

Managing Global New Product Teams: A Theoretical Perspective

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ABSTRACT

Although global new product teams offer several opportunities, they are hard to manage and present some serious challenges. The objective of this paper is to suggest a theoretical viewpoint focusing on the management issues related to global new product teams. Specifically, the concept of shared mental model and its scope is discussed. The extended scope of shared mental models constitutes a valuable addition to the extant research on this issue. Additionally, the theory of interdependence is discussed in order to bring attention to the effects of different situations faced by global new product team members.

Keywords: *Global new product teams, shared mental model, interdependence situations*

INTRODUCTION

As organizations compete in the global arena, there is a trend to develop products for multiple or worldwide markets. Moreover, firms confront to satisfy customers with different geographical and cultural backgrounds. To address these issues, firms are increasingly utilizing knowledge and skills of personnel from different countries by creating global new product teams (here after, GNPTs) (Sivakumar and Nakata 2003). According to a recent survey, more than half of the total firms use global teams to complete various product development related tasks (Axel 1997). It has been argued that GNPTs offer pragmatic and economical ways to develop new products (McDonough, Kahn, and Barczak 2001).

In addition to numerous benefits, GNPTs also cause some major problems for firms (McDonough and Kahn 1996). The reason for most of these problems lies in the fact that GNPTs are comprised of members who are culturally diverse and geographically dispersed (McDonough et al. 2001). Moreover, team members differ in terms of values, orientations, and assumptions that can fuel misunderstandings and conflicts (Sivakumar and Nakata 2003). These opportunities and threats put forth a compelling question of how to effectively manage GNPTs.

To address these issues, this research proposes a theoretical perspective that brings cognitive and psychological viewpoints together. The purpose of this research is twofold. First, the importance of team members' shared mental models in new product development process is discussed. Although past literature, particularly in the field of organizational behavior, recognizes shared mental models as an important variable in team processes (Canon-Bowers, Salas, Converse 1993; Mohammed and Dumville 2001), very limited new product development research studies utilize this construct (e.g., Madhavan and Grover 1998). Therefore, the present state of understanding about shared mental models in GNPTs needs to be extended. Second, this article explores the moderating role of different interdependent situations faced by GNPTs. In the GNPT context each member brings a unique set of expertise and strategies; however, various situations affect the application of these expertise and strategies. Notably, the interdependence theory offers a logical analysis of the structure of social situations and enhances our understanding of social cognitive processes (Rusbult and Lange 2003).

SHARED MENTAL MODELS

Canon-Bowers, Salas, Converse (1993) proposed the concept of shared mental models to broaden the understanding of how teams perform in ambiguous and complex situations. They further suggested that shared mental models account for the smooth and implicit coordination that can be observed in an effective team only. In a similar

vein, Klimoski and Mohammed (1994) define the construct of team mental model as a form of shared cognitions that affect team processes and facilitate members to formulate predictions regarding teamwork. Parallel to these theoretical standpoints, shared mental models can be described as subconscious assumptions and beliefs that team members have about other team members' expertise, project's requirements, and other variables affecting the team process.

In the GNPTs context, individuals from different countries and from different cultural backgrounds work together as a team (McDonough et al. 2001). These team members begin with a substantial amount of shared prior knowledge of how things are supposed to be. Once they get involved in the GNPTs process, their knowledge, behaviors, cognitions, and functional cultures start playing a vital role in team processes (Akgün et al. 2006). Considering the fact that the underlying basis for a successful product development is the shared understanding of strategies that drive various functions (Hayes et al. 1988), Madhavan and Grover (1998) recognize the shared mental model as an important construct to accomplish positive goals of a team process.

SCOPE

It has been argued that a critical factor influencing the cross-functional integration is the organization's ability to foresee changes in the technology, customer preferences, and competitors' behaviors (Gupta, Raj, and Wilemon 1986). Also, Kim and Wilemon (2004) propose that rapid market changes create a complex environment for product developers. These rationales champion the thought that GNPTs members should have an accord about the team's internal environment (i. e., team members' expertise and skills) as well as about the external environment (i. e., market knowledge). Parallel to this, Li and Calantone (1998) suggested that the customer demandingness, competitor intensity, and technology changes lead to market knowledge competence. Moreover, they reported that the customer knowledge process, marketing- R&D interface, and competitor knowledge process positively impact the new product advantage.

