The Impact of TMT Behavioral Integration and Complexity on the Performance of Strategic Business Units: The Mediating Role of Ambidexterity

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Summary

The modern day workplace is characterized by rapid technological change, global competition, economic uncertainty, regulatory events and workforce diversity. In order to cope with this turbulent environment, paradoxically organizations need to respond through both incremental (i.e. exploitation) and radical change (i.e. exploration). This need for dual organizational capabilities is known as organizational ambidexterity and is the subject of this dissertation.

Current research has tended to focus on how unit ambidexterity is enabled and built up. However, in spite of these efforts we still need to better understand the drivers of ambidexterity; specifically, researchers acknowledge that an organization's top management team (TMT) plays a key role (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006; Smith & Tushman, 2005). To address this theoretical call, we focused on the role of top management teams in cultivating an ambidextrous unit. We argue that dynamics and processes within the top management team play a critical role in building TMT behavioral complexity capacities, which in turn build and shape unit ambidexterity. Recent studies have raised the need to explore specific contexts, in particular organizational settings. Following this line of research, we explored context for behavioral complexity. We propose a model that links TMT behavioral integration, TMT behavioral complexity and a context for behavioral complexity with ambidexterity and performance.

The companies targeted are local Israeli companies in various sectors of activity such as service, food, high tech, education, etc. These companies are either

home-grown or subsidiaries of firms with headquarters abroad. In the end, 22 companies took part. These companies were comprised of 101 business units, yielding participation from 1128 managers and employees. Our main research tool was a structured questionnaire that was constructed based on sources from the current literature.

The findings show that processes and dynamics within the top management team, specifically TMT behavioral integration which articulates quantity and quality of information sharing, collaboration and joint decision making, is related to a team's behavioral complexity which manifests by the capability to perform a wide portfolio of leadership roles and to differentiate between them according to the situation. This type of behaviorally complex team is able to pursue both exploration and exploitation. In addition, unit context for behavioral complexity, where employees take on a varied range of roles, was also related to a unit's ability to pursue these dual capabilities. Our study re-tested the relations between ambidexterity and performance. We applied three performance domain grids, which included "objective" measures such as business and product development and "subjective" measures such as unit effectiveness. The findings show positive relations between ambidexterity and performance. Finally, ambidexterity fully mediated the relations between context for behavioral complexity and the "objective" measures of performance. In addition, unit ambidexterity fully mediated the relationship between TMT behavioral complexity and business performance.

From a theoretical point of view, this study enhances current knowledge on unit ambidexterity by probing its antecedents, which, as far as the researcher knows, are novel to this inquiry. The current study contributes to this growing body of literature by

suggesting and testing novel contextual and leadership concepts as ambidexterity cultivators. Specifically, the current study utilizes context for behavioral complexity as well as the 'meta-construct' of behavioral integration (Hambrick, 1994), as a driver for unit ambidexterity. Second, to date, research on behavioral complexity in leadership has focused on the individual manager, often the CEO. However, strategy researchers and organization theorists have documented the importance of shared leadership in organizations (Pearce & Conger, 2003). An emergent theoretical call has been made to better understand TMT processes and dynamics that convert TMT characteristics into organizational processes and outcomes (Hambrick, 1994; Lawrence, 1997). Our study addresses this call by exploring TMT ability to act in a behaviorally complex manner, in addition to TMT behavioral integration.

Recent studies (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006) report initial empirical support for the claim that firm performance is enhanced when firms engage in exploration and exploitation. This study attempts to broaden the empirical evidence by retesting the claim and applying multidimensional performance criteria. Finally, our study provides a theoretical rationale for linking upper echelon theory, complexity theory in leadership, unit context, and ambidexterity and unit performance.

From a practical point of view, we convey an encouraging message to leaders; namely, that the genesis of an ambidextrous orientation resides within them. As our study shows, TMTs play an essential role in fostering ambidexterity primarily by their team's processes, dynamics and behaviors. This insight can be further exploited as a classification instrument for managers in the workplace. Moreover, as the literature

supports the hypothesis that the highest performance levels are achieved by leaders with high levels of behavioral complexity, it should spur leaders on to perceive behavioral complexity as a pivotal and desired behavior - for themselves as individuals and for their team. Finally, our study supports the hypothesis that firm performance, in the short term as well as the long term, is enhanced when firms are ambidextrous.

Part 1: Introduction

- ☒ **Research Problem**
- ☒ **Research Questions**
- ☒ **Research Goals**
- ☒ **Research Contribution**

1.1. Research Problem

Research in various fields such as managerial economics, organization theory and strategic management (e.g., Ghemawat & Ricart Costa, 1993; Gibson & Birkinshaw, 2004; Holmqvist, 2004; Van den Bosch, Volberda & De Boer, 1999; Winter & Szulanski, 2001) have recently adopted the human trait of *ambidexterity* (an individual's ability to use both hands with equal skill) as a metaphor to describe competent organizations (Tushman & O'Reilly, 1996, 1997, 2004). To ensure their viability and competitiveness in an increasingly turbulent environment in which multiple, inconsistent contextual demands can emerge (Christensen, 1998; Smith & Tushman, 2005; Tushman & O'Reilly, 1997), organizations look to expand their capacities to successfully confront intensifying paradoxes and effectively manage contradictory challenges. The existence of organizational paradoxes, contradictions and conflicts (Lewis, 2000; Poole & Van de Ven, 1989) is vital to keeping the system viable and enabling it to adapt and survive in the face of environmental disturbances (Thompson, 1967, p. 7) which are characterized by rapid technological changes, global competition, economic uncertainty, regulatory events and workforce diversity. Thus, organizations need to be capable of confronting an intensifying paradox through both incremental and radical change.

The synchronous pursuit of both increasing the alignment or fit among strategy, structure, culture and processes (i.e., exploitation), while simultaneously preparing for the inevitable revolutions required by discontinuous change (i.e.,

exploration) via loosely coupled and differentiated subunits or individuals, each of which specializes in either exploration or exploitation (i.e., ambidexterity) (Gupta, Smith, & Shalley, 2006, p. 693) has been conceptualized as critical for adaptation and success (e.g., Benner & Tushman, 2003; March, 1991). For a company to succeed over the long term, it needs to master both adaptability and alignment – or *ambidexterity* as it is defined. However, despite the growing theoretical support in the organizational literature for the need to balance exploration and exploitation, there is relatively little empirical evidence as to the impact of ambidexterity on organizational performance (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin, Simsek, Ling & Veiga, 2006).

Research has examined how organizational ambidexterity is enabled and built up. For example, researchers have studied structural ambidexterity (Tushman & O'Reilly, 1997) and contextual ambidexterity (Gibson & Birkinshaw, 2004) as important cultivators of the ambidextrous organization. However, in spite of these and other efforts we still need to better understand the drivers of ambidexterity in different situations, so that more coordinated organizational research that effectively straddles the scope and depth of the subject can be more fully explored (Venkatraman, Lee & Iyer, 2005). Specifically, researchers acknowledge that an organization's top management team (TMT) should play a key role in enabling and developing the conditions necessary for organizational ambidexterity (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006; Smith & Tushman, 2005). However, we know little about how an organization's TMT helps to design and shape an ambidextrous organization. To address this theoretical call, we focus on the role leadership (i.e. the TMT) in an ambidextrous unit.

While leadership research has long documented the leadership-organizational context linkage (e.g., Deal & Kennedy, 1982; Lewin, Lippitt & White, 1939; McGregor, 1960; Schneider, Ehrhart, Mayer, Saltz & Miles-Jolly, 2005; Tsui, Zhang, Wang, Xin & Wu, 2006), and the importance of contextual leadership (i.e., leadership as an emerging social construction embedded in a unique organization; see Osborn, Hunt & Jauch, 2002), research on organizational ambidexterity has directed little effort to exploring the role of TMTs in enabling and creating organizational ambidexterity (Lubatkin et al., 2006; Smith & Tushman, 2005); namely how a TMT masters contradictory strategy, structure, culture and process orientations (i.e., exploitation) and adapts to its environment (i.e., exploration) has yet to be explored. As Gibson and Birkinshaw noted, "a promising extension … would be to more systematically examine the behaviors of senior executives in an effort to understand how they help create ambidexterity" (2004, p. 223). Hence, a key theoretical question is which important TMT mechanisms address the challenge of developing complex behavioral responses that foster both exploration and exploitation.

To begin answering this theoretical question, we propose and test a model that links top management team processes and behavioral complexity capacities as well as *context for behavioral complexity* with unit ambidexterity. Gibson and Birkinshaw (2004) were the first to develop the concept of *contextual ambidexterity*. Contextual ambidexterity refers to the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire system. The term *unit context* reflects a combination of the structural context, culture and climate of a business unit and is defined as systems, processes and beliefs that shape individual-level behaviors (Bergelman, 1983a, 1983b; Denison, 1990; Ghoshal & Bartlett, 1994). Gibson and Birkinshaw (2004) drawing on

Ghoshal and Bartlett's (1994) concept of organization context, which can be conceptualized in terms of "the yin and yang of continuous self-renewal" (Ghoshal & Bartlett, 1997, p. 151) or more specifically a balance between a pair of hard elements (discipline and stretch) and a pair of soft elements (support and trust). Their concept is consistent with several earlier studies (Adler, Goldofts & Levine, 1999; Hedlund & Ridderstrale, 1997), which pinpointed the need for a specific context that enables behavioral orientation toward dual capacities and the need for units to build systems and processes that facilitate this behavior.

Recent studies have raised the need to explore specific contexts in particular organizational settings. For instance, studies have focused on service (Schneider et al., 2005), ethics (Grojean, Resick, Dickson & Smith, 2004) and a safe (Barling, Loughlin, & Kelloway, 2002; Guldenmund, 2000; Zohar, 2000, 2002) climate as enablers of organizational outcomes. Thus, it is not only what leaders emphasize through charismatic leadership, their actions or a formal structure, but also "the bundle of behavioral features of the environments they create and maintain that signals a strategic climate or interest" (Schneider et al., 2005, p. 1018). Following this line of research, we focus on *context for behavioral complexity* as a unit-specific context that builds and enables the meta-capabilities of alignment and adaptability to simultaneously flourish within organizational units. As Gibson and Birkinshaw (2004) claim, this context reflects a combination of the structural context, culture and climate of a business unit.

A growing body of literature indicates the merits of shared leadership which "entails a simultaneous, ongoing, mutual influence process within a team that is characterized by "serial emergence" of official as well as unofficial leaders". (Pearce,

2004, p. 48). Research indicates "clear support for the conclusion that the top team, rather than the top person, has the greatest effects on organizational functioning" (O'Reilly, Snyder & Boothe, 1993, p. 150). Hence, instead of focusing on the individual leader's behavioral complexity capacities, we concentrate on behavioral complexity in a TMT.

It is not clear why some TMTs possess high levels of behavioral complexity while others do not. We suggest that dynamics and processes within the TMTs play a critical role in building behavioral complexity capacities. Hooijberg and Quinn (1992) conceptualized behavioral complexity as the capacity of a given leader to engage in a wide repertoire of behaviors. According to Denison, Hooijberg and Quinn, complexity is "the ability to exhibit contrary or opposing behaviors" (1995, p. 526). Quinn (1984) suggested characterizing these opposing behaviors using the dimensions of the Competing Values Framework (CVF). The two contrasting value pairs are the internal/external organizational focus, and the stability/flexibility organizational structure. As leadership roles have become complex due to changing internal and external environments, the concept of behavioral complexity has become of particular interest. This concept focuses on the ability to play multiple roles that call for diverse and competing behaviors. Drucker (1973, p. 616) observed that top management simultaneously requires "a thought man, an action man, a people man and a front man" and Sale (1980) noted that complex behavior is critical to adaptation and survival at the organizational as well as the individual leadership level.

Internal TMT processes are crucial to explaining adaptive and maladaptive organizational responses to change (Carmeli & Schaubroeck, 2006; Hambrick, 1998;

Mooney & Sonnenfeld, 2001; Simsek, Lubatkin, Veiga & Dino 2005). This "teamwork allows the CEO to engage in a participative group process through which diverse members wrestle together with difficult issues to make decisions and build commitment to implementing them, giving rise to strategic leadership effectiveness" (Edmondson, Roberto & Watkins, 2003, p. 298). Thus TMT behavioral integration is best seen as a "meta construct" that refers to the extent to which a TMT engages in mutual and collective interaction (Hambrick, 1994) and hence is a form of *teamness* that is particularly critical for the emergence of behavioral complexity. We argue that through high quality mutual and collective interactions characterized by quantity and quality of information exchange, collaborative behavior, and joint decision making (Hambrick, 1994, p. 189), a TMT is better able to exhibit contrary or opposing behaviors, and build an ambidextrous unit. This rationale is the basis for the model suggested here, where behavioral integration and behavioral complexity are analyzed at the group level whereas a context for behavioral complexity and ambidexterity are approached at the unit level.

To summarize, this study seeks to examine how leadership enables unit ambidexterity. Specifically, it uses the concept of behavioral integration and complexity as well as context for behavioral complexity to explain how an ambidextrous orientation is enabled in units and examine their implications for various performance criteria. Our thesis is that behaviorally integrated and complex top management teams can enable units to transcend the tensions related both to continuity and to change which enables and nurtures unit ambidexterity.

1.2. Research Questions

The current study aims to test the following central questions:

1. The relations between TMT behavioral integration and its behavioral complexity.

2. The relations between TMT behavioral complexity and unit ambidexterity.

3. The relations between unit context for behavioral complexity and its level of ambidexterity.

4. The relations between unit ambidexterity and unit performance.

5. The mediating role of TMT behavioral complexity in the relations between TMT behavioral integration and unit ambidexterity.

6. The mediating role of unit ambidexterity in the relations between context for behavioral complexity and unit performance, as well as between TMT behavioral complexity and unit performance.

1.3. Research Goals

This thesis aims to contribute to a growing body of knowledge on the antecedents and consequences of ambidexterity by examining a model that links leadership as articulated by behavioral integration and complexity, within the unit context of behavioral complexity, as enablers of unit ambidexterity and performance.

The main goals of this thesis are as follows:

1. To investigate the effect of TMT internal process and dynamics on enhancing its capabilities to behave in a more complex manner.

2. To investigate the antecedents of ambidexterity

   2.1 By suggesting a specific unit context, context for behavioral complexity, and examining its effect on nurturing and maintaining unit ambidexterity.

   2.2 By examining the paramount role of TMTs, through their internal processes and behaviors that create and shape an ambidextrous orientation.

3. To re-examine the relations between unit ambidexterity and its multi-dimensional performance measures.

1.4. The Study's Potential Contribution

The primary goal in the this thesis is to address the theoretical call to better understand the conditions that give rise to more coordinated organizational research which will effectively straddle scope and depth (Venkatraman et al., 2005) of the drivers of ambidexterity. Specifically, we attempt to shed light on the role of TMTs in designing and enabling an ambidextrous organization. In doing so, we tackle an important avenue of research related to the way TMTs can cultivate unit ambidexterity (Lubatkin et al., 2006; Smith & Tushman, 2005).

From a theoretical point of view**,** this study aims to enhance and deepen the understanding of unit ambidexterity by suggesting its antecedents, which, as far as the researcher knows, are novel to this inquiry. Gibson and Birkinshaw (2004) were the first to develop and test the concept of contextual ambidexterity. They found that a context of discipline, stretch, support and trust (Ghoshal & Bartlett, 1994) leads to achieving organizational ambidexterity. Moreover, as regards leadership, Lubatkin et al. (2006) were the first to test the pivotal role of TMT behavioral integration in facilitating ambidexterity. The current study contributes to this growing body of literature by suggesting and testing novel contextual and leadership concepts as ambidexterity cultivators. Specifically, the current study utilizes context for behavioral complexity as well as the 'meta-construct' of behavioral integration (Hambrick, 1994), as a driver for TMT behavioral complexity (Hooijberg & Quinn, 1992), which, in turn, results in unit ambidexterity.

Secondly, up to now, research on behavioral complexity in leadership has tended to concentrate on the individual manager, often the CEO. However, strategy researchers and organization theorists have documented the importance of the organization's TMT in making strategic decisions to generate a competitively advantageous position (Lubatkin et al., 2006; O'Reilly et al., 1993; Smith & Tushman, 2005). This is also evident in recent leadership research, which emphasizes the role of shared leadership in organizations (Pearce & Conger, 2003). An emergent theoretical call has been made to better understand the TMT processes and dynamics that convert TMT characteristics into organizational processes and outcomes (Hambrick, 1994; Lawrence, 1997).

Recent studies (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006) demonstrate initial empirical support for the claim that firm performance is enhanced when firms engage simultaneously in exploration and exploitation. This study attempts to contribute to the literature by broadening the empirical evidence by retesting the claim and applying multidimensional performance criteria composed of objective measures (financial as well as product development) and a subjective measure (effectiveness).

Finally, it contributes to the organizational literature by providing theoretical reasoning for linking leadership, upper echelon theory to behavioral complexity theory, not from the individual perspective, but from the top management team perspective, as well as linking contextual theory with ambidexterity.

From a practical point of view, we convey an encouraging message to leaders through the notion that the genesis of an ambidextrous orientation resides within them. TMTs likely play a role in fostering ambidexterity primarily by encouraging and nurturing adaptability, which can be accomplished by simply serving as a good example, modeling the adaptive behavior, and then reinforcing it with rewards and recognition. Hence, the literature supports the hypothesis that firm performance is enhanced when firms are ambidextrous; this insight can be further exploited as a classification instrument for managers. Moreover, as the literature supports the hypothesis that the highest performance levels are achieved by leaders with high levels of behavioral complexity, it will spur leaders on to perceive behavioral complexity as a pivotal behavior - for themselves and the organization.

Part 2:

Theoretical Background and Research Model

- ☒ **Research Model**
- ☒ **Theory and Hypotheses**

2.1. Research Model

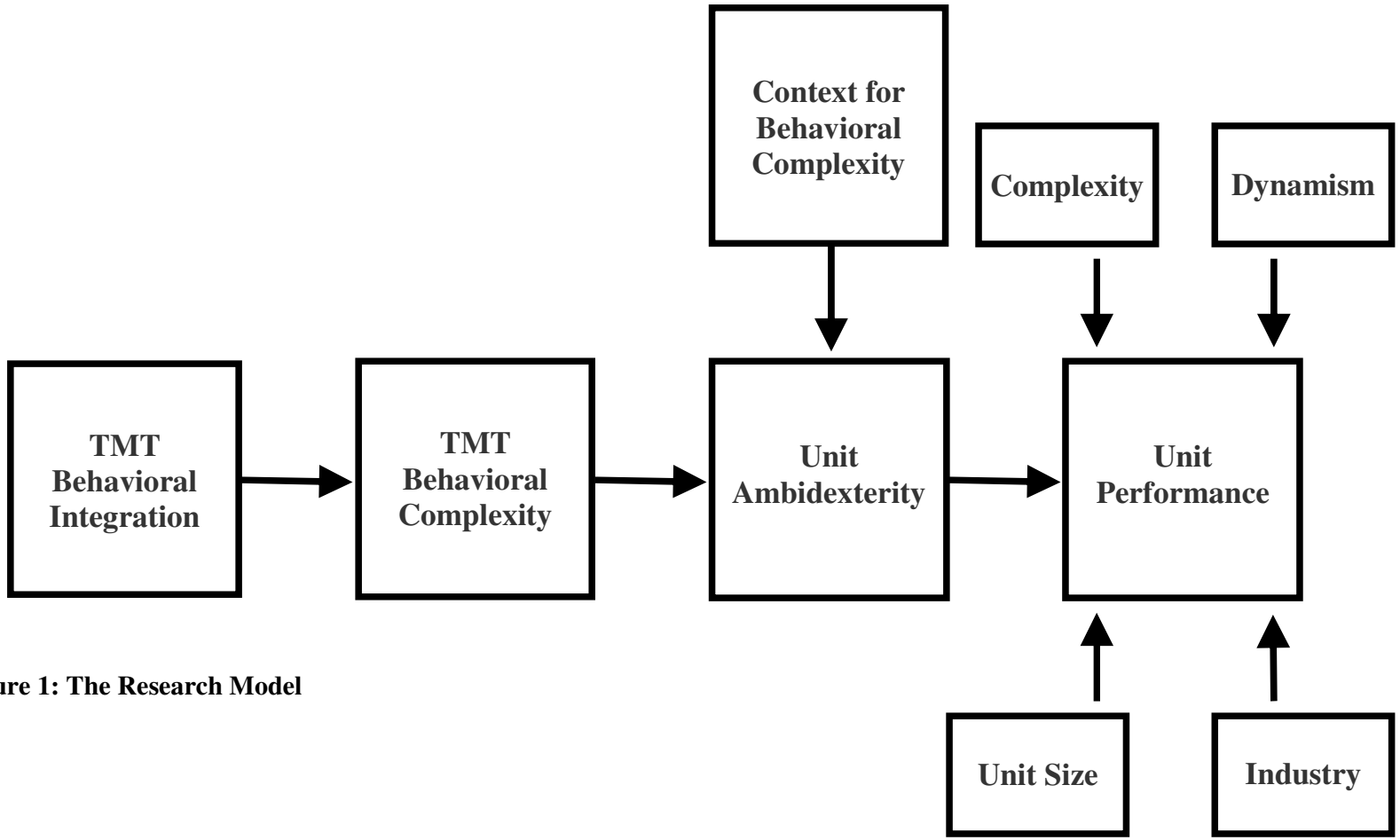

Figure 1: The Research Model

2.2. Theory and Hypotheses

2.2.1. TMT Behavioral Integration

The term *Top Management Team* made its debuts in organization studies in the 80s (Bourgeois, 1980) and has been pervasive since then. Organization researchers have widened their focus on the singular leader at the apex of the organization, and emphasized the impact on the constellation of executives who comprise what Cyert and March (1963) called the "dominant coalition"; people who are essential to the specialized work of maintaining the organization in operation" (Barnard, 1938, p. 215). A TMT refers to the top two tiers of the organization's management, e.g., the CEO and senior executives who hold positions at or above the level of vice president such as president, chief financial officer (CFO), and chief operational officer (COO) and are considered to be "direct reports". A TMT member is an individual who plays a key role in the strategic and practical orientation of the firm (Castanias & Helfat, 1991; Hambrick & Mason, 1984). Strategic leaders focus on providing a strategic vision, setting policies and goals, planning and controlling. As such, TMTs have distinctive characteristics. Their task is complex and has multiple elements such as information overload, ambiguity, decision making, responding to environment changes etc. A second distinctive feature is their locus; i.e. TMTs in their organization carry an internally and externally symbolic significance. The third distinctive feature is the characteristics of the individuals who comprise the team. These characteristics, such as

achievement oriented and undertaking initiatives stem from their task and locus (Hambrick, 1994).

TMTs have multiple facets which collectively define their nature. These conceptual elements comprise their structure and composition, their internal processes, their incentives and their CEO. Since Hambrick and Mason's (1984) research exploring the impact of TMT characteristics and functions on organizational behavior and outcomes, strategy and organizations researchers have been making intensified efforts to gain a better understanding of the role played by TMTs in organizational leadership. Drawing on Hambrick and Mason's (1984) seminal work which advocated the notion that the organization is a reflection of its TMT's attributes, a considerable research effort has been directed toward linking the composition of a given TMT to competitive moves (Hambrick, Cho & Chen, 1996), global strategic posture (Carpenter & Fredickson, 2001), expansive global strategies (Sanders & Carpenter, 1998), strategic change (O'Reilly et al, 1993, Wiersema & Batel, 1992) or absence of change (Finkelstein & Hambrick, 1990), and commitment to innovation (Daellenbach, McCarthy & Schoenecker, 1999), among others.

However, ambiguous and inconsistent empirical results have led researchers to conclude that TMT heterogeneity can be a double-edged sword, as research has found positive effects (Eisenhardt & Schoonhoven, 1990), negative effects (Murray, 1989) and no effects (Michel & Hambrick, 1992). As West and Schwenk comment: "Pursuing this line of inquiry further will yield inconsistent [results] at best and fruitless [results] at worst" (1996, p. 571). A different approach to TMT research consists of opening up the "black box" (Lawrence, 1997). This line of thinking has yielded a call to invest more

efforts towards a better understanding of TMT processes and dynamics such as social integration (Smith, Smith, Olian, Sims, O'Bannon & Scully, 1994), consensus (Bourgeois, 1980), communication quality and frequency (Smith et al., 1994) interdependence (Michel & Hambrick, 1992) and consensus (Bourgeois, 1980). Nevertheless, TMT processes research has been summed up as follows: “Researchers have not gained a good understanding of the nature of TMT process” (Simsek et al., 2005, p. 69).

Recently, scholars have begun concentrating on the antecedents and consequences of TMT processes. TMT processes are thus seen as distinct from group processes, because TMT members deal with higher levels of firm-related task responsibilities, individually as senior executives, and interdependently as members of a firm's top decision-making team. However, too little attention has been paid to the actual mechanisms that serve to convert group characteristics into organizational outcomes (Hambrick, 1994, p. 185). He suggests recasting specific social and task processes into an all-compassing "meta construct" of *behavioral integration*, which refers to "the degree to which the group engages in mutual and collective interaction" (p. 188) or, in other words, exhibits a high degree of *teamness* (Hambrick, 1998). Such interaction has three major elements consisting of one social dimension and two task dimensions: (1) quantity and quality (richness, timeliness, accuracy) of information exchange, (2) collaborative behavior, and (3) joint decision making. Thus, a behaviorally integrated team is one that shares information, resources and decisions. Hambrick (1994) argued that these mutually reinforcing processes better capture the TMT’s level of wholeness and unity of efforts that does each element separately,

because behavioral integration includes not only social and affective aspects, but also task and behavioral features.

TMT behavioral integration has been shown to impact on organizational processes and outcomes. Hambrick (1998) reported that behavioral integration enabled TMTs to integrate knowledge and insights to create core competencies, react well to increasing market needs, and develop global strategy. Mooney and Sonnenfeld (2001) found that behavioral integration was negatively related to affective and cognitive conflict. Li and Zhang (2002) found that industry growth and marketization were positively related to behavioral integration and that the latter facilitated product innovation intensity. Carmeli and Schaubroeck (2006) found that TMTs differ as regards group process effectiveness. In particular, behavioral integration becomes particularly critical to group performance when the group is confronted by the rapid and unexpected changes that characterize organizational decline. Li and Hambrick (2005) expanded the study of behavioral (dis)integration (the inverse of behavioral integration) to include joint venture management groups and found that behavioral (dis)integration is negatively related to subsequent performance. Lubatkin and colleagues (2006) found that the extent to which a firm's TMT is behaviorally integrated is positively associated with an ambidextrous orientation. Finally, Simsek et al. (2005) showed behavioral integration to be positively associated with firm performance.

2.2.2. TMT Behavioral Integration and TMT Behavioral Complexity

2.2.2.1. Behavioral Complexity

As early as 1945, Fitzgerald noted that the test of first-rate intelligence is the ability to hold two opposing ideas in the mind at the same time and still be able to retain the ability to function. Thus, effective leaders are those who possess the necessary cognitive and behavioral complexity to respond to contrary or conflicting demands for action.

