

ORGANIZATIONAL AMBIDEXTERITY: AN EMPIRICAL EXAMINATION OF ORGANIZATIONAL FACTORS AS ANTECEDENTS OF ORGANIZATIONAL AMBIDEXTERITY

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ABSTRACT

Ambidexterity broadly refers to an organization's ability to pursue two disparate things at the same time. Ambidextrous firms are capable of exploiting existing competencies as well as exploring new opportunities with equal dexterity. Capacity to pursue both exploitative and exploratory orientation depends on combinations of contradictory organizational characteristics such as decentralization, formalization, and connectedness. This study aims to explain organizational ambidexterity and organizational factors that are antecedents of ambidexterity in a theoretical way and to examine the impacts of these factors on organizational ambidexterity empirically. Data was obtained from private corporations operating in Kayseri (Turkey). Regression analysis was used to examine the relationship between organizational ambidexterity and contradictory organizational characteristics, and to test the research hypothesis. The results of regression analysis provide support for hypothesis.

Key Words: *Organizational Ambidexterity, Exploitation, Exploration, Contradictory Organizational Characteristics*

INTRODUCTION

The changes in technological, economic, legal, natural, social and cultural conditions and the failure of the organizations to accommodate the new conditions increase the gap between the organization and its environment. The mechanical organizational structure, the lack of external environmental support and environmental analysis and ignoring the signals of change lead to crisis by increasing strategic gap. Crisis is an event that is unpredictable, threatening important values and creating pressure for a timely response (Glasscock, 2004. 33). Crisis distorts the routine system and it threatens the survival of organizations as well as the ongoing activities. Considering these impacts, crisis requires a rapid response. The inefficiency of the organization in information gathering and decision making during the crisis situation decreases the chances of success against the crisis. There are a variety of strategic choices, which can be utilized in crisis prevention or minimizing the losses during the crises. One of these alternatives is "organizational ambidexterity".

Ambidexterity broadly refers to an organization's ability to pursue two disparate things at the same time (Gibson and Birkinshaw, 2004: 210; Lin et al., 2007: 1646). Ambidextrous firms are capable of exploiting existing competencies as well as exploring new opportunities with equal dexterity (Lubatkin et al., 2006: 647). Adapting to changing environmental conditions and obtaining sustainable competitive advantage broadly depend on both exploiting current resources and exploring new opportunities in order to make an innovation. Finland's Nokia Corp could be a good example in order to illustrate more concretely how firms can do this; it has been trying out a vast array of new mobile technology offerings, while continuing to invest in its dominant handsets franchise (Birkinshaw and Gibson, 2004a: 47).

Applying organizational ambidexterity strategy enables cost-effectiveness for a firm and helps firms to meet different customers' needs. In addition, ambidexterity is very important for organizational survival and success. Previous studies indicate that many successful firms are ambidextrous. If a firm wants to gain these advantages and wants to be ambidextrous, some organizational antecedents and external environmental factors should support this strategy. External environmental factors that effect ambidexterity are environmental dynamism and competitiveness (Jansen et al., 2005: 352; O'Reilly and Tushman, 2007: 20). In addition to environmental factors, organizational antecedents that can be seen as a determinant of organizational ambidexterity are the combinations of contradictory organizational characteristics such as decentralization, formalization, and connectedness (Jansen et al., 2005: 352).

Organizational ambidexterity is a new concept in Turkish literature. An empirical examination towards explaining the antecedents of organizational ambidexterity has not been done yet. Therefore, this study will become very useful to fill in this gap. Also, this study guides organizations' managers who work under uncertainty and crisis conditions about how to apply organizational ambidexterity and how to arrange organizational structure to achieve this strategy. Our objective in this study is to explain organizational ambidexterity and organizational factors that are antecedents of ambidexterity in a theoretical way and to empirically examine the impacts of these factors on organizational ambidexterity. In this context, we first explain organizational ambidexterity theoretically. Then, we address the antecedents of the ambidexterity. Finally we test our hypothesis by presenting and discussing our empirical findings.

