

TMT Behavioral Integration, Pathways to Eco-Innovation through Organizational Ambidexterity

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Abstract

Eco-Innovations are the fail-safe pathway for firms to sustain their competitive advantage in a dynamic environment. Eco-Innovations represent the economically, socially, and environmentally sustainable innovations. For years it has been suggested that responsible leadership and top management teams are essential to generating, adopting, and diffusing innovations in firms. Eco-Innovations are no different. In this paper we suggest that Top Management Team (TMT) behavioral integration is a key antecedent of Eco-Innovations in organizations. Further we argue that organizations with 'Organizational Ambidexterity' mediate the above linkage. Organizational Ambidexterity is the ability of firms to balance any two disparate firm level goals simultaneously. Usually, these firm level goals are Exploration and Exploitation. TMT behavioral integration is essential to build 'Organizational Ambidexterity'. In this paper, we propose a theoretical model to explore various structural, climate and cultural elements in the TMT behavioral integration and their indirect effects on 'Organizational Ambidexterity' and 'Eco-innovation'. Since, this paper brings together works on varied fields as 'innovation', 'organizational ambidexterity' and 'upper echelon theory', researchers interested in such cross-disciplinary studies would benefit from this model. The model would be a huge help to practitioners who are constantly on the lookout for the exact recipe to orient their firms as hubs of sustainable innovations.

Keywords: Eco-Innovation, Top Management Team, Upper Echelon, Exploration, Exploitation, Ambidexterity

1. Introduction

In a world where firms try hard to sustain enhanced financial performance, to keep that edge over their competitors, to be better at what they do every day; most often environmental considerations are pushed

afar. Yet, if firms truly need to sustain over years, and do this without harming their natural environment, they need to consider the costs they create to the environment with each step they take towards sustaining their competitive advantage. Continuous innovations are the best way for firms to sustain their competitive advantage. These innovations can cause costs and benefits to the environment. When the costs exceed the benefits, the firm's measures to sustain firm performance, turn detrimental for the society at large. Hence, with each innovation firms should make sure that they are environmentally sustainable in nature.

Environmentally sustainable innovations are called eco-innovations (Hellstrom, 2007). They are inclusive of all measures of relevant actors (firms, politicians, unions, associations, churches, private households) which develop new ideas, behaviors, products and processes, apply or introduce them and which contribute to a reduction of environmental burdens or to ecologically specified sustainability targets. Eco-innovations can be developed by firms or non-profit organizations, they can be traded on markets, and their nature can be widely varied. Innovations can also be developed through social or institutional responses too (Rennings, 2000).

Studies on innovation focus on any one stage of innovation: idea generation, diffusion or adoption or sometimes a combination of these various stages. In this paper we focus only on the generation of an idea for a sustainable ecoinnovation in a firm. The facilitators of eco-innovations in firms at the idea generation stage that rise from within the organization are much similar to the internal drivers of a normal organizational innovation. Therefore, first we did a literature review of the determinants of organizational innovation. In this review we found that the Top Management Team (TMT), Structural Context, and Organizational Climate had special influence on innovative idea generation in firms. Second, we proposed a theoretical model to build eco-

innovations in firms with Ambidexterity mediating the link between the various determinants and organizational eco-innovations.

The purpose of this paper is to trace down the roots of innovative idea generation in firms and find out the role of organizational ambidexterity in the link between the TMT and Innovation idea generation. Since this paper throws light on the inter-linkages of the various facilitators of ambidexterity and innovations in firms, this paper would be of significant relevance to researchers working on ambidexterity and the upper echelons perspective. This paper would also be helpful to the practitioners who are constantly on the lookout for ways to sustain their competitive advantage through innovations in firms.

This paper is divided into two sections. In the first section, literature on the determinants of innovations and its linkages with organizational ambidexterity are explored. The second section presents a theoretical model with definite propositions worthy of future research.

2. Literature Review

1. *Eco-Innovations in Firms*

Eco-innovations developed within organizations are organizational eco-innovations (Rennings, 2000). Organizational innovations are generally classified into product/process, technical/administrative and radical/incremental (Damanpour, 1991). Following this classification organizational eco innovation could also be technical/administrative, radical/incremental, and product/process based. For a comprehensive understanding of organizational eco innovations, the focus of this paper includes all the above mentioned categories of organizational eco innovations. Let us now look at the various determinants of organizational innovations.

