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Exploring the Role of Managers in Nurturing Disruptive Innovations

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Abstract

This paper presents a conceptual framework of managerial activities to foster disruptive innovations. Despite wide recognition of managerial role at middle and lower tiers of organization towards shaping its long-term strategy, the existing research, so far, has lacked in explicitly explaining the managerial activities directed towards the development of disruptive innovations. Authors explored the extant literature on disruptive innovation theory and identified three phases of the disruption process where managers at the middle and lower tiers can play an active role. The authors named this role of managers as their disruptive innovation activities (DIA). Furthermore, manager's DIA is explored in the context of existing antecedents of manager's strategic activities and a conceptual framework is proposed along with a resource map for future research, in this direction.

Keywords: *Disruptive innovation, strategic management, disruptive innovation behavior, managerial role.*

1. Introduction

Disruptive innovation theory has been widely discussed in literature since, Clayton Christensen popularized it through series of articles and later in his book '*The Innovators Dilemma*' in the 1990s. Disruptive innovations usually underperforms along the performance dimensions valued by the mainstream customers. However, they offer value to the customers through alternate features. Overtime, these innovations are improved sufficiently to compete with the existing market leaders or may even exceed in performance; thus shifting the balance and disrupting the existing market networks (Christensen, Raynor, & McDonald, 2015). The literature on disruptive innovation theory suggests that in such dynamic environment, the organization's success or failure may depend on the competence and intuition of their managers

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(Henderson, 2006; Vecchiato, 2017; Yu & Hang, 2010a). Managerial activities in this direction may prove pivotal, in the longer run. The research, particularly in strategic management (see Wooldridge, Schmid, & Floyd, 2008) indicates that any pulse generated from the market enters the organization through various channels, and managers at the first decision making tier are often in a better place to identify, evaluate, and initiate alternate course of action (Bill Wooldridge & Floyd, 1990). More often, the fundamental structure of strategic proposals take shape at the middle and lower tiers of hierarchical enterprises (Yu & Hang, 2010a). Here, the middle or lower middle managers occupy positions between top managers and first level supervision (Harding, Lee, & Ford, 2014; Wooldridge et al., 2008). Studies have also indicated that over the years, the role of front line managers has transformed from implementers to a primary source of entrepreneurial initiatives (Radaelli & Sitton-Kent, 2016). The importance of this ever-evolving role is evident by historical case studies. For example, the strategic exit of Intel from memory business reminds us the importance of managers at middle tiers who acted as a bridge between the front line and the top to develop core competence (Burgelman, 1994).

Having known the importance of managers in organization settings, the knowledge about their role in fostering disruptive innovations is scarce (Weeks, 2015). In the existing literature, a few studies have touched upon this important aspect (for example, Danneels, 2004; Denning, 2005; Tellis, 2006), however, the emphasis of such literature has mainly been towards the top management team (TMT) or senior managers. This creates an impression that TMT and senior managers are the only key decision makers who set direction, develop strategic solutions, and move disruptive ideas into motion. On the other hand, managers in the middle and lower tiers of the organization play an operational role and follow the senior management's guidance and the direction they set through chosen solutions. This impression of managers, in the middle and lower tiers, is that of uninfluential, peripheral, and reactive implementers who are not involved in the development of disruptive innovations (Zimmermann, Raisch, & Cardinal, 2018), which is inconsistent with the findings of studies in similar domains. For example, Zimmermann et al. (2018) found that frontline managers play a proactive role in initiating strategies. Similarly, Heyden et al. (2017) in a study on employee support to organizational change found that change initiated by middle managers engender a higher level of support from above average level employees as compared to the change initiated by top managers. These findings complement the point of view of Yu and Hang (2010b) that middle managers have the most to lose in any basic change and their actions, on the ground, usually defines the future discourse of the organization, in the long term. This leads us to believe that besides proactively developing a competitive advantage for the firm, a solution to failure of incumbent firms in the dynamic market may have a foothold in the middle and lower decision-making tiers of the organization. Hence, there is a need to explore and explicitly identify the role of managers in the middle and lower tiers, towards fostering disruptive innovations.