THEORETICAL BACKGROUND AND HYPOTHESIS

Organization theorists have recently adopted the human trait of ambidexterity, or the ability of individuals to use both their hands with equal skill, as a metaphor to describe organizations (Lubatkin et al., 2006: 647). Traditionally, in organizational literature ambidexterity broadly refers to an organization's ability to pursue two disparate things at the same time-such as manufacturing efficiency and flexibility, standardization and innovation, differentiation and low-cost strategic positioning, or global integration and local responsiveness (Gibson and Birkinshaw, 2004: 210; Lin et al., 2007: 1646; Han and Celly, 2008: 335). One of good examples which had this ability is Seiko. In the mid-1960s, Seiko transformed itself from being merely a mechanical watch firm into being both a quartz and mechanical watch company. This move into low-cost, high-quality watches triggered wholesale change within Seiko and, in turn, within the world-wide watch industry (Tushman and O'Reilly, 1996: 10). This case shows that Seiko achieved both low-cost and high-quality strategic positioning in the watch industry at the same time.

More specifically, the ambidextrous organization achieves alignment in its current operations while also adapting effectively to changing environmental demands (Gibson and Birkinshaw, 2004: 210; Jansen, 2005: 15; Raisch and Birkinshaw, 2008: 375). Tushman and O'Reilly defined ambidexterity as the "ability to simultaneously pursue both incremental and discontinuous innovation and change" (1996: 8). March and Simon (1958) discussed the balance between the conflicting demands for exploitation and exploration (March, 1991: 71; Benner and Tushman, 2003: 238, Gibson and Birkinshaw, 2004: 210).

Also, ambidexterity can be undertaken in two different forms as structural ambidexterity and contextual ambidexterity (Birkinshaw and Gibson, 2004a: 49; Birkinshaw and Gibson, 2004b: 3-4; Gibson and Birkinshaw, 2004: 209). Contextual ambidexterity that is achieved within a single organizational unit is the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit (Gibson and Birkinshaw, 2004: 210, Kauppila, 2007: 3; Filiou and Windrum, 2008: 1). Alignment refers to coherence among all the patterns of activities in the business unit; they are working together toward the same goals. Adaptability refers to the capacity to reconfigure activities in the business unit quickly to meet changing demands in the task environment. Contextual ambidexterity can be viewed as a meta-level capacity that permeates all functions and levels in a unit, rather than as a "dual structure" in which the two demands are kept separate.

Structural ambidexterity is to create separate structures for different types of activities. For example, the core business units are given responsibility for creating alignment with the existing products and markets; and the R&D department and business development group are given the job of prospecting for new markets, developing new technologies and keeping track of emerging industry trends (Birkinshaw and Gibson, 2004a: 49). As can be seen below, structural ambidexterity emphasizes the importance of simultaneously balancing contradictory tensions in an organization.

The concept of contextual ambidexterity differs from structural ambidexterity in many important ways. These differences are shown in Table 1.

Table 1:
Differences Between Contextual Ambidexterity and Structural Ambidexterity

	Structural Ambidexterity	Contextual Ambidexterity
How is ambidexterity achieved?	Alignment-focused and adaptability-focused activities are done in separate units or teams	Individual employees divide their time between alignment-focused and adaptability-focused activities
Where are decisions made about the split between alignment and adaptability?	At the top of the organization	On the front line-by salespeople, plant supervisor, office worker
Role of top management	To define the structure, to make trade-offs between alignment and adaptability	To develop the organizational context in which individuals act
Nature of roles	Relatively clearly defined	Relatively flexible
Skills of employees	More specialists	More generalist

Birkinshaw, J. and Gibson, C. (2004a), Building Ambidexterity into an Organization, MIT Sloan Management Review, 45, p. 50.

