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BALANCING EXPLORATION AND EXPLOITATION IN A DECLINING INDUSTRY: ANTECEDENTS TO FIRM ADAPTATION STRATEGY AND PERFORMANCE

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ABSTRACT

This paper utilizes the theoretical framework of Raisch and Birkinshaw (2008: 381) to investigate the performance implications of three strategic adaptation approaches (exploitation, exploration, and organizational ambidexterity) in 94 small firms supplying tools and materials to the U.S. - based furniture industry. We measured four organizational antecedents to strategic adaptation as well as the performance outcomes associated with adaptation choice. Results demonstrate that organizational deftness, group potency, elements of communication and cooperation within the firm, and low centralization were significantly related to organizational ambidexterity, and that ambidexterity was positively related to revenue and profit growth. The implications focus on steps that organizational leaders can take to improve the ambidextrous posture of their organizations.

Keywords: strategic adaptation, ambidexterity, SME's, exploration/exploitation

INTRODUCTION

The problems confronting small firms facing an irreversible rise of low-cost, high-

quality global products and services are stark (Burpitt & Fowler, 2007; Liao, Welsch & Stoica, 2008). This increasingly dynamic and competitive global

environment has been described as global competition's "perfect storm" (Rousseau & Batt, 2007: 16). Some firms facing this competitive storm will choose to stick with their existing business and focus on improving efficiencies (Ebben & Johnson, 2005). Others will explore new domains and focus on the development of new products, new services and new markets (Ebben & Johnson, 2005). Managers in this situation commonly frame their strategic dilemma as a choice between two alternatives, to exploit old certainties or explore new possibilities (Gupta, Smith & Shalley, 2006; Levinthal & March, 1993; March, 1991; Raisch & Birkinshaw, 2008; Wang & Li, 2008). Unfortunately, reducing the options to a choice between these two strategic alternatives obscures the more difficult challenge confronting such firms. For immediate survival, and for long term health, organizations must balance the need to do both – that is, they should be ambidextrous (Gibson & Birkinshaw, 2004; Levinthal & March, 1993; Raisch & Birkinshaw, 2008; Tushman & O'Reilly, 1996). While the advantages that should theoretically accrue to the ambidextrous firm appear straightforward, there has been remarkably little empirical research exploring the construct (He & Wong, 2004; Raisch & Birkinshaw, 2008), and none to date that focuses on SMEs.

This research investigates the emergent strategies of SMEs facing industry decline, including the antecedents to strategy choice and the consequences of those choices. Specifically, we measured four organizational antecedents to strategic adaptation (one structural, two contextual, and one leadership-based antecedent), three

possible strategic adaptation approaches (exploitation, exploration, and organizational ambidexterity), and the performance outcomes associated with adaptation choice in 94 SMEs supplying tools and materials to the U.S.- based furniture industry. The timeframe of this research corresponds to a period of decline within the industry as many U.S. - based furniture manufacturers either closed, retrenched significantly, or transferred operations to off-shore locations (Burpitt & Fowler, 2007). This dramatic and difficult period of environmental dynamism and competitive dynamics forced the small firms that had staked their businesses on supplying the large furniture makers to re-evaluate their products, markets, and ultimately, their approach to strategy formulation and implementation. The findings provide practical advice for SME leaders as they consider the nature and development of the necessary organizational resources for success in a changing world.

Strategic Adaptation and SMEs

Michael Porter's (1980) theory of generic competitive strategy has been recognized as the dominant paradigm in strategy research and practice for three decades. However, some research suggests that cost leadership and differentiation act as nothing more than high-level discriminators of competitive strategy designs (Campbell-Hunt, 2000), and contribute only tangentially to what has become the challenge of achieving a *temporary* competitive advantage (D'Aveni, Dagnino & Smith, 2010). There is also a stream of research within the entrepreneurship/small business literature

which suggests that Porter's generic designs do not apply well to SMEs (Lee, Lim, & Tan, 1999), do not predict significant differences in performance in SMEs (Rubach, Cangelosi, Bradley & McGee, 2002), and do not adequately describe the strategy formulation and implementation processes in small firms (Ebben & Johnson, 2005).