Today's complexity theorists focus on the structure of human information processing and examine the ability of individuals or entities to respond to a host of ambiguous and contradictory forces, including the simultaneous presence of opposites (Denison et al., 1995). Complexity theory encompasses varied terminology and approaches such as cognitive complexity, integrative complexity and interactive complexity theory. Satish (1997) suggested the umbrella term *Behavioral Complexity* to cover all of these avenues of exploration.

Researchers distinguish between two key components of behavioral complexity: behavioral repertoire and behavioral differentiation (Denison et al., 1995; Hart & Quinn, 1993; Hooijberg, 1996; Hooijberg & Hunt, 1997). Behavioral repertoire refers to the portfolio of leadership roles managerial leaders can perform, whereas behavioral differentiation refers to the ability of managerial leaders to perform leadership roles differently, depending on the organizational situation. When considering behavioral repertoire, it should be noted that leadership is defined in terms

of expected functions and behaviors (Mintzberg, 1973; Yukl, 2002) and leadership roles that are assumed to be partly contradictory with one another (cf. Competing Values Framework (CVF), Quinn, 1984, 1988).

Here, we use the concept of behavioral complexity as defined by Quinn and his colleagues (Cameron & Quinn, 1988; Hart & Quinn, 1993; Quinn, 1988) to portray the broad portfolio of leadership roles. Hooijberg and Quinn (1992) defined this concept as "the ability to act out a cognitively complex strategy by playing multiple, even competing roles, in a highly integrated and complementary way" (Hooijberg & Quinn, 1992, p.164). Their Competing Values Framework articulates the main dilemmas in organizational literature. The emergence of the one pair of competing values- *flexibility versus stability*- reflects a basic dilemma in organizational life. The second pair of competing values is *internal focus versus external focus*. The third organizational dilemma reflected in the third pair of *means versus ends* (Quinn & Rohrbaugh, 1983). Specifically, their model incorporates two pairs of contrasting values or capabilities that define the behavioral breadth within which a manager might act. The first pair concerns organizational focus, either an internal focus or an external one. The second pair reflects an emphasis on stability or flexibility in the organizational structure. These dimensions produce a four- quadrant model of managerial behaviors. Each quadrant of the framework represents one of the four major models of organization and management theory (Quinn, 1988). The human relations model places a great deal on emphasis on flexibility and internal focus, and stresses cohesion, morale and human resources development as criteria for effectiveness. The open systems model emphasizes flexibility and external focus, and stresses readiness, growth, resource acquisition and external support. The rational goal model emphasizes control and an external focus, and

views planning, goal setting, productivity and efficiency as effective. The internal process model emphasizes control and an internal focus, and stresses the role of information management, communication, stability and control. One set of opposing quadrants, the open system model versus the internal process model, contrasts behaviors that create continuity versus change. The other set, the human relations model versus the rational goal model, contrasts priorities of results versus relationships. Because opposing quadrants are commonly thought to be mutually exclusive, their coexistence in an individual manager or leader presents a paradox. Behavioral complexity suggests that it is possible for a leader to transcend these paradoxes.

In addition to taking on multiple roles, executive leaders must discriminate and recognize various facets, characteristics, and the significance of a given social situation over time. Therefore, behavioral complexity is not enough in itself to sustain a high level of organizational effectiveness.

Based on the Competing Values Framework (Quinn, 1988; Quinn & Cameron, 1988), Hart and Quinn (1993) proposed a broad portfolio of leadership roles including vision setter, motivator, analyzer, and task master. The vision setter role is related to defining and articulating the firm's basic purpose and future directions. To fulfill this role, a top manager must spend considerable time monitoring and studying emerging social, economic, and technological trends. During this process, top managers select relevant information from the environment and set up an appropriate goal for the organization. The motivator role refers to translating the vision and economic strategy of the firm into a "cause worth fighting for". To fulfill this role, top managers must create a sense of excitement and vitality within the organization to motivate employees

to accomplish the organization goal. Through the analyzer role, top managers focus on the efficient internal operating system of management. Executive leaders set the context, shape the decisions made by the operating system, and have control over the process of management. Finally, in the task master role, top managers focus on the firm's performance and responsibilities. In the narrow sense, this is associated with economic performance and the demands of the capital market. In the broader sense, it results in social performance and responsibility. To fulfill this role, executive leaders need to not only influence decisions made at lower levels, but also make explicit trade-offs and allocate resources to the highest priority activities.

Research supports the idea that managers who perform multiple and competing roles are more effective than those who do not (Denison et al., 1995; Hart & Quinn, 1993). High performing managers possess high levels of cognitive complexity (e.g., Streufert & Swezey, 1986), behavioral complexity (e.g., Hart & Quinn, 1993; Hooijberg & Quinn, 1992), and are able to utilize multiple frames of reference in dealing with problems (Dreyfus, Dreyfus & Athanasion, 1986). For example, Hart and Quinn (1993) showed that CEOs with high-level behavioral complexity produced good performance. Similarly, Denison et al. (1995) showed that more effective executives exhibited a greater variety of leadership roles than their less effective counterparts.

Up to now, leadership behavioral complexity has been seen as an individual level construct. That is, behavioral complexity has been referred to as a leader's ability to take on multiple roles, and to perform these leadership roles differently (Black & Boal, 1996; Denison et al., 1995; Hart & Quinn, 1993; Hooijberg, 1996; Hooijberg & Hunt, 1997). Here, we argue that behavioral complexity may also be a characteristic of

the TMT. Just as individual leaders can develop behavioral complexity, teams, through enabling processes (as explained below), can be characterized as high or low on behavioral complexity. Our approach is similar to ones that explore individual leaders' capacity to learn and team capacity to learn. For example, consider the individual context-for-learning and group context-for-learning constructs. The former is defined as an "individual's perception of his/her ability to learn within his/her organization" and is characteristic of the individual leader (i.e., individual-level construct). Group context-for-learning, defined as "the collective perception by a group of the members' ability to learn within an organization" is a group-level construct (Black, Oliver, Howell & King, 2006, p. 40). The present study refers to behavioral complexity at the group level and examines TMT capacity to carry out a portfolio of leadership roles (behavioral repertoire) and its ability to perform the right leadership roles differently, depending on the unit situation (behavioral differentiation). In what follows we discuss the processes and dynamics that are indicative of team effectiveness and give rise to behavioral complexity.

2.2.2.2. TMT Behavioral Integration and TMT Behavioral Complexity

Following Wageman, Hackman and Lehman's (2005) broad definition of team effectiveness which uses three dimensional concepts (i.e. productive output, social processes and team's well being), we elaborate on the role of social and task-related mutually reinforcing processes (i.e., behavioral integration) in facilitating behavioral complexity to emerge.

Collaboration, the first construct of behavioral integration, is a socially-related process which has been defined as "the presence of mutual influence between persons,

open and direct communication and conflict resolution, and support for innovation and experimentation" (Aram & Morgan, 1976, p. 1127). First, a collaborative process enables the TMT to exploit complementary resources and skills of team members, and by so doing increase the roles portfolio that can be employed by the team. Second, a collaborative process enhances TMT mental capacity to process and interpret information and understand complex processes which give rise to the TMT's level of cognitive complexity (Yukl, 2002). Third, a collaborative process increases TMT capability to tailor and provide the most appropriate responses in diverse situations which gives rise to behavioral differentiation (Zaccaro, Gilbert, Thor & Mumford, 1991). Finally, collaboration may, directly and indirectly, give rise to behavioral complexity by fostering commitment and participation (the Human Relation Model in the CVF) and innovation (the Open Systems Model in the CVF).

Research evidence shows that participative decision making or joint decision making, the task-related construct of behavioral integration, increases motivation, job satisfaction and commitment, promotes organizational citizenship behavior, enriches information flow, and makes communications more open and transparent (e.g. Anderson & McDaniel, 1999; Pearson & Duffy, 1999). These sequential processes and behaviors can power following the social exchange theory both the individual and the team to address internal as well as external processes within the group by employing a wider range of leadership roles (Blau, 1964). It enhances the unit internal focus by fostering human relations roles to build commitment and openness, as well as relate to the "structured" process of managing information and control. In addition, processes of joint decision making within TMTs support unit external focus by fostering leadership roles of innovation and direction setting.

The third and task-related construct of behavioral integration refers to the quantity and quality of information exchange in the team. The exchange of information is the key difference between individual and group decision making. Mintzberg (1973) postulates that managers' primary roles involve the gathering and dissemination of information; this makes managers a nexus of information flows within the organization. As such information exchange has a pivotal role in decision making within a team. It brings to the fore more complete information and individual preferences about decision alternatives, and hence leads to greater team performance (Bunderson & Sutcliffe, 2002; Hackman, 1990). We argue here that the process of information exchange, both frequently and quantitatively, which produces effective and qualitative decision making, assists the TMT to better adapt to its external environment, which is articulated by the leadership roles of innovation, adaptation and setting goal and direction. Moreover, TMT's information sharing can support more effective internal processes which are articulated by the leadership roles of building commitment and morale, creating openness and managing internal information and control.

As discussed above, each of the three constructs of behavioral integration can influence a TMT's ability to cultivate its behavioral complexity. However, since these constructs are interrelated and intensify one another, their collective presence within the TMT can influence the TMT's behavioral complexity to a large degree. Hence, we suggest that differences in group process effectiveness among TMTs, particularly in their levels of behavioral integration, can account for differences in TMT behavioral complexity.

Previous studies have found that TMT behavioral integration impacts on organizational processes and outcomes. Hambrick and colleagues (1996) argued that low TMT behavioral integration makes it difficult for a TMT to adapt to external challenges in a timely manner. Siegel and Hambrick (1996) assert that behaviorally integrated teams make better use of knowledge alternatives. TMT behavioral integration helps to create a climate of trust and reciprocity (Coleman, 1990; Granovetter, 1985; Uzzi, 1997), enhancing focus and attention regarding the task at hand rather than on politics and bargaining (Cyert & March, 1963), and enlists higher commitment and follow-ups regarding team decisions (Carmeli & Schaubroeck, 2006). Moreover, this type of group dynamics embraces opposing points of view (Janis, 1972), combines knowledge and insights to respond well to increasing market needs, creates core competencies, and develops global strategies (Hambrick, 1998). In addition, it provides teams with a broad set of insights that sensitize a variety of inputs (Simsek et al., 2005) and values, and exploits complementary personalities, values, skills, experience and knowledge.

Hence, we posit that TMT behavioral integration is a key mechanism in enabling behavioral complexity, which is reflected in a broader TMT repertoire (i.e., a broad range of leadership roles) and behavioral differentiation (i.e., the ability to carry out leadership roles differently: more adaptively, more flexibly, etc.).

Hypothesis 1:	***There is a positive relationship between TMT behavioral integration and TMT behavioral complexity.***

2.2.3. TMT Behavioral Complexity and Ambidexterity

2.2.3.1. Ambidexterity

"The contribution of paradox to management thinking is the recognition of its power to generate creative insight and change"

(Eisenhardt and Westcott, 1988, p. 170).

"The basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, to devote enough energy to exploration to ensure its future viability"

(Levinthal and March, 1993, P. 105).

Thompson's (1967) and Barnard's (1968) early admonitions regarding the task of organizations to reconcile contradictory forces has for the most part been ignored and only recently received revived research interest. While Cameron and Quinn (1988) and Poole and Van de Ven (1989) have argued that firms must build capabilities to attend to contradictions, the theoretical and empirical research for managing these contradictions has remained on the periphery. Increasing technological change, global competition and workforce diversity has only served to reveal and intensify the paradox. While it is sometimes said that contradictions can have negative outcomes such as slowing down processes or increasing struggles for power, the literature on organizational paradoxes, contradictions and conflicts (Lewis, 2000; Poole & Van de Ven, 1989) suggests that inconsistent and contradictory agendas coexist and can both succeed simultaneously as they are "keeping the system viable in the face of disturbances stemming from the environment" (Thompson, 1967, p. 7).

Organization theorists have recently adopted the human trait of ambidexterity (an individual's ability to use both hands with equal skill) as a metaphor to describe competent organizations (e.g., Benner & Tushman, 2003; He & Wong, 2004; Lubatkin et al., 2006). The essence of the idea behind the value of ambidexterity, which was first used by Duncan (1976), is that its task environment is always to some degree in conflict, so there are always trade-offs to be made. Although these trade-offs can never entirely be eliminated, the most successful organizations reconcile them to a large degree and, in doing so enhance their long-term competitiveness (Levitt & March, 1998). The essence of this idea is also captured in the dynamic theory of a firm in which firms can synthesize and not optimize existing capabilities and conditions. It is not "either or" but a "both or/ and" approach. The synthesizing action transcends the existing capabilities (Nonaka & Toyama, 2002).

Hence, previous studies argued that ambidextrous organizations are ones that are capable of generating positive outcomes through both revolutionary and evolutionary change (Tushman & O'Reilly, 1996), creating and sustaining advantage (Grant, 1996), change and preservation (Volberda, 1996), alignment and adaptation (Duncan, 1976) and exploiting existing competencies as well as exploring new opportunities with equal dexterity (e.g., Duncan, 1976; March, 1991; Tushman & O'Reilly, 1996). The idea behind ambidexterity is that a firm's task environment is always to some degree in conflict, so there are always trade-offs to be made. Although these trade-offs can never be entirely eliminated, the most successful organizations reconcile them to a large degree and, by doing so enhance their long-term competitiveness (Gibson & Birkinshaw, 2004). Recently, building on the observation that organizations operate within a broader social system characterized by

interdependencies between organizations, it has been suggested that under certain conditions, specialization in either exploration or exploitation can achieved at the level of the broader social system, rather than individual organizations. Thus, some organizations may specialize in exploration while others in exploitation and the balance between them is attained via the market interface (Gupta et al., 2006). Lei and Slocum (2005) make the point that the type of industry environment can affect rate of technological change and that a firm's lifecycle (growth/maturity) requires specific strategic choices to create an organization-environment fit.

Firms tend to divide their attention and resources between exploration and exploitation, which are seen in the literature as two broad types of qualitatively distinct learning and knowledge processes (Floyd & Lane, 2000; March, 1991). The concepts are central to studies of adaptation, organizational learning and technological innovation (e.g., Benner & Tushman, 2002; March, 1991). Baum, Li and Usher (2000) suggested that "exploration refers to learning gained through processes of concerted variation, planned experimentation, and play" (p. 768) and implies firm behavior characterized by variance-increasing activities, search, discovery, experimentation, risk-taking and innovation. Exploitation, on the other hand, "refers to learning gained via local search, experiential refinement, and selection and reuse of existing routines" (Baum et al., 2000, p. 768) and is characterized by variance-decreasing, disciplined problem solving, refinement, implementation, efficiency, production and selection (Cheng & Van de Ven, 1996; March, 1991). Along the same lines, according to Benner and Tushman, "exploitative innovations involve improvements in existing technological trajectories, whereas exploratory innovation involves a shift to a different technological trajectory" (2002, p. 679). Hence, explorative firms generate larger outcome variations by

experiencing substantial success as well as failure, while exploitative firms are likely to generate more stable outcomes.

Studies have suggested that these capabilities require substantially different strategies, cultures, structures and processes (e.g., Benner & Tushman, 2003). Exploration is associated with organic structures, loosely coupled systems, path-breaking, improvisation, autonomy and chaos, emerging markets and technologies. Exploitation is associated with mechanistic structures, tightly coupled systems, path dependence, routinization, control and bureaucracy, and stable markets and technologies (Ancona, Goodman, Lawrence & Tushman, 2001; Lewin, Long & Carroll, 1999).

Early studies focused on structural ambidexterity, developing structural mechanisms to cope with the competing demands faced by the organization. Proponents of this attitude suggested *structural separation* (e.g. Drucker, 1985) of units and *task partitioning* (e.g. Hedlund & Ridderstrale, 1997) or *temporal separation* (e.g. Duncan, 1976) within a unit. Recently, Gibson and Birkinshaw (2004) developed a different perspective, focusing on *contextual ambidexterity*. They suggest that ambidexterity is best achieved not through structural mechanisms, but by building a context that encourages individuals to make their own judgments as how to manage competing demands.

While there is no widely accepted measure of an ambidextrous orientation, existing research provides us with several measures for the exploration and exploitation dimensions (e.g., He & Wong, 2004; Lubatkin et al., 2006) or, alternatively, for capturing alignment and adaptability (e.g., Gibson & Birkinshaw, 2004). While

exploratory orientation articulates the firm's thinking "outside the box"; i.e., the importance of carrying out innovative projects by entering new product-market domains, creativity and flexibility which allows quick responses to a turbulent environment, exploitive orientation articulates commitment to improving current products and services, enhancing efficiency and keeping customers satisfied.

The notion of balance between exploitation and exploration has been a consistent theme across several research approaches in organization theory, strategic management and managerial economics (e.g., Ghemawat & Ricart i Costa, 1993; Holmqvist, 2004; Van de ven et al., 1999; Winter & Szulanski, 2001). Too much exploitation results in inertia and dynamic conservatism (Benner & Tushman, 2002; Sull, 1999) or as Levintal and March argued, "an organization that engages exclusively in exploitation will ordinarily suffer from obsolescence" (1993, p. 105). Similarly, too much exploration is ‘building tomorrow's business at the expense of today's’ (Gibson & Birkinshaw, 2004) or, as Levintal and March note, "an organization that engages exclusively in exploration will ordinarily suffer from the fact that it never gains the returns of its knowledge" (1993, p. 105). Here, unit ambidexterity is referred to as the synchronous pursuit of balanced exploration and exploitation agendas. This is, an ambidextrous organization is a system that synchronously pursues the refinement and extension of existing competencies, technologies, and paradigms (i.e., exploitation) as well as experimentation with new alternatives and options ((i.e., exploration) (March, 1991, p. 85). This is consistent with Gupta et al.'s (2006) assertion that both agendas (exploration and exploitation) entail a certain type and degree of learning. Despite the near consensus as for the need to balance exploitation and exploration, there is considerably less clarity on how this balance can be achieved. Ambidexterity (i.e. via

loosely coupled and differentiated subunits or individuals, each of which specializes in either exploration or exploitation) and punctuated equilibrium (i.e. temporal differentiation by cycling through periods of exploration and exploitation) are mechanisms suggested to help organizations to achieve this balance (e.g. Benner & Tushman, 2003; Weick, 1976).

2.2.3.2. TMT Behavioral Complexity and Ambidexterity

Recent research has focused on the how organizations can achieve ambidexterity. These studies have highlighted behavioral contexts (the human side of organizations) (Gibson & Birkinshaw, 2004), structures (Tushman & O'Reilly, 1996, 1997), meta-routines (Adler et al., 1999) and finally the role of TMTs in helping to create and design this (Lubatkin et al, 2006). Tushman and O'Reilly suggest that ambidexterity is largely driven by TMTs' "internal processes that enable them to handle large amounts of information and decision alternatives and deal with conflict and ambiguity" (1997, p. 23). In the same vein, Gibson and Birkinshaw suggest that "a promising extension of our study would be to more systematically examine the behaviors of senior executives in an effort to understand how they help create ambidexterity" (2004, p. 223).

Understanding how a TMT designs and builds an ambidextrous organizational system that is capable of mastering contradictory orientations such as exploitation and exploitation is a key theoretical puzzle. Indeed, Lubatkin and colleagues (2006) noted that although previous studies have pointed to the integrative role of the top management team (TMT) in helping to create mechanisms (Smith & Tushman, 2005)

that enable ambidexterity, there is a need specify the precise nature of these TMT processes.

Research suggests that TMTs influence ambidextrous orientation through decision making processes. TMTs engage in resource allocation and organizational design decisions (Edmondson et al., 2003; Eisenhardt & Zbaracki, 1992; Hambrick, 1994) to balance short- and long-term outcomes (Smith & Tushman, 2005). Smith and Tushman (2005) define balanced strategic decisions as 1) decisions that are distributive in that they involve the division of resources between the existing product and the innovation and they are balanced when, over time, they support both products, and 2) as decisions that are integrative in that opportunities, linkages, and synergies that might arise from the exploitative and exploratory activities are recognized.

The question is how do TMTs lead to unit ambidexterity? Building on an emerging stream of research that emphasizes the importance of internal processes within a TMT (Eisenhardt, 1989; Hambrick, 1994; Knight et al., 1999; O'Reilly et al., 1993; Simons, Pelled & Smith, 1999; Smith et al., 1994), Lubatkin et al. posited that by synchronizing the team's social and task processes, "a behaviorally integrated TMT can promote a more diverse and deeper understanding of the team's existing explicit knowledge base, as well as a better use of that base" (2006, p. 651). Our study elaborates on this line of research and thinking and argues that TMT behavioral integration is a necessary condition for cultivating an ambidextrous orientation. However, we suggest that TMT behavioral integration builds behavioral complexity in a TMT, which in turn can lead to ambidexterity.

Specifically, we postulate that a TMT, which is characterized by the capacity to perform a portfolio of leadership roles as well as manage them differently, is likely to make balanced decisions over time and pursue both the exploration and exploitation agendas. We suggest that a TMT, which communicates complex behaviors, i.e., performs a wide range of leadership roles and differentiates between them depending on the unit situation (TMT behavioral complexity), is likely to make more balanced strategic decisions than a TMT that is low in communicating complex behaviors.

Traditionally, behavioral complexity theory concerns individual leaders and suggests that effective leaders need to be behaviorally complex because they are required to respond to the shifting mosaic of circumstances inside, but more particularly outside the organization (Satish, 1997). However, this theory also applies to groups (in our case TMTs) that attempt to cope with a volatile, complex, and potentially ambiguous environment (McKenna, Rooney & Boal, 2007) and through behavioral complexity maintain high performance (Black & Boal, 1996). Research shows that through a large repertoire of leadership roles and selective applications effective leadership and enhanced organizational outcomes are achieved (Bullis, 1992; Denison et al., 1995; Hart & Quinn, 1993; Hooijberg & Quinn, 1992; Quinn, Spreitzer & Hart, 1991). This is because a behaviorally complex TMT is able not only to implement a large behavioral repertoire but also has the ability to select the right roles for the situation. In addition, a behaviorally complex TMT is able to effectively manage contradictions such as exploration and exploitation through two distinct cognitive processes – differentiating (a process that involves recognizing and articulating distinctions) and integrating (a process that involves shifting levels of analysis to identify potential linkages) (Smith & Tushman, 2005).

By differentiating, a TMT is able to clarify distinctions between the existing product and innovation. This process encourages a TMT to explore new agendas (markets, competencies, and opportunities) for the innovation without damaging the exploitation of existing products. According to Smith and Tushman (2005), differentiating between strategic agendas enables a TMT to develop the behavioral complexities such that both agendas can be sustained (Denison et al., 1995; Dutton & Jackson, 1987). Integrating is also a way in which a TMT develops behavioral complexity as it helps the team to "explicitly look for ways that the contradictory strategies can help each other (Smith & Tushman, 2005, p. 527)…and reinforces (existing product and innovation) and makes mindful possible synergies between these products" (Smith & Tushman, 2005, p. 529). On the basis of this logic, we put forward the following hypotheses:

Hypothesis 2:	***TMT behavioral complexity is positively related to unit ambidexterity.***
Hypothesis 3:	***TMT behavioral complexity mediates the relationship between TMT behavioral integration and unit ambidexterity.***

2.2.4. Context for Behavioral Complexity

"We believe the field [of organizational behavior] needs to return to a focus on organizational phenomena. This effort will be aided by the immersion of researches in organizational contexts. It may also move the field in useful directions that will counter the common criticism that much organizational behavior research is irrelevant to the well-being of organizations and their members".

(Mowday & Sutton, 1993, p. 225).

"Probably the most significant failure of micro- OB ..is that we have tended to ignore the "O" in our studies of micro phenomena. We clearly have emphasized the 'B'…but we have by and large been remiss in considering organizations as critical contexts affecting the behavior occurring in them..We have given too little attention to the internal, organizational environment affecting behavior".

(Porter, 1996, p. 264).

There is no universally agreed upon set of components that comprise a context for a specific behavior occurring within an organizational setting. However, an examination of several relevant sources in the literature (e.g. Boal & Hooijberg, 2000; Shamir & Howell, 1999; Tosi, 1991) suggests a fair degree of consensus of components such as Culture/Climate, Goal/Purposes, People/Composition, Processes, State/Condition, Structure and Time. Rousseau defined context as "the set of circumstances or facts surrounding an event...context can refer to characteristics of the organizational setting, of the individual, of his or her role in the organizational, and of any other environmental factor that may shape responses" (Rousseau, 1978, p. 522) and

Barnard (1938) argued that the creation of an appropriate context is the key task of general managers and the quality of the organizational context is the ability to influence individual behavior. Organizational context has been used as a variable in studies examining organizational commitment (Podsakoff, Niehoff, MacKenzie & Williams, 1993), organizational justice (Ambrose & Schminke, 2003), trust (Beccerra & Gupta, 2003), team effectiveness (Doolen, Hacker, & Aken, 2003) and innovativeness (Gopalakrishnan & Damanpour, 2000) among others. Following Gibson & Birkinshaw (2004), we refer to organizational context as the systems, processes and beliefs that shape individual level behaviors in an organization (Burgelman, 1983a, 1983b; Denison, 1990; Ghoshal & Bartlett, 1994).

Gibson & Birkinshaw (2004) developed the complementary concept as their study relates to ambidexterity as *contextual ambidexterity*. As noted earlier, authors have conceptualized ambidexterity in structural terms i.e. *structural ambidexterity* such as task partitioning and temporal separation (e.g., Adler et al., 1999; Drucker, 1985; Galbraith, 1982; Tushman & O'Reilly, 1996). However, early studies indicated the need for a behavioral orientation toward dual capabilities (Adler et al., 1999; Hedlund & Ridderstrale, 1997) that build a context which allows for meta-capabilities, rather than relying on a formal organization structure or a charismatic leadership. This perspective is rooted in the understanding that ambidexterity can be best achieved by creating a context that supports and encourages individuals to be cooperative, alert to new opportunities and cope simultaneously with multiple tasks. Essentially, this context is a multidimensional construct, with alignment and adaptability each constituting a separate, but interrelated and non-substitutable element (Gibson & Birkinshaw, 2004).

Recent studies have raised the need to explore specific macro contexts whose features characterize the unit or the organization level in a particular setting. For instance, studies have focused on service (Schneider et al., 2005), ethics (Grojean et al., 2004) and a safety (Barling et al., 2002; Guldenmund, 2000; Zohar, 2000, 2002) climate as enablers of organizational outcomes. Indeed, Rousseau and Fried (2001) call on researchers to contextualize organizational research, because researchers often fail to consider context across national borders, but also do not pay appropriate attention to modeling contextual effects within countries. Following this line of research and thinking, we focus on a *context of behavioral complexity* as a unit-specific context that builds and enables the meta-capabilities of exploration and exploitation to flourish simultaneously.

