

Knowledge Transformation: A Case For Workforce Diversity

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ABSTRACT

This paper provides a theoretical framework for studying the role of knowledge transformation processes in leveraging the diversity of top management teams to improve firm performance. Previous research on the effect of workforce diversity on firm performance recognizes the importance of relevant contextual factors, yet few studies examine the value of processes that enable a management team diverse in personal attributes to transform their knowledge into strategic decisions. Drawing on the resource-based view, the knowledge transformation process is argued to be a dynamic capability that enables firms to leverage differences in opinions, perspectives, and problem-solving abilities when making strategic decisions. This paper yields insight into both the translation process and its relationship to strategic performance.

Keywords: Knowledge Transformation; Workforce Diversity; Dynamic Capabilities; Strategy Process

INTRODUCTION

Workforce diversity, as a strategic resource, has received little theoretical and empirical attention even though the human element has been argued to affect organizational action and strategic choice (Finkelstein & Hambrick, 1996) and has grown in importance to firm performance along with the critical role of knowledge. Empirical research endorses two conflicting hypotheses - value in diversity (Cox & Blake, 1991) and ineffective workgroup functioning (Williams & O'Reilly, 1998). Research supports both the view that workforce heterogeneity enhances performance through the use of higher levels of skills, perspectives and problem-solving abilities (McLeod, Lobel, & Cox, 1996) and the view that these aggregate differences inhibit performance by reducing social integration (Jackson, Stone, & Alvarez, 1993) and informal communication (Smith et al., 1994). These inconsistencies have led to the conclusion that workforce diversity will not be found to improve firm performance until researchers gain an understanding of relevant contextual factors (Williams & O'Reilly, 1998).

There is empirical support for the value of human capital in enhancing firm performance, but this relationship is complex with both direct and moderating effects. One study found that racial diversity is positively related to firm performance in growth contexts and that increases in strategic growth can enhance this effect (Richard, 2000). Another study of a firm highly dependent on knowledge found a curvilinear relationship that created human capital leveraging efficiencies while also leading to leveraging and monitoring costs that decrease over time (Hitt, et al., 2001). These studies suggest that research focusing on strategic constructs may shed more light on where the value in diversity lies and how to study its effect on firm performance.

Drawing on the resource-based view of the firm and the dynamic capability perspective, this paper examines the relationship between workforce diversity and firm performance. Drawing on the dynamic capability perspective and network structure strategies, workforce diversity is argued to be a strategic resource that enables firms to transform diverse knowledge into strategies. In doing so, the strategic significance of the workforce diversity to firm performance is established.

LITERATURE REVIEW

Despite the amount of research on workforce diversity, very little is known about the process through which it is translated into firm performance. Scholars have studied diversity in terms of geographic markets (Sambharya, 1995), technology (Kidd & Teramoto, 1995), culture (Hofstede, 1980), identity groups (Jackson, 1991), functional expertise (Thomas, Lischert, & Ramaswamy, 1991), educational level (Bantel & Jackson, 1989), and industry tenure and experience (Eisenhardt & Schoonhoven, 1990). The three common themes that have emerged are international diversification (Kidd & Teramoto, 1995; Tallman & Li, 1996), group dynamics (McLeod, Lobel, & Cox, 1996), and strategic decision-making (Hambrick, Cho, & Chen, 1996).

Research has examined the impact of workforce diversity on group dynamics. Identity group diversity has been found to lead to higher quality decisions (McLeod, Lobel & Cox, 1996) associated with the generation and use non-traditional perspectives and alternatives that result in a more thorough identification and analysis of critical business issues (Watson, Kumar & Michaelsen, 1993). Studies of group process skills (Jackson, 1991), conflict (Jehn, 1995), and social integration (Jackson Stone, & Alvarez, 1993) indicate these differences have a negative impact on organizational functioning and group performance even when they are moderated by cooperative norm development (Chatman & Flynn; 2001). The emphasis of this research on managing the negative effects of workforce diversity, rather than on leveraging these differences, has limited the ability of researchers to link diversity to firm performance.