2. *Role of TMT*

Previous studies (Li et al, 2013; Smith & Tushman, 2005) have examined TMT as an important antecedent of innovation. The TMT is different from the 'leader' of a firm. A leader includes only the Chief Executing Officers (CEO) of a firm (Hage & Dewar, 1973; Ling, Simsek,

Lubatkin, & Veiga, 2008). Even though the leader of a firm is a part of its TMT, the leader alone does not constitute it. Similar to Hambrick & Finkelstein (1987), Lubatkin, Simsek, Ling, & Veiga (2006: 665) argued that, "no other group including the board of directors has a greater potential for affecting the form and fate of an organization as the small group of senior executives residing at the apex of the organization". This small group at the top with the ability to take strategic decisions in the firm constitute the Top Management Team (Ling, Simsek, Lubatkin & Veiga, 2008).

On reviewing the literature on innovations, it has been determined that the TMT values (Hage & Dewar, 1973), vision (Hoonsopon & Reunrom, 2012), involvement (De Brentani & Kleinschmidt, 2004), assumptions regarding technology acceptance (Claver, Llopis, Garcia, & Molina, 1998), and intrinsic motivation (Pierce & Delbecq, 1977) were all determinants of organizational innovations. Figure 1 shows these effects in a pictorial format.

We see that many of the individual characteristics of the TMT members will influence the innovations in a firm. Much earlier itself, Hambrick & Mason (1984) in their pioneering work on 'Upper echelons perspective' had proposed that the organizational outcomes, such as strategic choices and performance levels, are predicted by managerial characteristics.

It has also been empirically established that the mere presence of top management characteristics alone team does not facilitate new product development (De Brentani & Kleinschmidt, 2004). Other factors such as structural context and organization climate were found to be the other significant predictors of innovations in firms.

3. *Role of the Structural Context*

A structural context denotes the various administrative mechanisms that the corporate management can manipulate to change the perceived interests of the strategic actors in the organization (Burgelman, 1983). These would include administrative mechanisms as: choices of top management regarding the overall strategic configuration, the degree of formalization of positions and relationships, the measures of managerial

performance, and the appointment of middle level managers. On review of the various determinants of organizational innovation, it was found that many such administrative mechanisms were regularly employed to enhance innovation in firms. For example; Pierce & Delbecq (1977) proposed that Organization size, and decentralization will have positive effects on innovation of firms. Hoonsopon & Reunrom (2012) proposed 'centralization' and 'formalization' as features of an organization's structure influencing radical and incremental innovation. Higher levels of centralization and formalization were found to enhance incremental innovation (Hoonsopon & Reunrom, 2012). For example, in 3M, a 15 percent rule is followed. It allows the employees to spend 15 percent of their time on innovative ideas of their own choosing, fairs and technical audits as mechanisms to bring in more participation of employees and create an open organization climate (Brand, 1998). Barsh, Capozzi, & Davidson (2008), found that leaders of a firm could encourage innovation by setting performance metrics and targets for innovation, create a decentralized network of middle managers with an open and positive mindset, turn selected managers into innovation leaders and create opportunities for managing experimentation of ideas. As can be seen, all the above mentioned facilitators of organizational innovation are administrative mechanisms that affect centralization, formalization, participation, and autonomy and employee performance. In other words these are administrative mechanisms facilitated by the TMT in a firm to enhance the interests of the strategic actors of the firm. As earlier mentioned, these administrative mechanisms have been defined as the structural context of a firm (Burgelman, 1983). Of course, other nominal descriptions as HR systems, HR architecture or HR bundles might also refer to some of the administrative mechanisms mentioned above, but, not all. Hence, in this paper we, consider the 'structural context' inclusive of the administrative mechanisms to provide the desired level of centralization (Pierce & Delbecq, 1977), formalization (Hoonsopon & Reunrom 2012; Pierce & Delbecq, 1977), participation (Brand, 1998), autonomy (Brand, 1998), and employee performance (Barsh, Capozzi, & Davidson, 2008), to be significant predictor of organizational innovation. The