The purpose of this conceptual paper is to stimulate research on the role of managers in the middle and lower tiers of hierarchical organizations in nurturing disruptive innovations. The review of extant literature indicates three phases of the disruption process (*i.e.* introduction, evolution and convergence) where managerial actions may help to initiate and/or expedite the process. The authors named this role of managers as their disruptive innovation activities (DIA). The authors further explored the potential antecedents to DIA and proposed research questions regarding the internal, external, and personal aspects which may precede the quest of managers to pursue disruptive ideas and provide direction for future research.

2. Literature Review

Since its inception in 1990s, the theory of disruptive innovation has been researched from various lenses (Christensen, McDonald, Altman, & Palmer, 2018). At cognitive level, Vecchiato (2017) highlighted the strategic beliefs of Motorola managers during 1990s, which kept the firm focused on the esteem market they had historically served, while the managers in the entrant firm *i.e.* Nokia, identified and addressed the needs of the new esteem market. Eventually Motorola's lost its market leadership. However, Nokia met with similar fate during 2005-2010 when the internally focused fear of managers in the middle tiers reduced the negative information flow to the top, keeping them overly optimistic about the organization's technological capabilities and neglected long term investments in developing innovations (Vuori & Huy, 2016). Similarly, Lettice and Thomond (2008) during their study highlighted rejection strategies that were employed by the managers to prevent resource allocation to disruptive innovation development initiatives. The authors proposed utilization of graphical portfolio maps to present the holistic view of innovation activity and recommended the formulation of a strategy to prevent domination of one person or a group from the resource allocation process through improved dialogue and communication.

One of the key characteristics of disruptive innovations is the evolutionary process that gradually increases the attractiveness of such innovations to mainstream customers (Kumaraswamy, Garud, & Ansari, 2018a). Interpretation of this evolution process by the managers profoundly influenced future investments of an organization (Parry & Kawakami, 2017). Parry and Kawakami (2017) argued that interpretation was the most important function the organizations perform, and every other organizational activity and the outcome was dependent on the interpretation process. Different stakeholders interpret any technology or innovation in a different way, which eventually guides the understanding of problems and their solutions (Kumaraswamy, Garud, & Ansari, 2018) . On higher levels, Tellis (2006) proposed that success and failure of incumbent firms largely depend on their internal cultural aspects, especially visionary leadership that anticipates the changing market dynamics and is willing to cannibalize existing assets to serve customers at the underserved or new market segments. Yu and Hang (2010b), argued that entrepreneurship, risk-taking, flexibility and creativity should be made an integral part of internal culture to facilitate the development of disruptive innovations. Yu and Hang (2010b) further reiterated the arguments of Christensen (2000) that people in direct contact with the market and technologies are a far more productive source of innovative ideas for new business growth than specialists, analysts, or business development departments. Consistent with these thoughts, Hang, Garnsey, and Ruan, (2015) concluded that disruptive innovation is a process and entrepreneurship efforts and actions are crucial to its development.

Resource dependence theory (RDT) provides further insight which may help in describing the managerial role to foster disruptive innovations (Pfeffer & Salancik, 1978). According to RDT, customers and investors dictate firm's resource allocations, since, the resources required to sail the firm are acquired from them. One possible solution given by Christensen (2006) to overcome the resource dependency problem is to spin out a separate team or organization to align customer needs to disruptive opportunities. However, such solution is only feasible when the disruptive strategy has been developed and receives a wide support within the firm and from shareholders. Weeks (2015) noted uncertain outcome of such spin offs. The author quoted the example of Kodak and Teradyne, who experienced opposite outcomes, although both firms set up autonomous units to develop disruptive concepts.

