outdated quickly. Developing such innovative product architectures not only require the firms to destroy their existing competencies of the firms, but also change the industry economics through the way of creating new value networks (Christensen & Rosenbloom, 1995). In such a scenario, innovation is regarded as one of the primary driving forces behind firms' long term success in global competitive markets. The logic is obvious: firms which have greater capability to innovate through renewing their knowledge base are in a better position to respond quickly to the environmental challenges and uncertainties (Cepeda-Carrion, Cegarra-Navarro, & Jimenez-Jimenez, 2012). Existing literature has conceptualized innovation in number of perspectives depending primarily on the context or viewpoint from which it has been studied. It has been conceptualized both as a process and as an outcome. Damanpour and Gopalakrishnan (1998) define innovation as an *"adoption of a new idea or behavior by a firm"*

Moreover, literature reports two main streams of innovation: administrative innovations and technical innovations. Administrative innovations are the ones that include creation of new organizational routines, policies processes and procedures while technical innovations, on the other hand, refer to the development of new technologies and products (Dewar & Dutton, 1986). Than in technical innovations four subtypes of innovations have been identified: Incremental innovation, radical innovation, modular innovation and architectural innovation.

According to Henderson and Clark (1990), 'radical innovation' is the innovation different from 'incremental innovation' and 'architectural innovation'. In contrast to both, radical innovation typically involves a newer set of skills and knowledge and often results in a newer and unique product. In this regard, organizational learning has been identified as a potential driver that drives such innovation outcome (Henderson & Clark, 1990). Garvin (1985) has written extensively on organizational learning in his book. According to him, organizational learning occurs via shared knowledge, shared insights and shared mental models that build upon the past experience and organization memory. However a newer paradigm on learning of organization is emerging referred to as 'organizational unlearning'. Organizational unlearning is a dynamic learning process that enables the firm to identify and

eliminate the knowledge and routines that has become obsolete or outdated and finally acquire the newer knowledge (Leal-Rodríguez, Eldridge, Ariza-Montes, & Morales-Fernández, 2015). Therefore for radical innovation to happen, organizational unlearning appears to be a more relevant precursor as compared to the traditional organizational learning paradigm that appears to be leading to primarily 'incremental innovation'. Organizational unlearning builds upon such a knowledge that is newer, novel and unique, a notion similar to the principle of radical innovation which also happens to occur as an outcome because of the utilization of newer knowledge. Therefore, for incremental innovation to take place that normally involves minor changes, organizational learning can be identified as a potential driving force though but for studying the phenomenon of radical innovation, the emerging concept of organizational unlearning appears more to be more promising and related one.

Thus, this study proposes that for an organization to develop radical innovation, it should begin with 'unlearning' followed by learning. Putting it simple: 'Organizational unlearning' appears to be a better and relatable construct that leads towards radical innovation as compared to organizational learning which tends to fit best in scenario that results in incremental innovation. The remainder of this paper is arranged as followed. The second section presents a brief literature review followed by third section in which the conceptual argument is presented. The fourth section consists of discussion and conclusion.

2.0. LITERATURE REVIEW

The following section presents former researches that have been made so far in the domain of organizational unlearning and technological innovation.

Organizational Unlearning

According to Tsang and Zahra (2008), since the publication of groundbreaking work titled 'How organizations learn and unlearn' by Hedberg (1979) the studies on organizational learning and learning organizations have grown exponentially in the domain of organizational research. Fact of the matter is that literature has now piled up with studies of 'organizational learning'. The concept of 'organizational unlearning' however has received little attention by researchers so far. First school of thought considers organizational learning and organizational unlearning as entities on the opposite extremes on a continuum whereas the second school of thought conceives organizational unlearning as a precursor of organizational learning.

Before explaining organizational unlearning, firstly organizational learning and unlearning should be differentiated because both concepts are knitted closely. Organizational learning is a continuous process of drawing conclusions from history and integrating these into ongoing routines that guide behavior (Tsang & Zahra, 2008). Organizational unlearning, on the other hand, refers to the departure from old routines or practices thus paving ways for new ones. Organizational routines being referred here are actually recurring behaviors of organizational members that perform organizational tasks (Wong, Cheung, Yiu, & Hardie, 2012).