TMT decides this Structural context. As explained in the earlier section there is empirical proof to establish the effect of the TMT personal characteristics on organizational innovations. Sinha (2013) proposed that the TMT personal characteristics influence the choice of the structural context too. Burgelman (1983) had suggested that the structural context of a firm and the induced behavior of senior and middle level managers held mutually reciprocal relationships with each other. The senior and middle level managers influenced the structural context of a firm and the structural context in turn influenced the managerial behavior in the firm. Carpenter, Geletkanycz, & Sanders (2004), pointed out that TMT does not exist in vacuum, and as they impact organizational outcomes, the outcomes and organizational context in turn affect the TMT behavior too. Hence, it can be seen that the TMT puts in place a structural context, which in turn influences innovations in firms and also the TMT behavior. Hence TMT behavior itself can be molded with the right structural context. Figure 2 shows these relationships.

4. Role of the Organization Climate

In addition, many other determinants of organizational innovation were also found in the literature review. An innovative culture where the corporate management is willing to take risks, where participation of all firm members are requested, where creativity is stimulated, and where responsibility is shared, were found to encourage more innovation in firms (Claver, Llopis, Garcia & Molina, 1998). With respect to 'Knowledge management', Chen, Huang, Hsiao (2010) had empirically established that, the effect of knowledge management on firm innovation is positively moderated by a supportive organizational climate and decentralized, integrated, and less formalized organizational structure. In this case, the supportive organizational climate indicated a work environment which is sociable, encouraging, open relationship oriented and collaborative (Chen, Huang, & Hsiao, 2010). Studies have argued that social and relational capital enhances innovations (Delgado-Verde, Navas-Lopez, Cruz-Gonzales, & Amores-Salvado, 2011). Perceived Organizational Support (POS) is positively related to innovation in firms (Eisenberger, Fasolo, & Davis-

LaMastro, 1990). Sanz-Valle, Naranjo-Valencia, Jimenez-Jimenez & Perez-Caballero (2011) empirically established that an organization culture with both flexibility and external focus could enhance technical innovation in firms.

On review of the determinants of innovation in firms, the organization climate and culture were both found to be significant predictors in various studies. The differences between climate and culture are now clearly examined to understand whether climate and culture in fact represent the same, similar, or different predictors of innovation. Organization climate is regarded as the way in which the deep structures of organization culture are manifested in the interplay between the situational contingencies, interacting group members, and ultimately the culture itself. Though slowly, culture changes with the outcomes of this interplay too (Moran & Volkwein, 1992). Climate seems to be a reflection of the stronger, more enduring, invisible, preconscious and collective construct of culture, in the form of values, attitudes, and behaviors, with the ability to affect and change the underlying culture slowly (Denison, 1996). Hence though innovation studies might have considered culture as a predictor of innovation, they may in fact have measured the more visible and measurable climate dimensions. Hence in this paper we consider organization climate having the dimensions of participation and shared responsibility (Claver, Llopis, Garcia & Molina, 1998), decentralized and less formalized nature (Chen, Huang, & Hsiao, 2010), flexibility/autonomy (Sanz-Valle, Naranjo-Valencia, Jimenez-Jimenez & Perez-Caballero, 2011), and a strong social capital (Delgado-Verde, Navas-Lopez, Cruz-Gonzales, & Amores-Salvado, 2011; Eisenberger, Fasolo, & Davis-LaMastro, 1990) to be predictors of organizational innovations. In the earlier section, we had said that all these dimensions would be induced in the management behavior by a structural context. As said earlier, the structural context of an organization is defined by its constituent administrative mechanisms. Appropriate administrative mechanisms can bring about the desired level of centralization, formalization, participation, autonomy and employee performance in an organization. (Barsh, Capozzi, & Davidson, 2008;

Brand, 1998; Hoonsopon & Reunrom, 2012; & Pierce & Delbecq, 1977). Hence, it is now clear that the structural context induces the management behavior via an organization climate with the dimensions of openness, flexibility, shared responsibility, decentralized and less formalized nature and a strong social capital. Figure 3 shows these relationships pictorially.