2.2.5. Context for Behavioral Complexity and Ambidexterity

Thus what are the key facilitators pertaining to an ambidextrous orientation? Research suggests several key facilitators for achieving ambidexterity, including training, trust, a common culture and vision and recruitment and selection (e.g., Adler et al., 1999; Bartlett & Ghoshal, 1989; Tushman & O'Reilly, 1996). However, Gibson and Birkinshaw (2004) argue that unit ambidexterity develops through the creation of a particular type of context at the business-unit level. Their broad notion of context encompasses and reflects three elements: structural context (i.e., tangible systems and processes that foster certain employees' behaviors through establishing administrative mechanisms), culture (i.e., the underlying belief systems and values of individuals in an organization) and climate (i.e., presentation of organization stimuli or environmental characteristics presumed to affect individual behavioral and attitudes) of a business unit and is considered an objective, higher level attribute of the unit as a whole. Research suggests that context can perhaps be the most inimitable resource and, therefore, the most effective isolating mechanism (Barney, 1986; Fiol, 1991; Hansen & Wernerfelt, 1989).

Gibson and Birkinshaw (2004) adopted Ghoshal and Bartlett's (1994) conceptualization of context as four interdependent behavior-framing attributes: *discipline* (an attribute that leads to 1) clear standards and expectations, 2) a system of open and fast-cycle feedback, and 3) consistency in the application of sanctions), *stretch* (an attribute that manifests 1) the establishment of shared ambition, 2) the emergence of a collective identity, and 3) the development of personal significance in turnaround

tasks), *trust* (an attribute that manifests and induces 1) fairness and equity, 2) involvement and 3) enhanced personal competence of organizational members), and *support* (an attribute that manifests a more help-oriented managerial approach that leads to 1) greater availability of resources, 2) increased autonomy and 3) a supportive environment in members' initiatives and entrepreneurship.

Contextual ambidexterity in terms of Ghoshal and Bartlett's (1994) conceptualization means a balance between opposing yet interdependent and complementary attributes. For example, units need to pay attention to both discipline and stretch because they give a sense of direction and enable individuals to better exploit existing products, but they also need to provide trust and support to engender individual behaviors that pursue the exploratory orientation. Conversely, too much of a good thing can be harmful. That is, too much attention to discipline and stretch may cause members to suffer exhaustion and develop a low level of expectation, while too much emphasis on trust and support may stop work from getting done (Gibson & Birkinshaw, 2004).

Similarly, the literature provides two other frameworks of organizational context (though none explicitly indicates that their features manifest contextual ambidexterity) pertaining to ambidextrous organizations. These are the Competing Values Framework (CVF) (Quinn, 1984, 1988; Quinn & Rohrbaugh, 1983) and the Organizational Culture Model (Denison, 1990) of organizational performance. These models highlight contradictory yet complementary elements that must be balanced in order to enhance organizational effectiveness. Denison and colleagues' Organizational Culture Model (Denison, 1990; Denison & Mishra, 1995) highlights four cultural traits;

namely, involvement, consistency, adaptability, and mission along two dimensions: internal vs. external focus and flexibility vs. stability. As noted above, an organization needs to build a context where there is a balance between mission and involvement as well as between consistency and adaptability. As such it pertains to contextual ambidexterity, which enables members to engage in both exploration and exploitation.

The CVF model, which we use in our study, sheds light on differences along the dimensions of flexibility vs. control, and internal vs. external focus. Four quadrants and eight leadership roles are represented in a circular pattern based on the two underlying dimensions. As Denison, Hooijberg and Quinn (1995) note, Quinn (1984, 1988) did not develop the concept of behavioral complexity or contextual ambidexterity. However, his leadership model does stress the same basic theme: the need for a context that reframes underlying polar opposites such as stability and flexibility and reconciles such extremes in a way that both exploration and exploitation are achieved.

Therefore, it can be assumed that the context for behavioral complexity will manifest a supportive environment for the business-unit members. This context is likely to inspire them to recognize and react to paradoxes, contradictions and complexity in their environments because it is rooted in managing contradictory behaviors and processes. Although the current literature discusses the behavioral complexity theory as regards organization leaders (e.g. CEO, TMT, managers), the context for behavioral complexity impacts the entire business unit. As far as the researcher knows, the only study relating to a complex behavioral culture was examined in a higher education setting, where the findings clearly support the premise by showing that community

colleges with more complex overall campus cultures are perceived to be more effective than those whose campus cultures are less complex (Smart, 2003). Since unit ambidexterity involves contradictory knowledge processes, a context for behavioral complexity in units will enable individuals to broaden their role portfolio, identify the characteristics of the situation and encourage individuals to make their own judgments as to how to best allocate their resources among conflicting demands and hence deliver value to the current stakeholders and simultaneously explore for changes in the task environment. Smith and Tushman (2005) noted that while organizations can excel when TMTs effectively balance strategic contradictions, contextual and structural barriers often prevent them from doing so (Bazerman & Watkins, 2004; Van de Ven et al., 1999; Virany, Tushman & Romanelli, 1992). Leading an organization to balance strategic contradictions successfully depends on the extent to which an organizational context articulates the capability to employ a wide variety of roles and occasionally contradictions. This is what has been termed by Gibson and Birkinshaw (2004) as contextual ambidexterity, and refers to a unit-specific context that builds and enables the meta-capabilities of exploration and exploitation to flourish simultaneously. This context of ambidexterity manifests in an enabling environment in which members are trained to recognize and react to paradoxes, opposing issues and complexity in their environments. Thus, the following hypothesis is suggested:

Hypothesis 4:	***The more a unit context is characterized by behavioral complexity, the higher the level of its unit ambidexterity.***

2.2.6. Ambidexterity and Performance

Recognizing the limitations of each orientation, exploration and exploitation, and the associations each would seem to have with organizational performance, scholars have long suggested that a firm's ability to compete over time is rooted in the ability to jointly pursue both orientations or, as several authors have argued, this involves transcendence (Denison et al., 1995; Lewis, 2000; Schneider, 1990). This is consistent with Floyd and Lane's assertion that in order for firms to remain adaptive and escape the forces of environmental selection, they must "exploit existing competencies and explore new ones—and more importantly, these two facets of organizational learning are inseparable" (2000, p. 155).

Exploration activities can discover a new competency that shapes the rules of the competitive game in ways that rivals will have difficulty imitating, or ones where they will be unable to expand their customer base into new or emerging markets (Brown & Eisenhardt, 1997). However, focusing on exploration incurs significant costs both in terms of research as well as in terms of the potential loss of sustained paybacks from earlier innovations, making them more vulnerable to efficiency minded and larger competitors, or as Levinthal and March note, "an organization that engages exclusively in exploration will ordinarily suffer from the fact that it never gains the returns of its knowledge" (1993, p. 105). On the other hand, pursuing exploitation activities through striving to make incremental refinements to existing technological or marketing trajectories are intended to better adapt to current environmental conditions and to the needs of the firm's existing customers (Harry & Schroeder, 2000). However, these activities run the risk of obsolescence. March made a similar argument in relation to the need for both exploitation and exploration, suggesting that adaptive systems that engage

in exploration to the exclusion of exploitation "are likely to find that they suffer the costs of experimentation without gaining many of the benefits," while systems that engage in exploitation to the exclusion of exploration "are likely to find themselves trapped in suboptimal stable equilibria" (1991, p. 71). Likewise, low levels in both activities geared toward exploration and exploitation do not tend to enhance organizational performance. In other words, exploitation is focused on short term performance and exploitation is more focused on long term performance.

Scholars have long suggested, but have yet to conclusively show, that a firm's ability to compete is rooted in an ability to jointly pursue both orientations; *i.e.*, build on current competencies through exploitation, while simultaneously developing new innovative capabilities through exploration, such that the pursuit of both positively affects the productive service of each (Abernathy & Utterback, 1978). Indeed, the ability to achieve such a level of ambidexterity is said to lie at the heart of a firm's dynamic capabilities (Eisenhardt & Martin, 2000; Teece, Pisano & Shuen, 1997) and is a primary factor in system survival and prosperity (March, 1991).

Recent literature (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006) demonstrates a positive linkage between ambidexterity and organizational or unit performance. According to this logic, ambidexterity should be a key driver of organizational performance over the long term. Moreover, as Gibson and Birkinshaw (2004) noted there is even a case to be made that developing ambidexterity through unit context and TMT processes and dynamics is less expensive than more traditional structural solutions because the costs of controlling and supervising employees are much reduced.

Hence, we posit that unit ambidexterity is conducive to sustainable performance and the following hypothesis is suggested:

Hypothesis 5:	***There is a positive relationship between unit ambidexterity and unit performance.***

2.2.7. Ambidexterity as a Mediator

Finally, we argue that unit ambidexterity mediates the relationship (1) between a context for behavioral complexity and subsequent unit performance and (2) the relationship between TMT's behavioral complexity and unit performance.

First, we posit that a context for behavioral complexity shapes individual and collective behaviors, which, in turn, shape unit capacity for ambidexterity. This meta-capability leads to superior performance. The context for behavioral complexity will create a supportive environment for the business-unit members that will inspire them to recognize and react to paradoxes, contradictions and complexity in their environments. Since ambidexterity involves contradictory knowledge processes, a context for behavioral complexity in units will enable individuals to broaden their role portfolio, identify the characteristics of the situation and encourage individuals to make their own judgments as to how to best allocate their resources between the conflicting demands and hence deliver value to the current stakeholders and simultaneously explore for changes in the task environment. This context manifests in an enabling environment in which members are trained to recognize and react to paradoxes, opposing issues and complexity in their environments and thus building explorative and exploitative capabilities. This joint pursuit of both orientations, in turn, enhances both long and short term unit performance through discovering a new competency that shapes the rules of the competitive game in ways that rivals will have difficulty imitating , building capabilities to expand a customer base into new or emerging markets (Brown & Eisenhardt, 1997) and simultaneously striving to make incremental refinements to

existing technological or marketing trajectories, intended to better adapt to current environmental conditions and to the needs of the unit's existing customers (Harry & Schroeder, 2000). Thus, the sixth hypothesis is:

Hypothesis 6:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and unit performance.***

Secondly, we posit that unit ambidexterity mediates the relationship between a TMT's behavioral complexity and unit performance. We argue that a TMT, which is characterized by the capacity to perform a portfolio of leadership roles as well as manage them differently, is likely to make balanced decisions over time and pursue both exploration and exploitation agendas. Thus, a behaviorally complex TMT is able to effectively manage contradictions such as exploration and exploitation through two distinct cognitive processes – differentiation (a process that involves recognizing and articulating distinctions) and integration (a process that involves shifting levels of analysis to identify potential linkages) (Smith & Tushman, 2005). In turn, as discussed above, this ambidextrous capability enhances unit performance for the long as well as for the short term. Thus, the seventh hypothesis is:

Hypothesis 7:	***Unit ambidexterity mediates the relationship between a TMT's behavioral complexity and unit performance.***

Part 3: Methodology

- ☒ **Sample and Population**
- ☒ **Procedure**
- ☒ **Data Analysis**

This chapter presents the methods of sampling and data collection shown in the model in Figure No. 1. The construct measurements and analysis methods will follow.

3.1. Sample and Population

To test our model, we have chosen to focus on business units, because they have relatively fewer hierarchical levels, thus making it more likely that their top executives engage extensively in making and implementing strategic choices.

The objective of the data collection was to obtain a large enough sample to ensure that the research model would be tested as accurately as possible. The dilemma of how many variables to have and other bounds (cost in terms of time, money) for statistical validity is normally resolved in favor of having more variables (Cohen & Cohen, 1983). A minimum of 150 observations seems to be the norm (Hinkin, 1995).

The targeted companies were local Israeli companies in various sectors of activity such as service, food, high tech, education, etc. These companies are either home-grown or subsidiaries of firms with headquarters abroad. One hundred companies were chosen for questionnaire distribution. However, in the end, 22 companies took part, corresponding to a response rate of 22 percent. These companies were comprised of 101 business units, from which 1128 questionnaires (N =1128) were finally used for statistical purposes due to missing data. Those who chose not to participate gave reasons as "not interested; our regulations do not permit us to take surveys; private company".

We collected data from both 245 TMT members and 883 unit members of the 101 business units. These units operate in both service and industrial sectors. About 18 percent of the organizations compete in the service sector and the other 82 percent compete in the industrial sector. A paired comparison test indicated no significant differences in organizational size or sector between organizations that agreed to participate in our study and those that did not ($p > .10$).

Table 1: Surveyed Units - Branches and Return Rates

Organization	Surveyed Units	Branch	Distributed Surveys	Returned Surveys(Managers, Employee)	% Return Rate
1	1	Plastic & Rubber	24	12 (5,7)	50.0
2	1	Plastic & Rubber	10	6 (2,4)	60.0
3	10	Plastic & Rubber	148	67 (15,52)	45.3
4	7	Plastic & Rubber	78	37 (10,27)	47.4
5	7	Plastic & Rubber	90	46 (11,35)	51.1
6	1	Plastic & Rubber	30	18 (6,12)	60.0
7	1	IT	35	13 (4,9)	37.1
8	1	IT	60	45 (13,32)	75.0
9	8	Food	170	106 (25,81)	62.4
10	3	Tourism	45	29 (4,25)	64.4
11	1	Education	60	36 (8,28)	60.0
12	14	Plastic & Rubber	200	118 (20,98)	59.0
13	1	Education	43	11 (2,9)	25.6
14	1	Electronics	20	13 (4,9)	65.0
15	2	Food	30	22 (5,17)	73.3
16	1	Education	35	26 (6,20)	74.3
17	1	Education	30	12 (3,9)	40.0
18	7	Education	124	81 (17,64)	65.3
19	1	IT	60	34 (7,27)	56.7
20	4	Electronics	75	56 (15,41)	74.7
21	10	Chemical	500	112 (25,87)	22.4
22	18	Electronics	322	228 (38,190)	70.8
Total	**101**		**2,189**	**1,128 (245,883)**	**51.5**

As showed in table 1, the return rate of the distributed surveys was approximately 52%. However, despite concerns that the sample would not reflect the population target (Saunders, Lewis & Thornhill, 2000), this figure complies favorably with previous research that generally report return rates of 50-52 percent (e.g. Saunders et al., 2000) and in studies involving TMTs the averaged return rate is of 36 percent (Baruch, 1999).

The units' descriptive statistics is depicted in the following tables:

Table 2: Surveyed Units- Sectors

Unit	Frequency	% of Total Units
Service	18	17.8
Industry	83	82.2
Total	**101**	**100**

Unit Size: The majority of the units (61.4%) was comprised of 2-20 people. Approximately 25% of the units were comprised of 21-50 people.

Table 3: Surveyed Units- Unit Size

Unit Size (Employees)	Number of Employees	% of Total Units
1 (2-20)	62	61.4
2 (21-50)	26	25.7
3 (51-100)	10	9.9
4 (101-250)	3	3.0
Total	**101**	**100**

Employee Sample

The sampled employees (N=883) were 63% male with an average age of 37 (SD 11.5). The reported average tenure in the organization was approximately 6 years (SD 7.9), and tenure in the current position was approximately 4.5 years (SD 6.1). Most (40%) were high school graduates, 33% held a bachelor's degree and 10% a masters' degree.

Table 4: Employee Sample- Age, Tenure in Organization and Position

	N	Min	Max	Mean	SD
Age	782	18	90	37.15	11.5
Tenure in Organization(Years)	764	0.08	42	6.31	7.9
Tenure in Position(Years)	746	0.08	42	4.49	6.1

Table 5: Employee Sample-Gender

Gender	Frequency	Percent
Female	266	30.1
Male	557	63.1
Missing Values	60	6.8
Total	**883**	**100**

Table 6: Employee Sample-Tenure in Organization

Tenure in Organization (years)	Frequency	Percent
4 and less	468	53.0
5-8	110	12.5
9-12	66	7.5
13-16	38	4.3
17-20	27	3.1
20 and up	51	5.8
Missing Values	123	13.9
Total	**883**	**100**

Table 7: Employee Sample-Tenure in Position

Tenure in Position (years)	Frequency	Percent
4 and less	534	60.5
5-8	96	10.9
9-12	54	6.1
13-16	20	2.3
17-20	19	2.2
20 and up	22	2.5
Missing Values	138	15.6
Total	**883**	**100**

Table 8: Employee Sample-Age

Age Range	Frequency	Percent
25 and younger	96	10.9
26-30	201	22.8
31-35	139	15.7
36-40	97	10.9
41-45	55	6.2
46-50	72	8.2
51+	121	13.7
Missing Values	102	11.6
Total	**883**	**100**

Table 9: Employee Sample-Level of Education

Education	Frequency	Percent
Less than 12 years	24	2.7
High School Graduate	339	38.4
Bachelor's Degree	292	33.1
Master's Degree	82	9.3
PhD	5	0.6
Missing Values	81	9.2
Total	**883**	**100**

TMT Sample

The sampled managers (N=245) were 72% male with an average age of 41 (SD 10.4). The reported average tenure in the organization was approximately 10 years (SD 9.2) and tenure in the current position was approximately 4 years (SD 4.4). The majority of the managers held a BA (47%), 24% had an MA and 22% were high school graduates.

Table 10: TMT Sample- Age, Tenure in Organization and Position

	N	Min	Max	Mean	SD
Age	228	3	76	41.3	10.4
Tenure in Organization(Years)	237	0.3	54	9.7	9.2
Tenure in Position(Years)	236	0.1	33	4.1	4.4

Table 11: TMT Sample-Gender

Gender	Frequency	Percent
Female	62	25.3
Male	177	72.2
Missing Values	6	2.5
Total	**245**	**100**

Table 12: TMT Sample-Tenure in Organization

Tenure in Organization (years)	Frequency	Percent
4 and less	87	35.5
5-8	51	20.8
9-12	23	9.4
13-16	30	12.3
17-20	18	7.3
20 and up	23	9.4
Missing Values	13	5.3
Total	**245**	**100**

Table 13: TMT Sample-Tenure in Position

Tenure in Position (years)	Frequency	Percent
4 and less	162	66.1
5-8	46	18.8
9-12	16	6.6
13-16	4	1.6
17-20	3	1.2
20 and up	3	1.2
Missing Values	11	4.5
Total	**245**	**100**

Table 14: TMT Sample-Age

Age Range	Percent	Frequency
25 and younger	3	1.2
26-30	26	10.6
31-35	43	17.6
36-40	48	19.6
41-45	36	14.7
46-50	27	11.0
51+	45	18.4
Missing Values	17	6.9
Total	**245**	**100**

Table 15: TMT Sample-Level of Education

Education	Frequency	Percent
Less than 12 years	2	0.8
High School Graduate	53	21.6
Bachelor's Degree	116	47.3
Master's Degree	59	24.1
PhD	7	2.9
Missing Values	8	3.3
Total	**245**	**100**

3.2. Procedure

A structured questionnaire for the study was constructed based on the sources from current literature, as each construct relates to a specific approach and measurements previously tested in scholarly publications. The survey was translated into Hebrew and 3 experts in both languages (English and Hebrew) were asked to review it independently. After the final version was agreed upon, a fourth expert was asked to translate it into English (TMT and Employees questionnaires appear in appendices B and C) .

After the questionnaire was completed and all the constructs were double-checked, three colleagues were asked to review and refine it to make sure that each set of items corresponded to the organizational context. This resulted in various changes. It was then administered to a small sample of twelve companies for pre-testing. The main goals of the pre-test were to evaluate: (1) the time needed to fill in the survey (2) the clarity of the survey instructions (3) the clarity of the survey items and (4) willingness to answer the survey items. This phase almost generated no changes.

Using Dun's Guide to Israel's top 15,000 businesses we randomly selected and approached 100 organizations by contacting their CEOs both via letters and phone calls in which we attempted to solicit their participation by explaining the research goals and potential contributions. Upon agreement, we scheduled a meeting in their office in which we provided the study, its goals and procedure in more detail. In all, 30 CEOs agreed to meet. During the meeting, CEOs were asked to identify their business units

and their TMT members. Once we had the CEOs agreement to conduct the study among its business units, we have scheduled meeting with the directors of the business units and follow a similar procedure in which explanations about the study were given in detail. We asked the directors of the units to identify all the members of their management team (i.e., members with whom they make the strategic choices and decisions), as well as providing us with a list of all employees of the business unit. We also asked them to send a memo encouraging all members (executives and employees) to participate in this study and to fill out a survey.

Time and place were arranged and full discretion was promised to all participants. The managers and employees of the units that were chosen to participate in the study received a letter which included a short explanation about the study and an invitation to come to the specified time and place. It was promised that all collected data would be accessible only to the researchers.

The employees were administered the questionnaire on company premises in a setting which guaranteed privacy. A short explanation of the goals of the study and how to fill in the questionnaires was given by the researchers. The majority of the employees filled in the questionnaires while the researchers were present in the company (80%) and the rest via mail (20%) in a sealed envelope which was sent directly to the researchers. In the same way, the managers were asked to fill in the questionnaires. The managers were convened in a separate room from the one used by the employees when filling in the questionnaires. The majority of the managers filled in the questionnaires while the researchers were present in the company (60%) and the rest via mail (40%) in a sealed envelope which was sent directly to the researchers.

As in previous studies that examined business units (Gibson & Birkinshaw, 2004), we attempted to mitigate the problem of same-source bias by using different levels of respondents for the independent variable, mediating variables and the dependent variables. The TMT members provided data about the following variables: TMT behavioral integration, TMT behavioral complexity, unit ambidexterity and performance, while data about context for behavioral complexity and unit ambidexterity was obtained through a survey administered to the employees. Our approach (as explained later) was to ask a large sample of individuals to rate their units on the study's variables, and then aggregate their responses to create unit-level measures.

3.3. Measures

Behavioral Integration

The survey asked the CEOs and TMT members to assess their TMT's level of behavioral integration over the past three years. TMT behavioral integration was assessed using the nine-item measure and a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree) that was developed and validated by Simsek and colleagues (2005). The measure was designed to capture *collaborative behavior, information exchange*, and *joint decision-making*, the three interrelated and mutually reinforcing TMT processes associated with Hambrick's meta-construct.

Collaborative behavior was assessed using a five-point scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Respondents were asked to assess TMT behavior over the past three years by indicating the extent to which they agreed with the following: (1) "When a team member is busy, other team members often volunteer to help manage the workload," (2) "Team members are flexible about switching responsibilities to make things easier for each other," and (3) "Team members are willing to help each other complete jobs and meet deadlines." Information exchange was measured by asking respondents to think about situations over the past three years when their TMT made important decisions regarding the firm's future. Using a five-point scale ranging from 1 ("low effectiveness") to 5 ("high effectiveness"), respondents assessed their teams on: (1) "quantity of ideas," (2) "quality of solutions," and (3) "level of creativity and innovation." Joint decision making was assessed like collaborative behavior, as degree of agreement with the following statements: (1) "Team members

usually let each other know when their actions affect another team member's work," (2) "Team members have a clear understanding of the joint problems and needs of other team members," and (3) "Team members usually discuss their expectations of each other." The Cronbach's alpha for this measure was $\alpha = .85$.

Unit Ambidexterity

While there is no widely accepted measure of unit ambidexterity, existing research provides a few. For example, He and Wong (2004) designed a measure primarily based on product design differences having to do with exploration and exploitation. Benner and Tushman's (2003), however, conceptualized ambidexterity as encompassing more than just product design, and proposed a two-dimensional definition entailing exploration and exploitation differences along an innovation's proximity to the firm's current technological/product trajectory, which is similar to He and Wong's measure; and an innovation's proximity to the firm's existing customer/market segment, which extended that measure. We adapted items from Lubatkin et al. (2006). Their final measure consisted of twelve items in which respondents were asked to assess their unit's orientation over the past three years using a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The six items consistent with an exploratory orientation described the unit as one that: (1) looks for novel technological ideas by thinking "outside the box"; (2) bases its success on its ability to explore new technologies; (3) creates products or services which are innovative to the unit; (4) looks for creative ways to satisfy its customers' needs; (5) aggressively ventures into new market segments; and (6) actively targets new customer groups. Similarly, the six items consistent with an exploitive orientation described the

firm as one that: (1) commits to improve quality and lower cost; (2) continuously improves the reliability of its products and services; (3) increases the levels of automation in its operations; (4) constantly surveys existing customers' satisfaction; (5) fine-tunes what it offers to keep its current customers satisfied; and (6) penetrates more deeply into its existing customer base. The Cronbach's alpha for explorative orientation was $\alpha = .84$, and for the exploitive orientation was $\alpha = .83$.

Following Floyd and Lane's assertion (2000) that these two orientations are "inseparable", researchers have combined both measures to create a measure of ambidexterity. Following Lubatkin et al. (2006), we measured unit ambidexterity as the average of all twelve items. The Cronbach's alpha for this measure in their study was $\alpha = .89$.

TMT Behavioral Complexity

Building on Quinn's (1984) Competing Values Framework (CVF), which organized the opposing behaviors using two dimensions (organizational focus/organizational structure), Lawrence, Quinn & Lenk (2003) developed an instrument for assessing managerial leadership. The instrument uses second order factors that allow each construct to be represented by multiple measures. The questions were administered on a 5-point Likert-type scale 1 (strongly disagree) to 5 (strongly agree) plus an option "don't know," which is treated as missing data. The final 36-item measure included three scales in each quadrant to provide a representative range of complex behaviors. The "Relating to People" quadrant measured "encouraging participation," "developing people," and "acknowledging personal needs." The "Leading Change" quadrant included "anticipating customer needs," "initiating

significant change," and "inspiring people to exceed expectations." The "Managing Processes" quadrant focused on "clarifying policies," "expecting accurate work," and "controlling projects." Finally, the "Producing Results" quadrant assessed "focusing on competition," "showing a hard work ethic," and "emphasizing speed." The Cronbach's alpha range for this measure ranged from $\alpha = .68$ to $\alpha = .86$.

Unit Context for Behavioral Complexity

To assess the context for behavioral complexity, we adapted Lawrence et al.'s (2003) measure. We made adjustments to the instrument to measure unit context as an alternative to measuring TMT. Unit members were asked to assess their unit context on the four dimensions listed above. The questions were administered on a 5-point Likert-type scale 1 (strongly disagree) to 5 (strongly agree). The "Relating to People" quadrant measured "encouraging participation," "developing people," and "acknowledging personal needs." The "Leading Change" quadrant included "anticipating customer needs," "initiating significant change," and "inspiring people to exceed expectations." The "Managing Processes" quadrant focused on "clarifying policies," "expecting accurate work," and "controlling projects." Finally, the "Producing Results" quadrant assessed "focusing on competition," "showing a hard work ethic," and "emphasizing speed."

Unit Performance

Recognizing that performance is a complex construct, Venkatraman and Ramanujam (1986) proposed three fundamental dimensions:

Financial Performance - Accounting-based measures such as ROA, ROS, and ROE. These indicators tap current profitability.

Business Performance - Market and operation-based measures such as market share, sales growth and new product development. These indicators tap both the growth and future positioning of the unit.

Unit Effectiveness - Stakeholder-based measures such as employee satisfaction, quality, and social responsibility. These indicators tap the non-economical or "stakeholder" aspects of performance.

The questions were administered on a 7-point Likert-type scale 1 (Very poor) to 7 (Outstanding) plus an option "don't know," which is treated as missing data. Hart & Quinn (1993) reported the following Cronbach alphas for the performance measures: Financial Performance $\alpha = .78$, Business Performance $\alpha = .64$ and Effectiveness $\alpha = .76$.