Organizational unlearning is an intentional process i.e. 'discarding or abandoning old routines' which clearly implies that unlearning happens because of a deliberate intention. Here unlearning should not mixed with organizational forgetting which happens involuntarily or unintentionally as a natural corrosion of organizational knowledge (Darr, Argote, & Epple, 1995). Literature reports that, organizational learning and organizational unlearning may take place simultaneously or more precisely: organizational unlearning happens first that is later followed by organizational learning because organizational members learn to embrace new routines while discarding the old routines. Moreover, unlike the construct of organizational learning which can be studied differently through behavioral and cognitive approaches with each having its advantages and disadvantages, the construct of organizational unlearning incorporates both cognitive and behavioral dimensions. Behavioral in a sense that organizational routines are actually the repetitive patterns of behavior and cognitive in a way that organizational members attempt to realize and make sense of the actions or routine activities they perform.

It should be noted here that organizational unlearning happens as a result of individual unlearning. Individual unlearning refers to the situation when the organizational members realize that the specific knowledge they own is of no longer usefulness or validity. Thus when a greater proportion of organizational man power pool stops enacting specific routines, individual unlearning begins to take place which in turn transforms into organizational unlearning (Tsang & Zahra, 2008). Organizational unlearning can take place in each of the two ways: either through continuous change or through episodic change.

Organizational unlearning through continuous change

In continuous organizational change the existing organizational routines are continuously updated. As a function of gradual learning process, organizations make day to

day adaptations in responding to the continuous changes that take place in the external environment. Organizational unlearning just like organizational change, is also gradual. It's more like a continuous process that runs more or less side by side with organizational learning (Weick & Quinn, 1999).

Organizational unlearning through episodic change

According to Weick and Quinn (1999) organizational change that is episodic in nature is often intermittent, infrequent and particularly intentional. Unlike continuous change, it takes place haphazardly because of external pressures like technological discontinuities or it may be as a result of an intention to develop an idea or product that is totally radical in nature. As compared to continuous change, the episodic change holds greater strategic content, deliberate and has a far wider scope. This implies that individuals at organizations have to unlearn the existing organizational routines and embrace the new ones while working on innovative ideas (Tsang & Zahra, 2008).

Technological innovation and its types

Literature identifies a number of different innovation kinds. However, four key types of innovation are the widely cited ones. Incremental innovation, radical innovation, modular innovation and architectural innovation. Henderson and Clark (1990) while citing Nelson and Winter (2009) state that incremental innovations are the one that involve comparatively slight changes into the existing product and rely primarily on the already established product design. Radical innovations, on the other hand, are essentially based on a newer set of skills, knowledge pool and scientific principles that fundamentally change the existing product design and so as the product. Thus, for bringing incremental innovation in the product, organization's existing capabilities are the ones which are reinforced while in the case of radical innovation, the firm has the challenge to extract newer knowledge through employing a novel set of technical skills and innovative problem solving approaches.

Drawing inspiration from the original work of Schumpeter's on creative destruction, Henderson and Clark (1990) have developed a framework in which they have classified innovation along two sides: on x axis, the effect of innovation on components is measured while on y axis the impact of innovation on the linkages between the components is measured. Presented in this way, incremental innovations and the radical innovations are the ones that appear on extremes on both of the dimensions. The incremental innovations

are the ones that are based on bringing improvement and extension in the existing design. Though this improvement takes place in individual components but the underlying knowledge and skillset remains the same. Radical innovations, taking a different course, paves their way towards establishing a new dominant design based on the new set of knowledge and skills embodied in the components linked together.Tushman and Anderson (1986) go far even in outlining the difference between the two types of innovations by referring incremental innovations as 'competence enhancing' as it builds on the existing core competencies (knowledge base) of the firm and radical innovations as 'competence destroying' since it discards the usefulness of the existing knowledge.

Radical innovation inclines to be noticeably radical in nature thus requiring the innovative ways of learning new skills and knowledge. Moreover, as radical innovations primarily involve great changes in the existing product design, it becomes obvious that knowledge about the existing product design i.e. how components interact with each other becomes obsolete (Henderson & Clark, 1990).

3.0. RESEARCH METHODOLOGY

Taking lead from the relevant literature, this study attempts to seek the answer a core research question:

RQ1: How and why 'organizational unlearning' is more powerful and relatable construct than 'organizational learning' that leads to radical innovation?

To find a compelling answer to the aforementioned research question, literature has been broadly reviewed. Continuing the debate started in the previous section; this section extends the discussion by quoting in detail the existing researches and concludes with two key propositions based strongly on the literature support.

Unlearning and Innovation: Existing researches

According to Gabriel Cegarra-Navarro, Sánchez-Vidal, and Cegarra-Leiva (2011) organizational unlearning actually mediates that effects of knowledge exploration and knowledge exploitation on the performance of organization. This judgment clearly signals that organizational unlearning is actually the real motivating and driving force behind the employees to not only make use of their existing knowledge, but also to create new

knowledge, ingredients that are of prime importance while leading to innovation. Thus, as stated earlier as well, organizational unlearning leads learning which eventually results in successful innovations.