Yet, the basic constituents or the different mechanisms used by firms to induce these dimensions in the organization climate are still unclear. In this paper, we propose a model highlighting the basic constituents of a structural context that facilitates TMT behavior towards innovative idea generation.

5. Organizational Ambidexterity and Organizational Innovations

The National Knowledge Commission Report, otherwise known as the NKC Report (2007: 4), defines Innovation as "A breakthrough or incremental process, occurring systematically or sporadically in a firm, by which varying degrees of measurable value enhancement is planned and achieved, in any commercial activity introducing new or improved goods or services and/or, implementing new or improved operational processes and/or implementing new or improved organizational/managerial processes, in order to improve market share, competitiveness and quality while reducing costs". When an innovation is new to the firm and the industry it is considered as a radical or breakthrough innovation, while otherwise it is considered an incremental innovation (Daft & Becker, 1978). Let us take a closer look at the definition of innovation in the NKC Report (2007). Innovations can occur in firms either systematically or sporadically. Both these sets of innovations could be radical or incremental in nature. Systematic innovation occurs through a series of stages: Idea generation, Idea Conversion to Innovation and Innovation diffusion (Hansen & Birkinshaw, 2007).

Of these stages of systematic innovation process, Forsman (2009) sees the knowledge search behavior/ the idea generation stage, as the pivotal one. This knowledge search could be either external to the firm or within the firm. Authors (Andriopoulos & Lewis, 2009; He &

Wong, 2004) in the past have associated radical innovation with exploration of new opportunities and incremental innovations with exploitation of existing competencies. By definition 'Organizational Ambidexterity' is the organizational capability to balance any two disparate goals; usually exploration of external knowledge and exploitation of internal knowledge (Gibson & Birkinshaw, 2004). As per this definition, ambidextrous firms could also be interpreted as firms who innovate radically and incrementally simultaneously. In fact, Jansen, Volberda, & Van Den Bosch (2005) had measured the ambidexterity level of a firm in terms of exploratory and exploitative innovations. While exploration has been defined to result from a relatively broad and generalized search to expand the firm's knowledge domains into unfamiliar or novel areas and/or to establish new combinatory mechanisms (Kang & Snell, 2009), exploitation, has been conceptualized to rely on a more narrow, localized and in-depth search and/or a repetitive combinative mechanism in order to obtain well defined solutions pertinent to a firm's existing knowledge domains (Kang & Snell, 2009). Exploration included things captured by terms as search, variation, experimentation, risk taking, play, flexibility, discovery and innovation (March, 1991). Exploitation included things captured by terms as refinement, choice, production, efficiency, selection, implementation, and execution (March, 1991).

Based on the understandings of 'exploration' and 'exploitation', the two disparate goals concurrently pursued to develop the organizational capability of ambidexterity; organizational ambidexterity would induce firms to generate innovative ideas, evaluate them, and implement them. In other words, of the stages of systematic innovation as described by Hansen & Birkinshaw (2007), except for innovation diffusion, ambidexterity would provide the organizational capability for all the rest. Of course there might be other antecedents to systematic innovations in firms too, but Organizational Ambidexterity, seems to be a necessary if not sufficient facilitator of innovations in firms. Since the focus of this paper is limited to the idea generation stage of eco-innovations, here ambidexterity is seen as a necessary facilitating organizational ability for eco-

innovations. We assume that the idea generation of eco-innovations in organizations is not different from other organizational innovations. Based on the relationships established empirically in literature so far, a theoretical model linking TMT-Organizational Ambidexterity-Eco innovations is proposed.

3. Theoretical Model on the TMT-Organizational Ambidexterity - Eco Innovation Relationship - A Research Agenda

In the earlier section it was established that Organizational Ambidexterity does have an influence on innovations. On a brief review of the literature on Ambidexterity, it was found that, many authors (Lubatkin et al., 2006; Mihalache et al., 2014; Cao et al., 2010), had empirically established the influence of the TMT on organizational ambidexterity. As mentioned earlier, Burgelman (1983) had already suggested that the TMT which chooses the structural context would in turn be influenced by it too. Since, the root causes of innovation idea generation and ambidexterity are both traced to the TMT, and since ambidexterity in turn influences innovations in firms, it can be seen that ambidexterity is an effective mediator in the link between the TMT and innovation.