Table 1 demonstrates that, structural ambidexterity is achieved by doing alignment-focused and adaptability-focused activities in separate units or teams. However, contextual ambidexterity is

achieved through individual employees who divide their time between alignment-focused and adaptability-focused activities. Despite these differences, two approaches should be viewed as complementary. In fact, many successful companies, including Hewlett-Packard, 3M and Intel, use a combination of both approaches to deliver simultaneously on the needs for alignment and adaptability (Birkinshaw and Gibson, 2004a: 50).

Organizational ambidexterity requires firms to address exploitation and exploration (Raisch and Birkinshaw, 2008: 389). Ambidextrous firms are capable of exploiting existing competencies as well as exploring new opportunities with equal dexterity (Lubatkin et al., 2006: 647). Exploitation includes such things as refinement, choice, production, efficiency, selection, implementation, execution (March, 1991: 71; He and Wong, 2004: 481; Lin et al., 2007: 1645). The intent of exploitation is to respond to current environmental conditions by adapting existing technologies and further meeting the needs of existing customers (Lubatkin et al., 2006: 647). In contrast, exploration includes things such as search, variation, risk taking, experimentation, flexibility, discovery, innovation (March, 1991: 71; He and Wong, 2004: 481). Developing new technological or marketing methods are very important for exploration. Exploration is intended to respond to, as well as drive, latent environmental trends by creating innovative technologies and new markets (Lubatkin et al., 2006: 647). Exploration and exploitation require substantially different structures, processes, strategies, capabilities and cultures to pursue and may have different impacts on firm adaptation and performance. In general, exploration is associated with organic structure, loosely coupled systems, improvisation, autonomy and chaos. Exploitation is associated with mechanistic structure, tightly coupled systems, routinization, control and bureaucracy (He and Wong, 2004: 481). Certain differences between exploitation and exploration concepts are indicated in Table 2.

Table 2: Comparison of Exploitation and Exploration

	Exploration	Exploitation
Outcomes	New designs, new markets, and new distribution channels	Existing designs, current markets, and existing distribution channels
Knowledge base	Require new knowledge and departure from existing knowledge	Build and broaden existing knowledge and skills
Result from	Search, variation, flexibility, experimentation, and risk-taking	Refinement, production, efficiency, and execution
Performance implications	Distant in time	Short-term benefit

Jansen, J. (2005), *Ambidextrous Organizations: A Multiple-Level Study of Absorptive Capacity, Exploratory and Exploitative Innovation and Performance*, Unpublished Dissertation, p. 19.

Exploitation and exploration activities are not new, however, rarely has past research perceived exploitation and exploration activities as two edge of one continuum (Oshri et al., 2005: 10). As competition intensifies and the speed of change arises, firms are increasingly confronted with a tension between exploiting existing competencies and exploring new ones (Jansen et al., 2005: 351). Adaptation to existing environmental demands may foster structural inertia and reduce firms' capacity to adapt to future environmental changes and new opportunities. On the other hand, experimenting with new alternatives reduce the speed at which existing competencies are improved and refined (March, 1991: 71; He and Wong, 2004: 482). As a result, achieving a proper balance between exploration and exploitation may be the primary factor for sustainable prosperity.

Organizational ambidexterity that is capable of exploiting existing competencies as well as exploring new opportunities with equal dexterity is very crucial to organizational survival. Previous studies also argue that successful firms are ambidextrous (Jansen, 2005: 15; Jansen et al., 2005: 352). That is, they can: (a) avoid major or sudden organizational changes, (b) achieve higher performance and sustainability, (c) divert organizational inertia, (d) obtain higher sales growth, (e) improve their learning capacity, (f) make a profit through both revolutionary and evolutionary change, change and preservation or exploratory and exploitative innovations (Tushman and O'Reilly, 1996: 24; Gibson and Birkinshaw, 2004: 210; O'Reilly and Tushman, 2007: 29; Han and Celly, 2008: 336). Although, a positive interaction between exploration and exploitation i.e., organizational ambidexterity provides these benefits to firms, in practice; because of exploration and exploitation need fundamentally different logic, a limited number of firms are succeeded at managing ambidexterity. Therefore, certain conditions and organizational characteristics are necessary to apply such a strategy, successfully. Especially, it needs a special style of managers or leaders.