Studies also focus on the increased reliance on diversification for growth and profitability (Zahra, Ireland, & Hitt, 2000). Diversity, in this context, is defined as the number of countries of operation (Tallman & Li, 1996), targeted market segments (Morrison & Roth, 1992) and degree of technological diversity (Kidd & Teramoto, 1995). These studies focus on the accumulation and transfer of tacit knowledge (Lei, Bettis & Hitt, 1996) as innovative opportunities are explored (Zahra, Ireland, & Hitt, 2000). Advantages of diversity are mitigated by knowledge integration problems (Barkema & Vermeulen, 1998). While this research provides a critical link between diversity and strategic performance, it does not adequately link workforce diversity to firm performance since diversity is based on market, rather than personal, attributes.

Some research provides the critical link to firm performance through strategic decision-making. Studies indicate that diversity in top management characteristics is positively related to innovativeness (Bantel & Jackson, 1989), change (Finkelstein & Hambrick, 1990), competitive moves (Hambrick, Cho, & Chen, 1996) and growth rates (Eisenhardt & Schoonhoven, 1990). However, limiting characteristics to education level (Bantel & Jackson, 1989), functional background (Thomas, Lischert, & Ramaswamy, 1991), and industry tenure and experience (Eisenhardt & Schoonhoven, 1990) restricts the implications of these studies. These scholars argue against Jackson's (1992) distinction between "personal attributes" and "task-related attributes" because of their likely overlap (Hambrick, Cho, & Chen, 1996) but don't consider the relevance of this distinction in linking these attributes to strategic performance. Since the relevance of task-related attributes can shift as business context or focus changes but personal attributes tend to remain stable over time and are required irrespective of business circumstances, a separate investigation of the role of these attributes in strategic decision-making is important.

Research tends to support the same conclusions. Workforce heterogeneity tends to lead to increases in perspectives, cognitive resources, and problem-solving approaches that improve decision-making and, at the same time, to problems with informal communication and social integration. In focusing on different aspects of diversity, each stream of research has strengths and weaknesses. Group dynamics links personal attribute diversity to organizational processes, but the focus has been on managing, rather than leveraging, diversity. International diversification focuses on leveraging difference for strategic purposes, but it does not link these performance outcomes to diverse workforce attributes. Top management decision-making links diversity to processes where diverse knowledge can be used, but it does not focus on its personal attributes. This study focuses on leveraging diversity for strategic purposes by focusing on the how knowledge arising from personal attribute diversity can be transformed into strategies. By integrating the strengths of each of these research streams, this study strengthens the conceptual foundations for future empirical work on the relationship between workforce diversity and firm performance.

THEORETICAL FRAMEWORK

Drawing on the resource-based view of the firm, the strategic resource advantage of workforce diversity depends, among other things, on its ability to be easily copied by competitors. Workforce diversity has the potential to be a strategic resource since 1) the causal link between workforce diversity and firm performance has been difficult to explicitly identify, 2) the relationships among a diverse workforce are usually socially complex, and 3) resource advantages accumulate over time from the historic path that firms take in leveraging diversity. The value of workforce diversity depends on accumulating resource advantages and a complex set of relationship configurations with performance outcomes difficult to tie directly to them.

When meeting the three conditions above, workforce diversity may be a uniquely valuable strategic resource capable of creating earnings in excess of normal rates of return. How sustainable the competitive advantage is, however, depends on the specificity and durability of the firm resource. Application specificity refers to linking workforce diversity to external factors (i.e., market attributes) whereas process specificity refers to linking workforce diversity to other internal factors (i.e., firm strategies and practices).

Application specificity requires a focus on the type of diversity that is relevant to the strategic context. Aligning workforce diversity to environmental conditions, therefore, is likely to increase its specificity while decreasing its durability because the resource advantage is dependent on the fit between the knowledge possessed by a diverse workforce and the relevance of that knowledge to the context in which the strategic issue is embedded. As firms become familiar with and increase contextual knowledge, workforce diversity loses its durability as a strategic resource. Moreover, the ability to link workforce diversity to positive performance outcomes depends on the ability to shift the focus and degree of diversity with variation in environmental conditions. Therefore, the competitive advantage of workforce diversity in specialized applications has temporal limits.