At the conceptual level, for idea generation, a knowledge search external and internal to the organization is essential. Organizational ambidexterity has at times been defined as merely this 'knowledge search behavior' by Katila & Ahuja (2002). At the operational level, both innovations and ambidexterity are tracked down to the same level of analysis: the TMT. At the strategic level, both ambidexterity and innovation idea generation in firms can be traced down to the same type and level of decisions: strategic decisions at the TMT level regarding whether to explore external knowledge or exploit existing knowledge within firms. Hence based on Baron & Kenny's (1986) conceptual, operational and strategic considerations, ambidexterity is definitely a mediator and not a moderator in the relationship between TMT and Organizational Eco-Innovation.

The theoretical model shown in Figure 4 assumes that the organizational innovation process is systematic and not sporadic. Also, the model assumes that the stage

of innovation in question is the idea generation stage. The TMT behavior of exploration and exploitation activities is constrained in their knowledge search by the constraint that the idea generated from this knowledge should be environmentally sustainable. The Theoretical model also limits its focus to the determinants of innovation and ambidexterity within the firm. Apart from the fact that the knowledge search and ideas generated are constrained by environmental considerations, we are assuming that the idea generation process of eco innovations is the same as that of any regular organizational innovation. Hence, the above given theoretical model applies to eco innovations too.

4. Conclusion

Today's management research needs to cater to tomorrow's business needs. Businesses need innovations to sustain their enhanced financial performance. In this paper, we chose to look at the determinants of only those organizational innovations which were environmentally sustainable. We also limited our research by focusing only on the internal determinants of eco-innovations within organizations. No external environment influence has been considered. To explore the root explanations of eco-innovations in organizations, we analyzed only the 'idea generation stage' of innovation processes in organizations. We assume that at this stage there are

not many differences in the innovation processes of eco innovations and regular organizational innovations.

We propose that the Top Management Teams (TMT), Structural Contexts, and Climates in organizations influenced the innovative idea generation in firms. Based on the literature review, we proposed a theoretical model to build eco innovations in firms. In this model, we propose organizational ambidexterity to mediate the link between the various determinants and organizational eco-innovations. In this paper, we aim to trace down the roots of innovation idea generation in firms and find out the role of organizational ambidexterity in the link between the TMT and eco-innovation idea generation. This paper is anticipated to add to the literature on the antecedents of organizational ambidexterity. The paper is also expected to advance the empirical validity of the upper echelons perspective. We also expect this paper to explain the importance of developing the capability of 'organizational ambidexterity' for firms to innovate and more importantly to innovate in an environmentally sustainable manner. Hence, it is of significant relevance to researchers working on ambidexterity and the upper echelons perspective. This paper is helpful to the practitioners who are constantly on the lookout for the right recipe to sustain their competitive advantage through innovations in firms without harming the environment.