We added two items to tap the exploration and exploitation orientation as reflected in development of new products and development of current products.

Control variables

The following variables were collected for the descriptive statistics and as well as for the control variables during the data analysis: industry (1=service, 2=industry), unit size and environmental variables. The control variables, industry type and unit size, were chosen consistent with previous research on TMT processes, behavioral complexity in leadership and organizational and unit ambidexterity (e.g. Hart & Quinn, 1993; Lubatkin et al., 2006; Simsek et al., 2005).

Following Gibson and Birkinshaw (2004) call to explore in future research whether “an important boundary condition to this finding is the level of dynamism in a business environment” (2004, p. 222), we included the environmental variables of dynamism and complexity (Dess & Beard, 1984). Each dimension was operationalized through a single item, using a 5-point Likert scale where 1= “strongly disagree” to 5= “strongly agree” as follows: *Dynamism*: "The business environment for our company is changing very rapidly” and *Complexity*: “The business environment we face is very complex with many organizations whose actions can affect us”.

3.4. Data Analysis

All the constructs were measured with multi-item scales. Scores on these measures were means calculated across items. We based our survey items on previous research and pre-tested them on a small sample of managers to ensure that meanings were clear. Using our final sample, we conducted numerous analyses (described below) to verify that our measures were sound.

Each of the variables in our model represents unit characteristics, but we utilized individuals as raters of these characteristics. In the parlance of multilevel theory (Klein & Koslowski, 2000), our model consists entirely of "shared unit-level constructs," meaning that we gathered data from individuals to assess unit-level characteristics that we presumed to be shared within a unit and capable of differentiating among units. Conceptually, this makes sense, given that individual employees are most familiar with the extent to which their unit exhibits certain attributes of a unit context, as well as unit ambidexterity, performance and TMT behavioral integration and complexity. Yet it is critical with such aggregated variables to statistically demonstrate within-unit agreement and between-units differences (Ancona & Caldwell, 1992; George, 1990; Goodman, Ravlin & Schminke, 1990; Klein & Koslowski, 2000).

We conducted several analyses to ensure that such agreement and such differences were present. First, we calculated an inter-rater agreement score RWG (James, Demaree & Wolf, 1993) for each variable. This measure ranges from 0 ("no agreement") to 1 ("complete agreement"). Glick (1985) suggested .60 as the cutoff for

acceptable inter-rater agreement values. Median inter-rater agreement was as follows, suggesting adequate agreement for aggregation.

Table 16: Inter-rater agreement (RWG) values for research variables

Variable	TMT Behavioral Complexity-People	TMT Behavioral Complexity-Task	TMT Behavioral Integration	Context for unit Behavioral Complexity	Unit Ambidexterity	Business Performance	Unit Effectiveness	Product Development Performance
Median	**0.943**	**0.897**	**0.949**	**0.971**	**0.924**	**0.938**	**0.941**	**0.889**

We also generated intra-class correlation coefficients ICC (1) and ICC (2), using one-way analyses of variance (ANOVA) on the individual-level data, with unit as the independent variable and the scale scores as the dependent variables. Others have also suggested that an indication of convergence within units is an ICC (1) value greater than zero with a corresponding significant ANOVA test statistic (F) (Kenny & LaVoie, 1985). In all cases, the ICC (1) was greater than zero and the F was significant. The ICC (2) values, which are valid indicators of the reliability of the unit mean, were as follows, indicating that the means for the sets of perceptions for each variable were accurate representations of the true score for the unit (James, 1982; Lord & Novick, 1968).

Table 17: Intra-class correlation (ICC1, ICC2) values for research variables

Variable	TMT Behavioral Complexity-People		TMT Behavioral Complexity-Task		TMT Behavioral Integration		Context for Unit Behavioral Complexity		Unit Ambidexterity		Business Performance		Unit Effectiveness		Product Development Performance	
	ICC1	ICC2	ICC1	ICC2	ICC1	ICC2	ICC1	ICC2	ICC1	ICC2	ICC1	ICC2	ICC1	ICC2	ICC1	ICC2
Mean	0.861	0.383	0.830	0.352	0.890	0.474	0.931	0.324	0.829	0.378	0.747	0.496	0.784	0.548	0.876	0.779

All our variables, barring Product Performance, contained at least the three items necessary for measures of internal consistency reliabilities (Hinkin, 1995). The control variables typically contain only one item.

Thirdly, the data was analyzed using factor analysis. Although we did not have the 200 observations called for in the literature for scale development (Hinkin, 1995), our item correlations (factor loadings greater than .40) and discriminant validity (eigenvalues greater than 1) were reasonably strong, as was total variance (over 45 percent). Those with cross loadings or which resulted in a .40 value were removed. In addition, the Cronbach's entire Alpha of the constructs was above the .70 level called for in the literature (Hinkin, 1995). The reliability of the constructs, as a precondition for validity, was thus achieved.

We also ran Pearson correlations, as well as multiple regression analysis to test the strength of the variables (Wind, 1970), and tested the mediating effects.

To this end, we followed Baron and Kenny (1986) and a more recent guideline in Kenny, Kashy and Bolger (1998). To establish a mediation model, three basic conditions should be met: (1) establishing a significant relationship between the dependent variables and the independent variables; (2) establishing a significant relationship between the mediator and the independent variables; and (3) showing that the significant relationship between the dependent variables and the independent variables becomes non-significant when the mediator is specified in the model.

According to Kenny et al. (1998), a variable (M) mediates the relationship between an antecedent variable (X) and an outcome variable (Y) if (a) X is significantly related to Y; (b) X is significantly related to M; (c) after X is controlled for, M remains significantly related to Y; and (d) after M is controlled for, the X-Y relationship is zero. Kenny et al. (1998, p. 260) described these steps as "the essential steps in establishing mediation." The first step, they commented, "is not required, but a path from the initial variable to the outcome is implied if [the two middle steps] are met" (Kenny et al., 1998). Furthermore, the last step is necessary only to prove a complete mediation effect. Accordingly, we tested successive segments of our model by evaluating whether the four steps were met. We simultaneously tested the significance of both the path from an initial variable to a mediator and the path from the mediator to an outcome as this approach provides, relative to other approaches, the best balance of type I error rates and statistical power.

Part 4: Results

- ☒ **Factor Analysis**
- ☒ **Descriptive Statistics**
- ☒ **Final Research Model**
- ☒ **Testing the Hypotheses**

In this chapter, we will report on and analyze the statistical results of the research variables and hypotheses proposed earlier in former chapter, and how the findings apply to the model.

4.1. Factor Analysis

The TMT behavioral complexity items were subjected to a principal components factor analysis with Varimax rotation. The analysis produced two factors that together explain 52.53 percent of the overall item variance. The first factor, TMT behavioral complexity task-related, made up of nine items (Eigenvalue =2.58), had factor loadings ranging from 0.64 to 0.81, while the second factor, TMT behavioral complexity people-related, consisting of ten items (Eigenvalue = 7.39), had factor loadings ranging from 0.49 to 0.83. None of the items showed evidence of cross-loadings. Table No. 18 presents these findings.

Table 18: Factor Analysis Results for TMT Behavioral Complexity

Items	TMT Task-Related Behavioral Complexity (α = 0.879)	TMT People-Related Behavioral Complexity (α = 0.886)
Encouraging career development.	0.200	**0.679**
Seeing that everyone has a development plan.	0.100	**0.706**
Coaching people on career issues.	0.143	**0.690**
Providing tight project management.	**0.703**	0.245
Keeping projects under control.	**0.640**	0.185
Closely managing projects.	**0.680**	0.219
Discussing customers' needs with them.	0.210	**0.491**
Identifying the changing needs of the customer.	0.266	**0.569**
Anticipating what the customer will want next.	0.112	**0.686**
Initiating bold projects.	0.153	**0.775**
Starting ambitious programs.	0.308	**0.722**
Launching important new efforts.	0.049	**0.831**
Getting unit members to exceed traditional performance patterns	0.292	**0.647**
Emphasizing the need to compete.	**0.797**	0.045
Developing a competitive focus.	**0.813**	0.035
Insisting on beating outside competitors.	**0.664**	0.125
Showing an appetite for hard work.	**0.753**	0.386
Modeling an intense work effort.	**0.647**	0.213
Demonstrating full exertion on the job.	**0.579**	0.310
Percent of Variance Explained	**13.56**	**38.93**
Eigenvalues	**2.58**	**7.39**

The TMT behavioral integration items were subjected to a principal components factor analysis with Varimax rotation. The analysis produced one factor, comprised of nine items that explained 57.6 percent of the overall item variance, and had factor loadings ranging from 0.71 to 0.83 (Eigenvalue = 5.185). Table No. 19 presents these findings.

Table 19: Factor Analysis Results for TMT Behavioral Integration

Items	Behavioral Integration (α = 0.904)
The ideas that our members exchange are of high quality	**0.738**
The solutions that our members exchange are of high quality	**0.712**
The dialogue among team members produces a high level of creativity and innovativeness	**0.740**
When a team member is busy, other team members often volunteer to help her/him out to manage her/his workload	**0.751**
The fact that the members are flexible about switching responsibilities makes things easier for each them	**0.713**
The TMT members are willing to help each other with complex jobs and meeting deadlines	**0.830**
The members usually let each other know when their actions affect another team member's work	**0.779**
The members have a clear understanding of the job problems and needs of other members on the team.	**0.785**
The members usually discuss their expectations of each other	**0.776**
Percent of Variance Explained	**57.6**
Eigenvalues	**5.185**

The unit ambidexterity items were subjected to a principal components factor analysis with Varimax rotation. The analysis produced two factors that together explained 69.4 percent of the overall item variance. The first factor, Exploration, made up of five items (Eigenvalue =4.27), had factor loadings ranging from 0.75 to 0.85, while the second factor, Exploitation, consisting of three items (Eigenvalue = 1.28), had factor loadings ranging from 0.72 to 0.86. None of the items showed evidence of cross-loadings. Table No. 20 presents these findings.

Table 20: Factor Analysis Results for Unit Ambidexterity

Items	Exploration (α = 0.77)	Exploitation (α = 0.869)
Looks for novel technological ideas by thinking "outside the box"	**0.802**	0.182
Bases its success on its ability to explore new technologies	**0.859**	0.214
Creates products or services which are innovative to the firm	**0.806**	0.295
Looks for creative ways to satisfy its customers' needs	**0.752**	0.164
Aggressively ventures into new market segments	**0.766**	0.215
Commits to improve quality and lower costs	0.124	**0.860**
Continuously improves the reliability of its products and services	0.239	**0.842**
Increases the levels of automation in its operations	0.305	**0.724**
Percent of Variance Explained	**41.85**	**27.67**
Eigenvalues	**4.27**	**1.28**

- Cronbach's Alpha for unit ambidexterity was 0.87.

The first dimension of unit performance was product development performance. Its items were subjected to a principal components factor analysis with Varimax rotation. The analysis produced one factor, made up of two items that explained 89.4 percent of the overall item variance and had factor loadings of 0.94 (Eigenvalue = 1.79). Table No. 21 presents these findings.

Table 21: Factor Analysis Results for Product Development Performance

Items	Product Development Performance (α = 0.876)
Technical product design and development	**0.946**
Launching new services/products	**0.946**
percent of Variance Explained	**89.49**
Eigenvalues	**1.79**

The second and third dimensions of unit performance are business performance and unit effectiveness. The items were subjected to a principal components factor analysis with Varimax rotation. The analysis produced two factors that together explained 74.4 percent of the overall item variance. The first factor, business performance, made up of three items (Eigenvalue =3.05), had factor loadings ranging from 0.76 to 0.89, while the second factor,unit effectiveness, consisting of three items (Eigenvalue = 1.42), had factor loadings ranging from 0.81 to 0.84. None of the items showed evidence of cross-loadings. Table No. 22 presents these findings.

Table 22: Factor Analysis Results for Unit Effectiveness and Business Performance

Items	Unit Effectiveness (α = 0.806)	Business Performance (α = 0.783)
Cash flow	0.254	**0.764**
Sales growth	0.239	**0.893**
Market share	-0.024	**0.840**
Quality of product /service	**0.849**	0.163
Employee satisfaction	**0.844**	-0.005
Overall unit performance	**0.818**	0.365
Percent of Variance Explained	37.06	**37.45**
Eigenvalues	1.42	**3.05**

The Unit context for behavioral complexity items were subjected to a principal components factor analysis with Varimax rotation. The analysis produced one factor, made up of twenty eight items that explained 48.22 percent of the overall item variance and had factor loadings ranging from 0.55 to 0.85 (Eigenvalue = 13.5). Table No. 23 presents these findings.

Table 23: Factor Analysis Results for Unit Context for Behavioral Complexity

Items	Unit Context for Behavioral Complexity (α = 0.959)
Making it legitimate to contribute opinions.	**0.680**
Employing participative decision making.	**0.684**
Maintaining an open climate for discussion.	**0.675**
Encouraging career development.	**0.736**
Seeing that everyone has a development plan.	**0.771**
Coaching people on career issues.	**0.740**
Being aware when people are burning out.	**0.701**
Encouraging people to have work/life balance.	**0.685**
Recognizing feelings.	**0.731**
Seeing that corporate procedures are understood.	**0.576**
Insuring that company policies are known.	**0.625**
Making sure formal guidelines are clear to people.	**0.619**
Expecting people to get the details of their work right	**0.555**
Keeping projects under control	**0.614**
Discussing customers' needs with them.	**0.633**
Identifying the changing needs of the customer.	**0.620**
Anticipating what the customer will want next.	**0.652**
Initiating bold projects.	**0.801**
Starting ambitious programs.	**0.698**
Launching important new efforts.	**0.827**
Inspiring direct reports to be creative.	**0.854**
Encouraging direct reports to try new things.	**0.809**
Getting unit members to exceed traditional performance patterns.	**0.817**
Emphasizing the need to compete.	**0.643**
Developing a competitive focus.	**0.598**
Showing an appetite for hard work	**0.655**
Modeling an intense work effort.	**0.677**
Providing fast responses to emerging issues.	**0.646**
Percent of Variance Explained	**48.22**
Eigenvalues	**13.5**

4.2. Descriptive Statistics of the Research Variables

The study surveys (TMTs and employees) served as the research variables. The score for each participant was computed as the total mean of the variable items in the questionnaire. This score was aggregated to the level of the unit as was discussed in the methods chapter.

The following table presents a statistical summary of each of the research variables. The variables are classified as dependent, independent and mediators according to their function in the theoretical model. The table shows the number of items, scale, mean, minimum value, maximum value, standard deviation and internal reliability of Cronbach's Alpha for each variable.

As shown in the table, all variables were estimated above the scale average, which was 3 for TMT behavioral complexity and integration, ambidexterity and context, and 4 for all performance dimensions. The descriptive statistics of the variables shows that the means of the entire variable were higher than the scale mean, ranging from 3.4-3.9 (for TMT behavioral complexity and integration, ambidexterity and context) and from 5-5.2 (for all three performance dimensions).

Table 24: Descriptive Statistics of the Research Variables

Independent Variables		Number of Items	Scale	Minimum	Maximum	Mean	SD	Cronbach's Alpha
Independent Variables								
1.	Unit Context for Behavioral Complexity	28	1-5	1.96	4.34	3.44	0.41	0.96
2.	TMT Behavioral Integration	9	1-5	2	4.89	3.73	0.55	0.90
Mediators								
3.	Unit Ambidexterity	8	1-5	2	5	3.79	0.59	0.87
4.	TMT People-related Behavioral Complexity	10	1-5	1.4	5	3.91	0.51	0.89
5.	TMT Task Related Behavioral Complexity	9	1-5	2	4.89	3.76	0.55	0.88
Dependent Variables								
6.	Product Development Performance	2	1-7	3	7	5.04	0.91	0.88
7.	Business Performance	3	1-7	2.5	7	5.21	0.86	0.78
8.	Unit Effectiveness	3	1-7	2.33	7	5.16	0.74	0.81

4.3. Final Research Model and Hypotheses

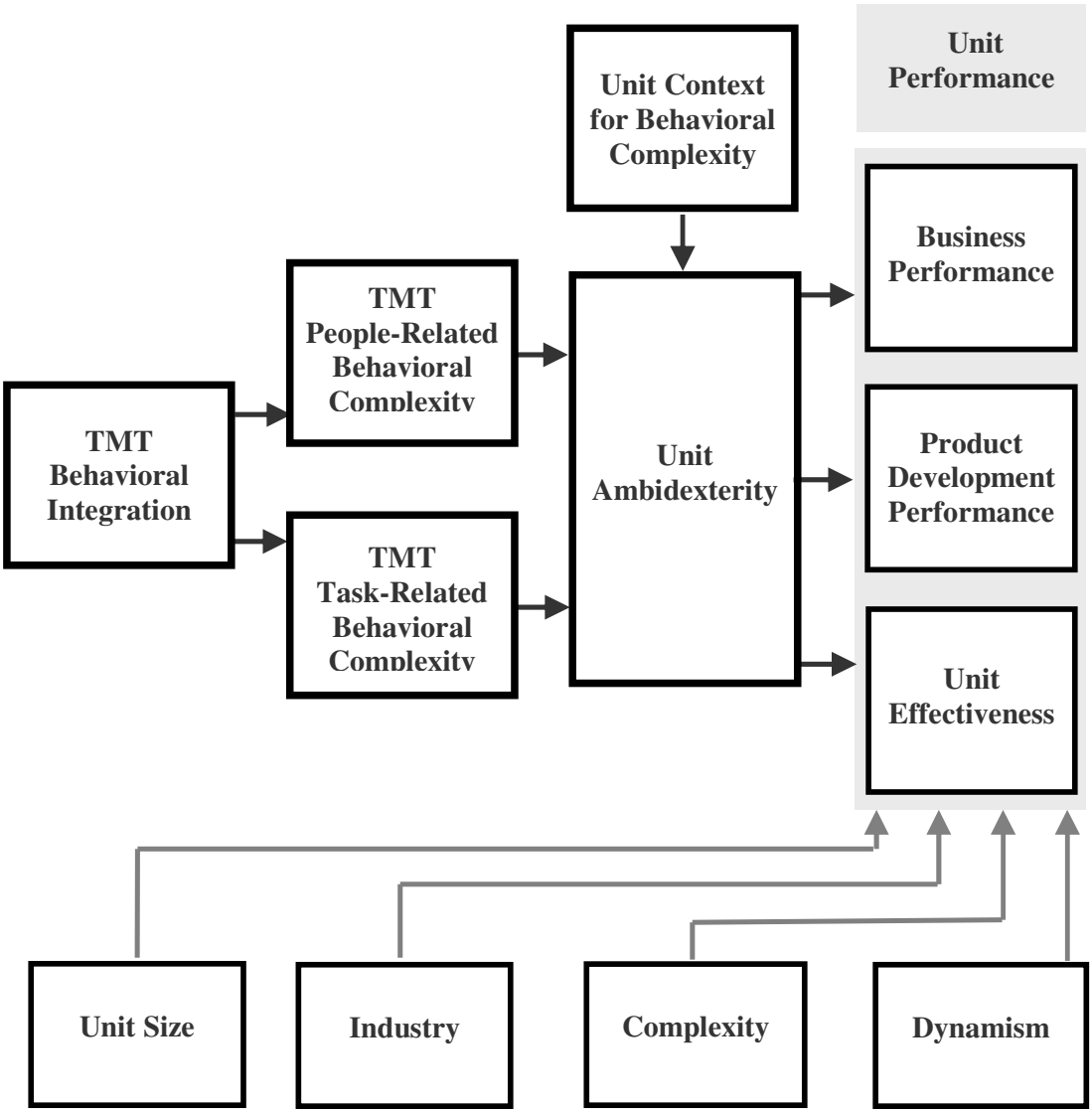

Figure 2: Final Research Model

Hypothesis 1a:	***There is a positive relationship between TMT behavioral integration and TMT task-related behavioral complexity.***
Hypothesis 1b:	***There is a positive relationship between TMT behavioral integration and TMT people-related behavioral complexity.***
Hypothesis 2a:	***TMT task-related behavioral complexity is positively related to unit ambidexterity.***
Hypothesis 2b:	***TMT people-related behavioral complexity is positively related to unit ambidexterity.***
Hypothesis 3:	***(a) TMT task-related behavioral complexity mediates the relationship between TMT behavioral integration and unit ambidexterity.*** ***(b) TMT people-related behavioral complexity mediates the relationship between TMT behavioral integration and unit ambidexterity.***
Hypothesis 4:	***The more a unit context is characterized by behavioral complexity, the higher the level of its unit ambidexterity.***
Hypothesis 5a	***There is a positive relationship between unit ambidexterity and unit business performance.***
Hypothesis 5b:	***There is a positive relationship between unit ambidexterity and unit product development performance.***
Hypothesis 5c:	***There is a positive relationship between unit ambidexterity and unit effectiveness.***

Hypothesis 6a:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and business performance.***
Hypothesis 6b:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and product development performance.***
Hypothesis 6c:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and unit effectiveness.***
Hypothesis 7a:	***Unit ambidexterity mediates the relationship between TMT task-related and people-related behavioral complexity and business performance.***
Hypothesis 7b:	***Unit ambidexterity mediates the relationship between TMT task-related and people-related behavioral complexity and product development performance.***
Hypothesis 7c:	***Unit ambidexterity mediates the relationship between TMT task-related and people-related behavioral complexity and unit effectiveness.***

4.4. Means, Standard Deviations and Correlations-Research Variables

The correlation table shows a positive relationship between research variables ranging from a weak relationship to a strong one, however only the minority are insignificant.

1. TMT Behavioral Integration was found to be positively and significantly related to the unit level of ambidexterity (r=0.53, $p<0.01$). TMT behavioral integration was also correlated with its behavioral complexity, both task-related (r=0.36, $p<0.01$) and people-related (r=0.45, $p<0.001$). TMT's behavioral integration was found to be related only to the effectiveness dimension of the performance dimensions (r=0.31, $p<0.05$).

2. Unit ambidexterity was found to be positively and significantly related to its TMT's behavioral complexity, both task-related (r=0.45, $p<0.001$) and people-related (r=0.56, $p<0.001$). Unit ambidexterity was also correlated with all three dimensions of performance as follows: business performance (r=0.3, $p<0.05$), product development performance (r=0.45, $p<0.001$), and finally unit effectiveness (r=0.31, $p<0.01$).

3. The context for behavioral complexity was correlated positively and significantly with TMT behavioral integration (r=0.45, $p<0.001$), but not with TMT behavioral complexity. The context for behavioral complexity was also

related to the unit's ambidexterity level (r=0.25, $p<0.05$). As for the performance dimensions, the context for behavioral complexity within a unit was found to be related only to unit effectiveness (r=0.32, $p<0.01$)

4. TMT behavioral complexity dimensions, people and task-related, were found to be positively and significantly correlated with each other (r=0.48, $p<0.001$). TMT behavioral complexity was not found to be related to any of the three dimensions of unit performance, except for a relationship between behavioral complexity task-related and unit effectiveness (r=0.25, $p<0.05$).

5. The performance dimensions were related as follows: a relationship was found between product development and business performance (r=0.51, $p<0.001$), as well as between product development and unit effectiveness (r=0.49, $p<0.001$). Another relationship was found between unit effectiveness and business performance (r=0.35, $p<0.01$).

Table 25: Correlation Matrix for Research Variables

		1	2	3	4	5	6	7	8
Independent Variables									
1.	Unit Context for Behavioral Complexity	1							
2.	TMT Behavioral Integration	0.45***	1						
Mediators									
3.	Unit Ambidexterity	0.25*	0.53**	1					
4.	TMT People-Related Behavioral Complexity	0.19	0.45***	0.56***	1				
5.	TMT Task-Related Behavioral Complexity	0.13	0.36**	0.45***	0.48***	1			
Dependent Variables									
6.	Product Development Performance	0.10	0.01	0.45***	0.03	0.13	1		
7.	Business Performance	0.05	0.05	0.30*	0.07	0.12	0.51***	1	
8.	Unit Effectiveness	0.32**	0.31*	0.31**	0.03	0.25*	0.49***	0.35**	1

*$p < .05$, ** $P < .01$, *** $P < .001$

4.5. Means, Standard Deviations and Correlations-Control Variables

The correlation table shows both negative and positive relationships between research variable and control variables. The findings are partially significant and all are weak relationships.

1. Age was found to be positively and significantly related to unit level of ambidexterity (r=0.15, $p<0.05$) and behavioral integration (r=0.14, $p<0.05$). Age was negatively correlated with unit context for behavioral complexity (r=-0.10, $p<0.01$).

2. The level of Education was found to be negatively correlated with unit context for behavioral complexity (r=-0.07, $p<0.05$).

3. The Tenure in the organization was found to be negatively correlated with unit context for behavioral complexity (r=-0.11, $p<0.01$).

4. The Tenure in the position was found to be negatively correlated with unit context for behavioral complexity (r=-0.08, $p<0.05$) and positively correlated with the unit ambidexterity (r=0.18, $p<0.01$).

5. The environmental characteristic, Dynamism, was positively correlated with unit ambidexterity (r=0.18, $p<0.01$), TMT task-related behavioral complexity

(r=0.28, $p<0.01$), and the performance dimensions of product development (r=0.13, $p<0.01$).

6. The second environmental characteristic, Complexity, was positively correlated with unit ambidexterity (r=0.28, $p<0.01$), TMT behavioral integration (r=0.37, $p<0.01$) and complexity (both task and people-related orientations) (r=0.30, $p<0.01$ and r=0.44, $p<0.001$ respectively), and the performance dimension of effectiveness (r=0.24, $p<0.05$).

7. Unit Size was not related to any of the research variables.

Table 26: Correlation Matrix for Control and Research Variables

		Age	Education	Tenure in Organization	Tenure in Position	Dynamism	Complexity	Unit Size
Independent Variables								
1.	Unit Context for Behavioral Complexity	-0.10**	-0.07*	-0.11**	-0.08*	-.10	-0.03	-0.10
2.	TMT Behavioral Integration	0.14*	0.01	0.11	0.09	-.29*	0.37**	-0.11
Mediators								
3.	Unit Ambidexterity	0.15*	-0.10	0.08	0.18**	0.15	0.28**	-0.13
4.	TMT People-Related Behavioral Complexity	0.04	0.11	0.05	0.06	0.29**	0.44***	.01
5.	TMT Task-Related Behavioral Complexity	0.07	0.01	0.09	0.05	0.28**	0.30**	.06
Dependent Variables								
6.	Product Development Performance	0.08	-0.13	0.06	0.08	0.13	0.08	-0.17
7.	Business Performance	0.05	-0.12	-0.01	0.01	0.09	0.07	-0.13
8.	Unit Effectiveness	0.07	-0.07	0.06	0.04	0.06	0.24*	-0.13

*$p < .05$, ** $p < .01$, *** $p < .001$

4.6. Testing the hypotheses

4.6.1. Testing hypotheses 1-2

Hypothesis 1a: ***There is a positive relationship between TMT behavioral integration and TMT task-related behavioral complexity.***

Hypothesis 1a posited a positive relationship between TMT behavioral integration and TMT task-related behavioral complexity. The hypothesis was tested by a two-step hierarchal regression. In the first step the control variables were entered. In the second step we added the independent variable, TMT behavioral integration. The dependent variable for hypothesis 1a was TMT task-related behavioral complexity. The two-step hierarchal regression results are depicted in table No. 27:

Table 27: Regression Results for the Relationships between TMT Behavioral Integration and TMT Task-Related Behavioral Complexity

	Step 1	Step2
Regression Coefficient	*β*	*β*
Constant[(1)]	3.865***	2.476***
Unit Size	.055	.094
Industry	-.111	-.078
TMT Behavioral Integration		.360**
R^2	.016	.142
F	F(2, 63) = .493	F(3, 62) = 3.427*
R^2-change		.127
F-change		F(1, 62) = 9.159**

*$p < .05$, ** $p < .01$, ***$p < .001$

(1) Unstandardized coefficient-last model

As can be seen from the results in Table No. 27, TMT behavioral integration positively predicted TMT task-related behavioral complexity (β =0.36, p < 0.01) .The results support our 1st hypothesis. In addition, the findings show that the control variables accounted for 1.6 percent of the variance in TMT task-related behavioral complexity; however this contribution was not significant. In the step 2, where we added the independent variable, TMT behavioral integration, its accounted for 12.7 percent (p<0.05) of the variance of TMT task-related behavioral complexity, yielding 14.2 percent total explained variance for TMT task-related behavioral complexity and a significant regression (p<0.01). The results support the hypothesis.