Learning is a continuous process of acquiring, integrating and interpreting new knowledge with aim to use it afterwards (Casillas, Acedo, & Barbero, 2010). Holan and Phillips (2004) explain unlearning as an organizational mindset in which organization deliberately ignores the knowledge that hinders firms' ability to effectively reach its organizational goals because in an environment characterized by turbulence and dynamism organizational knowledge becomes obsolescent quickly. Such a quick uselessness of organizational knowledge pushes organizations to refurbish and renovate their knowledge pool regularly. This rapid renewal of knowledge pool is actually referred to as 'unlearning' and for unlearning it is necessary to first discard the existing knowledge and then acquire the new one. As a dynamic and vigorous process, this routine-based approach of unlearning can enable the organization to recognize the knowledge and routines that have become obsolete and then eliminating them before acquiring new knowledge. Conclusively, replacing the knowledge that has become obsolete is essential for such organizations primarily that embark on the way of introduce innovations that are discontinuous or radical in nature as radical innovation are always based on new ideas and new knowledge (Cepeda-Carrion et al., 2012).

Connecting the missing link of 'unlearning and radical innovation'

A radical innovation is more like the creation of a new line of business, new not only for the firm but for the market as well. 'New' actually refers to the fact that the product has not only exceptional performance features but also offers five to ten times more improvement in performance relative to its cost. The first personal computer was a radical innovation whereas the subsequent improvements in it were incremental innovations. Similarly in the field of diagnostic imaging, MRI – Magnetic Resonance Imaging was a radical innovation. These innovations were radical in a sense that these required the creation of an entirely new market having a unique and first of its kind infrastructure and most importantly because these provided the customer an entire new experience and a heightened level of functionality (O'Connor, 1998). Actually 'Radical innovation arena' has been long defined as that field where both the technical uncertainties and market uncertainties are high. Technical uncertainties include questions related to soundness of existing scientific knowledge like whether the existing technology will work or not. Market

uncertainties refer to issues related to customer needs and wants i.e. will the new product create an entirely new market and will it be able to match customer needs and wants. So unlike in incremental innovation, while pursuing radical innovation, an organization has to carefully respond to these two levels of uncertainties (Leifer, O'Connor, & Rice, 2001).

In the case of incremental innovation, customers may provide any key input to the firm but the case of radical innovation is different. Here, customers are unaware of their requirements about the products that require a different set of behaviors and have novel applications. Therefore, depending on the customers may be misleading if the radical innovation is not really useable to the existing market. Furthermore and perhaps most important of all, organizational memory also impedes organizational creativeness. Strong pre-established organizational routines, procedures and practices forcefully prevent organizational members to take actions other than pre-defined patterns (O'Connor, 1998). This is the point of time where organizational unlearning actually comes into play. Organizational unlearning refers to the departure from old routines or practices thus paving ways for new ones. It's more like an intentional process in which the organizations deliberately 'discard or abandon old routines'. So when an organization goes through an 'unlearning' phase, it disposes of existing patterns, procedures and routines that may likely impede its ability to develop products that are radically innovative. This argument of the current research also appears to concede with statement of Wong et al. (2012) in which they propose that before trying out new ideas to develop innovative products, organizations must first unlearn the old ones by systematically identifying the insufficiencies and then disposing them. So, based on this whole argument, the first proposition of this conceptual study is furnished below grounded on the premise that the 'change' dimension of organizational unlearning positively contributes towards the radical innovation outcome.

Proposition 1: *Organizational unlearning positively affects the radical innovation outcome of an organization.*

Through unlearning, organizations essentially nurture a capability that enables the organization and as well as its members to continuously maximize their abilities to develop and articulate new knowledge, tools and thus new products i.e. radical innovations. Products that are entirely innovative in nature serve as the basis of economic growth for number of organizations that is why the markets of present times are vividly characterized by fierce competition. Today, organizations are working aggressively on bringing radical innovations in the form of blockbuster products before their competitors do. These are spending billions

of dollars in research and development in attempt to successfully develop radical innovations (Sorescu, Chandy, & Prabhu, 2003) because according to Chaney, Devinney, and Winer (1991)**,** as compared to incremental innovations, radical innovations turn out to be more valuable for firms. Graphically this can be presented as illustrated in figure 1.