Process specificity, as the ability to link workforce diversity to other organizational processes, decreases the potential for imitation by increasing social complexity and causal ambiguity (Barney, 1991; Lippman & Rumelt, 1982; Reed & Fillippi, 1990). Process specificity increases the ambiguity, and thus resource imitation, because the specificity, tacitness and complexity of such knowledge arise from the accumulation of skills and experience unique to linking those processes together (Reed & Fillippi, 1991). Further, since knowledge is acquired and utilized based on a unique configuration of relationships among members of a diverse workforce, process specificity is likely to lead to new relationship configuration and, thus, to new imitation barriers by increasing the complexity of communication among a diverse workforce. As these imitation barriers increase the durability of the strategic resource advantages from workforce diversity also increases.

Firms can develop a competitive advantage by linking workforce diversity to strategic decision processes. This process can lead to a uniquely valuable strategic decision network capable of transforming knowledge into strategic initiatives responsive to volatile and complex business conditions. Sustainable strategic resource advantages from workforce diversity therefore require a focus on the involvement of a diverse workforce in the strategic decision process, as long as that involvement extends beyond strategic initiatives related to the fit between their personal and market attributes. Workforce diversity, when tied to the strategic decision process, can sustain strategic resource advantages by increasing the specificity and durability of a diverse workforce, thereby creating efficiency advantages that thwart the imitation process and preserve the value of the resource.

Knowledge Transformation

The resource-based view highlights the role of workforce diversity in competitive performance. Firms are conceptualized as repositories of different types of knowledge that develop from the individual experiences of organizational participants. As such, privately held knowledge can be a strategic resource by creating knowledge asymmetries that are embedded in organizational capabilities. Since the competitive nature of knowledge has been argued to have shifted from knowledge outcomes to the knowing process itself (Blackler, 2002), the importance of privately held knowledge in building strategic resource advantages has moved away from individual skill sets to personal cognition. This suggests that transforming knowledge arising from workforce diversity into positive strategic outcomes may require a shift in the emphasis of diversity from skill-based to cognitive attributes so that

diverse thought processes, perspectives and problem-solving abilities, found to be positively related to firm performance, can be accessible to and utilized by those formulating strategies.

At the individual level, tacit knowledge is embedded in management tasks and cognition; i.e., the thought processes, perspectives and problem-solving approaches used to make decisions. Similarly tacit knowledge, at the firm level, manifests itself in its capabilities and strategies. The transformation of knowledge from individual action and cognition into firm knowledge embedded in organizational capabilities and strategies requires two types of group-level processes - those that require collective action (business practices) and those that require collective cognition (decision processes). This paper focuses on group processes in which collective cognition is used to transform individual knowledge into strategic decisions. Knowledge transformation requires a strategy process with knowledge-sharing routines (Dyer & Nobeoka, 2000) that enable diverse cognitive processes to be available for and used for strategic purposes.

There are three types of knowledge sharing routines: 1) transmission processes where knowledge doesn't change its form during the transfer, 2) transformation processes that change the form of knowledge during the transfer, and 3) knowledge creation processes. Transmission is more appropriate to the transfer of explicit knowledge or previously acquired tacit knowledge, whereas transformation is more appropriate to knowledge that changes in some form when transferred. Since individual tacit knowledge is most likely to change when transferred to firm strategies, this paper focuses on knowledge transformation during strategic decision processes as a form of social knowledge or group-level knowledge-sharing routine.

Workforce diversity is posited to be a means of transforming tacit knowledge of individuals that is different from, and overlaps with, knowledge that is already possessed by firms. Two sources of such knowledge are skill-based and cognitive-based diversity. Skill-based diversity focuses on transforming the action dimension of tacit knowledge into the collective action of managers. Cognitive-based diversity focuses on transforming the thought processes, perspectives, and problem-solving approaches of managers into strategic decisions. Personal attribute diversity, by influencing the cognition of individuals, can create variability in the strategic decision process and thus in the strategies they formulate.