Hypothesis 1b:	***There is a positive relationship between TMT behavioral integration and TMT people-related behavioral complexity.***

Hypothesis 1b posited a positive relationship between TMT Behavioral Integration and TMT people-related behavioral complexity. The control variables were entered in the first step. In the second step we added the independent variable, TMT behavioral integration. The dependent variable for hypothesis 1b was TMT people-related behavioral complexity. The two-step hierarchal regression results are depicted in table No. 28:

Table 28: Regression Results for the Relationships between TMT Behavioral Integration and TMT People-Related Behavioral Complexity

	Step 1	Step2
Regression Coefficient	β	β
Constant[(1)]	3.962***	2.354***
Unit Size	.007	.056
Industry	-.051	-.010
TMT Behavioral Integration		.451***
R^2	.03	.202
F	F(2, 63) = .086	F(3, 62) = 5.231**
R^2-change		.199
F-change		F(1, 62) = 15.482***

*$p < .05$, ** $p < .01$, ***$p < .001$

(1) Unstandardized coefficient-last model

As can be seen from the results in Table No. 28, TMT behavioral integration positively predicted TMT people-related behavioral complexity (β =0.451, $p < 0.001$). The results support our hypothesis. In addition, the findings show that in the first step, the control variables accounted for 3 percent of the variance in TMT task-related behavioral complexity (n.s.). In the second step, where we added the independent variable, TMT behavioral integration, it accounted for 19.9 percent (p<0.05) of the variance in TMT people-related behavioral complexity, resulting in 20.2 percent total explained variance for TMT people-related behavioral complexity and a significant regression (p<0.001). The results support the hypothesis.

Hypothesis 2a: ***TMT task-related behavioral complexity is positively related to unit ambidexterity.***

Hypothesis 2a posited a positive relationship between TMT task-related behavioral complexity and unit ambidexterity. The control variables were entered in step one. In the second step we added the independent variable, TMT task-related behavioral complexity. The dependent variable for hypothesis 2a was unit ambidexterity. The two-step hierarchal regression results are depicted in table No. 29:

Table 29: Regression Results for the Relationships between TMT Task-Related Behavioral Complexity and Unit Ambidexterity

	Step 1	Step2
Regression Coefficient	β	β
Constant(1)	3.822***	1.874***
Unit Size	-.133	-.158
Industry	.029	.082
TMT Task-Related Behavioral Complexity		.472***
R^2	.019	.238
F	F(2, 88) = .835	F(3, 87) = 9.034***
R^2-change		.219
F-change		F(1, 87) = 24.977***

*$p < .05$, ** $p < .01$, ***$p < .001$

(1) Unstandardized coefficient-last model

As can be seen from the results in Table No. 29, TMT task-related behavioral complexity positively predicted unit ambidexterity (β =0.472, $p < 0.001$). The results support our hypothesis. In the first step, the control variables accounted for 1.9 percent of the variance in unit ambidexterity (n.s.). In the second step, where we added the independent variable, TMT task-related behavioral complexity, it accounted for 21.9 percent ($p<0.001$) of the variance unit in ambidexterity, resulting in 23.8 percent total

explained variance of unit ambidexterity and a significant regression (p<0.001). The results support the hypothesis.

Hypothesis 2b: ***TMT people-related behavioral complexity is positively related to unit ambidexterity.***

Hypothesis 2b posited a positive relationship between TMT people-related behavioral complexity and unit ambidexterity. The control variables were entered in step one. In the second step we added the independent variable, TMT people-related behavioral complexity. The dependent variable for hypothesis 2a was unit ambidexterity. The two-step hierarchal regression results are depicted in table No. 30:

Table 30: Regression Results for the Relationships between TMT People-Related Behavioral Complexity and Unit Ambidexterity

	Step 1	Step2
Regression Coefficient	β	β
Constant(1)	3.822***	1.244**
Unit Size	-.133	-.136
Industry	.029	.058
TMT People-Related Behavioral Complexity		.562***
R^2	.019	.334
F	F(2, 88) = .835	F(3, 87) = 14.520***
R^2-change		.315
F-change		F(1, 87) = 41.128***

*p < .05, ** p < .01, ***p < .001

(1) Unstandardized coefficient-last model

As can be seen from the results in Table No. 30, TMT people-related behavioral complexity positively predicted unit ambidexterity (β =0.562, p < 0.001). The results support our hypothesis. The control variables accounted for 1.9 percent of the variance in unit ambidexterity (n.s.). In the second step, where we added the independent variable, TMT people-related behavioral complexity , it accounted for 31.5 percent (p<0.001) of the variance unit in ambidexterity, resulting in 33.4 percent total explained variance in unit ambidexterity and a significant regression (p<0.001). The results support the hypothesis.

4.6.2. Testing hypothesis 3

As stated earlier, the mediation effect was tested in the current research through a procedure suggested in Baron and Kenny (1986) and a more recent guideline in Kenny et al. (1998). To establish a mediation model, three basic conditions should be met: (1) establishing a significant relationship between the dependent variables and the independent variables; (2) establishing a significant relationship between the mediator and independent variables; and (3) showing that the significant relationship between the dependent variables and the independent variables becomes non-significant when the mediator is specified in the model. According to Kenny et al. (1998), a variable (M) mediates the relationship between an antecedent variable (X) and an outcome variable (Y) if (a) X is significantly related to Y; (b) X is significantly related to M; (c) after X is controlled for, M remains significantly related to Y; and (d) after M is controlled for, the X-Y relationship is zero. Kenny et al. (1998, p. 260) described these steps as "the essential steps in establishing mediation." The first step, they commented, "is not required, but a path from the initial variable to the outcome is implied if [the two middle steps] are met" (Kenny et al., 1998). Furthermore, the last step is necessary only to prove a complete mediation effect. Accordingly, we tested successive segments of our model by evaluating whether the four steps were met. Following MacKinnon et al. (2002), we simultaneously tested the significance of both the path from an initial variable to a mediator and the path from the mediator to an outcome as this approach provides, relative to other approaches, the best balance of type I error rates and statistical power.

Hypothesis 3: ***(a) TMT task-related behavioral complexity mediates the relationship between TMT behavioral integration and unit ambidexterity.***

(b) TMT people-related behavioral complexity mediates the relationship between TMT behavioral integration and unit ambidexterity.

The hypothesis was tested by examining the four prerequisites for mediation:

First condition: Establishing a significant relationship between the dependent variable (unit ambidexterity) and the independent variable (TMT behavioral integration) (model 1).

Second condition: Establishing a significant relationship between mediators (TMT behavioral complexity task and people-related) and the independent variable (TMT behavioral integration) (model 2-3).

Third condition: Establishing a significant relationship between mediators (TMT behavioral complexity task and people-related) and the dependent variable (unit ambidexterity) (model 4).

Fourth condition: Predicting the dependent variable (unit ambidexterity) by mediators (TMT behavioral complexity task and people-related) and the independent variable (TMT behavioral integration) (model 5). Table No. 31 presents the results of the four models of the hierarchal regression:

Table 31: Regression Results for the Relationships between TMT Behavioral Complexity, Behavioral Integration and Unit Ambidexterity

	Model 1	Model 2	Model 3	Model 4	Model 5
	Unit Ambidexterity	TMT Behavioral Complexity - People-Related	TMT Behavioral Complexity - Task-Related	Unit Ambidexterity	Unit Ambidexterity
Regression Coefficient	*β*	*β*	*β*	*β*	*β*
(1) Constant	1.76***	2.325***	2.451***	0.735	0.230
Industry	0.096	0.010	0.017	0.083	0.088
Unit size	-0.082	0.072	0.155	-0.151*Π*	-0.153
R2	0.021	0.001	0.013	0.019	0.021
F for R2	0.685	0.46	0.430	0.839	0.685
Degrees of freedom	2,63	2,63	2,63	2,88	2,63
TMT People-Related Behavioral Complexity				0.438***	0.217*Π*
TMT Task-Related Behavioral Complexity				0.262**	0.351**
ΔR2				0.367	0.426
F for ΔR2				25.710***	23.512***
Degrees of freedom				2,86	2,61
Behavioral Integration	0.527***	0.454***	0.375**		0.296**
ΔR2	0.272	0.203	0.138		0.068
F for ΔR2	23.903***	15.777***	10.053**		8.426**
Degrees of freedom	1,62	1,62	1,62		1,60
Overall R2	0.294	0.204	0.151	.386	0.515
Degrees of freedom	3,62	3,62	3,62	4,86	5,60
Overall F for R2	8.591***	5.297**	3.679*	13.511***	12.672***

*$p < .05$, ** $p < .01$, ***$p < .001$ *Π* < 0.1

(1) Unstandardized coefficient – last model.

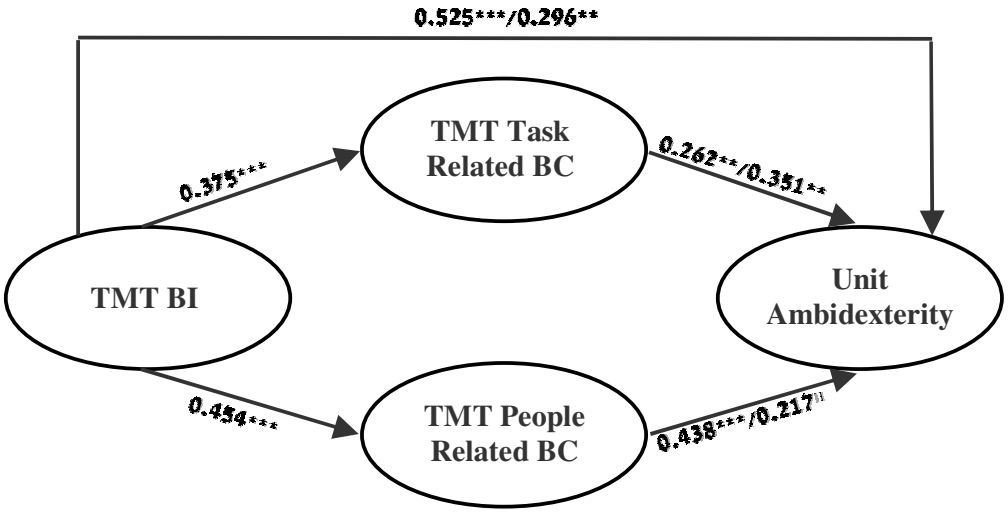

Figure 3: The mediating effect of TMT behavioral complexity on TMT behavioral integration and unit ambidexterity

Hypothesis 3 (a and b) posited a mediation effect of TMT behavioral integration, task-related and people-related, between TMT behavioral integration and unit ambidexterity.

Testing the first condition: Following Model 1 results, behavioral integration (the independent variable) was significantly and positively (β=.527 p<0.001) related to unit ambidexterity. Hence, the first condition was fulfilled.

Testing the second condition: Following Model 2 and 3 results, TMT behavioral complexity, people-related (Model 2), and task-related (Model 3) (the mediators) were significantly and positively (β=.454, p<0.001 and β=.375, p<0.01, respectively) related to behavioral integration. Hence, the second condition was fulfilled.

Testing the third condition: Following Model 4 results, TMT behavioral complexity, people-related and task-related (the mediators) were significantly and positively

(β=.438, p<0.001 and β=.262, p<0.01, respectively) related to unit ambidexterity. Hence, the third condition was fulfilled.

Testing the fourth condition: In the final Model we tested the relationship between the independent variable, TMT behavioral integration, and the dependent variable, unit ambidexterity, while controlling the mediators, TMT behavioral complexity, people-related and task-related. We used hierarchal regression where we entered the control variables in the first step, the mediators (TMT behavioral complexity, people-related and task-related) and in the second step, and finally the independent variable (behavioral integration) in the third step.

The findings show that the relationship between the independent variable, TMT behavioral integration, and the dependent variable, unit ambidexterity, was still significant; however its β coefficient was lower and less significant at that step (β=.296, p<0.01). Hence, the hypothesis for full mediation was not supported. There is a partial mediation effect of TMT behavioral complexity, people-related and task-related, on TMT behavioral integration and unit ambidexterity.

4.6.3. Testing hypotheses 4-5

Hypothesis 4: ***The more a unit context is characterized by behavioral complexity, the higher the level of its unit ambidexterity.***

Hypothesis 4 posited a positive relationship between unit context for behavioral complexity and its level of ambidexterity. The control variables were entered in step one. In the second step we added the independent variable, unit context for behavioral complexity and its level of ambidexterity. The dependent variable for hypothesis 4 is unit ambidexterity. The two-step hierarchal regression results are depicted in table No. 32:

Table 32: Regression Results for the Relationships between Unit Context for Behavioral Complexity and Unit Ambidexterity

	Step 1	Step2
Regression Coefficient	β	β
Constant[(1)]	3.822***	2.470***
Unit Size	-.133	-.106
Industry	.029	.075
Unit Context for Behavioral Complexity		.254*
R^2	.019	.080
F	F(2, 83) = .788	F(3, 82) = 2.388 Π
R^2-change		.062
F-change		F(1, 82) = 5.502*

*$p < .05$, ** $p < .01$, ***$p < .001$ $\Pi < 0.1$

(1) Unstandardized coefficient-last model

As can be seen from the results in Table No. 32, context for behavioral complexity positively predicted unit ambidexterity (β =0.254, p < 0.05) .The results support our hypothesis. The control variables accounted for 1.9 percent of the variance in unit ambidexterity (n.s.). In Step 2 , where we added the independent variable, context for behavioral complexity , it accounted for 6.2 percent (p<0.05) of the variance in unit ambidexterity, resulting in 8 percent total explained variance for unit ambidexterity and a significant regression (p<0.1). The results support the hypothesis.

Hypothesis 5a: ***There is a positive relationship between unit ambidexterity and unit business performance.***

Hypothesis 5a posited a positive relationship between unit ambidexterity and its business performance. The hypothesis was tested by a two-step hierarchal regression. The control variables were entered in Step 1. In Step 2 we added the independent variable, unit ambidexterity. The dependent variable for hypothesis 5a was business performance. The two-step hierarchal regression results are depicted in table No. 33:

Table 33: Regression Results for the Relationships between Unit Ambidexterity and Business Performance

	Step 1	Step2
Regression Coefficient	β	β
Constant[(1)]	4.684***	3.466***
Unit Size	-.119	-.082
Industry	.158	.169
Dynamism	.059	.045
Complexity	.011	-.068
Unit Ambidexterity		.295*
R^2	.048	.126
F	F(4, 67) = .840	F(5, 66) = 1.904
R^2-change		.078
F-change		F(1, 66) = 5.912*

*$p < .05$, ** $p < .01$, ***$p < .001$

(1) Unstandardized coefficient-last model

As can be seen from the results in Table No. 33, unit ambidexterity positively predicted business performance (β =0.295, $p < 0.05$). The control variables accounted for 4.8% (n.s.) of the variance of business performance; In Step 2, where we added the independent variable, unit ambidexterity, it accounted for 7.8 percent (p<0.05) of the variance business performance, resulting in 12.6 percent total explained variance in business performance. However, the regression was not significant and hence the results do not support the hypothesis.

Hypothesis 5b: ***There is a positive relationship between unit ambidexterity and unit product development performance.***

Hypothesis 5b posited a positive relationship between unit ambidexterity and its product development performance**.** The hypothesis was tested by a two-step hierarchal regression. The control variables were entered in Step 1. In Step 2 we added the independent variable, unit ambidexterity. The dependent variable for hypothesis 5b was product development performance. The two-step hierarchal regression results are depicted in table No. 34:

Table 34: Regression Results for the Relationships between Unit Ambidexterity and Product Development Performance

	Step 1	Step2
Regression Coefficient	β	β
Constant[(1)]	4.307***	2.320**
Unit Size	-.162	-.105
Industry	.263*	.281**
Dynamism	.106	.085
Complexity	-.028	-.150
Unit Ambidexterity		.456***
R^2	.112	.300
F	F(4, 80) = 2.520*	F(5, 79) = 6.766***
R^2-change		.188
F-change		F(1, 79) = 21.202***

*$p < .05$, ** $p < .01$, ***$p < .001$

(1) Unstandardized coefficient-last model

As can be seen from the results in Table No. 34, unit ambidexterity positively predicted product development performance (β =0.456, $p < 0.001$). In addition, the findings show that in Step 1the control variables accounted for 11.2 percent (p<0.05) of

the variance in product development performance. In Step 2, where we added the independent variable, unit ambidexterity, accounted for 18.8 percent (p<0.001) of the variance in product development performance, yielding 30 percent total explained variance for product development performance and a significant regression (p<0.001). The results support the hypothesis.

Hypothesis 5c: ***There is a positive relationship between unit ambidexterity and unit effectiveness.***

Hypothesis 5c posited a positive relationship between unit ambidexterity and its unit effectiveness. The hypothesis was tested by two-step hierarchal regression. The control variables were entered in Step 1. In Step 2 we added the independent variable, unit ambidexterity. The dependent variable for hypothesis 5c is product development performance. The two-step hierarchal regression results are depicted in table No. 35:

Table 35: Regression Results for the Relationships between Unit Ambidexterity and Unit Effectiveness

	Step 1	Step2
Regression Coefficient	*β*	*β*
Constant(1)	4.244***	3.308***
Unit Size	-.123	-.090
Industry	.234*	.245*
Dynamism	-.058	-.070
Complexity	.202 *Π*	.132
Unit Ambidexterity		.265*
R²	.126	.190
F	F(4, 83) = 3.004*	F(5, 82) = 3.837**
R²-change		.063
F-change		F(1, 82) = 6.389*

*p < .05, ** p < .01, ***p < .001 *Π* < 0.1

(1) Unstandardized coefficient-last model

As can be seen from the results in Table No. 35, unit ambidexterity positively predicted unit effectiveness (β =0.265, p < 0.05). The control variables in Step 1 accounted for 12.6 percent (p<0.05) of the variance in unit effectiveness. In Step 2 where we added the independent variable, unit ambidexterity, accounted for 6.4 percent (p<0.01) of the variance in unit effectiveness, yielding 19 percent total explained variance for unit effectiveness and a significant regression (p<0.01). The results support the hypothesis.

4.6.4. Testing hypotheses 6-7

Hypothesis 6a:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and business performance.***

First condition: Establishing a significant relationship between the dependent variable (*business performance*) and the independent variable (*unit context for behavioral complexity*) (model 1).

Second condition: Establishing a significant relationship between mediator (*unit ambidexterity*) and independent variable (*unit context for behavioral complexity*) (model 2).

Third condition: Establishing a significant relationship between mediator (*unit ambidexterity*) and the dependent variable (*business performance*) (model 3).

Fourth condition: Predicting the dependent variable (*business performance*) by the mediator (*unit ambidexterity*) and the independent variable (*unit context for behavioral complexity*) (model 4).

Table 36: Regression Results for the Relationships between Unit Ambidexterity, Context for Behavioral Complexity and Business Performance

	Model 1	Model 2	Model 3	Model 4
	Business Performance	Unit Ambidexterity	Business Performance	Business Performance
Regression Coefficient	β	β	β	β
(1) Constant	4.099**	1.443*	3.466***	3.481**
Industry	.171	.008	.169	.169
Unit size	-.111	-.098	-.082	-.082
Dynamism	.067	.076	.045	.045
Complexity	.007	.253*	-.068	-.068
R^2	.048	.098	.048	.048
F for R2	.803	2.168Π	.840	.803
Degrees of freedom	4,64	4,80	4,67	4,64
Unit Ambidexterity			.295*	.295*
ΔR2			.078	.078
F for ΔR2			5.912*	5.643*
Degrees of freedom for ΔR2			1,66	1,63
Unit Context for Behavioral Complexity	.074	.257*		-.002
ΔR2	.005	.063		.000
F for ΔR2	.341	5.883*		.000
Degrees of freedom for ΔR2	1,63	1,79		1,62
Overall R2	.053	.160	.126	.126
Degrees of Freedom	5,63	5,79	5,66	6,62
Overall F for R2	.704	3.017*	1.904	1.490

*$p < .05$, ** $p < .01$, ***$p < .001$ $\Pi < 0.1$

(1) Unstandardized coefficient-last model

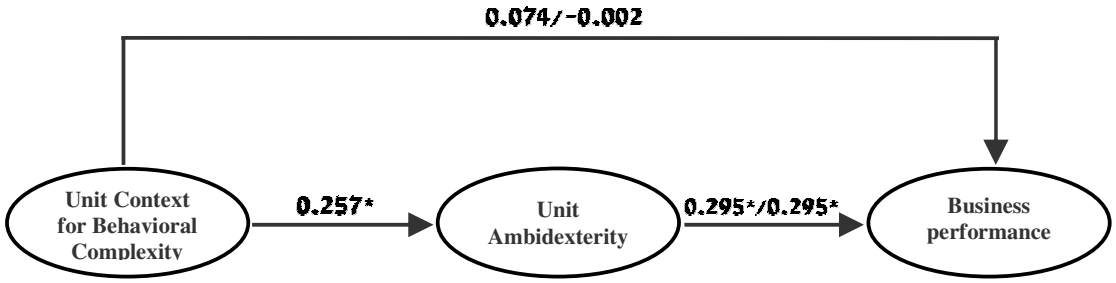

Figure 4: The mediating effect of unit ambidexterity on unit context for behavioral complexity and business performance

Hypothesis 6a posited the mediation effect of unit ambidexterity on unit context for behavioral complexity and business performance.

Testing the first condition: Given the results for Model 1, the relationship between unit context for behavioral complexity (the independent variable) and business performance was not significant. Hence, the first condition was not fulfilled.

Testing the second condition: Given the results for Model 2, unit ambidexterity (the mediator) was significantly and positively (β=.257, p<0.05) related to context for behavioral complexity. Hence, the second condition was fulfilled.

Testing the third condition: Given the results for Model 3, unit ambidexterity, (the mediator) was significantly and positively (β=.295, p<0.05) related to business performance. Hence, the third condition was fulfilled.

Testing the fourth condition: In the final Model we tested the relationship between the independent variable, unit context for behavioral complexity, and the dependent variable, unit business performance, while controlling the mediators, unit ambidexterity.

We used hierarchal regression where we entered the control variables in Step 1, the mediator (unit ambidexterity) in Step 2, and finally the independent variable (unit context for behavioral complexity) in Step 3.

The findings show that the relationship between the independent variable, context for behavioral complexity, and the dependent variable, business performance, still did not reach significance. Hence, the hypothesis for full mediation was supported. There is a full mediation effect of unit ambidexterity on context for behavioral complexity and business performance.

Hypothesis 6b:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and product development performance.***

First condition: Establishing a significant relationship between the dependent variable (*product development performance*) and the independent variable (*unit context for behavioral complexity*) (model 1).

Second condition: Establishing a significant relationship between mediator (*unit ambidexterity*) and independent variable (*unit context for behavioral complexity*) (model 2).

Third condition: Establishing a significant relationship between mediator (*unit ambidexterity*) and the dependent variable (*product development performance*) (model 3).

Fourth condition: Predicting the dependent variable (*product development performance*) by the mediator (*unit ambidexterity*) and the independent variable (*unit context for behavioral complexity*) (model 4).

Table 37: Regression Results for the Relationships between Unit Ambidexterity, Context for Behavioral Complexity and Product Development Performance

	Model 1	Model 2	Model 3	Model 4
	Product Development Performance	Unit Ambidexterity	Product Development Performance	Product Development Performance
Regression Coefficient	β	β	β	β
(1) Constant	3.054**	1.443*	2.320**	2.068 Π
Industry	.290*	.008	.281**	.287**
Unit size	-.146	-.098	-.105	-.102
Dynamism	.123	.076	.085	.089
Complexity	-.037	.253*	-.150	-.150
R^2	.112	.098	.112	.112
F for R2	2.394 Π	2.168 Π	2.520*	2.394 Π
Degrees of freedom	4,76	4,80	4,80	4,76
Unit Ambidexterity			.456***	.447***
ΔR2			.188	.188
F for ΔR2			21.202***	20.129***
Degrees of freedom for ΔR2			1,79	1,75
Unit Context for Behavioral Complexity	.150	.257*		.035
ΔR2	.021	.063		.001
F for ΔR2	1.842	5.883*		.115
Degrees of freedom for ΔR2	1,75	1,79		1,74
Overall R2	.133	.160	.300	.301
Degrees of Freedom	5,75	5,79	5,79	6,74
Overall F for R2	2.305 Π	3.017*	6.766***	5.309***

*$p < .05$, ** $p < .01$, ***$p < .001$ $\Pi < 0.1$

(1) Unstandardized coefficient-last model

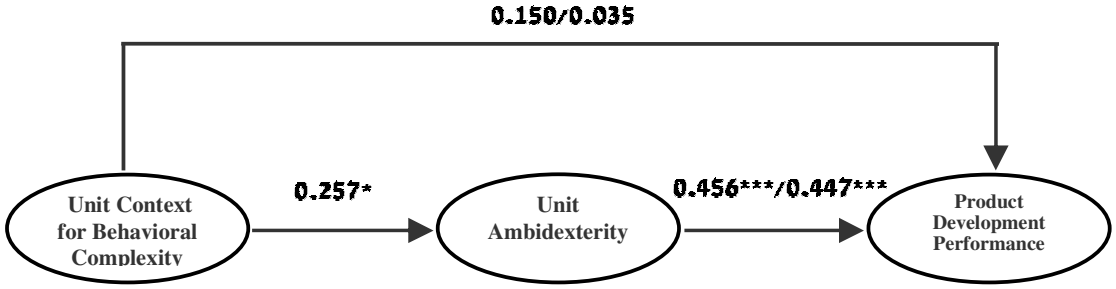

Figure 5: The mediating effect of unit ambidexterity on unit context for behavioral complexity and Product Development Performance

Hypothesis 6b posited a mediation effect of unit ambidexterity on unit context for behavioral complexity and product development performance.