An alternative perspective on strategy formulation and implementation is that offered by Ebben and Johnson (2005), who suggest two ideal forms ("efficiency" and "flexibility") to better capture the range of strategy choices available within SMEs. Along these same lines, Droege and Dong (2008) suggest that entrepreneurial firms enact either an imitation (efficiency) or substitution through innovation (flexibility) strategy, and this theme mirrors the broader work of March (1991), Benner and Tushman (2003), and others with regard to exploitation and exploration. These two fundamentally different classes or categories of activities require different managerial attention, organizational configurations and organizational resources. The assumption of the efficiency versus flexibility thesis is that the appropriate match between strategy and environment leads to success, and those relationships have proven robust over the course of much empirical research (Ketchen et al., 1997).

The question one might ask, then, is "what happens if the environment changes?" This insight into managerial cognition provides us with a better understanding of firm behavior and performance in the face of changing conditions. The concern here is that strategy *per se* matters less than

strategic adaptation, or the response of a firm to changes in its competitive environment. It matters not what strategy a firm *has*, but which strategy is appropriate to the situation. A persistent theme in much of the strategy literature is that firms achieve success only when they learn to balance continuity (exploitation) and change (exploration). In this way, they may enact efficiency/imitation/exploitation or flexibility/substitution/exploration strategies when the competitive environment warrants such a strategic shift (Raisch & Birkinshaw, 2008). This balance has been referred to as ambidexterity (Tushman & O'Reilly, 1996).

Balancing Exploration and Exploitation

We take the view, consistent with March (1991), Gupta, Smith and Shalley (2006), and others (cf., Raisch & Birkinshaw, 2008) that exploration and exploitation involve varying degrees of organizational learning. Exploration involves "experimentation with new alternatives" (March, 1991: 85), thus increasing variance and generating internal variety (Beckman, 2006). Exploration involves radical innovation, creating new markets and products, experimentation, broad search, frequent change and discovery (Beckman, 2006, Katila & Ahuja, 2002; Miner, Bassoff & Moorman, 2001; Rosenkopf & Nerkar, 2001). March (1991) considered "the refinement and extension of existing competencies, technologies and paradigms" the essence of exploitation (1991: 85). Beckman (2006) and Benner and Tushman (2003) suggest that exploitation involves variance decreasing activities involving incremental innovation, implementation, refinement, routinization, local search, and efficiency.

Many will choose the more cautious of the two and for reasons that are explicable, reflecting habits and cognitions deeply ingrained in organizational forms and customs (March, 1991; Prahalad & Bettis, 1986). Faced with discontinuous change arising from outside the firm, many firms may be unable to initiate the fundamental departure from traditional practices that is often called for (Gilbert, 2005; Christensen & Bower, 1996; Wang & Li, 2008). This may be because managers did not recognize the need for change until it was too late (Weitzel & Jonsson, 1989) or, if aware, lacked the capabilities needed to “integrate, build, and reconfigure internal and external competences” (Eisenhardt & Martin, 2000: 1106) that are needed to pursue new markets and new products with a new suite of capabilities. The effort required for such a transformation is arduous, path dependent, and freighted down by existing resource endowments (Lavie & Rosenkopf, 2006) and the sticky nature of organizational capabilities (Helfat, 2003).

A balanced approach to exploration and exploitation, by contrast, is the essence of the ambidexterity hypothesis (Tushman and O’Reilly, 1996), something that March (1991) considered essential to organizational survival. While there are tensions associated with the competing use of resources (for exploration or exploitation), He and Wong (2004) suggest that the strategic logic of keeping both processes in play was unassailable. If firms are to “outrun” (He & Wong, 2004: 483) environmental selection pressures, they must maintain their capabilities to compete in mature markets (where cost and efficiency are critical) while simultaneously

developing their capabilities to create new products and markets (where innovation and flexibility are critical). On this imperative, there is near perfect consensus (Gupta, Smith & Shalley, 2006).

Given this discussion, one would expect the relationship between strategic adaptation and firm performance to be in favor of a balanced approach (ambidexterity), such that firms which simultaneously engage in variance-reducing (exploitation) and variance-inducing (exploration) activities would experience better performance. Therefore, the following hypothesis is offered:

H1: Firms that engage in an implicit ambidextrous strategy experience greater performance than firms with an exploitation or exploration strategy.

