

Full Length Research Paper

The effects of leadership styles and organizational culture on firm's innovativeness

Ethem Duygulu^{1*} and Emir Özeren²

¹University, Faculty of Economics and Administrative Sciences, Department of Business Administration, <http://kisi.deu.edu.tr/ethem.duygulu/>. Buca-Izmir, Turkey.

²Ya ar University, Faculty of Economics and Administrative Sciences, Department of Business Administration, No: 35-37 35500 Bornova, İzmir, Turkey.

Accepted 20 August, 2009

The ultimate objective of this study is to show the effects of leadership styles and organizational culture on firm's innovativeness. The study has been conducted over six different firms with a total sample size of 113 employees in order to investigate empirically the joint impact of particular leadership styles (employee orientation, production orientation, change centered leadership) and organizational culture typologies (market, hierarchy, adhocracy, clan) on firm's innovativeness within Turkish business context. The most significant finding of the study is that adhocracy culture has been found as a common variable for all firms within the sample in explaining innovativeness. On the other side, based on firm level analysis, it has been shown that for construction and chemical firms market culture, for steel and iron firm employee oriented leadership, for pharmaceutical firm hierarchy and change centered leadership and finally for aviation firm adhocracy culture have been found to explain firm's innovativeness. Considering the departmental analysis, for production department market, hierarchy and change centered leadership, for marketing department adhocracy culture are determined as common variables in explaining innovativeness within the firm.

Key word: Leadership, organizational culture, firm's innovativeness, change centered leadership.

INTRODUCTION

The main purpose of this research is to show the linkages and inter-relationship among the following key variables: leadership, organizational culture, and innovation itself as one of the core dimensions of corporate entrepreneurship. We aimed to examine the effect of appropriate leadership styles and prevailing organizational culture on firm's innovativeness which itself is a significant indicator of superior performance and effective organizational outcomes. In today's contemporary business world, firms are under the great pressure of highly competitive and global markets. Under these circumstances, it is highly critical for firms to become innovative and differentiate themselves on the eyes of demanding customers in order to survive in the long run. Although there has been already a much discussion over the concept of innovation in the strategic management literature (Verganti, 2008;

Siguaw and et al., 2006), the departing point of our study from the existing literature is to examine the issue of firm's innovativeness as a dimension of corporate entrepreneurship (CE) by taking certain leadership styles and organizational culture types into consideration. As the literature has been deeply searched, the examination of innovativeness as a dimension of CE from the viewpoint of leadership styles (particularly change centered leadership) and organizational culture is a very unique approach since there are quite few studies examining the notion of firm's innovativeness in this respect. Furthermore, this research is considered to make a significant contribution to the current literature for analyzing and understanding the factors which encompass both leadership styles and organizational culture types to enhance firm's innovativeness. In other words, Turkish firms which generally have a lack of strategic focus and innovative thinking will be able to learn the appropriate grounds in terms of leadership and organizational culture and build their innovation strategy upon them. The major research questions focused in our study are as follows:

*Corresponding author. Email: ethem.duygulu@deu.edu.tr. Tel: 00 90 232 420 41 80 / 2119.

1) Is there a relationship between organizational culture and firm's innovative orientation? If there is a meaningful relationship between organizational culture and firm's innovative orientation, in which organizational culture typology do employees have a perception of innovative orientation?

2) What kind of relationship exists between organizational leadership styles and firm's innovative behavior? What sort of impact do both organizational culture and leadership styles have on the employees' perception of innovation?

The article proceeds in the following manner. First, the literature regarding leadership styles, organizational culture and innovation is briefly reviewed. Second, the further details about the data collection and the statistical analyzing methods employed within the study are given. Finally, the research findings are clearly presented and the managerial and theoretical aspects of their strategic implications are discussed.

Literature review

In this section the theoretical background of the key variables within this study is briefly discussed and the mutual relationships among these variables are examined on a theoretical base. The major objective of this part is to present the relevant theoretical approaches and linkages regarding leadership, organizational culture and innovativeness.

It should be pointed out that innovativeness was incorporated to our current research as a dimension of corporate entrepreneurship since as it is clearly stated in the literature, innovativeness is the most important and so called "sine qua non" dimension of corporate entrepreneurship (Covin and Miles, 1999). If we want to define briefly the notion of corporate entrepreneurship, we can argue that in a broader sense, Zahra (1993) defines corporate entrepreneurship as "...a process of organizational renewal that has two distinct but related dimensions: innovation and venturing; and strategic renewal." Several authors agree with this view by indicating three components of corporate entrepreneurship: proactiveness, innovation and risk taking (Miller, 1983; Covin and Slevin, 1990). Lumpkin and Dess (1996) enlarged this definition by adding two additional dimensions to corporate entrepreneurship which are autonomy and competitive aggressiveness. Ireland, Kuratko, and Morris (2006; 10) also state that "corporate entrepreneurship is a process through which individuals in an established firm pursue entrepreneurial opportunities to innovate."