Testing the first condition: The results of Model 1 indicate that the relationship between unit context for behavioral complexity (the independent variable) and product development performance was not significant. Hence, the first condition was not fulfilled.

Testing the second condition: Model 2 results show that unit ambidexterity (the mediator) was significantly and positively (β=.257, p<0.05) related to context for behavioral complexity. Hence, the second condition was fulfilled.

Testing the third condition: Model 3 results show that unit ambidexterity, (the mediator) was significantly and positively (β=.456, p<0.001) related to product development performance. Hence, the third condition was fulfilled.

Testing the fourth condition: In the final Model we tested the relationship between the independent variable, context for behavioral complexity, and the dependent variable, product development performance while controlling the mediator, unit ambidexterity. We used hierarchal regression where we entered the control variables in Step 1, the mediator (unit ambidexterity) in Step 2, and finally the independent variable (unit context for behavioral complexity) in Step 3.

The findings show that the relationship between the independent variable, unit context for behavioral complexity, and the dependent variable, product development performance, still did not reach significance. Hence, the hypothesis for full mediation was supported. There is a full mediation effect of unit ambidexterity on unit context for behavioral complexity and product development performance.

Hypothesis 6c: ***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and unit effectiveness.***

First condition: Establishing a significant relationship between the dependent variable (*unit effectiveness*) and the independent variable (*unit context for behavioral complexity*) (model 1).

Second condition: Establishing a significant relationship between the mediator (*unit ambidexterity*) and the independent variable (*unit context for behavioral complexity*) (model 2).

Third condition: Establishing a significant relationship between the mediator (*unit ambidexterity*) and the dependent variable (*unit effectiveness*) (model 3).

Fourth condition: Predicting the dependent variable (*unit effectiveness*) by mediator (*unit ambidexterity*) and the independent variable (*unit context for behavioral complexity*) (model 4).

Table 38: Regression Results for the Relationships between Unit Ambidexterity, Context for Behavioral Complexity and Unit Effectiveness

	Model 1	Model 2	Model 3	Model 4
	Unit Effectiveness	Unit Ambidexterity	Unit Effectiveness	Unit Effectiveness
Regression Coefficient	*β*	*β*	*β*	*β*
(1) Constant	1.769*	1.443*	3.308	1.449*Π*
Industry	.300**	.008	.245*	.299**
Unit size	-.085	-.098	-.090	-.067
Dynamism	-.018	.076	-.070	-.032
Complexity	.182	.253*	.132	.136
R^2	.126	.098	.126	.126
F for R2	2.823*	2.168	3.004	2.823*
Degrees of freedom	4,78	4,80	4,83	4,78
Unit Ambidexterity			.265*	.179*Π*
ΔR2			.063	.063
F for ΔR2			6.389*	6.000*
Degrees of freedom for ΔR2			1,82	1,77
Unit Context for Behavioral Complexity	.364**	.257*		.318**
ΔR2	.126	.063		.089
F for ΔR2	12.938**	5,883*		9.415**
Degrees of freedom for ΔR2	1,77	1,79		1,76
Overall R2	.252	.160	.190	.279
Degrees of Freedom	5,77	5,79	5,82	6,76
Overall F for R2	5.191***	3.017*	3.837**	4.900***

*$p < .05$, ** $p < .01$, ***$p < .001$ *Π* < 0.1

(1) Unstandardized coefficient-last model

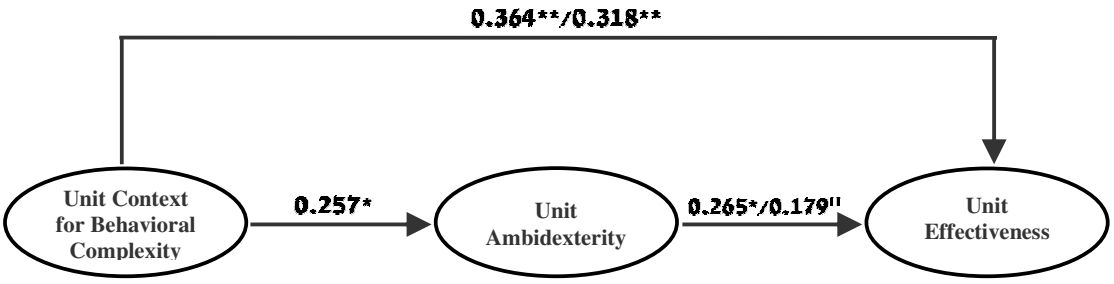

Figure 6: The mediating effect of unit ambidexterity on unit context for behavioral complexity and unit effectiveness

Hypothesis 6c posited a mediation effect of unit ambidexterity on unit context for behavioral complexity and unit effectiveness.

Testing the first condition: Model 1 results show that the relationship between unit context for behavioral complexity (the independent variable) and unit effectiveness was positive and significant (β=.364, p<0.01). Hence, the first condition was fulfilled.

Testing the second condition: Model 2 results show that unit ambidexterity (the mediator) was significantly and positively (β=.257, p<0.05) related to context for behavioral complexity. Hence, the second condition was fulfilled.

Testing the third condition: Model 3 results show that unit ambidexterity, (the mediator) was significantly and positively (β=.265, p<0.05) related to unit effectiveness. Hence, the third condition was fulfilled.

Testing the fourth condition: In the final Model we tested the relationship between the independent variable, context for behavioral complexity, and the dependent variable, unit effectiveness while controlling the mediator, unit ambidexterity. We used hierarchal regression where we entered the control variables in Step 1, the mediator (unit ambidexterity) in Step 2, and finally the independent variable (unit context for behavioral complexity) in Step 3.

The findings show that the relationship between the independent variable, context for behavioral complexity, and the dependent variable, unit effectiveness, still did not reach significance; however its β coefficient was lower in this step (β=.318, p<0.01). Hence, the hypothesis for full mediation was not supported. There is a partial mediation effect of unit ambidexterity on context for behavioral complexity and unit effectiveness.

Hypothesis 7a:	***Unit ambidexterity mediates the relationship between TMT task-related and people-related behavioral complexity and business performance.***

First condition: Establishing a significant relationship between the dependent variable (*business performance*) and the independent variables (*TMT task-related and people-related behavioral complexity*) (model 1).

Second condition: Establishing a significant relationship between mediator (*unit ambidexterity*) and the independent variables (*TMT task-related and people-related behavioral complexity*) (model 2).

Third condition: Establishing a significant relationship between the mediator (*unit ambidexterity*) and the dependent variable (*business performance*) (model 3).

Fourth condition: Predicting the dependent variable (*business performance*) by the mediator (*unit ambidexterity*) and the independent variables (*TMT task-related and people-related behavioral complexity*) (model 4).

Table 39: Regression Results for the Relationships between Unit Ambidexterity, TMT Behavioral Complexity and Business Performance

	Model 1	Model 2	Model 3	Model 4
	Business Performance	Unit Ambidexterity	Business Performance	Business Performance
Regression Coefficient	*β*	*β*	*β*	*β*
(1) Constant	4.027***	.818 *Π*	3.466***	3.629***
Industry	.190	.092	.169	.159
Unit size	-.130	-.153 *Π*	-.082	-.078
Dynamism	.026	-.071	.045	.050
Complexity	-.037	.000	-.068	-.037
R^2	.048	.098	.048	.048
F for R2	.840	2.303*Π*	.840	.840
Degrees of freedom	4,67	4,85	4,67	4,67
Unit Ambidexterity			.295*	.335*
ΔR2			.078	.078
F for ΔR2			5.912*	5.912*
Degrees of freedom for ΔR2			1,66	1,66
TMT Behavioral Complexity-People-Related	.019	.452***		-.132
TMT Behavioral Complexity – Task-Related	.148	.276**		.056
ΔR2	.020	.292		.010
F for ΔR2	.705	19.881***		.378
Degrees of freedom for ΔR2	2,65	2,83		2,64
Overall R2	.068	.390	.126	.136
Degrees of freedom	6,65	6,83	5,66	7,64
Overall F for ΔR2	.790	8.845***	1.904	1.442

*$p < .05$, ** $p < .01$, ***$p < .001$ *Π* < 0.1

(1) Unstandardized coefficient-last model

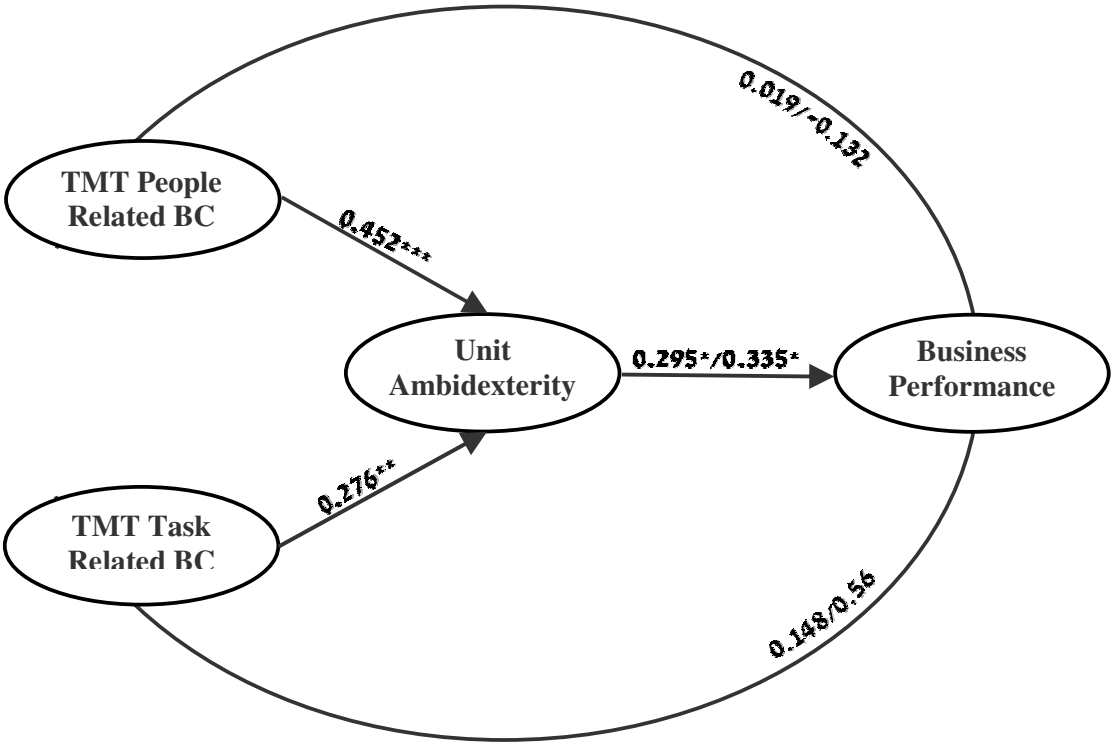

Figure 7: The mediating effect of unit ambidexterity on TMT behavioral complexity and business performance

Hypothesis 7a posited a mediation effect of unit ambidexterity on TMT people-related and task- related behavioral complexity and business performance.

Testing the first condition: Model 1 results show that the relationship between TMT people-related and task-related behavioral complexity (the independent variables) and business performance was not significant. Hence, the first condition was not fulfilled.

Testing the second condition: Model 2 results show that unit ambidexterity (the mediator) was significantly and positively related to TMT people-related and task-

related behavioral complexity (β=.452, p<0.001 and β=.276, p<0.01, respectively). Hence, the second condition was fulfilled.

Testing the third condition: Model 3 results show that unit ambidexterity, (the mediator) was significantly and positively (β=.295, p<0.05) related to business performance. Hence, the third condition was fulfilled.

Testing the fourth condition: In the final Model we tested the relationship between the independent variables, TMT people-related and task- related behavioral complexity, and the dependent variable, business performance, while controlling the mediator, unit ambidexterity. We used hierarchal regression where we entered the control variables in Step 1, the mediator (unit ambidexterity) in Step 2, and finally the independent variables (TMT people-related and task- related behavioral complexity) in Step 3.

The findings show that the relationship between the independent variables, TMT people-related and task-related behavioral complexity, and the dependent variable, business performance, did not reach significance. Hence, the hypothesis for full mediation was supported. There is a full mediation effect of unit ambidexterity on TMT people-related and task- related behavioral complexity and business performance.

Hypothesis 7b: ***Unit ambidexterity mediates the relationship between TMT task-related and people-related behavioral complexity and product development performance.***

First condition: Establishing a significant relationship between the dependent variable (*product development performance*) and the independent variables (*TMT task-related and people-related behavioral complexity*) (model 1).

Second condition: Establishing a significant relationship between the mediator (*unit ambidexterity*) and the independent variables (*TMT task-related and people-related behavioral complexity*) (model 2).

Third condition: Establishing a significant relationship between the mediator (*unit ambidexterity*) and the dependent variable (*product development performance*) (model 3).

Fourth condition: Predicting the dependent variable (*product development performance*) by the mediator (*unit ambidexterity*) and the independent variables (*TMT task-related and people-related behavioral complexity*) (model 4).

Table 40: Regression Results for the Relationships between Unit Ambidexterity, TMT Behavioral Complexity and Product Development Performance

	Model 1	Model 2	Model 3	Model 4
	Product Development Performance	Unit Ambidexterity	Product Development Performance	Product Development Performance
Regression Coefficient	*β*	*β*	*β*	*β*
(1) Constant	3.680***	.818*Π*	2.320**	2.946***
Industry	.295*Π*	.092	.281**	.241*
Unit size	-.174	-.153	-.105	-.084
Dynamism	.072	-.071	.085	.114
Complexity	-.064	.000	-.150	-.064
R^2	.112	.098	.112	.112
F for R2	2.520*	2.303*Π*	2.520*	2.520*
Degrees of freedom	4,80	4,85	4,80	4,80
Unit Ambidexterity			.456***	.587***
ΔR2			.188	.188
F for ΔR2			21.202***	21.202***
Degrees of freedom for ΔR2			1,79	1,79
TMT Behavioral Complexity-People-Related	-.036	.452***		-.302*
TMT Behavioral Complexity-Task-Related	.191	.276**		.029
ΔR2	.027	.292		.050
F for ΔR2	1.242	19.881***		2.943*Π*
Degrees of freedom for ΔR2	2,78	2,83		2,77
Overall R2	.139	.390	.300	.350
Degrees of Freedom	6,78	6,83	5,79	7,77
Overall F for R2	2.104*Π*	8.845***	6.766***	5.911***

*$p < .05$, ** $p < .01$, ***$p < .001$ *Π* < 0.1

(1) Unstandardized coefficient-last model

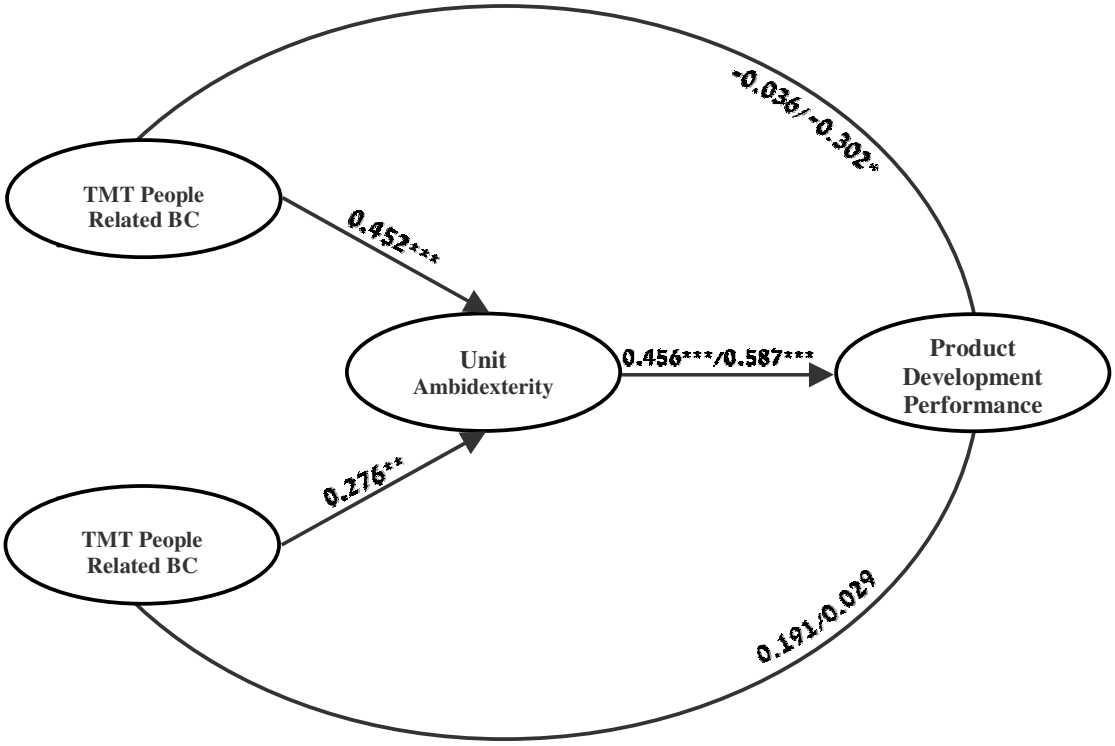

Figure 8: The mediating effect of unit ambidexterity on TMT behavioral complexity and product development performance

Hypothesis 7b posited a mediation effect of Unit Ambidexterity on TMT people-related and task- related behavioral complexity and product development performance.

Testing the first condition: Model 1 results show that the relationship between TMT people-related and task-related behavioral complexity (the independent variables) and product development performance was not significant. Hence, the first condition was not fulfilled.

Testing the second condition: Model 2 results show that unit ambidexterity (the mediator) was significantly and positively related to TMT people-related and task-related behavioral complexity (β=.452, p<0.001 and β=.276, p<0.01, respectively). Hence, the second condition was fulfilled.

Testing the third condition: Model 3 results show that unit ambidexterity, (the mediator) was significantly and positively (β=.456, p<0.001) related to product development performance. Hence, the third condition was fulfilled.

Testing the fourth condition: In the final Model we tested the relationship between the independent variables, TMT people-related and task- related behavioral complexity, and the dependent variable, product development performance while controlling the mediator, unit ambidexterity. We used hierarchal regression where we entered the control variables in Step 1, the mediator (unit ambidexterity) in Step 2, and finally the independent variables (TMT people-related and task-related behavioral complexity) in Step 3.

The findings show that the relationship between the independent variables, TMT people-related and task-related behavioral complexity, and the dependent variable, product development performance, did not reach significance while controlling for the TMT task-related behavioral complexity; however the result became significant (β=.-302, p<0.05) for TMT people-related behavioral complexity. Hence, the hypothesis for full mediation was supported for the TMT task-related behavioral complexity independent variable and partial mediation for the people-related behavioral complexity independent variable.

Hypothesis 7c: ***Unit ambidexterity mediates the relationship between TMT task-related and people-related behavioral complexity and unit effectiveness.***

First condition: Establishing a significant relationship between the dependent variable (*unit effectiveness*) and the independent variables (*TMT task-related and people-related behavioral complexity*) (model 1).

Second condition: Establishing a significant relationship between the mediator (*unit ambidexterity*) and the independent variables (*TMT task-related and people-related behavioral complexity*) (model 2).

Third condition: Establishing a significant relationship between the mediator (*unit ambidexterity*) and the dependent variable (*unit effectiveness*) (model 3).

Fourth condition: Predicting the dependent variable (*unit effectiveness*) by mediator (*unit ambidexterity*) and independent variables (*TMT task-related and people-related behavioral complexity*) (model 4).

Table 41: Regression Results for the Relationships between Unit Ambidexterity, TMT Behavioral Complexity and Unit Effectiveness.

	Model 1	Model 2	Model 3	Model 4
	Unit Effectiveness	Unit Ambidexterity	Unit Effectiveness	Unit Effectiveness
Regression Coefficient	*β*	*β*	*β*	*β*
(1) Constant	3.701***	.818*Π*	3.308***	3.390***
Industry	.273*	.092	.245*	.245*
Unit size	-.143	-.153*Π*	-.090	-.096
Dynamism	-.104	-.071	-.070	-.082
Complexity	.183	.000	.132	.183
R^2	.126	.098	.126	.126
F for R2	3.004*	2.303*Π*	3.004*	3.004*
Degrees of freedom	4,83	4,85	4,83	4,83
Unit Ambidexterity			.265*	.306*
ΔR2			.063	.063
F for ΔR2			6.389*	6.389*
Degrees of freedom for ΔR2			1,82	1,82
TMT Behavioral Complexity-People-Related	-.166	.452***		-.305*
TMT Behavioral Complexity - Task-Related	.338**	.276**		.253*
ΔR2	.084	.292		.078
F for ΔR2	4.301*	19.881***		4.259*
Degrees of freedom for ΔR2	2,81	2,83		2,80
Overall R2	.210	.390	.190	.268
Degrees of Freedom	6,81	6,83	5,82	7,80
Overall F for R2	3.595**	8.845***	3.837**	4.175**

*$p < .05$, ** $p < .01$, ***$p < .001$ *Π* < 0.1

(1) Unstandardized coefficient-last model

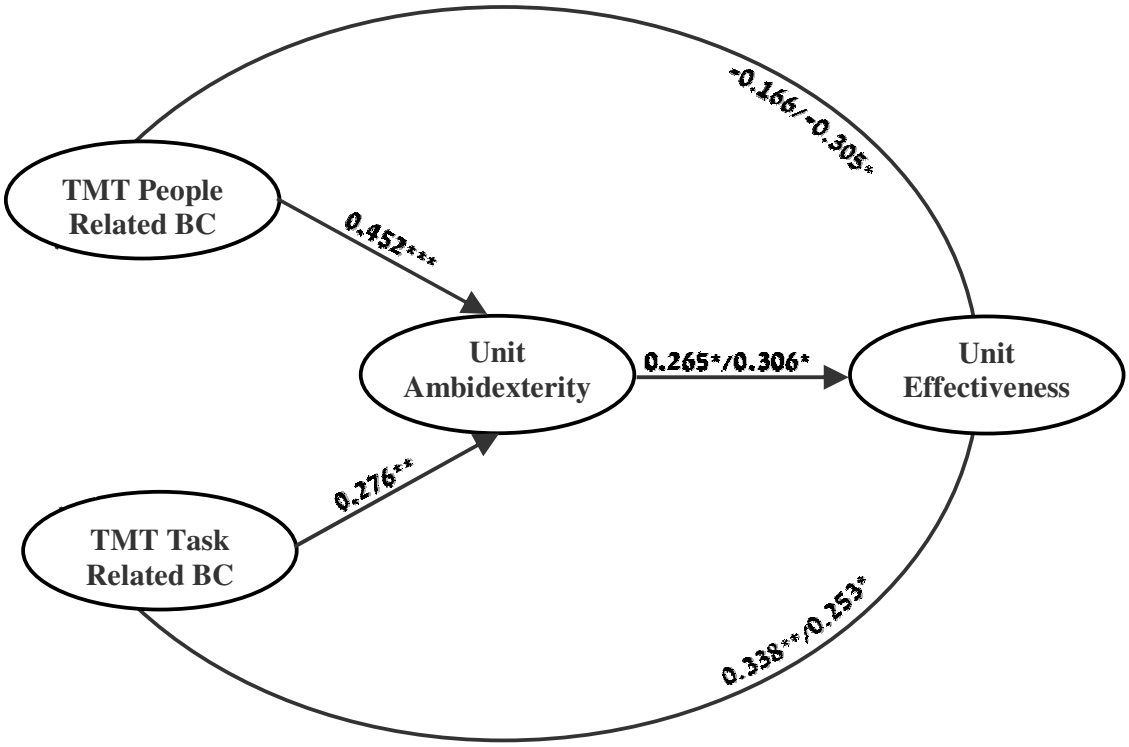

Figure 9: The mediating effect of unit ambidexterity on TMT behavioral complexity and unit effectiveness

Hypothesis 7c posited the mediation effect of unit ambidexterity on TMT people-related and task-related behavioral complexity and unit effectiveness.

Testing the first condition: Model 1 results show that the relationship between TMT people-related and task-related behavioral complexity (the independent variables) and unit effectiveness was not significant for TMT people-related behavioral complexity and significant for TMT task-related behavioral complexity (β=.338, p<0.01). Hence, first condition was partially fulfilled.

Testing the second condition: Model 2 results show that unit ambidexterity (the mediator) was significantly and positively related to TMT people-related and task-related behavioral complexity (β=.452, p<0.001 and β=.276, p<0.01, respectively). Hence, the second condition was fulfilled.

Testing the third condition: Model 3 results show that unit ambidexterity, (the mediator) was significantly and positively (β=.265, p<0.05) related to unit effectiveness. Hence, the third condition was fulfilled.

Testing the fourth condition: In the final Model we tested the relationship between the independent variables, TMT people-related and task- related behavioral complexity, and the dependent variable, unit effectiveness, while controlling the mediator, unit ambidexterity. We used hierarchal regression where we entered the control variables in Step 1, the mediator (unit ambidexterity) in Step 2, and finally the independent variables (TMT people-related and task- related behavioral complexity) in Step 3.

The findings show that the relationship between the independent variables, TMT people-related and task-related behavioral complexity, and the dependent variable, unit effectiveness are positive and significant (β=-.305, p<0.05 and β=.253, p<0.05, respectively). Hence, the hypothesis for full mediation was not supported. There is a partial mediation effect of unit ambidexterity on TMT people-related and task- related behavioral complexity and unit effectiveness.

Part 5: Discussion

- ☒ **Discussion and Implications**
- ☒ **Study Limitations and Areas for Future Research**
- ☒ **Summary**

In this chapter the research findings will be discussed in the light of the theoretical framework and the research model that emanates from it. This chapter has three parts. The first discusses the research model, the hypotheses derived from it and their relationship to the research findings and theoretical framework. This part includes the theoretical and practical implications of this study. The second part discusses the research limitations and recommended future avenues of research. Finally, the third part presents a summary of this study.

5.1. Discussion and Implications

The primary goal in the current study has been to address the theoretical call to better understand the conditions that give rise to more coordinated organizational research to effectively straddle scope and depth (Venkatraman et al., 2005). Specifically, we attempted to shed light on the role of TMTs and unit context in designing and enabling an ambidextrous unit. In doing so, we tackled a promising avenue of research related to the way a unit's TMT can cultivate ambidexterity (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006; Smith & Tushman, 2005). The theoretical model interwove several theories in organizational studies: i.e. the upper echelon theory, complexity theory and organizational context theory. Specifically, the following relations were examined:

- The relations between TMTs processes and dynamics as defined by behavioral integration and their behavioral complexity.

- The relations between TMTs behavioral integration and complexity and their capabilities in creating and enhancing ambidexterity within their units.

- The relations between context for behavioral complexity within units and the ability to create and enhance ambidexterity.

Each hypothesis is discussed in detail below.

5.1.1. The relationship between TMT Behavioral Integration and its Behavioral Complexity

The research findings support the hypothesis for a positive relationship between TMT behavioral integration and behavioral complexity.