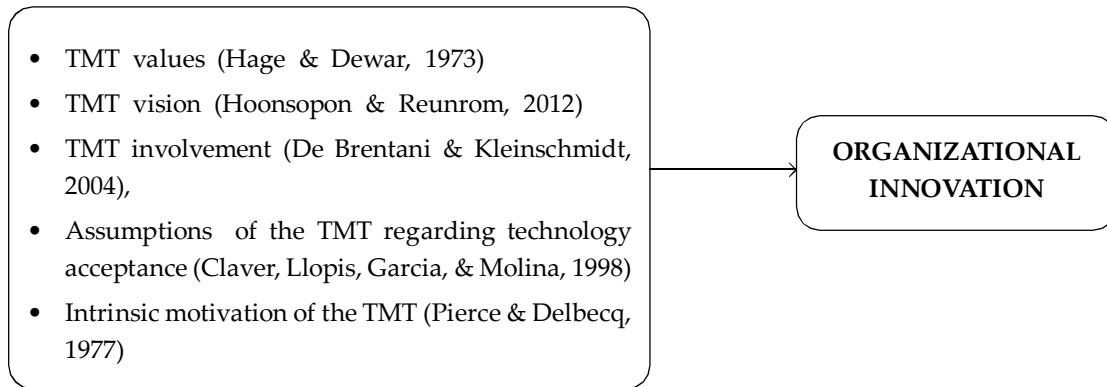


Figure 1
Influence of the TMT on Organizational Innovations

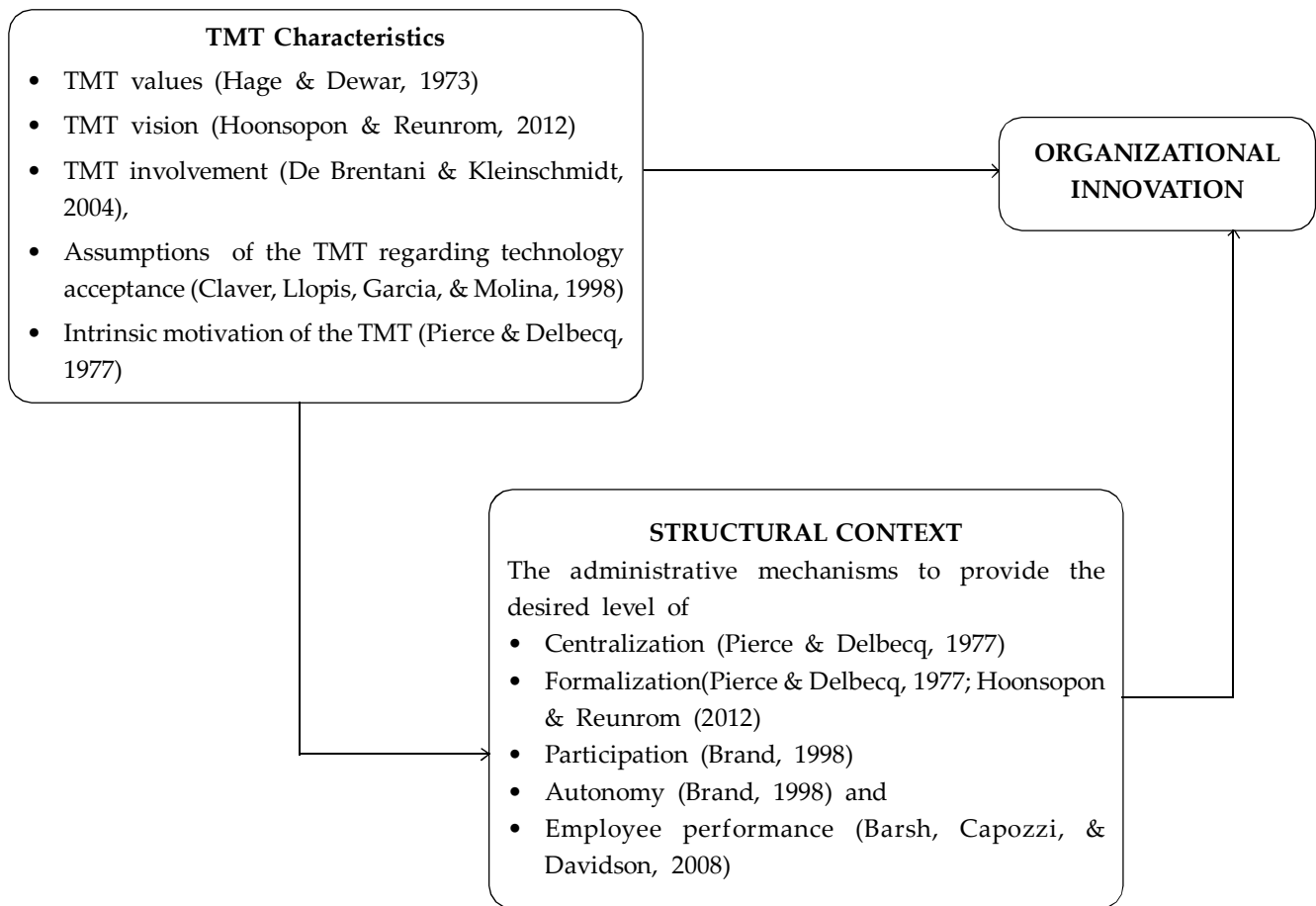


Figure 2
The Influence of the TMT, and the Structural Context on Organizational Innovations