Building on these theoretical and empirical findings, it seems pragmatic that the scope of team members' shared mental model should include (i) team expertise, (ii) customer knowledge, (iii) competitor knowledge, and (iv) technological changes. In the GNPTs process, where individual members enter the group setting with different assumptions and interpretations of the issues involved, this extended scope of shared mental models would lead to better understanding of dissimilar suppositions underlying the key issues.

Team Expertise

Moreland (2000) considered the shared mental model about team expertise as part of a transactive memory system that leverages the idea of project-team memory by facilitating an interpersonal consciousness of who knows what and who has appropriate and adequate skills and expertise, and then getting the information from that individual (Akgün et al. 2006). These shared mental models permit team members to reclaim a larger amount of information than what they would be able to store on their own, by knowing whom to consult about what topics or for what assistance (Kraut et al. 2003). Also, team members would better predict behaviors of others and make adjustments in their own actions in the anticipation of others' reactions if they have a shared consensus about each others' expertise (Blickensderfer 2000).

Customer Knowledge

In today's competitive business environment, the major challenge for organizations is to produce quality products that can offer the customer perceived value (Miles and Snow 1994). It has been argued that effective new product developers recognize what customers want and have a deep understanding of customers' preferences (Ottum and Moore 1997). Explaining the importance of the consumer's preferences in the new product development process advantage, Wind and Mahajan (1997) emphasized on developing new procedures that allow assessing consumers' needs and probable responses to new product concepts and prototypes. Notably, customers are highly susceptible to nuances and differences in a product and they value a product that offers solutions to their particular problems and needs (Li and Calantone 1998). Aligned with this logic, the consumer knowledge can be characterized as customers' requirements for

a product's performance and the complexity of its technical standards and specifications. Likewise, in a GNPT setting, members' shared mental models about the customer knowledge will positively affect the team process.

Competitor Knowledge

The competitor knowledge can be described as the updated information about competitors' new product strategies and actions. Importantly, the knowledge regarding competitors' actions impacts organizations' competitive advantage (Varadrajana, Jayachandran, and White 2001). The literature in this field recognizes the significance of observing and assessing competitors' strategies and responding accordingly to achieve new product benefits (Gupta, Raj, and Wilemon 1986). It has been suggested that teams' ignorance toward the external environment changes (i.e., behaviors of their competitors') results into the process failure (Ancona and Caldwell 1992). Shared mental models regarding the competitor knowledge will facilitate team members to better predict changes in competitors' new product strategies.

Technology Changes

Technology changes can be characterized in terms of magnitude and direction of technological developments in a product marketplace. In fast changing markets, organizations seek to employ a formal system of intelligence collection about up-and-coming technologies to gain an advantage in new product development processes. Specifically, GNPTs are facing the question of how to turn new technologies into tangible new products and what product attributes and benefits can be delivered, at what cost, by technological progression (Mullins and Sutherland 1998). Because users usually are unable to foresee how new technologies might benefit them (Jaworski and Kohli 1993), GNPTs can not depend solely on the information through customers interactions to resolve uncertainty about technology changes in the market place. Therefore, GNPTs should be attentive of and responsive to technological changes happening in the market; moreover, they should have a shared consensus on issues related to these changes.

INTERDEPENDENCE SITUATIONS

By nature, cross-functional teams require the collaboration across multiple thought worlds due to which they face a highly uncertain and complex task (Mohrman et al. 2003). In the new product development context, researchers have examined different goals, needs, and motivation possessed by different functional units and their effects on projects' success (e.g., Griffin and Hauser 1996; Saxberg and Slocum 1968). The task interdependence also has been acknowledged as a major cause of the disagreement among team members (Jehn 1995; Xie, Song and Stringfellow 1998). Hence, there is a need to investigate team members' desires, cognitions, and intentions in the context of different situations where interactions among team members emerge.