Since Hambrick and Mason's (1984) research which explored the impact of TMT characteristics and functions on organizational behavior and outcomes, strategy and organizations researchers have been making intensified efforts to better understand the role played by TMTs in organizational leadership. One approach has been to explore TMT attributes, whereas the other attempts to open up the "black box" (Lawrence, 1997). However, there has been a call to invest more effort in a better understanding of TMT processes and dynamics. Thus, recently, scholars have begun concentrating on the antecedents and consequences of TMT processes, namely TMT behavioral integration. This recasts specific social and task processes into an all-compassing "meta construct" which "the degree to which the group engages in mutual and collective interaction" (Hambrick, 1998, p. 188). As discussed, such interaction has three major components, consisting of one social dimension and two task dimensions: (1) quantity and quality

(richness, timeliness, accuracy) of information exchange, (2) collaborative behavior, and (3) joint decision making. TMT behavioral integration has been shown to impact on organizational processes and outcomes.

We postulated that TMT behavioral integration will relate positively to its ability to behave in a more complex manner, as defined by Quinn and his colleagues (Hart & Quinn, 1993; Quinn, 1988; Quinn & Cameron, 1988), to portray the broad portfolio of leadership roles and discriminate and recognize various facets, characteristics, and the significance of a given social situation over time.

Up to now, leadership behavioral complexity has been seen as an individual level construct. Here, we argued that behavioral complexity may also be a characteristic at the TMT level. We posited that each of the three constructs of behavioral integration can influence a TMT's ability to cultivate its behavioral complexity, i.e. enhance its capabilities to enact in wide leadership roles as articulated in the Hooijberg & Quinn (1992) Competing Values Framework. However, since these constructs are interrelated and intensify one another, we argued that their collective presence within TMT can influence TMT's behavioral complexity to a large degree. The findings of the current study show that the leadership role portfolio was split into two "orientations", people-related, which included the "Relating to people" and "Leading change" facets, and on the other hand task-related which included the "Managing processes" and "Producing results" facets. However, despite this distinction, a positive and significant relationship was found between the two orientations.

The findings support this first hypothesis. A positive and significant relationship was found between TMT behavioral integration and the ability to employ complex behaviors as a team, namely People and task-related leadership roles. Specifically, this relationship was stronger between TMT behavioral integration and people-related leadership roles than with task-related leadership roles. The practical implication of establishing this link is that processes within TMT at the higher echelons of unit can affect team members' abilities to behave as a team in a more complex manner. In other words, they can take on a wider role portfolio and hence respond variably within the unit's internal setting and the external environment.

From a theoretical perspective, the current study shows that behavioral complexity may also be a characteristic at the TMT level and not only an individual level construct. In addition, these findings make it possible to link Upper Echelon Theory to Complexity Theory, which was suggested as a direction for future research in the Gibson and Birkinshaw (2004) study. This relationship articulates the impact of processes within top management teams on teams' attributes and behaviors.

5.1.2. The relationship between TMT Behavioral Complexity and Unit Ambidexterity

The research findings support the hypothesis of a positive relationship between TMT behavioral complexity and unit ambidexterity.

The idea behind ambidexterity is that a firm's task environment is always to some degree in conflict, so there are always trade-offs to be made. Although these trade-offs can never be entirely eliminated, the most successful organizations reconcile them

to a large degree and, by doing so enhance their long-term competitiveness (Gibson & Birkinshaw, 2004). In the current study, unit ambidexterity is defined as the synchronous pursuit of balanced exploration and exploitation agendas. That is, an ambidextrous unit is a system that synchronously pursues the refinement and extension of existing competencies, technologies, and paradigms (i.e., exploitation) as well as experimentation with new alternatives and options (i.e., exploration) (March, 1991). Studies have suggested that explorative and exploitative orientations require substantially different strategies, cultures, structures and processes (e.g., Benner & Tushman, 2003).

The notion of balance between exploitation and exploration has been a consistent theme across several research approaches. However, despite the near consensus regarding the need to balance exploitation and exploration, there is considerably less clarity on how this balance can be achieved. The latest research has highlighted behavioral contexts (the human side of organizations) (Gibson & Birkinshaw, 2004), structures (Tushman & O'Reilly, 1996, 1997), meta-routines (Adler et al., 1999) and finally the role of TMTs in helping to create and design these contexts. Tushman and O'Reilly suggest that ambidexterity is largely driven by TMTs' "internal processes that enable then to handle large amounts of information and decision alternatives and deal with conflict and ambiguity" (1997, p. 23). In the same vein, Gibson and Birkinshaw suggest that "a promising extension of our study would be to more systematically examine the behaviors of senior executives in an effort to understand how they help create ambidexterity" (2004, p. 223).

Understanding how a unit's TMT designs and builds an ambidextrous system that is capable of mastering contradictory orientations such as exploitation and exploitation is a key theoretical puzzle. Lubatkin and colleagues (2006) noted that although previous studies have pointed to the integrative role of the top management team (TMT) in helping to create mechanisms (Smith & Tushman, 2005) that enable ambidexterity, there is a need specify the precise nature of these TMT processes. Lubatkin et al. posited that by synchronizing the team's social and task processes, "a behaviorally integrated TMT can promote a more diverse and deeper understanding of the team's existing explicit knowledge base, as well as a better use of that base" (2006, p. 651). Our study elaborates on this line of research and thinking and argues that TMT behavioral integration is a necessary condition for making balanced strategic decisions leading to ambidexterity. However, we suggested that TMT behavioral integration builds behavioral complexity. This is because behaviorally complex TMT is able not only to implement a large behavioral repertoire but also has the ability to select the appropriate roles for each situation which in turn can lead to ambidexterity. In addition, a behaviorally complex TMT is able to effectively manage contradictions such as exploration and exploitation through two distinct cognitive processes – differentiating (a process that involves recognizing and articulating distinctions) and integrating (a process that involves shifting levels of analysis to identify potential linkages) (Smith & Tushman, 2005).

Testing the hypothesized relations yielded support for the hypothesis. The two constructs of TMT behavioral complexity, people and task oriented, were positively and significantly related to unit ambidexterity. Notably, people-related behavioral complexity was related to unit ambidexterity more strongly than task-related behavioral

complexity. More generally speaking, this finding suggests that the "humane" roles (i.e. Relating to People and Leading Change) of behavioral complexity affect the unit's ability to create and build ambidextrous orientations in a more dominant manner. As was detailed in the Methods chapter, unit ambidexterity was measured as the sum of exploration and exploitation items. However our findings also show that when examining the two landmarks of ambidexterity in the current research, exploration and exploitation orientations, there is a positive and significant relationship between each orientation and TMT behavioral complexity. people-related behavioral complexity was related to explorative orientation and to exploitative orientation. Similarly, task-related behavioral complexity was related to the explorative orientation and the exploitative orientation. Our findings also show a strong, positive and significant relationship between the explorative and exploitative orientations.

The theoretical implications of these findings are rooted in a better grasp of how a unit's TMT designs and builds an ambidextrous orientation that is capable of mastering contradictory agendas via exploration and exploitation. Our study elaborates on Lubatkin and colleagues (2006) study which suggested that TMT behavioral integration is a necessary condition for making balanced strategic decisions leading to ambidexterity. We go further by arguing that TMT behavioral complexity may be the mediated mechanism for achieving an ambidextrous unit.

The practical implication of these findings can be found in the pivotal role of a TMT in building and designing an ambidextrous unit. Previous studies have documented the positive organizational outcomes of an ambidextrous organization (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006), especially in

turbulent and changing organizational environments. The positive and significant link between a TMT's ability to behave in a complex manner and enhance unit ambidexterity suggests that it is worth to re-thinking the recruitment and promotion process of seniors within units and how this relates to the essential behavior of complexity. Moreover, it highlights the need to monitor TMT's strategic decisions, internal processes and dynamics to ensure that varied leadership roles are utilized and employed in accordance with the prevailing situation.

5.1.3. The relationship between TMT Behavioral Integration, TMT Behavioral Complexity and Unit Ambidexterity

The research findings partially support the hypothesis for mediation effect of TMT behavioral complexity (people and task oriented) on TMT behavioral integration and unit ambidexterity.

The pivotal role of TMT behavioral integration in creating ambidexterity in organizations was depicted in the Lubatkin et al. (2006) study. They posited that by promoting a collaborative, high quality exchange of information and joint decision making, TMTs would be better able to manage contradictory knowledge processes, which is critical to achieving an ambidextrous orientation. They suggested that behavioral integration enables this by promoting diversity and understanding of an existing explicit knowledge base (i.e. enhancing exploitation) and dissipating reluctance to sharing tacit knowledge (i.e. enhancing exploration). In the current study, we suggested a mechanism that could enable this relationship. We postulated that TMT process and dynamics, which articulate in behavioral integration, should affect TMT

capabilities to act in varied leadership roles. This wide role repertoire would enable focusing on internal unit processes as well as external processes and in addition lead to unit processes which would articulate stability as well as flexibility. We suggested that this broad range of abilities would in turn build and structure the ambidextrous orientation within the unit.

The mediation hypothesis of TMT behavioral complexity between TMT behavioral integration and unit ambidexterity was partially supported. TMT behavioral complexity was positively and significantly related to unit ambidexterity; however when all variables were entered at the final step of the regression, the relationship between TMT behavioral integration and unit ambidexterity was less strong and significant. This suggests a partial mediation of TMT behavioral complexity. Following the Lubatkin et al. (2006) study, these findings suggest a direct effect of TMT behavioral integration on cultivating an ambidextrous orientation. Moreover, it can be assumed that there are additional mechanisms for converting TMT behavioral integration into ambidexterity.

5.1.4. The relationship between Context for Behavioral Complexity and Unit Ambidexterity

The research findings support the hypothesis for a positive relationship between context for behavioral complexity and unit ambidexterity.

Smith and Tushman (2005) noted that while organizations can excel when TMTs effectively balance strategic contradictions, contextual and structural barriers often prevent them from doing so. In the same manner, Barnard (1938) argued that the creation of an appropriate context is the key task of general managers and the quality of

the organizational context can be found in the ability to influence individual behavior. Early studies indicated the need for a behavioral orientation toward dual capabilities (Adler et al., 1999; Hedlund & Ridderstrale, 1997) that build an organizational context which allows for meta-capabilities, rather than relying on a formal organization structure or charismatic leadership. This perspective is rooted in the understanding that ambidexterity can be best achieved by creating a unit context that supports and encourages individuals to be cooperative, alert to new opportunities and able to cope simultaneously with multiple tasks. Gibson and Birkinshaw (2004) were the first to develop the complementary concept, as their study relates to ambidexterity as contextual ambidexterity, in contrast to structural ambidexterity.

Recent studies have raised the need to explore specific macro contexts whose features characterize the unit or the organizational level in a particular setting. Studies, for example, have focused on service, ethics, and a safety climate as enablers of organizational outcomes (e.g., Barling et al., 2002; Crojean et al., 2004; Guldenmund, 2000; Schneider et al., 2005; Zohar, 2000, 2002; Zohar & Luria, 2005). Following this line of research and thinking, we focused on a context of behavioral complexity as a unit-specific context that builds and enables the meta-capabilities of exploration and exploitation to flourish simultaneously. Previous studies put forward the Competing Values Framework (CVF) (Quinn, 1984, 1988; Quinn & Rohrbaugh, 1983) to capture the organizational context (though these do not explicitly indicate that their features manifest contextual ambidexterity) pertaining to ambidextrous organizations.

Since ambidexterity involves contradictory knowledge processes, a context for behavioral complexity in units was suggested as an enabler to broaden individuals' role

portfolios, identify the features of the situation and encourage individuals to make their own judgments as to how to best allocate their resources among conflicting demands and hence deliver value to the current stakeholders and simultaneously explore for changes in the task environment.

Notably, context for behavioral complexity (CBC) was the variable with the lowest variance, which may indicate that employees were evaluating their unit environment in a similar manner. Following our hypothesis, CBC was found to be related positively and significantly to unit ambidexterity. Interestingly, CBC was also related to TMT behavioral integration. This relation led to testing for relations between CBC, TMT behavioral integration and unit ambidexterity. The results showed that CBC partially mediated the relation between TMT behavioral integration and unit ambidexterity.

Theoretically, these findings have several implications. First, the current study, following recent studies which have raised the need to explore specific macro contexts, suggests a new unit context which is characterized by behavioral complexity to enhance unit capabilities for ambidexterity. To date, behavioral complexity has been related to individual leaders within organizations. In establishing this linkage, we have broadened the current literature on drivers for cultivating and designing ambidextrous orientations. Gibson and Birkinshaw (2004) were the first to develop the complementary concept as their study relates to ambidexterity as contextual ambidexterity. They argued that unit ambidexterity develops through the creation of a particular type of context at the business-unit level. The current study supports the Competing Values Framework (CVF) (Quinn, 1984, 1988; Quinn & Rohrbaugh, 1983) as an additional contextual

ambidexterity. The link between TMT behavioral integration, context for behavioral complexity and unit ambidexterity and its theoretical implications for upper echelon theory and organizational context theory will be discussed below in the section on future research directions.

The practical implications of these findings lie in the crucial need to create a context within an organization or unit that emphasizes features of behavioral complexity, i.e. one that simultaneously underscores the need to relate to people in the organization or unit, manage processes in an effective manner, lead changes and finally produce results. Despite the fact that each dimension entails distinct resources, behaviors and processes, the simultaneous emphasis on these dimensions which underlie polar opposites can reconcile such extremes so that vital opposites such as exploration and exploitation can flourish. This context should inspire employees to recognize and react to paradoxes, contradictions and complexity in their environments, deliver value to the current stakeholders and simultaneously explore for changes in the task environment.

5.1.5. The relationship between Unit Ambidexterity and Performance

The research findings support the hypothesis for a positive relationship between unit ambidexterity and unit performance.

Scholars have long suggested, but have yet to conclusively show, that a firm's ability to compete is rooted in an ability to jointly pursue both orientations; i.e., build on current competencies through exploitation, while simultaneously developing new

innovative capabilities through exploration (Abernathy, 1978). Recently, studies (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006) have demonstrated a positive linkage between ambidexterity and performance. In accordance with this logic, ambidexterity should be a key driver of unit performance over the short and the long term.

As stated previously, the current study included a multidimensional measure of performance. The three dimensions were: (1) business performance that was comprised of financial and business components, (2) product development that was comprised of development of the firm's current and future assets, and (3) unit effectiveness that was comprised of employee satisfaction, product quality and overall unit performance. In general, the evaluation of performance measures in the study was above the average and was assessed as “good”.

We used TMT evaluation because objective data on the financial performance of the units were rarely available, largely because most of the firms were privately owned. Furthermore, it is generally assumed that top managers are knowledgeable informants, particularly with regard to their firms’ performance. Previous studies show that top managers' self-reports of performance were also found to significantly correlate with some objective measures of firm performance (Dess & Robinson, 1984; Robinson & Pearce, 1988).

Testing the hypothesis of a positive linkage between unit ambidexterity and firm performance yielded support for our hypothesis. Unit ambidexterity was positively and significantly related to our three dimensions of performance. The strongest linkage

was between unit ambidexterity and product performance. Interestingly, the type of industry controlled the unit ambidexterity when the performance dimensions of product development and unit effectiveness were entered as dependent variables; in other words, in the service industry these relations were found to be stronger than in the product industry.

By retesting the linkage between ambidexterity and performance this study contributes to the theoretical literature by broadening the empirical evidence. In addition, the current study applied multidimensional performance measures which not only tested financial and business aspects, but also measures of product development as well as "subjective" measures as unit effectiveness. All three measures were related positively and significantly to unit ambidexterity. From a practical point a view, these findings are vital for enhancing firms' outcomes. In the prevailing turbulent environment, which is characterized by rapid technological changes, global competition, economic uncertainty, regulatory events and workforce diversity, organizations need to excel in order to survive. Building dual capabilities of exploration and exploitation where exploitation is focused on short term performance and exploration is focused on long term performance can help in achieving this goal. Moreover, the findings show that ambidexterity relates positively not only to "financial-objective" outcomes, but also to "human-subjective" outcomes such as employee satisfaction. These findings were found to be predominant in the service industry and hence special attention should be paid to these implications in this work environment.

5.1.6. Ambidexterity as a Mediator

Unit ambidexterity was hypothesized to mediate two relations: the relations between context for behavioral complexity and the performance dimensions, and second the relations between TMT people and task-related behavioral complexity and the performance dimensions. The findings were varied.

We hypothesized that unit context for behavioral complexity would create a supportive environment for unit members in a way that would inspire them to recognize and react to paradoxes, contradictions and complexity in their settings. Since ambidexterity involves contradictory knowledge processes, we claimed that this context would enable individuals to broaden their behavior portfolio and identify the characteristics of the situation. This specific context should encourage individuals to make their own judgments as to how to best divide their resources between daily conflicting demands and eventually simultaneously exploit current task environment and explore for changes in the task environment. This joint pursuit of explorative and exploitative orientations, in turn, was hypothesized to enhance both long and short term unit performance.

First, the findings show direct and positive relations between context for behavioral complexity and the performance dimension of unit effectiveness. Second, our findings support the hypothesized mediation effect of unit ambidexterity between the relations of context for behavioral complexity and Business and product development performance dimensions. The mediation effect of unit ambidexterity between the relations of context for behavioral complexity and unit effectiveness was partially supported. Third, the type of industry controlled the relations of the mediation

effect of product development and unit effectiveness performance; thus in the service industry the mediation of ambidexterity between context for behavioral complexity and unit effectiveness was stronger than in the product industry.

These findings indicate that building a context for behavioral complexity within a unit not only relates to performance but also creates capabilities for ambidextrous orientation where performance gains are realized. In our study these gains were found in the mediation test only for the "objective" measures of performance. These findings support previous results that show positive direct relations between ambidexterity and "objective" performance and when unit ambidexterity serves as a mediator between contextual ambidexterity and performance. However, when a "subjective" measure such as unit effectiveness was tested as a dependent variable in the mediation hypothesis, the findings showed that "subjective" unit assessment items such as employee satisfaction and quality were only partially mediated by ambidexterity, suggesting that the latter alone is not sufficient to enhance unit effectiveness.

The theoretical implications of these findings relates to the pivotal role of context for behavioral complexity within the unit. It not only affects unit outcomes directly, but is a factor that enhances unit performance through the unit's capabilities for exploration and exploitation. To date, contextual ambidexterity was used only in the Gibson and Birkinshaw (2004) study, drawing on Ghoshal and Bartlett's (1994) conceptualization of unit context. The practical implications of these findings primarily can be found in the significant role of unit context for behavioral complexity in enhancing its effectiveness, suggesting that the broader the role repertoire employed by

unit employees, the higher the level of perceived unit effectiveness. This finding is important not only for improving unit outcomes, but also relates to employees' attitudes towards their workplace. Moreover, emphasizing behavioral complexity within units serves to enhance unit capabilities to exploit and explore, which in turn affects business and financial performance domains.

The second tested mediation effect for unit ambidexterity focused on the relations between TMT people and task-related behavioral complexity, and our three performance dimensions. We hypothesized that a TMT which is characterized by the capacity to perform a wide portfolio of leadership roles as well as manage them differently, is likely to make balanced decisions over time and hence pursue both exploration and exploitation orientations. In turn, this ambidextrous capability should enhance unit performance as reflected in the three performance dimensions.

First, we tested for a direct linkage between TMT behavioral complexity and performance. Our findings show that TMT behavioral complexity (only the task-related component) was positively related solely to the performance dimension of unit effectiveness. Second, we applied the essential steps in order to establish the mediation effect of ambidexterity. The findings supported the mediating role of ambidexterity for the relations between TMT (task and people related) behavioral complexity and business performance as well as for the task- related behavioral complexity and product development. On the other hand, the mediation effect of unit ambidexterity between the relations of TMT (task and people related) behavioral complexity and unit effectiveness was partially supported. Similarly, partial mediation of unit ambidexterity was found

between TMT people-related behavioral complexity and the product development as the dependent variable.

Thus, our findings suggest that TMT behavioral complexity is essential to achieving ambidextrous orientation, which in turn has a salient influence on unit performance. Nevertheless, this link was only partial supported, as detailed above. Ambidextrous orientation partially mediated the dependent variable unit effectiveness, suggesting that the abilities of exploration and exploitation which are relate to improving current assets and building future assets are mainly linked to "objective" dimensions of performance. Surprisingly, TMT people-related behavioral complexity was not mediated by ambidexterity to influence fully the product development performance measure. That suggests that roles which are comprised of managing processes and producing results are the dominant roles in influencing ambidexterity to enhance product development performance.

The type of industry was dominant only when controlling for the mediation effect of unit ambidexterity between TMT behavioral complexity and product development and effectiveness performance dimensions. That suggests that in the service industry the mediating role of unit ambidexterity, as described above, was stronger than in the product industry.

Theoretically, these findings broaden upper echelon theory, as TMTs play a dominant role in cultivating ambidexterity within their units. Despite the call to focus on the pivotal role of senior executives, Lubatkin et al. (2006) was the first and only one to study TMT behavioral integration as a direct antecedent of firm ambidexterity. This

study elaborates on Lubatkin et al.'s (2006) study by suggesting TMT behavioral complexity as an additional ambidexterity antecedent. Moreover, these findings pinpoint the role of ambidexterity within units in converting TMT behavioral complexity into unit performance. The practical implications of these findings are in the importance of employing a wide role portfolio and as situation-dependent by senior executives. This behavior at the highest level of the firm can cultivate and set the stage for the essential abilities of exploration and exploitation. Nevertheless, these dual abilities, in addition, serve as a predominant driver to enhance performance, especially business and financial performance.

5.2. Study limitations and Areas for future research

This part discuses the study's limitations and concludes with possible directions for future research.

The first limitation of this study pertains to the sample used. More specifically, the sample for this study consisted of Israeli firms, which are mostly product and business oriented. One predominant reason for using this sample is data availability. Although we investigated companies that competed in a wide variety of economic branches and a few companies were multinational, the generalizability of the findings of this study to other cultures, non-business and other sectors is questionable.

The second limitation of the study is the measurement of unit performance. Since it is difficult to obtain financial performance datasets of firms (and even more units), including listed companies, we asked top managers to evaluate their performance subjectively[1]. However, by obtaining ratings from multiple raters we increased the reliability of this measure (our interrater agreement indices, ICC and RWG, supported aggregation). Future research should supplement subjective measurement with objective and multiple measures of unit performance, such as strategic performance (i.e. strategic renewal, venturing, innovation etc).

[1] Only 10 percent of participating units reported their % rate of annual growth in the last 3 years. The Pearson coefficient for the correlation between the objective data end the evaluated performance was .285, however due to the reduced sample it was n.s.

Third, unlike units within organizations, firms are often driven by a broader set of ecological influences extraneous to the TMT as well as more complex organizational systems, which make their knowledge processes associated with bottom-up and top-down learning more vulnerable to organizational impediments. Moreover, the influence of TMT actions in larger firms may be confounded by external governance pressures. We reason that our findings could be replicated at the firm's level, given that upper echelon theory has been primarily associated with this level, and its central thesis holds that the TMT of a firm has the greatest potential to affect its future (Hambrick & Finkelstein, 1987). However, it can be assumed that the relations between TMT behavioral integration and complexity, ambidexterity, and performance may not be as strong as what we found in our sample. Therefore, it remains an interesting empirical question as to whether or not our findings generalize to firms. Thus we would encourage additional research within the firm level.

Fourth, given the survey- based nature of the quantitative study, the findings need to be interpreted cautiously with regard to causality. We can't determinate whether the relations that were found in the study were caused one way or reversed and hence we didn't hypothesize a direct casual link between study's variables. In particular, a longitudinal study that brackets changes in TMT dynamics and processes would be useful for fleshing out TMT's casual role.

Fifth, the fact that most of our covariates, such dynamism and complexity, selected based on previous research on firms, did not influence the relations between study's variables. This suggests that they may be less applicable to units within

organization. Thus, more work needs to be done on the nature of units, including the identification of covariates that are specific to this population.

Finally, other interesting extensions of our study would be as follows. First, in the light of the results which established a linkage between TMT behavioral integration and context for behavioral complexity, we suggest that a TMT's ability to build a context for behavioral complexity should be examined. The theoretical perspectives and empirical findings support the strong association between leadership and unit context. Leaders are described as the main shapers and builders of unit climate and culture and as being the key mechanism by which culture is embedded in an organization (e.g., Koene, Vogelaar & Soeters, 2002; Lewin et al., 1939; McGregor, 1960; Schein, 1992). Thus, senior executives play a pivotal role in building a supportive context as they put in place systems which facilitate and in turn shape individual behavior (Burgelman, 1983; Ghoshal & Bartlett, 1994). In the current attempt to understand the antecedents of unit ambidexterity, we suggest that leadership, which is behaviorally integrated will steer unit context towards behavioral complexity which will enhance the ability to balance contradiction and conflicts in the unit.

Another aspect is the boundaries of the construct of ambidexterity. An ambidextrous unit entails a balance between exploitation and exploration, which is aimed at preventing organizational obsolescence (as a result of engaging exclusively in exploitation) and diminishing returns on its knowledge (as a result of engaging exclusively in exploration). However, what exactly do we mean by attaining and maintaining a proper balance between exploration and exploitation (March, 1991)? Obviously, further theoretical refinements are clearly needed. One fruitful path may be

to consider how other fields in organization studies have considered this concept. Especially, we need to reconsider whether one expects units to equally engage in both exploration and exploitation. Are there situations in which the exploration orientation needs relatively more attention than the exploitation orientation and vice versa? As Lei and Slocum (2005) noted, a different set of strategic choices is needed to match different types of industry environment conditions. Moreover, how much variation can be attributed to different types of industries (e.g., stable vs. unstable; certain vs. uncertain; creative vs. traditional)? Finally, we still need to understand how different stages in the organizational or unit life cycle determine a unit's capacity to manage opposing demands and needs.

Notably, building behavioral complexity in leadership is a challenging and costly task and thus future research should test the appropriate conditions for it to flourish. Can we expect young or small organizations to build behavioral complexity leadership? What is the desired organizational structure that enables the establishment of TMT behavioral complexity? How can we help organizations avoid the misperceptions of this notion, often leading them to fall into situations of having 'too much of a good thing'?

5.3. Summary

The modern day workplace is characterized by rapid technological change, global competition, economic uncertainty, regulatory events and workforce diversity. In order to cope with this turbulent environment, paradoxically organizations need to respond through both incremental (i.e. exploitation) and radical change (i.e. exploration). This need for dual organizational capabilities is known as organizational ambidexterity and is the subject of this dissertation.

Current research has tended to focus on how unit ambidexterity is enabled and built up. However, in spite of these efforts we still need to better understand the drivers of ambidexterity; specifically, researchers acknowledge that an organization's top management team (TMT) plays a key role (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006; Smith & Tushman, 2005). To address this theoretical call, we focused on the role of top management teams in cultivating an ambidextrous unit. We argue that dynamics and processes within the top management team play a critical role in building TMT behavioral complexity capacities, which in turn build and shape unit ambidexterity. Recent studies have raised the need to explore specific contexts, in particular organizational settings. Following this line of research, we explored context for behavioral complexity. We propose a model that links TMT behavioral integration, TMT behavioral complexity and a context for behavioral complexity with ambidexterity and performance.