Organizational Antecedents to Adaptation Strategy

Even though ambidexterity is believed to bestow substantial benefits on the firm, March (1991) believed that enacting exploration and exploitation simultaneously in an organization led to a zero-sum game wherein both approaches compete for scarce organizational resources. Alternately, Gupta, Smith and Shalley (2006) suggest that not all types of “resources” in organizations need be finite. Shapiro and Varian (1998), for instance, suggest that information and knowledge can be considered boundless, and Powell, Koput and Smith-Doerr (1996) suggest that external resources are available to many firms as a result of strategic and business alliances. Therefore, depending on the premise you start with, the debate can be

summarized as a choice between viewing exploration and exploitation as two ends of a continuum (e.g., Katila & Ahuja, 2002; March, 1991), or as orthogonal variables (e.g., Beckman, Haunschild & Philips 2004). If your perspective is the former, the appropriate empirical test for the beneficial effects of balance would be an inverted U-shaped relationship between degree of exploration/exploitation and performance. If the latter, then the proper test of the relationship between strategy and firm performance would be a test of the interaction of the two approaches. Given the fact that our study context is firms in a declining industry, subject to scarce and declining resources, we take the view that exploration and exploitation are two ends of the same continuum (Wang & Li, 2008). This view is consistent with behavioral theory (Cyert & March, 1963) which suggests that risky and less risky options are equally appropriate for a firm with scarce resources. Such a resource-based view of the firm leads us to believe that some firms possess specific internal resources to enact an ambidextrous strategy with regard to innovation, and some do not. Therefore, it may be worth exploring the firm-specific antecedents which predict the choice of adaptation strategy within firms in a declining industry.

A number of researchers have suggested factors affecting adaptation strategy choice, including the availability of tacit knowledge (Ahuja, 2000; Miller, Zhao and Clantone, 2006; Powell, Kiput and Smith-Doerr, 1996), the ability of individuals and teams to apply that knowledge (Taylor & Greve, 2006), founding team composition (Beckman, 2006), status differentiation in

teams (Perrretti & Negro, 2006), and absorptive capacity and organizational inertia (Lavie & Rosenkopf, 2006). However, Beckman (2006) suggests that an even more important antecedent to exploration or exploitation exists: organizational leaders who create the conditions, via supportive structures and organizational contexts, for adaptive strategy. In a further refinement, Raisch and Birkinshaw (2008) suggest that elements of leadership, context and structure are the most important determinants of adaptation strategy. Therefore, we extend the literature to four possible antecedents that may enable a firm to manage the difficult balance of exploration and exploitation. The proposed antecedents are organizational deftness (McGrath, 2001), group potency (Guzzo, Yost, Campbell & Shea, 1993), characteristics of cooperation and communication within the firm (Lester, Meglino & Korsgaard, 2002), and degree of centralization (Jaworski & Kohli, 1993). Organizational deftness is proposed as a leadership-based antecedent, group potency and the cooperation/communication capacity of the firm are proposed as contextual antecedents, and centralization is proposed as a structural antecedent (Raisch & Birkinshaw, 2008).

Organizational Deftness. While team composition and tacit knowledge are important determinants of organizational performance (Perrretti & Negro, 2006), it is often more important to determine how those elements combine to contribute to organizational functioning and success. In an attempt to explain how individuals within an organization can act

independently and heedfully (Weick & Roberts, 1993) to produce sustained positive outcomes, McGrath (2001) and others describe this concept of the “group mind” as deftness. Lubatkin et al. (2006) similarly refer to this cognitive and behavioral integration as the management team’s wholeness and unity of effort. Organizational deftness (McGrath, 2001; McGrath, MacMillan & Venkataraman, 1995) then is the joint activity of organizational members to know what is required and to do it skillfully and purposefully. Organizational members who possess deftness are able to consolidate information and resources and execute work in a reliable and successful fashion. It follows that an organization that possesses deftness is able to execute both exploration and exploitation (ambidexterity) at the appropriate times, depending on situational contingencies. Therefore, one would expect deftness to be related to ambidexterity.