Furthermore, there is little empirical research that has been made about what factors have impact on organizational ambidexterity. For a firm, to be ambidextrous both organizational antecedents and external environmental factors must support this strategy. External environment factors that effect ambidexterity are environmental dynamism and competitiveness. Organizations that operate in dynamically competitive environments simultaneously pursue both exploratory and exploitative innovations (Jansen et al., 2005: 352; O'Reilly and Tushman, 2007: 30). In addition to environmental factors, a decentralized structure, a common culture and vision, a clear consensus within the senior team about the strategy and the importance of ambidexterity, tight coordination, top management integration, supportive leaders and flexible managers are needed as the key sources of ambidexterity (Tushman and O'Reilly 1996: 26-27; Gibson and Birkinshaw, 2004: 212; Kauppila, 2007: 10; O'Reilly and Tushman, 2007: 24; Raisch and Birkinshaw, 2008: 389). Barlett and Ghoshal (1989) also focused on building a shared vision, recruitment and selection, training and career path management of executives as way of stimulating a company to be globally integrated and locally responsive at the same time (Gibson and Birkinshaw, 2004: 212). Besides these factors, capacity to pursue both an exploitative and exploratory orientation depend on combinations of contradictory organizational characteristics such as decentralization, formalization, and connectedness (Jansen et al., 2005: 352).

Formalization represents the degree to which rules define roles, authority relations, communications, norms and sanctions, and procedures (Deshpande and Zaltman, 1982: 18; Jaworski and Kohli, 1993: 56). Formalization is aimed at reducing variance through incremental improvements in processes and outputs. Through formalization, organizations codify best practices so as to make them more efficient to exploit and accelerate its diffusion (Jansen et al., 2005: 354). In the literature, it was argued that bureaucracies do well in the implementation of innovations but poorly in the generation of innovations (Adler and Borys, 1996: 63). That is, formalization enhances exploitative innovations through improvement of current products, services, and processes. It motivates individuals to share explicit as well as tacit knowledge, and it reduces the cost associated with knowledge sharing (Jansen et al., 2005: 354). Briefly, formalization is concerned with an organization's responsiveness and information utilization. So, formal organizational structure and systems are proper to apply exploitative strategy.

Hage and Aiken (1967: 510) described decentralization as organizational members' participation to the organizational decisions. Decentralization allows for the interplay between a variety of perspectives and leads to a rich internal network of diverse knowledge resources (Hage and Aiken, 1967: 510; Jansen et al., 2005: 354). Decentralization facilitates ad hoc problem solving that increase the

range of possible responses to problems and supports exploratory learning. From this point of view, amount of the delegation of decision-making authority throughout an organization and the extent of participation by organizational members in decision-making is appropriate for exploratory orientation.

Connectedness refers to the degree of formal and informal direct contact among employees in organization (Jaworski and Kohli, 1993: 56). Densely connected networks permit individuals to develop deep knowledge structure, to exchange information and to refine existing businesses, products, and processes (Jaworski and Kohli, 1993: 56; Jansen et al., 2005: 354).

In this respect, combining the required organizational characteristics is an important issue in order to pursue both exploitative and exploratory orientation simultaneously. Decentralization of decision-making supports an organization's exploratory innovations, but without formal and densely connected structures these new opportunities may not be exploited successfully (Jansen et al., 2005: 354). Therefore, interactions of these factors that act complementarily and reinforce each other are necessary to achieve ambidexterity. Accordingly, we propose that ambidextrous organizations combine contradictory organizational characteristics such as decentralization, formalization, and connectedness. In this context, we suggest the following hypothesis.

Hypothesis: Interaction of decentralization, formalization, and connectedness has positive impact on organizational ambidexterity.