The authors believe that during the early stages, managers must nurture disruptive ideas while outmaneuvering the limitations of organizational procedures and policies. The proposed strategy is consistent with the point of view, as argued by Danneels (2004), Henderson (2006) and reiterated by Yu and Hang (2010a), that senior management may not comprehend the potential of disruptive innovations because their beliefs and thought process is deeply entrenched and largely based on past experiences and competencies. This belief is supported by historical case studies. For example, In Intel Corporation in mid 1980s Les Kohn learned from several more straightforward attempts at RISC processor approval process that an approach which supported rather than challenged the status quo would be more likely to succeed. He disguised his product and sold the RISC processor design to top management in Intel as a co-processor rather than a standalone processor in anticipation of getting the product approval. By the time the top management realized what their co-processor was; customer base was already lined up for the stand-alone processor. In 1989 top management finally decided to amend the corporate strategy to incorporate the RISC chip business (Burgelman, Christensen, & Wheelwright, 2009).

The reviewed literature offered a valuable understanding to disruptive innovation theory from managerial perspective. *However, these accounts lack explicit insight into the role of managers in the middle and lower tiers of the organization to help foster disruptive innovations.* Disruptive innovations usually have lower short term returns due to their unique diffusion pattern (Yu & Hang, 2010b). Hence, despite of available resources, pursuit of disruptive innovations is considered, a less desirable endeavor and strategic exit might become difficult, in dynamic environments (Burgelman, 1994). In the longer run these innovations, however, have a significant impact on the market dynamics, and the role of managers in the middle and lower tiers may have a greater significance than commonly perceived. Therefore, clear identification, and the explanation of managerial role to foster disruptive innovations is vital to enhance our understanding on the subject from theoretical and practitioners' perspective. In this direction authors proposed a conceptual framework for the role of managers to nurture disruptive innovations.

3. Development of a Conceptual Framework

The role of managers at the middle and lower tiers of a modern enterprise are critical for its survival (Marginson, 2002). Their actions shape the strategic options an organization may need to outmaneuver the competition in the longer run by developing new core competencies. The recognition of such opportunities during various phases of the disruption process, while overcoming the norms and status quo, is a challenge for the decision makers. Although, in existing studies, links have been established between different organizational antecedents and disruptive innovations (Yu & Hang, 2010b), the individual level actions that need to be incentivized and are directly linked to the exploitation of disruptive innovation process needs to be defined formally. Moreover, identification of the organizational and individual level antecedents of the manager's DIA is a challenge and requires due deliberation to develop a holistic view of the concept. In the subsequent paragraphs we explore various perspectives which may influence managers intent to play a positive role in disruptive innovation process. In this direction we identified three broad areas (Table-1), where exemplar studies are available, comprising antecedents of managerial strategic activities (*i.e.* organization and context, structural position, and social-psychological factors) and are presumed to be closely related to managers' DIA.

3.1 Organization and context

Managerial control systems influence managers' 'initiation' or 'triggering' decisions (Marginson, 2002). Administrative controls can have a negative effect on the decision-making capabilities of managers and may alter the location of strategic initiatives which can lead to polarization of their roles. Similarly, simultaneous emphasis on a variety of key performance indicators may form a bias towards one set of measures and against another. Here, the perception by managers regarding the conduciveness of the organization climate to their idea will dictate their decision to pursue it or otherwise.

Various organizational factors influence the managers at the middle and lower tiers to initiate strategic activities. For example, five key factors as identified by Hornsby, Kuratko, and Zahra (2002) *i.e.* appropriate use of rewards, top management's support, resource availability, supportive organizational structure, risk taking and tolerance for failure. Other such factors can be time availability and organizational boundaries as studied by Kuratko, Ireland, Covin, and Hornsby (2005). Similarly, a study by Chen, Berman, and Wang (2014) in public sector organizations found that job security, connections with stakeholders and autonomous motivation are some of the most important predictors of middle managers upward influencing roles. An acculturated view of issue selling is proposed by Ling, Floyd, and Baldridge (2005), where the authors argue that managers at lower tiers of an organization, socialized by different national cultures vary in their choice of issue selling and the degree to which their intent to sell issues is influenced by several contextual cues.