A situation can be described as a status with regard to conditions or circumstances at a given moment or at a state of affairs (Kelley et al. 2003). The role of situations in social interactions and interpersonal relationships has been considered very important. It has been argued that the contribution of the cognitive consensus in decision making groups is extremely dependent on different situations (Kilduff et al. 2000; Walsh et al. 1988). In the GNPT context, therefore, it is pragmatic to conclude that the link between shared mental models and the project's performance will be moderated by specific situations faced by members. Interestingly, the theory of interdependence explores the dynamics of interactions and relationships by outlining ways through which social situations form interpersonal processes (Kelley et al. 2003). Based on the study of interdependence situations conducted by Rusbult and Lange (2003), three interdependent situations are proposed.

Conflicting Interests

Although team members in a GNPT work toward the same goal of the new product development, their different cultural values may generate conflicts and misunderstandings (Sivakumar and Nakata 2003). It has been argued that members of a cross-functional team can face a situation where interests of different members do not coincide with each other (Griffin and Hauser 1996). These conflicting interest situations would negatively impact the process to integrate

knowledge. Unfortunately, these conflicting interest situations will also involve challenging adaptation problems for individuals (Rusbult and Lange 2003).

Dependence

As Rusbult and Lange (2003) suggest, the dependence refers to the vulnerability because it entails 'needing' or 'relying on' others. In the new product development context, the dependence can be characterized as the degree to which a team unit or an individual relies on another unit or individual to carry out and finish assigned tasks (Jehn 1995). Studies in this area have proposed that the extent of the task interdependence is positively associated with the intensity of conflict (Lam and Chin 2004). The dependence results into more risky outcomes when it is one-sided and/or involves incompatible benefits (Rusbult and Lange 2003). An interdependence situation may lead to negative outcomes of shared mental models and hurt the association between shared mental models and GNPTs performance. The reason for this could be the fact that team members, in such situations, would be reluctant to make amendments in their deeds in expectation of others' behaviors.

Information Uncertainty

It has been argued that the physical remoteness between project team members leads to considerable reductions in the information communication (McDonough et al. 2001). Rusbult and Lange (2003) proposed that partners engage in substantial information exchanges, especially, in the early phase of a relationship. These exchanges are necessary for information communications. The incongruity between members' expectations about final results causes major misunderstandings (Van Lange et al. 2002). The proper sharing of the information in new product development projects considerably influences the project's success (Madhavan and Grover 1998). The team information acquisition affects the team memory since teams increase their skills, experience, absorbing capability, and the memory by the accumulation of the information (Akgün et al. 2006). Hence, it is pragmatic to conclude that in a situation where members of a GNPT will be unsure about others' objectives, strategies, and approaches due to the information uncertainty, an association between shared mental models and GNPTs performance will be negatively affected.

DISCUSSION

Limitations

The first limitation arises from the likelihood of the shared mental model's negative impact on the project's effectiveness. It has been suggested that mental models of managers can hinder the effectiveness of the decision-making process (Day and Nedungadi 1994). The same problem can surface in the case of GNPTs. Second, there is a possibility of an interaction between shared mental models and cognitive biases. These cognitive biases can affect members' existing expectations, knowledge, and ways through which they process the new information. There are possibilities that members discard the information that is incoherent with their expectations or knowledge (Gilovich 1993). Hence, it may be deduced that a GNPT is more likely to reject the information that is not consistent with its shared consensus. Finally, there are substantial evidences that the creativity among personnel crops up from endeavors to integrate incompatible views (Amabile 1998). Given the fact that a shared mental model restrains conflicting perspectives, it could have a negative influence on the inventiveness.

Implications

GNPTs can face abysmal consequences if they ignore changes in preferences of their customers, behaviors of their competitors, or changes in technology. Senior managers or supervisors should attempt to assess and augment the level of shared mental models within a team to ensure the effective and efficient execution of processes. The situational awareness should also be viewed as an important notion in predicting the performance of GNPTs. Managers and team members should be aware of the presence of such situations and their harmful effects. This paper offers solid theoretical arguments to exhibit the importance of team members' consensus about team members' expertise and the knowledge of the external environment.

Future researchers may investigate and examine the causal route by which shared mental models are formed. The additional research is also needed to understand how shared mental models affect other group processes. The key organizational-level variables, such as administrative systems and policies, organizational culture, or top management support should also be studied in the context of GNPTs.

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