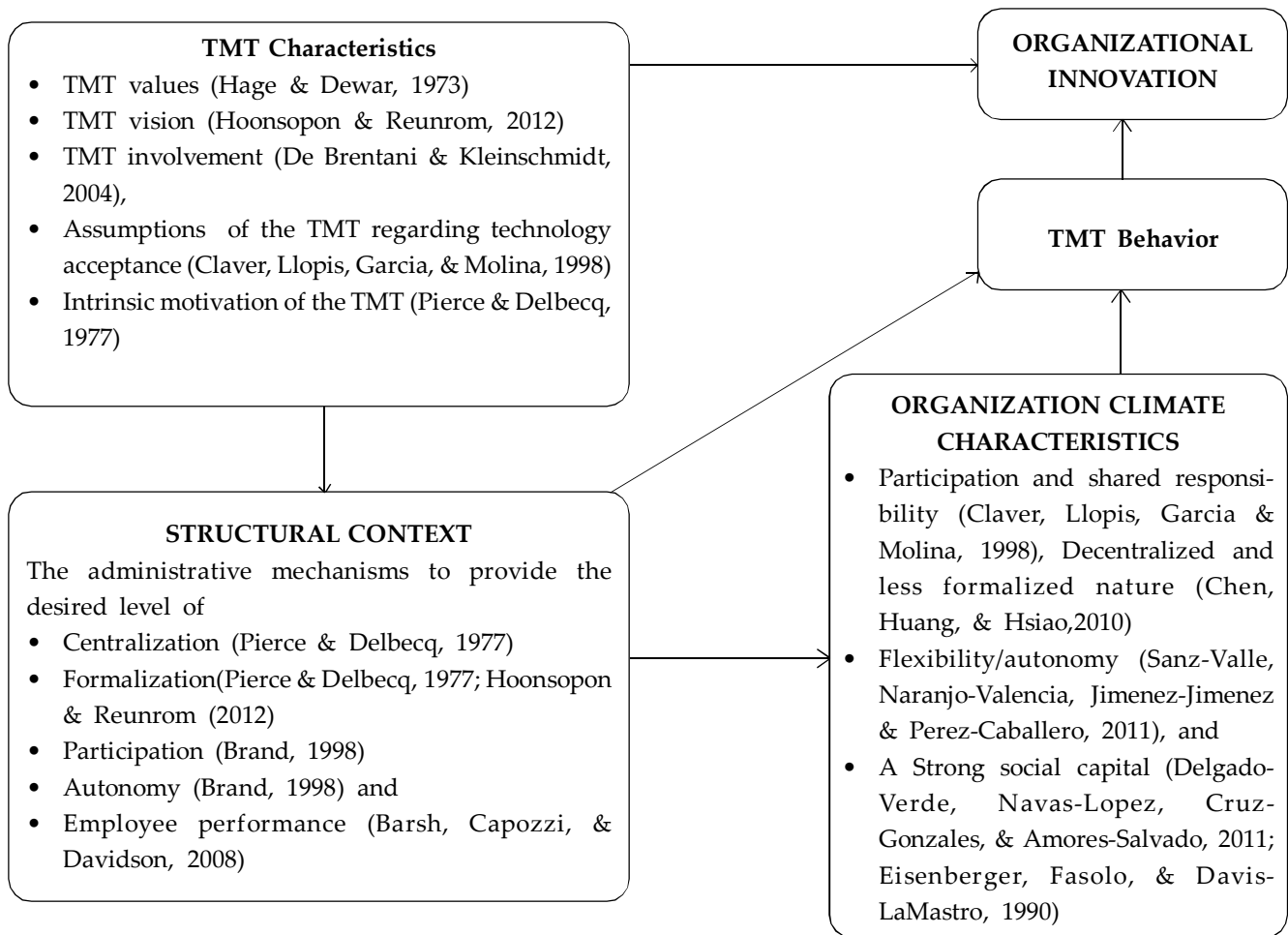


Figure 3
The Influence of the TMT, Structural Context and Organization Climate on Innovations