Table 1: Antecedents of Managerial Strategic Activities in Existing Literature

Perspective	Exemplary studies
Organizational structure and context	
Managerial control systems	(Marginson, 2002)
HR practices	(Chen et al. 2014; Hornsby et al. 2002; Kuratko et al. 2005; Mantere, 2005)
Involvement in strategy process	(Mantere, 2005; Vilà & Canales, 2008)
TMT support	(Hornsby et al. 2002; Kuratko et al. 2005; Mantere, 2008; Vuori & Huy, 2016; (Zimmermann, Raisch, & Birkinshaw, 2015)
Formalization and decentralization	(Mom et al. 2009; Zimmermann et al. 2015)
National culture	(Ling et al. 2005)
Structural position	
Network position	(Ahearne et al. 2013; Pappas & Wooldridge, 2007; Rogan & Mors, 2014; Shi et al. 2009)
Hierarchical position	(Dutton & Ashford, 1993; Floyd & Lane, 2000; Wooldridge et al. 2008)

Social-Psychological factors	
Learning goal orientation	(Kauppila & Tempelaar, 2016)
Emotions	(Huy, 2002; Vuori & Huy, 2016)
Rule Adherence & Compliance	(Morrison, 2006) (Parker, Williams, & Turner, 2006)
Risk propensity	(Glaser, Stam, & Takeuchi, 2016; Gomez-Mejia & Balkin, 1989)

3.2 Structural position

A manager's central network position within and outside the organization influences their innovation related activities (Pappas & Wooldridge, 2007). In the similar context Shi, Markoczy and Dess (2009) provides a framework for middle managers to evaluate their brokerage roles. Those managers who recognize how, why and when to apply these brokerage roles are more likely to take advantage of their network position to access the network landscape more accurately. Rogan and Mors (2014) shed some light on the importance of managers' networks (*i.e.* external/internal network density, contact heterogeneity and tie informality) to create a balance between exploration of new business opportunities and exploitation of existing businesses.

Radaelli and Sitton-Kent (2016) offers an interesting insight into micro-practices pursued by managers in middle tiers to affect the travel of new ideas from its appropriation to its stabilization. The authors highlighted the challenge faced by the managers at the middle who lack hierarchical power and/or expertise and at the same time, are empowered, being embedded in the middle, having access to any layer of the firm. However, they reach out with incremental measures and political/tactical caution.

3.3 Social and psychological context

Studies in social and psychological context provides a thought-provoking insight into managerial strategic activities. For example, the results of a study by Glaser et al. (2016) regarding proactive initiatives and performance reconciled two competing views on performance consequences of risk propensity. The authors suggested that higher levels of risk propensity on one hand may increase performance by increasing managers' alertness to opportunities, persistence in the face of adversity, and pace of decision making and on the other hand, it may bias the risk assessment of managers in middle tiers who may overestimate the potential opportunities offered by the initiative and may overlook the associated risks. Here, the authors suggested inclusion of situational strength as a key contingency factor.

The micro level emotions of managers can also influence the macro level organizational and strategic phenomenon, as studied by Vuori and Huy (2016) in their case study of Nokia (during 2005-2010). The results of the study revealed that emotional balancing facilitates the adaptive change at the work group level. Kauppila and Tempelaar (2016) examined the mediating role of learning orientation between general self-efficacy and employee's strategic behavior. The results of their study suggested that general self-efficacy is a focal individual trait that positively influences an individual's strategic behavior and learning orientation acts as a focal self-regulated mechanism that transmits its positive effects on his/her behavior.

The social and psychological factors may have a greater contribution towards explaining managers' DIA. This notion is based on the premise that initiation or exploitation of the disruption process involves on one hand, overcoming deeply entrenched ideals, esteem, belief systems and perceptions (Parry & Kawakami, 2017; Vecchiato, 2017) about organizational routines and on the other hand, dealing with various cultural, personal, communicational and physical barriers. Individual efforts to foster disruptive innovations are expected to stem from their ability and urge to make sense of the surrounding environment and accordingly approach the initiation or exploitation of any disruptive opportunities or otherwise. Authors believe that social and psychological factors will have more predictive value to explain DIA at individual level.