The companies targeted are local Israeli companies in various sectors of activity such as service, food, high tech, education, etc. These companies are either home-grown or subsidiaries of firms with headquarters abroad. In the end, 22 companies took part. These companies were comprised of 101 business units, yielding participation from 1128 managers and employees. Our main research tool was a structured questionnaire that was constructed based on sources from the current literature.

The findings show that processes and dynamics within the top management team, specifically TMT behavioral integration which articulates quantity and quality of information sharing, collaboration and joint decision making, is related to a team's behavioral complexity which manifests by the capability to perform a wide portfolio of leadership roles and to differentiate between them according to the situation. This type of behaviorally complex team is able to pursue both exploration and exploitation. In addition, unit context for behavioral complexity, where employees take on a varied range of roles, was also related to a unit's ability to pursue these dual capabilities. Our study re-tested the relations between ambidexterity and performance. We applied three performance domain grids, which included "objective" measures such as business and product development and "subjective" measures such as unit effectiveness. The findings show positive relations between ambidexterity and performance. Finally, ambidexterity fully mediated the relations between context for behavioral complexity and the "objective" measures of performance. In addition, unit ambidexterity fully mediated the relationship between TMT behavioral complexity and business performance.

From a theoretical point of view, this study enhances current knowledge on unit ambidexterity by probing its antecedents, which, as far as the researcher knows, are novel to this inquiry. The current study contributes to this growing body of literature by suggesting and testing novel contextual and leadership concepts as ambidexterity cultivators. Specifically, the current study utilizes context for behavioral complexity as well as the 'meta-construct' of behavioral integration (Hambrick, 1994), as a driver for unit ambidexterity. Second, to date, research on behavioral complexity in leadership has focused on the individual manager, often the CEO. However, strategy researchers and organization theorists have documented the importance of shared leadership in organizations (Pearce & Conger, 2003). An emergent theoretical call has been made to better understand TMT processes and dynamics that convert TMT characteristics into organizational processes and outcomes (Hambrick, 1994; Lawrence, 1997). Our study addresses this call by exploring TMT ability to act in a behaviorally complex manner, in addition to TMT behavioral integration.

Recent studies (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006) report initial empirical support for the claim that firm performance is enhanced when firms engage in exploration and exploitation. This study attempts to broaden the empirical evidence by retesting the claim and applying multidimensional performance criteria. Finally, our study provides a theoretical rationale for linking upper echelon theory, complexity theory in leadership, unit context, and ambidexterity and unit performance.

From a practical point of view, we convey an encouraging message to leaders; namely, that the genesis of an ambidextrous orientation resides within them. As our

study shows, TMTs play an essential role in fostering ambidexterity primarily by their team's processes, dynamics and behaviors. This insight can be further exploited as a classification instrument for managers in the workplace. Moreover, as the literature supports the hypothesis that the highest performance levels are achieved by leaders with high levels of behavioral complexity, it should spur leaders on to perceive behavioral complexity as a pivotal and desired behavior - for themselves as individuals and for their team. Finally, our study supports the hypothesis that firm performance, in the short term as well as the long term, is enhanced when firms are ambidextrous.

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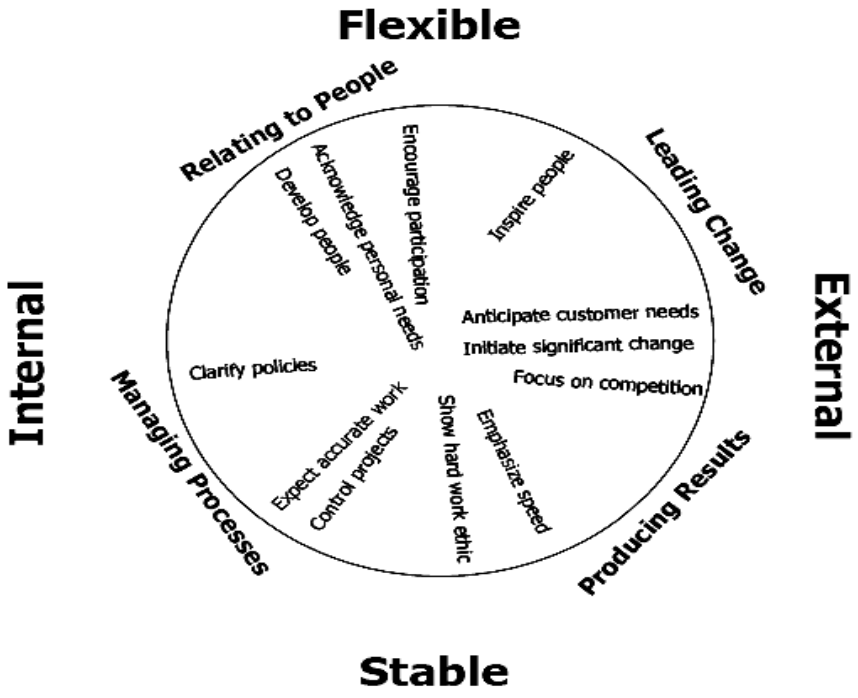
Appendices

Appendix A: Items Angles as Positioned in the CVF Quadrants



Source: Lawrence et al. (2003)

Appendix B: TMT Research Survey

BAR - ILAN UNIVERSITY  **אוניברסיטת בר אילן**

The Graduate School of Business Administration

Dear Madam / Sir,

The following survey is a part of a study being conducted at the Graduate School of Business Administration, Bar-Ilan University. The purpose of this study is to explore management views regarding the organization functionality.

The estimated time for filling in the survey is 15 minutes.

In order to assure the success of this survey, it is essential to answer all questions by circling one answer only.

The questions apply to your opinions and attitudes regarding phenomena in your unit; as such there is no "right answer". Your opinion is what matters!

We highly appreciate your cooperation and thank you for your willingness to take part in this research.

For more information please contact: Meyrav Yitzack Halevi- +972-54-4429678, meyravyh@biu.013.net.il.

Thank you for your cooperation,

Meyrav Yitzack Halevi
Dr. Abraham Carmeli

I consider myself skilled at the following:

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
1	Making it legitimate to contribute opinions.					
2	Employing participative decision making.					
3	Maintaining an open climate for discussion.					
4	Encouraging career development.					
5	Seeing that everyone has a development plan.					
6	Coaching people on career issues.					
7	Being aware of when people are burning out.					
8	Encouraging people to have work/life balance.					
9	Recognizing feelings.					
10	Seeing that corporate procedures are understood.					
11	Insuring that company policies are known.					
12	Making sure formal guidelines are clear to people.					
13	Emphasizing the need for accuracy in work efforts.					
14	Expecting people to get the details of their work right.					
15	Emphasizing accuracy in work efforts.					
16	Providing tight project management.					
17	Keeping projects under control.					
18	Closely managing projects.					
19	Discussing customers' needs with them					
20	Identifying the changing needs of the customer.					

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
21	Anticipating what the customer will want next.					
22	Initiating bold projects.					
23	Starting ambitious programs.					
24	Launching important new efforts.					
25	Inspiring direct reports to be creative.					
26	Encouraging direct reports to try new things.					
27	Getting unit members to exceed traditional performance patterns.					
28	Emphasizing the need to compete.					
29	Developing a competitive focus.					
30	Insisting on beating outside competitors.					
31	Showing an appetite for hard work.					
32	Modeling an intense work effort.					
33	Demonstrating full exertion on the job.					
34	Getting work done quicker in the unit.					
35	Producing faster unit outcomes.					
36	Providing fast responses to emerging issues.					

Based on the last three years, my unit can be described as:

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
37	Looks for novel technological ideas by thinking "outside the box"					
38	Bases its success on its ability to explore new technologies					
39	Creates products or services which are innovative to the firm					
40	Looks for creative ways to satisfy its customers' needs					
41	Aggressively ventures into new market segments					
42	Actively targets new customer groups					
43	Commits to improve quality and lower costs					
44	Continuously improves the reliability of its products and services					
45	Increases the levels of automation in its operations					
46	Constantly monitors existing customers' satisfaction					
47	Fine-tunes what it offers to keep its current customers satisfied					
48	Penetrates more deeply into its existing customer base					
49	The management systems in this unit work coherently to support the overall objectives of this unit					
50	The management systems in this unit cause us to waste resources on unproductive activities					

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
51	People in this unit often end up working at cross-purposes because our management systems give them conflicting objectives					
52	The management systems in this unit encourage people to challenge outmoded traditions/practices/sacred cows					
53	The management systems in this unit are flexible enough to allow us to respond quickly to changes in our markets					
54	The management systems in this unit evolve rapidly in response to shifts in our business priorities					

Based on the last three years, I would assess my unit's performance as:

		Don't know (0)	Very poor (1)	Poor (2)	Slightly poor (3)	Medium (4)	Good (5)	Very good (6)	Outstanding (7)
55	Profitability / return on assets								
56	Cash flow								
57	Sales growth								
58	Market share								
59	Technical product design and development								
60	Launching new services/products								
61	Quality of product /service								
62	Employee satisfaction								
63	Overall unit performance								

The work relationship in the management team I am a member of can be described as:

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
64	The ideas that our members exchange are of high quality					
65	The solutions that our members exchange are of high quality					
66	The dialogue among the members produces a high level of creativity and innovativeness					
67	When a team member is busy, other team members often volunteer to help her/him out to manage her/his workload					
68	The fact that the members are flexible about switching responsibilities makes things easier for each them					
69	The TMT members are willing to help each other with complex jobs and meeting deadlines					
70	The members usually let each other know when their actions affect another team member's work					
71	The members have a clear understanding of the job problems and needs of other members on the team.					
72	The members usually discuss their expectations of each other					

I would describe our industrial environment as:

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
73	Our company's business environment is changing very rapidly.					
74	The business environment we face is very complex with many organizations whose actions can affect us.					

Organizational Details/Data:

75. The number of employees in the unit: _____.

76. The industrial field of the organization: _____.

Personal Details:

77. Gender 1. Male 2. Female

78. Age: _____.

79. Tenure in the organization (years): _____.

80. Tenure in your current position(years): _____.

81. Formal Educational background:

1. Less than High School

2. High School Graduate

3. Bachelor's degree

4. Master's degree

5. Ph.D.

Appendix C: Employee Research Survey

BAR - ILAN UNIVERSITY  **אוניברסיטת בר אילן**

The Graduate School of Business Administration

Dear Madam / Sir,

The following survey is a part of a study being conducted at the Graduate School of Business Administration, Bar-Ilan University. The purpose of this study is to explore management views on organization functionality.

The estimated time for filling in the survey is 15 minutes.

In order to assure the success of this survey, it is essential to answer all questions by circling one answer only.

The questions apply to your opinions and attitudes regarding phenomena in your unit; as such there is no "right answer". Your opinion is what matters!

We highly appreciate your cooperation and thank you for your willingness to take part in this research.

For more information please contact: Meyrav Yitzack Halevi- +972-54-4429678, meyravyh@biu.013.net.il.

Thank you for your cooperation,

Meyrav Yitzack Halevi

Dr. Abraham Carmeli

My unit can be described as:

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
1	Looks for novel ideas by thinking "outside the box"					
2	Bases its success on its ability to explore new technologies					
3	Creates products or services which are innovative to the firm					
4	Looks for creative ways to satisfy its customers' needs					
5	Aggressively ventures into new market segments					
6	Actively targets new customer groups					
7	Commits to improve quality and lower cost					
8	Continuously improves the reliability of its products and services					
9	Increases the levels of automation in its operations					
10	Constantly surveys existing customers' satisfaction					
11	Fine-tunes what it offers to keep its current customers satisfied					
12	Penetrates more deeply into its existing customer base					
13	The management system in this unit work coherently to support the overall objectives of this unit					
14	The management systems in this unit cause us to waste resources on unproductive activities					

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
15	People in this unit often end up working at cross-purposes because our management systems give them conflicting objectives					
16	The management systems in this unit encourage people to challenge outmoded traditions/practices/sacred cows					
17	The management systems in this unit are flexible enough to allow us to respond quickly to changes in our markets					
18	The management systems in this unit evolve rapidly in response to shifts in our business priorities					

Based on the last 3 years, my unit environment can be described as:

		Strongly Disagree (1)	**Disagree (2)**	**Neither Agree nor Disagree (3)**	**Agree (4)**	**Strongly Agree (5)**
19	Making it legitimate to contribute opinions.					
20	Employing participative decision making.					
21	Maintaining an open climate for discussion.					
22	Encouraging career development.					
23	Seeing that everyone has a development plan.					
24	Coaching people on career issues.					
25	Being aware of when people are burning out.					
26	Encouraging people to have work/life balance.					
27	Recognizing feelings.					
28	Seeing that corporate procedures are understood.					
29	Insuring that company policies are known.					
30	Making sure formal guidelines are clear to people.					
31	Emphasizing the need for accuracy in work efforts.					
32	Expecting people to get the details of their work right.					
33	Emphasizing accuracy in work efforts.					
34	Providing tight project management.					
35	Keeping projects under control.					
36	Closely managing projects.					
37	Discussing customers' needs with them.					

		Strongly Disagree **(1)**	**Disagree** **(2)**	**Neither Agree nor Disagree** **(3)**	**Agree** **(4)**	**Strongly Agree** **(5)**
38	Identifying the changing needs of the customer.					
39	Anticipating what the customer will want next.					
40	Initiating bold projects.					
41	Starting ambitious programs.					
42	Launching important new efforts.					
43	Inspiring direct reports to be creative.					
44	Encouraging direct reports to try new things.					
45	Getting unit members to exceed traditional performance patterns.					
46	Emphasizing the need to compete.					
47	Developing a competitive focus.					
48	Insisting on beating outside competitors.					
49	Showing an appetite for hard work.					
50	Modeling an intense work effort.					
51	Demonstrating full exertion on the job.					
52	Getting work done quicker in the unit.					
53	Producing faster unit outcomes.					
54	Providing fast responses to emerging issues.					

I would assess the work relationship in the management team as:

		Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
55	The ideas that our members exchange are of high quality					
56	The solutions that our members exchange are of high quality					
57	The dialogue among the members produces a high level of creativity and innovativeness					
58	When a team member is busy, other team members often volunteer to help her/him out to manage her/his workload					
59	The fact that the members are flexible about switching responsibilities makes things easier for each them					
60	The TMT members are willing to help each other with complex jobs and meeting deadlines					
61	The members usually let each other know when their actions affect another team member's work					
62	The members have a clear understanding of the job problems and needs of other members on the team.					
63	The members usually discuss their expectations of each other					

Personal Details:

64. Gender 1. Male 2. Female

65. Age: _____.

66. Tenure in the organization (years): _____.

67. Tenure in your current position (years): _____.

68. Formal Educational background:

1. Less than High School

2. High School Graduate

3. Bachelor's degree

4. Master's degree

5. Ph.D.

Appendix D: Validity Testing of Hypotheses

Hypotheses (H)		**Direction**	**Validity**
Hypothesis 1a:	***There is a positive relationship between TMT behavioral integration and TMT task-related behavioral complexity.***	+	Supported
Hypothesis 1b:	***There is a positive relationship between TMT behavioral integration and TMT people-related behavioral complexity.***	+	Supported
Hypothesis 2a:	***TMT task-Related behavioral complexity is positively related to unit ambidexterity.***	+	Supported
Hypothesis 2b:	***TMT people-related behavioral complexity is positively related to unit ambidexterity.***	+	Supported
Hypothesis 3:	***(a) TMT task-related behavioral complexity mediates the relationship between TMT behavioral integration and unit ambidexterity.*** ***(b) TMT people-related behavioral complexity mediates the relationship between TMT behavioral integration and unit ambidexterity.***	+	Partially supported
Hypothesis 4:	***The more a unit context is characterized by behavioral complexity, the higher the level of its unit ambidexterity.***	+	supported
Hypothesis 5a	***There is a positive relationship between unit ambidexterity and unit business performance.***	+	Supported
Hypothesis 5b:	***There is a positive relationship between unit ambidexterity and unit product development performance.***	+	Supported

Hypothesis 5c:	***There is a positive relationship between unit ambidexterity and unit effectiveness.***	+	Supported
Hypothesis 6a:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and business performance.***	+	Supported
Hypothesis 6b:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and product development performance.***	+	Supported
Hypothesis 6c:	***Unit ambidexterity mediates the relationship between unit context for behavioral complexity and unit effectiveness.***	+	Partially supported
Hypothesis 7a:	***Unit ambidexterity mediates the relationship between TMT task-Related and people-Related behavioral complexity and business performance.***	+	Supported
Hypothesis 7b:	***Unit ambidexterity mediates the relationship between TMT task-Related and people-Related behavioral complexity and product development performance.***	+	Partially supported
Hypothesis 7c:	***Unit ambidexterity mediates the relationship between TMT task-Related and people-Related behavioral complexity and unit effectiveness.***	+	Partially supported

תקציר

עולם העבודה המודרני מתאפיין בשינויים טכנולוגיים תכופים, תחרות גלובלית , אי ודאות, שינויים רגולאריים וכן שינויים בכוח העבודה הקיים. במטרה להתמודד עם סביבת עבודה משתנה וסוערת זו, ארגונים נדרשים ליצור תהליכי שינוי השונים במהותם אחד מן השני. האחד כרוך בשינוי אשר במהותו הקניית ערך המהווה תוספת לארגון הקיים (שירותים, מוצרים, שווקים וכדומה). שינוי זה מיוחס בספרות המחקר ליכולת הארגון "לנצל" הנכסים הקיימים (Exploitation). האחר, כרוך בשינוי רדיקלי במהותו של הארגון הקיים המוביל ליצירה חדשה של ערך לארגון. שינוי זה מיוחס בספרות המחקר ליכולת הארגון "לחקור" נכסים חדשים (Exploration). יכולת הארגון לקיים שני תהליכי שינוי באופן מקביל, מיוחסת למונח אמבידקסטריטי ארגוני (Organizational Ambidexterity) אשר מהווה את הבסיס למחקר הנוכחי. המונח הושאל אל עולם התוכן הארגוני ובהגדרתו הבסיסית מתאר רמת מיומנות זהה ביד ימין וביד שמאל כאחד בקרב בן האנוש.

מחקרים, אשר נערכו לאחרונה מתמקדים באמבידקסטריטי בארגון, בתנאים בהם הינו מתאפשר וכן בגורמים המסייעים בבנייתו. אולם, למרות מאמצים מחקריים אלה, נדרש עדיין להבין באופן מיטבי יותר את הגורמים המניעים יכולת זו. באופן פרטני, חוקרים מכירים בתפקיד המרכזי והחשוב של הנהלות בכירות בארגונים (Gibson & Birkinshaw, 2004; Lubatkin et al., 2006; Smith & Tushman, 2005) כגורם משפיע על יכולת זו. המחקר הנוכחי מתמקד בפער התיאורטי והאמפירי הקיים, כפי שמצוין בספרות המחקרית, ובוחן את תפקיד ההנהלה הבכירה ביצירתו ועיצובו של אמבידקסטריטי. התזה המוצעת הינה כי לתהליכים ולדינאמיקות בתוך קבוצת ההנהלה הבכירה, כפי שבאים לידי ביטוי בשילוב ארגוני (Behavioral Integration)המוגדר באמצעות שלושה תהליכים : (1) כמות ואיכות המידע הזורם בין חברי הצוות, (2) שיתוף הפעולה בין חברי הצוות ו (3) יכולת שיתוף בקבלת החלטות, יש תפקיד מכריע בבניית יכולת של התנהגות מורכבת קבוצתית (Behavioral Complexity) בקרב ההנהלה הבכירה. יכולת מורכבות התנהגותית זו מבטאת שימוש במגוון רחב יותר של תפקידי מנהיגות ויצירת בידול בין תפקידים אלה בהתאם לסיטואציה הקיימת. בתמורה, יכולת צוותית זו תאפשר לבנות ולעצב אמבידקסטריטי ברמת היחידה.

נוסף על כך, מחקרים מעלים את הצורך לחקור הקשרים (Context) פרטניים בסביבת העבודה. ספרות המחקר התמקדה בהקשרי בטיחות (Barling, Loughlin, & Kelloway, 2002; Guldenmund, 2000; Zohar, 2000, 2002), אתיקה (Grojean, Resick, Dickson & Smith, 2004), שרות (Schneider et al., 2005) ועוד. בהמשך לחשיבה מחקרית זו, המחקר הנוכחי מציע הקשר יחידתי מורכב התנהגותית (Context for Behavioral Complexity). לפיכך, המודל המוצע במחקר הנוכחי בוחן את הקשר שבין שילוב התנהגותי ברמת קבוצת ההנהלה הבכירה ובין יכולת המורכבות ההתנהגותית שלה, וכן בין הקשר יחידתי המאופיין במורכבות התנהגותית ויכולת אמבידקסטריטי יחידתית וביצועים.

החברות אשר השתתפו במחקר הנוכחי הינן חברות ישראליות אשר פעילות בענפי משק שונים: שירותים, מזון, היי טק, חינוך וכדומה. חברות אלה בחלקן צמחו בישראל וחלקן האחר מהוות חברות בנות לחברות האם בחו"ל. 22 חברות הביעו את הסכמתן להשתתף במחקר. חברות אלה מורכבות מ 101 יחידות עסקיות, אשר כוללות 1128 מנהלים ועובדים אשר נטלו חלק פעיל במחקר. כלי המחקר העיקרי הינו שאלון מובנה, אשר נשען על מקורות בספרות המחקר הקיימת.

ממצאי המחקר מצביעים כי תהליכים ודינאמיקות ברמת ההנהלה הבכירה ובאופן פרטני רמת השילוב ההתנהגותי בצוות הבא לידי ביטוי ב: (1) כמות ואיכות המידע הזורם בין חברי הצוות, (2) שיתוף הפעולה בין חברי הצוות ו (3) יכולת שיתוף בקבלת החלטות, קשורה באופן ישיר וחיובי עם יכולת הצוות להשתמש במגוון רחב יותר של תפקידי מנהיגות ולבדל בין תפקידים אלה בהתאם לסיטואציה הקיימת, כלומר להפגין יכולת מורכבות התנהגותית גבוהה יותר. יכולת זו נמצאה משפיעה באופן חיובי על האמבידקסטריטי היחידתי , כלומר על קיומן המקביל של יכולת ה"ניצול" יחד עם יכולת ה "חקירה". כמו כן, הקשר יחידתי המתאפיין במורכבות התנהגותית, הבא לידי ביטוי במגוון רחב יותר של תפקידם הנמצאים בשימוש חברי היחידה, נמצא קשור באופן חיובי עם האמבידקסטריטי היחידתי .

ממצאי המחקר נמצאים בהלימה עם מחקרים קודמים (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006) אשר מצביעים על קשר ישיר וחיובי בין יכולת אמבידקסטריטי וביצועים. הביצועים היחידתיים במחקר הנוכחי נבדקו בשלושה מימדים. שני

מימדים "אובייקטיביים" הכוללים מדד עסקי-פיננסי ומדד פיתוח עסקי, וכן מדד "סובייקטיבי" הכולל אפקטיביות יחידתית. לבסוף, ממצאי המחקר מצביעים על תיווך מלא של אמבידקסטריטי יחידתי בקשר שבין הקשר ארגוני מורכב התנהגותית ומדדי הביצוע ה"אובייקטיביים" וכן בקשר שבין שילוב התנהגותי של קבוצת ההנהלה הבכירה וביצועים במימד העסקי.

מנקודת מבט תיאורטית, המחקר הנוכחי מרחיב את הספרות הקיימת בתחום האמבידקסטריטי בארגונים באמצעות הצעת גורמים משפיעים נוספים ביצירת אמבידקסטריטי , אשר ככל הידוע לחוקרים הינם חדשים בספרות המחקר בתחום זה . ראשית, המחקר הנוכחי תורם לספרות מחקר המתפתחת לאחרונה אשר עושה שימוש בשילוב התנהגותי (Hambrick, 1994) ואשר חושפת כיצד הנהלות בכירות באמצעות שילוב התנהגותי משפיעות על יכולתן להתנהג באופן מורכב יותר (Hooijberg & Quinn, 1992) אשר בתמורה מאפשר רמה גבוהה יותר של אמבידקסטריטי ביחידה.

שנית, עד כה, המחקר בתחום המורכבות ההתנהגותית במנהיגות כוון לרמת המנהל הבודד, לעתים תכופות אל המנהל הכללי של החברה. אולם, חוקרים בתחום האסטרטגיה הדגישו את חשיבות המנהיגות המשותפת ברמת צוות ההנהלה הבכירה אל מול המנהיג הבודד בארגונים (Pearce & Conger, 2003). חוקרים מעלים את הצורך בהרחבת המחקר הקיים באופן שבו יבחנו התהליכים והדינאמיקות בתוך צוות ההנהלה הבכירה לאור תהליכים ותוצאות ברמת היחידה ואף הארגון כולו (Hambrick, 1994; Lawrence, 1997). המחקר הנוכחי מהווה מענה לפנייה זו באמצעות חקירת יכולות ההנהלה הבכירה לתפקד באופן מורכב התנהגותית ובשילוב התנהגותי כגורם משפיע על אמבידקסטריטי ברמת היחידה.

כאמור,מחקרים שנערכו לאחרונה (Gibson & Birkinshaw, 2004; He & Wong, 2004; Lubatkin et al., 2006) מהווים עדות אמפירית לטענה כי ישנו קשר חיובי בין ביצועי החברה ובין קיומם של תהליכי "ניצול" ו"חקירה" במקביל. המחקר הנוכחי מרחיב את העדויות האימפריות לקיומו של קשר זה בזיקה לביצועים רב מימדיים ברמת היחידה. לבסוף, המחקר הנוכחי מהווה

בסיס רציונאלי לזיקה שבין תיאורית השכבה הגבוהה (upper echelon theory), תיאורית המורכבות (complexity theory), הקשר ארגוני ,אמבידקסטריטי וביצועים.

מנקודת מבט יישומית, המחקר הנוכחי מעביר מסר מעודד למנהיגים בארגונים בכך שהוא מכוון אליהם את היכולת להשפיע על רמת האמדקסטריטי ביחידותם. ממצאי המחקר מצביעים על התפקיד החיוני של הנהלות בכירות ביצירת אמבידקסטריטי באמצעות תהליכים, דינאמיקות והתנהגויות בתוך הצוות. תובנה זו יכולה אף לשמש ככלי מיוני עבור מנהלים בארגון. לבסוף, המחקר הנוכחי מחזק את הקשר הקיים בספרות המחקר בין ביצועים רב מימדים ברמת היחידה ובין יצירת אמבידקסטריטי יחידתי.

תוכן עניינים

עבודה זו נעשתה בהדרכתו של:

פרופ' אברהם כרמלי
בית הספר למינהל עסקים
הפקולטה למדעי החברה
אוניברסיטת בר-אילן

השפעת שילוב ומורכבות התנהגותית של הנהלות בכירות על ביצועי יחידות עסקיות אסטרטגיות – התפקיד המתווך של אמבידקסטרטי

חיבור לשם קבלת התואר "דוקטור לפילוסופיה"

מאת

מירב יצחק הלוי

בית הספר למינהל עסקים

הוגש לסנט של אוניברסיטת בר אילן

רמת גן אדר ב', תשס"ח