H2: Greater levels of organizational deftness are positively related to an ambidextrous adaptive strategy.

Group potency. As organizations increasingly de-layer and use self-managed teams for a variety of organizational tasks, there is a corresponding need for managers to understand how to create and manage high performing work teams (Mathieu et al., 2008). Researchers have recently turned their attention to investigating antecedent factors which might help predict work team effectiveness (Lester, Meglino & Korsgaard, 2002; Mathieu et al., 2008). A construct which has attracted attention in this field is group potency or the jointly held belief that the group can be effective

(Guzzo & Shea, 1992; Guzzo et al., 1993; de Jong, de Ruyter & Wetzels, 2005). Proposed as a group level variable similar in nature to individual self-efficacy (Bandura, 1982), group potency is the shared belief that the group can accomplish important tasks successfully (Guzzo et al., 1993). Lester, Meglino and Korsgaard (2002) found that group potency was associated with subsequent group satisfaction, group effort, and group performance. Therefore, we posit a positive relationship between group potency and ambidexterity, such that management teams which possess group potency will be more likely to engage in the strategic adaptation necessary to explore or exploit their environments for success.

H3: Greater levels of group potency are positively related to an ambidextrous adaptive strategy.

Cooperation and communication. High performing work teams are distinguished by their ability to successfully engage in interactive communication and task-focused cooperation in order to achieve team goals (Campion, Medsker & Higgs, 1993; Mathieu et al., 2008). Typically, high performing work teams have had time to develop processes of mutual support and communication, and the behavioral scripts needed to guide effective group interactions (Janz, Colquitt & Noe, 1997). Kauffeld (2006) and Mathieu et al. (2008) found that groups that were adept at communication were more competent overall and Lester, Meglino and Korsgaard (2002) found that the level of communication and cooperation exhibited by a group contributed positively to group functioning by improving the

conduct of task-related and maintenance-related activities. It would also seem that groups which are adept at communication and cooperation should be able to more easily master the complex processes of adaptation and adjustment necessary for exploration and exploitation. Based on this discussion, the following hypothesis is offered:

H4: Greater levels of management communication and cooperation are positively related to an ambidextrous adaptive strategy.

Centralization. Centralization is the degree to which decision making power and control are concentrated among a top management group in a firm. Intuitively, it would seem that an organization characterized by a high degree of centralization would be limited in its ability to adapt its strategic orientation, and that the spatial separation of units would be more conducive to engaging in simultaneous exploration and exploitation (Raisch & Birkinshaw, 2008). Jaworski and Kohli (1993) found that certain characteristics of organizational structure, including high centralization, acted as barriers to strategic adaptation. Conversely, an organic organization with low centralization would seem to possess the organizational dexterity needed to shift resources effectively between exploitation and exploration. Raisch and Birkinshaw (2008) noted that strategic integration across units could be more easily accomplished by coordination at the senior management level and via a strong, widely shared corporate culture. Thus, sub-units and processes devoted to different learning orientations (exploration

or exploitation) could indeed exist in a decentralized organization, as long as simultaneous processes of integration existed to coordinate outcomes.

H5: Greater levels of centralization are negatively related to an ambidextrous adaptive strategy.

METHODS

Data and Sample. The firms sampled in this study provide supplies, tools, services and materials to the furniture industry, including such products and services as plastic injected parts, textile dyeing and finishing, wooden furniture parts, foam rubber products, and a wide variety of tools and materials used in furniture manufacturing. The benefit of a single industry focus is noted by researchers (Rouse & Daellenbach, 1999; Miller, Greenwood & Hinings, 1997) who point out that working with a single industry sample can help control for common factor markets and inter-industry variance (Barney, 1986; Gordon, 1991; Mascarenhas & Aaker, 1989). The subjects were selected from a manufacturing directory listing firms, products, years of operation, annual sales ranges, and number of employees. Selection was based on two criteria. To ensure that the firm's responses to industry change were made at the level of the target firm only, stand-alone firms were chosen. Subsidiaries or divisions of larger firms were excluded. Second, only firms that had been in operation a minimum of seven years were included.