3.4. The process of disruptive innovation

According to Christensen et al. (2015) the emergence of disruptive innovations is the outcome of a long evolutionary process, and would be misleading, if referred to a fixed point of time. Disruptive innovations at the time of their introduction in the market underperform with respect to the performance dimensions most valued by the mainstream customers (Christensen et al. 2006; Husig et al. 2005). However, they offer alternate performance in attributes that are valued by the low end, fringe, detached or niche market segments (Christensen et al., 2018; Christensen et al., 2015). The gradual evolution of the introduced products/services allow performance improvements on attributes valued by the mainstream customers. Resultantly, the acceptance of innovation by the mainstream customers grow positively. With these improvements, the disruptive innovation moves slowly but gradually upwards to the established market segments. A time comes when performance improvements in primary attributes of the innovation on disruptive trajectory converges at the performance demand level of mainstream customers. Entrants on disruptive path improve the performance of their innovations and gradually move upward to high end customers and challenge the dominance of the incumbents and even result in its displacement. Here, it is pertinent to mention that the last phase of the disruption process is the outcome of the third phase, therefore, is out of scope of this paper.

Another dimension to the process of disruptive innovation is the new market disruption (Christensen, 2013). Here, disruptive products/services are so much affordable and accessible, that they enable a whole new population of market segment to do things in a more convenient setting. For example, personal computers and Sony's battery powered transistor pocket radio. The initial customers of these innovations were the first-time owners of such products and did not have prior experience with the earlier generation of same products and services. Similarly, the provision of mobile money option to rural areas of developing countries created a whole new population of banking consumers, while using the existing telecom infrastructure.

3.5. Defining manager's DIA

The authors define manager's disruptive innovation activities (DIA) as follows:

"Manager's innovation related activities which challenge their firms' norms and value networks and are directed towards fostering disruptive innovations"

Based on the description of disruptive innovation process and the definition of DIA, authors proposed two approaches *i.e.* causation and effectuation, which managers may apply to foster disruptive innovations. Managers' DIAs are intended to generate disruptive innovations. Managers may use the two approaches separately or in a mix, depending on the situation that may lead to disruption in a potential market (low end, detached or niche market disruption) or an innovation which will enable the disruption (new market disruption). Nevertheless, these managerial activities directed towards fostering disruptive innovations are spread over three phases of the disruption process.

3.5.1 Phase-1- introduction

The first approach requires managers to focus on discovering the market, considering the improvements the innovation brings along certain performance dimensions. Here, non-consumption is the prime area of interest. The potential customers in the chosen segment must reckon the enhanced performance as secondary and are already over-served on primary performance attributes, since, the customers must be able to extract total utility from the secondary performance improvements, although, the product/service may perform worst in primary performance attributes. This can be termed as effectuation approach, as it begins with the existing means and gradually develops along the rising opportunities in the market. *For example,* the ease of access offered by telecommunications when linked to mobile money linked previously untapped population to alternate banking system.

Considering the second approach, the manager must discover ancillary performance attributes that can satisfy the unarticulated needs of the market. The existing customers of the chosen market segment must be over-served, in terms of core performance attributes (Hang et al., 2011). Moreover, improvements along secondary attributes should be able to get the attention of the mainstream customers once, it starts to co-exist with products/services that meet the expected performance level valued by the mainstream customers. This process follows a causation approach as the goals for market segment to disrupt are determined before discovering ways to achieve it. *For example*, customer portability need lead to the introduction of cellular phones, which initially compromised on the reception quality (Druehl & Schmidt, 2008). Similarly, price and weight were the secondary performance attributes in the handheld electronics' market prior to the 1960s, which were later improved by "Black & Decker" to enable a whole new market to own and use these tools (Christensen & Raynor, 2013).

Both the above approaches require managers to pursue initiatives that may or may not deviate from their work routines and company policies. Since, disruptive innovations are least attractive in the beginning, they do not attract the existing customers immediately, hence, do not enthuse the shareholder, owing to lower short-term returns. If required, the manager must exhibit courage to go against the policy, processes and norms of the organization and market preferences, ignoring the short-term benefits for the existing customers and shareholders. Here, diligent, and convincing correspondence of alternate strategic options to higher management is by all accounts critical (Floyd & Wooldridge, 1992, 1997; Wooldridge et al. 2008).