Figure 1: Organizational unlearning and radical innovation outcome

The case of incremental innovation

An incremental innovation introduces comparatively trivial changes to the existing product and is primarily based on exploiting the already established product design (Henderson & Clark, 1990). In simple terms, incremental innovations are the improved versions of existing products (Ritala & Hurmelinna-Laukkanen, 2013) and these innovations refine and extend the established product design. Though improvement takes place in the individual components but the underlying product design and core architecture remains the same in such innovations. More or less these innovations are 'competence enhancing' because these tend to build up on existing core competencies of the firm. Such innovations are produced principally through knowledge exploitative processes that are built on existing routines, practices and procedures to meet the needs and wants of existing customer base that is why unlike radical innovation, in incremental innovation, customers play an integral role in providing input in incremental products because not only the customers know their requirements, but also the incremental products being produced are applicable to the existing market. For this reason, incremental innovations are easily recognized and get quickly diffused in the market because of greater familiarity identified by the existing users. Not only this, incremental innovations are more foreseeable, proximate and less risky compared to radical innovations because of the fact that these innovations are built up on existing knowledge (Yamakawa, Yang, & Lin, 2011).

The discussion above gives a clear impression that incremental innovation is based on not only exploring new knowledge (which most of the times derives from customers) but also exploiting the existing knowledge base that the firm has already in its knowledge repository. This phenomenon of exploring new knowledge and exploiting existing knowledge is usually extracted through organizational learning that involves knowledge exploration and as well as knowledge exploitation. Organizational learning is a dynamic process and more like a knowledge-based resource capability in which firms procedurally establish and cultivate organizational knowledge by systematically balancing acquisition of external knowledge and making use of the existing one (Hung, Lien, Yang, Wu, & Kuo, 2011), result of all which is reflected in bringing improved versions of the products. Therefore, based on such potentially promising direct relationship between organizational learning and incremental innovation, the second proposition can be postulated as:

> **Proposition 2:** *Organizational learning positively affects the incremental innovation outcome of an organization.*

4.0. DISCUSSION AND CONCLUSION

From the viewpoint of organizational learning, knowledge capacity of the firm enhances the innovative performance of the firm. As a result, innovation stems out from the knowledge assimilation in the R&D department in the form of product that is either entirely new (a radical innovation) or simply an improved version of the existing product design (incremental innovation).

This study conceptually contributes to two key academic streams i.e. innovation management and learning perspective on an organization. Backed up by the relevant literature, this study attempts to develop conceptual arguments regarding how organizational learning and most importantly organizational unlearning relate to two popular types of technical innovation i.e. radical innovation and incremental innovation. Existing studies have extensively conceptualized and empirically established the positive effect of organizational learning on innovation outcome however fewer studies have taken up the issue to investigate that how organization unlearning may affect innovation outcome. This conceptually grounded study is unique and first of its kind to conceptualize the possible positive transformation of organizational unlearning into radical innovation. Based on principal conceptual congruency between the underlying logics of organizational unlearning and radical innovation i.e. organizational unlearning implies and asserts learning of 'new'

knowledge by discarding the old routines and the radical innovation as an outcome which appears to occur only when a new knowledge is harnessed, a clear cut relationship appears to be established between the former and latter. Moreover, because of rapid environmental dynamism, there can be instances that a specific knowledge may become obsolete with the passage of time and to cope up with it, renewal of the knowledge pool becomes necessary. In this context, organizational unlearning (as a source of change in beliefs and routines) is a key enabler in developing organizations' ability to respond timely to rapidly changing markets and turbulent environments by adding up new knowledge that results in radical innovations.

Our study also conforms to the conclusions of Cepeda-Carrion et al. (2012); Ribeiro Soriano, Cepeda-Carrión, Gabriel Cegarra-Navarro, and Leal-Millán (2012) according to which it becomes necessary for the organization to replace its old knowledge repositories with the news ones if it aims to develop innovative products or services. A recent study also reports that nurturing organizational unlearning not only positively influences firm's innovativeness but also enables the firms to actively sense, anticipate and respond to the rapid environmental changes (Leal-Rodríguez et al., 2015). Secondly in the case of incremental innovations, ones that involve minor product changes, organizational learning can be regarded as a primary driving force because it not only centers on exploring new knowledge but also exploiting the existing one to bring innovation. So, if the case is that the firm isn't providing any new product that is radically innovative in nature, and is focusing on the existing knowledge, organizational learning can be a potential source of it. Moreover a number of existing researches have established the positive relationship of organizational learning with the innovation outcome.

Though suffering from the limitation of empirical support, this study advances an attempt to establish the argument that for radical innovation to take place firm must 'unlearn' because then these will be able to reap the benefits of new knowledge added to organizational knowledge repository.

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