One hundred forty-eight firms met these criteria. Phone contact was made with one hundred thirty-six firms on the list. Twelve firms had closed or been absorbed into another firm since publication of the firm directory. Of the one hundred thirty-six who were contacted, one hundred seventeen agreed to participate. Two sets of surveys were distributed in each firm. Firm owners completed questionnaire items measuring changes in revenue and profit and their firm's primary strategic emphasis (exploitation, exploration, or ambidextrous). Members of the firms' management teams completed questionnaires measuring organizational deftness, communications, potency and centralization. An average of three members of the management team per firm completed the surveys. Completed surveys were returned from ninety-four

firms. Participating firms averaged 29 employees each and had been in operation a minimum of 10 years. All firm owners and 201 of the 255 managers were male and averaged slightly more than 15 years experience in their respective industries. These firms averaged \$7 million in annual sales.

Strategic Orientation. The classification of the firms as primarily exploratory, exploitative or ambidextrous was accomplished by comparison of the responses of the firms' owners to an eight item scale developed by He and Wong (2004). This scale, shown in Table 1, includes four items that describe an exploratory strategy and four that describe an exploitation strategy.

Table 1-Objectives For Undertaking Product or Process Related Initiatives in the Last Three Years (He & Wong, 2004).

Exploratory Emphasis	Exploitation Emphasis
Introduce new generation of products	Improve existing product quality
Extend product range	Improve production flexibility
Open new markets	Reduce production cost
Enter new technology fields	Improve yield or reduce material or time

The firm owners were asked to rate the relative importance of each item using a 5-point Likert scale, where 1 = of no importance to firm, 2 = of limited importance to firm, 3 = of some importance to firm, 4 = of considerable importance to firm, and 5 = of great importance to firm. Their responses to each set of four were averaged to create an "exploratory" score

and an "exploitation" score for each firm. A firm was categorized as exploitive if its score on the exploitative scale was higher than 4.0 and its score on the exploratory scale was 2.0 or less. In reverse of this, a firm was characterized as exploratory if its score on the exploratory scale was higher than 4.0 and its score on the exploitative scale was 2.0 or less. Limiting inclusion in

either the exploratory or exploitative category to firms whose scores were at the extreme ends of the 5-point Likert scale (4 or 5) was done to make it more likely that the resultant grouping would delineate firms with a clear, unambiguous emphasis on one or the other strategy. A firm was characterized as ambidextrous if its score on both the exploratory and exploitative scale averaged 3.0 or higher. This categorization follows He and Wong (2004) who note that a firm can be defined as ambidextrous if it scores high on both exploratory and exploitative strategies or if it has relatively equal emphasis on both. Applying these requirements resulted in 39 firms defined as exploitative, 31 as exploratory, and 24 as ambidextrous for a total of 94 firms.

Performance Measures. The owners were also asked to provide information on any changes in revenue and profit over the preceding three year period. Revenue and profit change was measured by having owners select one of five statements that best described any changes in revenue and profit within their firms. The responses were scored as such: decline greater than 10 percent = 1, decline up to 10 percent = 2, no appreciable change = 3, increase up to 10 percent = 4, and increase greater than 10 percent = 5. Measures of the firms' financial performance and the firms' strategy were taken from the firms' owners as these individuals would have the most accurate information.

Deftness, Potency, Communication/Cooperation, and Centralization. Organizational deftness within the firm was measured with a 19-item scale developed by McGrath,

MacMillan & Venkataraman (1995). Managers within each firm were asked to indicate their perception of their firm's position on each of the 19 statements on a 5-point scale between two semantic differentials. A score of 1 would indicate lack of deftness while 5 would indicate maximum deftness. Organizational potency was measured using an 8-item scale developed by Guzzo, Yost, Campbell and Shea (1993). Respondents selected a number from 1 to 5 that indicated their agreement with each of the 8 items on the potency scale, where 1 = no agreement whatsoever and 5 = complete agreement. Communication and cooperation within the firms was measured using an 8-item scale developed by Lester, Meglina and Korsgaard (2002). As with potency, subjects indicated the extent of their agreement with each of the 8 items by selecting a number from 1 to 5. Finally, the degree of organizational centralization was measured using a 5-item scale developed by Jaworski and Kohli (1993). Here again subjects indicated the extent of their agreement with each of the 5 items by selecting a number from 1 to 5. Measures of deftness, potency, communication and cooperation, and centralization were provided by the managers within each firm, for a total of 272 responses from 94 firms with an average of 3 responses per firm. Centralization was reverse coded. The scores of the managers from each firm were averaged to produce an organizational level mean score. The averaging of individual scores to derive a firm level score is a commonly used methodology (Gibson, Randel, & Earley, 2000; Earley, 1993). The firms' owners did not provide an assessment of these four constructs. This

was done to minimize the likelihood of common method variance, which can occur when the same subjects assess both dependent and independent variables.