3.5.2 Phase-2: evolution

The transition to the next phase of the disruption process demands managers to emphasis on development of ancillary performance attributes of the innovation. In this phase improvements are made in the ancillary performance attributes to a level that satisfies the performance demand of the mainstream market. It requires managers to make efforts to build and transform the mainstream customers' perception in favor of disregarded or unarticulated performance value. Here, the proximity of managers to the pulse of customers is the most important source for effective and timely decision making. A decision to gradually reallocate scarce resources from existing products and services must be made for development of disruptive innovation, while overcoming the resource dependency. As the necessary resources are gradually reallocated, this evolution process helps the disruptive product/service to create a foothold in the market.

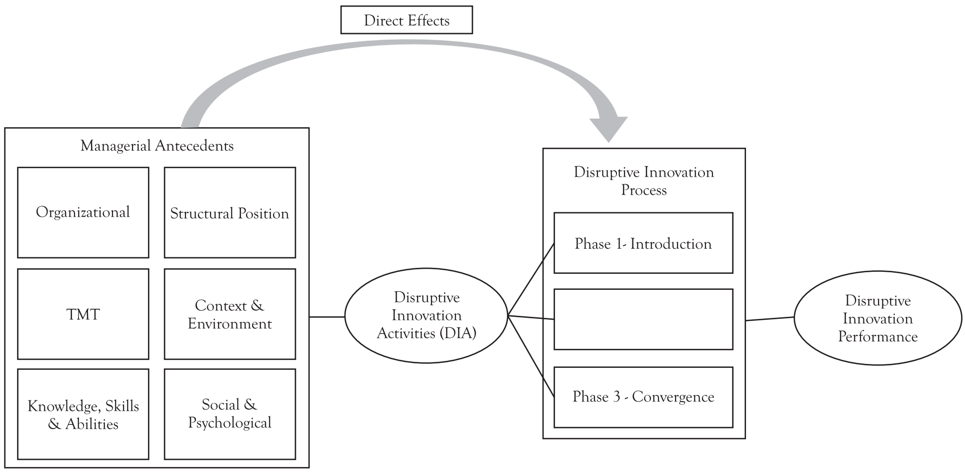

Figure 1: A Conceptual Framework of Manager's Disruptive Innovation Activities (DIA). Source: Authors

3.5.3 Phase-3: convergence

In the next phase of the disruption process, managers must make adequate improvements in the primary performance dimensions of the innovation, valued by the mainstream customers. As the performance value of the primary dimensions of the disruptive innovation converges at the perceived performance value of existing products/services, earlier will provide a greater total utility, considering the additional performance value it offers. Hence, the market preferences and competitive structure will shift towards the disruptive innovation, considering the additional performance value offered by it (Adner, 2002; Christensen et al. 2015). This will gradually replace the legacy products/services.

The next phase is the displacement of legacy products/services in the market, which is the outcome of the third phase, having dependence on various external factors and is independent from the actions of the managers, in the disrupting firm. Hence, it's beyond the scope of this study.

The identification of managerial actions to exploit DI process and its antecedents will remain a challenge, as it usually demands overcoming resource dependence and pursuit of initiatives, conflicting with the norms, and established firm strategy. Authors distribute the managerial antecedents into three broad perspectives *i.e.* internal, external, and personal, which comprise of sub-aspects such as organizational, structural position, TMT, context and environment, knowledge, skills, and abilities. Figure-1 presents the proposed conceptual framework of managers' DIA, suggesting the direct and indirect effects of managerial antecedents on initiation and/or exploitation of the disruptive innovation process.