METHOD, RESULTS AND DISCUSSION

Sample and Measurement

Data is obtained from one of the top executives of each 83 private companies in Kayseri, Turkey, and structured questionnaire forms were used. The sample was sufficient to allow statistical analysis at the corporate level (Gibson and Birkinshaw, 2004: 212). We examined ambidexterity with dimensions of exploitation and exploration. Ambidexterity was assessed using the 12-item scale measure and 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree) that was developed by Lubatkin et al. (2006). In addition, contradictory organizational characteristics that consist of decentralization, formalization, and connectedness were measured by scales that were developed by Tanenbaum and Schmidt (1973), Aiken and Hage (1968) and, Jaworski and Kohli (1993) in turns. These measures were assessed with 5-point Likert scales ranging from 1-strongly disagree to 5-strongly agree. Regression analysis was used to examine the relationship between organizational ambidexterity and contradictory organizational characteristics.

Analysis and Test of the Hypothesis

Cronbach's alpha scores for each variable exceeded 0.70 (organizational ambidexterity ($\alpha=0.820$), formalization ($\alpha=0.776$), decentralization ($\alpha=0.737$), and connectedness ($\alpha=0.712$)), which is an acceptable level of reliability.

Table 3: Descriptive Statistics and Correlations

Variables	Mea	S.d.	1	2	3	4	5	6
1. Ambidexterity	16.33	6.888						
2. Exploitation	3.96	0.638	.688**					
3. Exploration	4.02	1.275	.962**	.498**				
4. Contradictory Organizational Characteristics	41.99	16.808	.353**	.511**	.246*			
5. Decentralization	3.37	0.665	.324**	.401**	.252*	.798**		
6. Formalization	3.23	0.508	.339**	.421**	.251*	.757**	.406**	
7. Connectedness	3.71	0.627	.189	.406**	.103	.764**	.414**	.460**

* $p < .05$, ** $p < .01$, $n = 83$ (organizations)

Ambidexterity is the multiplicative interaction of exploitation and exploration. Contradictory organizational characteristics are the multiplicative interaction of decentralization, formalization, and connectedness.

Means, standard deviations, and correlations among the variables are presented in Table 3. According to our analysis, all of the other research variables are positively and significantly correlated with each other except connectedness. Connectedness doesn't have significant correlation with organizational ambidexterity and exploration. In the literature, it is argued that, densely connected networks permit individuals to develop deep knowledge structure, to exchange information and to refine existing businesses, products, and processes (Jaworski and Kohli, 1993: 56; Jansen et al., 2005: 354). That is, connectedness may enhance both exploitative and exploratory orientation. However, in this research it is only correlated with exploitation. Notwithstanding, there are positive and significant relations among connectedness and other variables.

There is a positive and significant correlation between exploitation and exploration. This indicates that organizations can achieve both simultaneously. There is a very strongly and positively correlation among dimensions of ambidexterity and ambidexterity, and also among dimensions of contradictory organizational characteristics. These findings support results of previous studies (Gibson, and Birkinshaw, 2004; Jansen et al., 2005). Further, decentralization, formalization, and their interaction (contradictory organizational characteristics) are significantly and positively related to exploitation, exploration and their interaction (ambidexterity). For example, formalization is positively and significantly correlated with exploitative (.421). Formalization enhances exploitative innovations through improvement of current products, services, and processes. According to the results of descriptive analysis, 59 percent of managers believed that people who work in their organizations feel as though they are constantly being watched to see that they obey all the rules. 69.9 percent of managers stated that, the employees are constantly being checked on for rule violations. Level of formalization can be seen as high (3.23) in these organizations, which participated in the research. Also, decentralization facilitates ad hoc problem solving that increase the range of possible responses to problems and supports exploratory learning. From this point of view, amount of the delegation of decision-making authority throughout an organization and the extent of participation by organizational members in decision-making are appropriate for exploratory orientation. The result shows that

mean score for decentralization is 3.37. This result implies that there is high level decentralization in our sample.