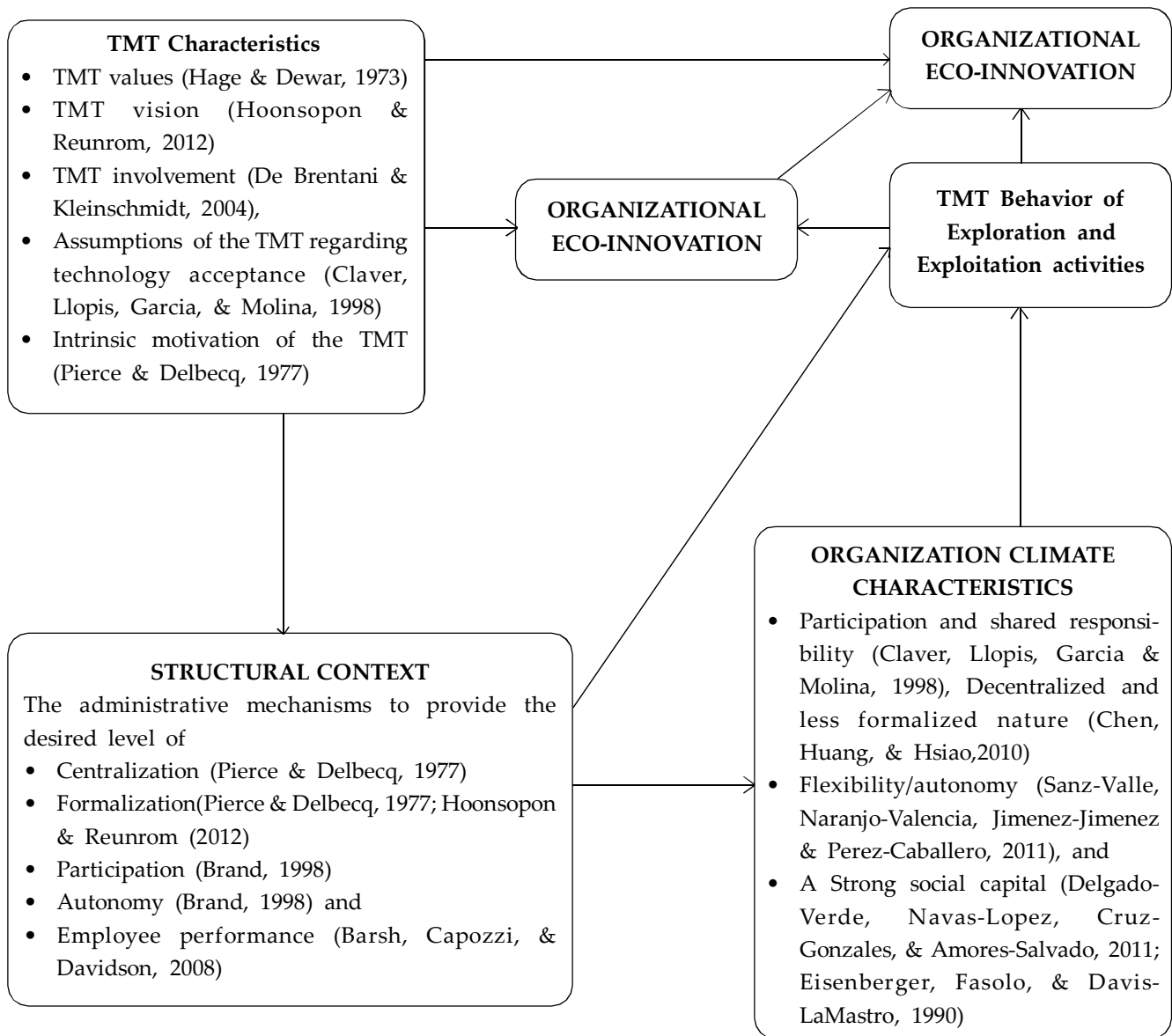


Figure 4
TMT, Structural Context, Organization Climate, Organizational Ambidexterity and Organizational Innovations

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