4. Discussion and Conclusion

The fact that disruptive innovations are not technology-based categorizations, makes them difficult to identify till the last moment, leaving little possibility to develop an adequate response due to lack of predictive value. Because of this issue, research on this subject has been confined to *ex-post* case studies, thus warranting a fresh insight from different perspectives. Through this article authors presented a conceptual framework of managers' DIA and tried to explore its holistic view. The conceptual framework of the manager's DIA presented in this article provides a fresh insight into the role of managers in the middle and lower tiers of the organization to foster disruptive innovations. The nature and scope of the manager's disruptive innovation activities may depend on organizational, social, psychological, and other contextual factors. Therefore, authors explored the holistic view of the manager's DIA from various perspectives and proposed a resource map (see Table-2) comprising questions, suggesting several interesting research directions from the managerial perspective that deserve further examination within the field of disruptive innovation. The resource map comprises of internal, external, and personal perspectives, covering organizational, structural position, the top management team, context and environment, knowledge, skills and abilities and social-psychological aspects. The proposed list is non-exhaustive, and more issues of interest will emerge as the research progresses on the topic. Nonetheless, answers to these questions will help understand the wider perspective of managers' DIA.

Before examining the research questions, proposed in Table-2, operationalization of the construct of the manager's DIA is critical. Therefore, authors call for empirical research to operationalize the construct of manager's DIA. This will help to reveal the contextual, relational, social, psychological, organizational, and strategic aspects of the construct. It would be a welcome development if research from a broad range of disciplines and methodologies is conducted. International and cross-cultural research will further reveal the contextual nature of the manager's DIA by providing comparisons of variations in different cultures and in organizational settings.

It is recommended that further research should embed the issues of managerial activities as relevant to the process of disruptive innovation. The incorporation of the relationships between various managerial antecedents and managers' DIA will be a prolific development. To stimulate research, a resource map is proposed here, comprising potential research questions and their answers will help in developing a holistic view of the concept. While presenting the conceptual framework of DIA, the focus was managers in the middle and lower tiers of established firms. However, man-

Table 2: Resource Map for Future Research on Manager's DIA

Perspective	Aspects	Research Questions
Internal	Organizational	What are the characteristics of an organization where successful disruptive innovations can be initiated by the managers at the middle and lower tiers? How the approach of managers in the middle and lower tiers towards disruptive initiatives differ from that of the senior management? How cross functional barriers in organizations effect the ability of managers to pursue DIA?
	Structural Position	How hierarchical structure influences the ability of managers to pursue DIA? How does the experience of managers influence their ability to deviate from the firm norms and pursue DIA? How network centrality of a manager relates to his/her ability to undertake DIA? What mechanisms managers adopt to overcome structural barriers while pursuing DIA? How hierarchical incompetence hinders the managers DIA?
	TMT	How task orientation of TMT influences managers' DIA? What are the mechanisms managers can adopt to gain TMT support for disruptive innovation initiatives? How TMT's strategic recognition capacity influences managers' efforts towards development of disruptive innovations?
External	Context and Environment	What aspects of national context impact the ability of managers to pursue DIA? How pursuit of DIA by managers vary from one industry to another? How experience of adverse environments stimulates the need to pursue DIA? What is the influence of national political culture on the aptitude of managers to pursue DIA?

Personal	Knowledge, Skills and Abilities	What capabilities and skills at individual level are essential to pursue DIA? How to measure the personal abilities of managers to pursue DIA? How learning orientation of managers influence their ability to exploit the disruption process?
	Social-Psychological	What managerial attitudes manifests the ability to pursue DIA? How bounded rationality influences DIA? How managerial self-interest and personal agendas impact the pursuit of DIA? What is the influence of emotional intelligence on manager's DIA? What is the role of intrinsic and extrinsic motivation in willingness to pursue DIA? How socio-psychological sphere of a manager enables or inhibits the pursuit of DIA?

agers in the middle and lower tiers of established firms are not the only organizational actors, whose activities might shape across the disruptive innovation process. DIA may have wider applicability for strategic change initiated by actors in other hierarchical levels in established organizations as well as in the entrant firms. Moreover, the extent to which managers undertake DIA is expected to vary from one context to another. Future research can build on discussed insights to further expand the understanding of the managerial role in fostering disruptive innovations.

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