Nonetheless, decentralization of decision-making supports an organization's exploratory innovations, but without formalization these new opportunities may not be exploited successfully. Therefore, interactions of these factors that act complementarily and reinforce each other are necessary to achieve ambidexterity. That is, contradictory organizational characteristics are essential to pursue both exploitation and exploration with equal dexterity. Similarly, our results show that there is a positive correlation between ambidexterity and contradictory organizational characteristics. Therefore, the more interaction of decentralization, formalization, and connectedness increases, the more organizational ambidexterity increases.

Regression analysis was used to examine the relationship between organizational ambidexterity and contradictory organizational characteristics. Regression analysis results are presented in Table 4.

Table 4: Results of Regression Analysis

Independent Variables	Dependent Variable: Organizational Ambidexterity	
	R ²	Adjusted R ²
1. Decentralization	.105	.094
2. Formalization	.115**	.104
3. Connectedness	.036*	.024
4. Decentralization*Formalization*Connectedness	.124***	.114
5. Decentralization*Formalization	.153***	.143
6. Decentralization*Connectedness	.093*	.082
7. Formalization*Connectedness	.091*	.080

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

According to the results of regression analysis, the relationship between the contradictory organizational characteristics (independent variable) and organizational ambidexterity (dependent variable) is statistically significant ($R^2 = .124$). Contradictory organizational characteristics can explain the changes on organizational ambidexterity on 12.4%. Therefore, research hypothesis indicating "Interaction of decentralization, formalization, and connectedness has positive impact on organizational ambidexterity" is supported. That is, interaction of decentralization, formalization, and connectedness has positive and significant effects on organizational ambidexterity. In this context, our study provides empirical support for the argument that organizations are able to increase level of ambidexterity by combining contradictory organizational characteristics.

When other variables are examined, formalization and connectedness are found to significantly effect on ambidexterity, but decentralization is not. Furthermore, interaction between decentralization and formalization positively influences an organization to pursue exploratory and exploitative simultaneously ($R^2 = .153$). These findings contribute to recent research proposing that organizations become more ambidextrous by combining contradictory elements (Adler and Borsy, 1996; Gibson, and Birkinshaw, 2004; Jansen et al., 2005). Also, interaction of formalization and connectedness affects organizational ambidexterity in a positive way. However, this interaction has low impact on ambi-

dexterity. A primary reason for this result could be that densely connected social relations establish strong norms and beliefs that diminish the likelihood of conflict over goals and implications and encourage compliance with rules. Therefore, connectedness reduces the need for formal controls and decreases the uselessness of formalization (Jansen et al., 2005: 359).

CONCLUSION

Organizational ambidexterity is the ability of exploiting existing competencies as well as exploring new opportunities with equal dexterity. One of the main factors that can help organizations to be ambidextrous is interaction of contradictory organizational characteristics. These characteristics are decentralization, formalization, and connectedness. Formal organizational structure and systems are required to apply exploitative strategy. Decentralization facilitates ad hoc problem solving that increase the range of possible responses to problems and supports exploratory learning. Connectedness may enhance both exploitative and exploratory orientation. However, decentralization of decision-making supports an organization's exploratory innovations, but without formal and densely connected structures these new opportunities may not be exploited successfully. Therefore, interactions of these factors that act complementarily and reinforce each other are necessary to achieve ambidexterity. In this context, we examined organizational ambidexterity and organizational factors that are antecedents of ambidexterity in a theoretical way and researched the impacts of these factors on organizational ambidexterity empirically.

The results of our analysis show that contradictory organizational characteristics are significantly and positively related to exploitation, exploration and their interaction (ambidexterity). The more interaction of decentralization, formalization, and connectedness increases, the more organizational ambidexterity increases. In this respect, our study provides empirical support for the argument that organizations are able to increase level of ambidexterity by combining contradictory organizational characteristics.

Results of this research are restricted with the sample. More different findings could be obtained from broader samples. Future research may examine how environmental factors affect organizational ambidexterity and may investigate the relation between organizational ambidexterity and organizational performance.

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