Results

The results of our analysis are provided in Tables 2 and 3. ANOVA results provided

in Table 2 suggest that ambidextrous firms experienced more growth in revenue and profit over the three years leading up to the study than would exploitative or exploratory firms. This finding supports hypothesis 1.

Table 2-Anova: Revenue and Profit

Variable	Group	N	Mean	s.d.	F	Sig.
Revenue	Exploitative Firms	39	2.61	.67	10.154	.000
	Exploratory Firms	31	2.87	.72		
	Ambidextrous Firms	24	3.51	.93		
	Total Firms	94	2.92	.83		
Profit	Exploitative Firms	39	2.38	.63	13.518	.000
	Exploratory Firms	31	2.29	.74		
	Ambidextrous Firms	24	3.21	.78		
	Total Firms	94	2.56	.80		

ANOVA results provided in Table 3 also reveal that measures of the four antecedent variables (deftness, potency, communication and cooperation, and centralization) are higher (lower for centralization, which was reverse scored) in ambidextrous firms than in either exploitative or exploratory firms. Again, these data support our hypotheses.

Discussion and Implications for SMEs

This research sought to extend and support the model developed by Raisch and

Birkinshaw (2008) by analyzing four organizational antecedents to learning orientation/ adaptation strategy selection and subsequent effects on firm performance. Consistent with that model, we found that leadership-based, contextual, and structural antecedents were associated with the selection of an ambidextrous adaptation strategy. Specifically, we found that organizational deftness, or the unity of effort embodied in the concept of a “group mind” is a powerful determinant of the organization’s learning orientation.

Additionally, management teams which possess potency, or the shared belief that they can achieve great things, suggests that group attitudes toward the simultaneous pursuit of exploration and exploitation are important prerequisites to adaptation and,

ultimately, performance. Another organizational contextual variable that is related to learning orientation is the degree of communication and cooperation in the organization.

Table 3-Strategy and Organizational Antecedents

Variable	Group	N	Mean	s.d.	F	Sig.
Deftness	Exploitative Firms	39	2.90	.25	58.92	.000
	Exploratory Firms	31	3.02	.36		
	Ambidextrous Firms	24	3.81	.24		
	Total Firms	94	3.17	.47		
Potency	Exploitative Firms	39	2.54	.31	123.76	.000
	Exploratory Firms	31	3.02	.33		
	Ambidextrous Firms	24	3.85	.18		
	Total Firms	94	3.03	.59		
Communication and Commitment	Exploitative Firms	39	3.32	.45	6.60	.000
	Exploratory Firms	31	3.42	.51		
	Ambidextrous Firms	24	3.74	.37		
	Total Firms	94	3.46	.47		
Centralization	Exploitative Firms	39	2.63	.39	66.08	.000
	Exploratory Firms	31	2.95	.37		
	Ambidextrous Firms	24	3.79	.42		
	Total Firms	94	3.03	.61		

One might argue that while deftness and potency represent the potential to succeed with an ambidextrous learning orientation, elements of communication and cooperation represent the degree to which organizational interaction and interdependence are manifestly enacted in pursuit of this difficult strategy. Finally, while the spatial separation of sub-units (decentralization) is believed to contribute to the development of

the exploratory and exploitative processes essential to survival and prosperity, consistent with Gibson and Birkinshaw (2004), structural forces alone may be inadequate to the task. It is perhaps worth exploring the interactive nature of the antecedents (cf. Raisch & Birkinshaw, 2008) to determine subsequent effects.