There are three dimensions of the transformation process. The first is the composition of the strategic decision network. Personal attribute diversity can affect the strategy process by providing the network with exposure to a network of individuals diverse in their cognition so that the decision process is flexible enough to address strategic issues in volatile and complex contexts. While the breadth and depth of knowledge exposure can influence the tendency to search for and utilize new knowledge sources (Van Wijk, Van den Bosch, & Volberda, 2001), exposure alone doesn't lead to higher levels of transformation unless the knowledge is related to and yet different from what is already possessed by the network (Lofstrom, 2000; Matusik, 2000; Zahra & George, 2002). The transformation process therefore requires a strategic decision network that exposes firms to knowledge sources diverse in personal attributes. It also requires a transformation process that links knowledge possessed by these sources to the strategic issues at hand and, through interpretation, shapes the form of such knowledge into strategic initiatives that fit the circumstances of the operating context.

The tacit dimension of knowledge makes it implicit and, thus unspoken, unless it is prompted or accidentally revealed. Therefore, it is difficult to transform the individual cognition into firm strategies without sustained interaction of a mutually dependent network characterized by frequent communication on a narrow range of issues related to a specified subject. It also requires a strategic decision network diverse in personal attributes.

Personal Attribute Diversity

Personal attribute diversity is defined as the difference in surface level characteristics, such as race, gender and ethnicity that create disparity in the cognitive dimension of tacit knowledge. This dimension refers to cognitive representations of experience used as selection and filtering mechanisms to highlight and omit data, add an emotional and motivational focus and judgment heuristics when constructing memories of events. These heuristics enable people to function in a complex world by focusing on what they anticipate will occur when information is limited. The cognitive dimension of tacit knowledge acts as an operating paradigm that organizes individual

experience and facilitates the development of thought processes, perspectives, and problem-solving approaches used when making strategic business decisions.

Strategic Decision Networks

Strategic decision networks are comprised of those considered dominant in or influential to the development of firm strategies decisions. What makes them heterogeneous is the degree to which there is personal attribute diversity in the network. Accessibility to and utilization of the privately held knowledge of a diverse network can create knowledge barriers that prevent replication of strategies by other firms. Research demonstrates that organizational knowledge, embedded in firm strategies, emerges from the interdependent influences of individual cognition (Mohammed & Ringseis, 2001), business processes (Pfeffer, 1994), and control issues inherent in organizational structures (March, 1988). The transformation of privately-held knowledge into firm strategies, therefore, depends on the interplay of those holding the knowledge and the ability of the transformation process to facilitate the sharing of this knowledge when making strategic decisions.

Transformation Strategies

Two kinds of strategies are proposed as critical to the transformation of personal attribute diversity into firm strategies – capability-building and network structural strategies. From the perspective of dynamic capabilities (Eisenhardt & Martin, 2000; Teece, Pisano & Shuen, 1997) and social capital theory (Burt, 1992), networks and capabilities are considered major enablers for sourcing knowledge and transforming it into strategies adaptable to local conditions. Empirical studies combining these perspectives demonstrate that the interaction of capabilities and networks contributes to innovative business unit performance (Lee et al., 2001; Tsai, 2001). This study continues this trend by exploring the transformation process through the capability and network lens. Capability building strategies focus on the role of potential and realized knowledge absorptive capacity whereas network structural strategies emphasize the role of diffusion and collaboration mechanisms in the transformation process.

Capability-building strategies enhance the knowledge absorptive capacity of heterogeneous strategic decision networks and thus the strategic resource advantage of workforce diversity. The absorptive capacity (Zahra & George, 2002) exhibited in exploration and exploitation activities of strategic decision networks need to be high in order to transform personal attribute diversity into strategic decisions. Exploration builds potential absorptive capacity by actively seeking out diverse sources of knowledge whereas exploitation builds actualized absorptive capacity by utilizing the knowledge obtained from these sources for strategic purposes.