How might small business practitioners interpret and act upon the results? From a larger perspective, this research mirrors the findings of O'Regan, Ghobadian, and Sims (2005) which suggests that when firm leadership style matches firm strategy, the result is higher firm performance. And more directly, O'Regan et al. (2005) found that a balanced transformational and transactional leadership style is likely to lead to higher performance in all situations. In other words, when exploitation is called for, a transactional approach to leadership is most appropriate. When exploration is called for, a transformational approach to leadership is most appropriate. And when the organization needs to be ambidextrous, a *balance* of styles is preferred.

In this study, we found that leaders who create the conditions necessary for organizational deftness (McGrath, 2001; McGrath, MacMillan & Venkataraman, 1995) develop within their organizations members who know what is required and know how to do it skillfully and purposefully. Organizational members who possess deftness are able to consolidate information and resources to exploit organizational efficiencies and work in a reliable and successful fashion. They are also able to simultaneously explore and innovate because they possess a "group mind" (McGrath, 2001) and can more easily see a wider range possibilities in any given situation. The development of deftness may occur over time as management teams work together on common (and uncommon) problems. It is worth noting that the managers in this study had been with each other for an average of 15 years. In addition to time, deftness may be the result

of the development of trust between the leader and the management team. Heedful interactions can only occur if each member of a system trusts the inputs of the other members of a system (Weick & Roberts, 1993). Managers would be well advised to give management teams the time and space necessary to develop heedful interactions.

Leaders also shape the context in which organizational activities are conducted. The jointly held belief that the group can be effective, or group potency (Guzzo & Shea, 1992; Guzzo et al., 1993; de Jong, de Ruyter & Wetzels, 2005), is a powerful predictor of subsequent success. Leaders can build group potency by acknowledging and supporting group performance and celebrating group successes.

Knowledgeable leaders know to start with small group tasks and build upon each success until the management team is capable of tackling increasingly challenging and important organizational activities. Attention must be paid to group and team development, and policies aimed at increasing functional communication and cooperation are essential. Systems, tools, and processes should be developed to support and speed decision making in turbulent environments, and those tools should also free individuals for more important duties when exploiting known efficiencies. Finally, good leaders know when to "let go" – trust is developed when decisions are decentralized, and the wisdom of teams can only flourish when given the room to explore. The myth of the heroic leader dies a slow death, but the data clearly indicate that a controlling style of leadership only works in an efficiency-oriented environment.

The strengths of this research are that it investigated similar firms competing in a very dynamic competitive environment, it used multiple measures of organizational antecedents to adaptive strategy choice, and that it extended and supported the theoretical model proposed by Raisch and Birkinshaw (2008). Consistent with Lubatkin et al. (2006), we believe that the leadership-based antecedents are important determinants of organizational learning orientations, and that particularly for small firms such as those investigated in this study, leadership and top management team deftness, potency and communication are essential to enacting an ambidextrous strategy. We also found indirect support for the notion, developed and supported by Jansen, van den Bosch and Volberda (2005a), that firms competing in highly dynamic and competitive environments are more likely to pursue an ambidextrous learning orientation. The principle limitation of this research is that the relationships presented represent data from a one-time collection and therefore longitudinal assessments of firm performance are not included. It may be the case that all firms gravitate toward an ambidextrous strategy over time out of necessity, and that firms who fail to make the transition, especially in highly dynamic environments, cease to exist. It should be noted that the study is limited to a single industry which may limit one's ability to generalize. Finally, these results may be applicable to or informative for practitioners in *declining* industries, but not necessarily relevant to all small firms (i.e. those in mature or growth industries).

The results of this research add weight to the emerging consensus that firms can successfully react to environmental dynamism and competitive dynamics by engaging in simultaneous processes of exploration and exploitation. The need to do so is becoming more of an imperative every day, yet the organizational resources necessary to enact such a strategy may be limited, especially for small firms. Organizational deftness and group potency seem to be firm-specific human capital that vary widely between organizations, and appear to be the result of value-based leadership and organizational cultures that support individual growth and team learning. Of additional interest is the leadership climate within these firms where, presumably, a strong and principled leader sufficiently empowers organizational sub-units to explore and exploit, to learn and progress, with sufficiently decentralized processes for doing so and sufficiently integrated mechanisms for communicating and coordinating the work to produce superior results.

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