The relationship between competitive performance and membership in networks suggests that the strategic resource advantage of workforce diversity can be influenced by the ability to build social capital through knowledge interactions among network members. Firm level consequences of the social capital have been found to include increases in R&D investments, product development (Yli-Renko, Autio, & Sapienza, 2001), and imitative adoption of business practices (Ahuja, 2000). The connection of social capital to firm outcomes enables diverse strategic networks to be examined at the firm level.

A network strategy that may facilitate the transformation of personal attribute knowledge into firm strategies focuses on two network structures - pipes and prisms (Burt, 1992). Pipes facilitate the flow of knowledge between diverse network clusters so that knowledge possessed by sources outside the network is readily accessible to diverse networks. The assumption is that valuable knowledge can arise from any source, as long as there is a willing sender and receiver. Pipe strategies facilitate knowledge diffusion through the weak tie affiliations to other networks with dissimilar personal attributes. The nature of weak ties exposes networks to diversity in ways of knowing (i.e., perspectives and problem-solving abilities) by bridging chasms between network clusters on the periphery with which there is typically little or no other interaction and thereby expanding its reach into other networks (Burt, 1992). As such, pipe strategies increase the breadth and scope of knowledge accessible for transforming into strategies. Since pipe strategies focus on non-redundant network linkages, the diverse knowledge sources are more readily accessible when the strategic decision network is heterogeneous than when it is homogeneous.

Prism strategies are also important to knowledge transformation since tacit knowledge accumulated by heterogeneous strategic decision networks needs to be examined for its utility to the strategic issue at hand. Prisms reflect information cues about the quality of knowledge and, through interpretation, determine its relevance to a strategic context. They facilitate network collaboration by enhancing communication between network clusters with dissimilar personal attributes as complementary sources and receivers of such knowledge.

Prism strategies highlight two collaborative mechanisms; 1) building relationship density within the network and 2) developing a strong network tie which builds strong ties among network members and fosters joint problem-solving necessary to put knowledge to use. Strong ties facilitate the use of technical and cognitive processes required of a network with diverse members. Prism strategies increase the breadth of knowledge used for strategic purposes and the scope of knowledge applications across strategic contexts. Since collaborative mechanisms focus on redundant network linkages, prism strategies increase the incentive and opportunity to interpret differences in thought processes, perspectives and problem-solving abilities among diverse network members.

Strong ties can be as important as weak ones in increasing the breadth of knowledge since long-term trusting relationships among network members facilitate knowledge sharing, even among those on the network periphery. However, strong ties may limit access to diverse tacit knowledge for strategic purposes by isolating the network from relationships outside the network.

For knowledge from personal attribute diversity to be accessed and utilized requires both pipes and prism strategies. Without the corresponding diffusion mechanisms of pipes, the collaboration mechanisms of prisms may not increase the application scope since the knowledge content being interpreted may be redundant. Therefore, a knowledge transformation process arising from strong ties also requires that the network be diverse in personal attributes.

The equal importance of accessibility to and utilization of personal attribute diversity for strategic purposes requires network structural strategies to contain both pipe and prism strategies. Pipes transmit the knowledge of heterogeneous network sources across network clusters whereas prisms create the conditions in which this knowledge can be interpreted. Balancing these two dimensions of network structural strategy is accomplished through 1) diversity across network clusters to enhance the breadth of knowledge sources outside the network so that information advantages can be achieved and 2) diversity within network clusters to enable the network to utilize the diverse sets of cognitive knowledge that offset excessive entrenchment in established patterns of formulating strategies. The former facilitates the potential knowledge absorptive capacity whereas the latter develops realized knowledge absorptive capacity.

CONCLUSION

While this knowledge transformation can apply to all types of diversity, this study specifically focuses on the role of personal attribute diversity in the strategy process in transforming the individual cognition into firm strategies. This is done 1) to elaborate on the potential effects of identity group attributes and 2) to provide a dynamic arena for studying the relationship between strategic networks diverse in personal attributes and the transformation of such knowledge into firm strategies and capabilities that shape firm performance.

AUTHOR INFORMATION

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