Having defined clearly what a corporate entrepreneurship is, we would like to discuss innovativeness as a core dimension of corporate entrepreneurship. Innovativeness refers to organizational wide tendency to introduce newness and novelty through experimentation and research

at development of new products, services, and new processes. (Dess and Lumpkin, 2005) Innovativeness is a transformation process of a new and original idea into a new product or service which has a commercial value in the market place. Firms innovate in several ways, concerning business models, products, services, processes, and channels to maintain or capture markets, to out distance competitors, and to assure long-term growth and survival, especially in highly complex and turbulent environments all of which are directly related to firm's overall strategy and enhancing strategic value of the company.

A wide range of factors has been found to affect organizational innovation. Of these, managers' leadership style has been identified as being one of the most, if not the most, important (Jung et al., 2004). As it has been discussed earlier the several meanings and definitions of innovativeness, achieving and sustaining a high level of innovativeness for the company has become an unsolved question. A more crucial concern for organizations is how to mobilize creativity among employees for the development and production of novel, socially valued products and/or services (Mumford and Gustafson, 1988, cited by Jung et al., 2004) Dess and Picken (2000) also argued that increasing work processes and evermore competitive business environment have created new challenges for organizations, and their top managers' style of leadership has accordingly become an increasingly important determinant of organizational creativity. The top management of an organization might influence employee creativity and organizational innovation in number of ways. First of all, top managers define and shape the work contexts within which employees interact to define goals, problems, and solutions (Jung et al., 2004). By articulating a vision that emphasizes long-term over short-term business outcomes (e.g., growth and value rather than quarterly profit), leaders can direct employees' individual and joint efforts towards innovative work processes and outcomes. By creating and sustaining an organizational climate and culture that nurtures creative efforts and facilitates diffusion of learning, leaders can significantly boost organizational creativity (Jung et al., 2004). Finally, leaders can develop and maintain a system that values and rewards creative performance through compensation and other human resource related policies. When a company provides intrinsic and extrinsic rewards for efforts to acquire new skills and to experiment with creative work approaches, employees' desire to engage in creative endeavors will be constantly reinforced (Jung, 2001).

Having carefully examined the literature, it can be seen that there are a number of researches examining the relationship between leadership styles or leader behaviours and creativity or innovation within organizations. For instance, Scott and Bruce (1994) found that the role expectations of a supervisor were found to have a positive influence on subordinates' innovative behavior. Tierney et al. (1999) focused on the

quality of leader-follower relationship based on leader-member exchange theory, and found that it was positively related to employee creative performance. Oldham and Cummings (1996) also found that employees produced more creative work when they were supervised in a supportive, non-controlling manner. Besides, there are various research findings in the literature investigating the relationship between particular leadership styles such as transformational leadership and organization's innovative orientation. Transformational leadership is typified as being consisted of four unique but inter-related behavioral components: inspirational motivation (articulating an appealing and/or evocative vision), intellectual stimulation (promoting creativity and innovation), idealized influence (charismatic role modeling), and individualized consideration (coaching and mentoring) (Bass and Avolio, 1994). Howell and Avolio (1993) found a positive relationship between the intellectual stimulation provided by the leader and unit performance when there was a climate of support for innovation within the leader's unit. But when support for innovation was absent, the positive relationship became insignificant. Keller (1992) also found that transformational leadership positively influenced performance of research and development (R&D) project teams in a large R&D organization. Performance was measured based on superiors' ratings of subordinate innovativeness and the extent to which their innovative orientation added unique value to the quality of projects that they finished (Jung et al., 2004). In a similar vein, Jandaghi et al. (2009) stated that transformational leaders try to encourage their followers to creativity and innovation. Aside from the traditional leadership styles which overwhelmingly focus on two major aspects of leadership concerning production(task) oriented and employee(relations) oriented, there has been a growing interest to the third type of leadership which can be referred to change centered leadership as Ekvall and Arvonen argued. Change centered leadership has gained an increasing level of popularity as a consequence of globalisation, application of new technologies, coping with a turbulent environment since there was a growing interest to adapt the organization to the changing environmental conditions.

Ekvall and Arvonen (1991, 1994) argued a change-centered leadership style, which can support the traditional relations oriented and task oriented styles while also differing from transactional and transformational leadership styles. Employee (relations) oriented leadership emphasizes interpersonal relations; taking a personal interest in the needs of employees and accepting individual differences among members (Robbins, 2003). Production oriented leaders, in contrast, tend to emphasize the technical or task aspects of the job- their main concern is in accomplishing their group's tasks and the group members are a means to that end (Robbins, 2003). According to Skogstad and Einarsen (1999), a change-centered leader encourages discussions about future

possibilities, promotes new ideas for change and growth, and stimulates new projects, products and ways of doing things. Ekvall's (1991) empirical work supports change centered leadership which is active in creating and supporting renewal within organisational systems. Ekvall and Arvonen (1991) argue that change oriented leaders offer ideas about new ways of doing things, push for growth, initiate new projects, give thoughts about the future and like to discuss new ideas which are all directly related with firm's innovativeness. There was an increasing demand for a change-centered leadership style in a wide range of organizations (Ekvall and Arvonen, 1991, 1994).

Having examined the different leadership styles and their relationship with firm's innovativeness, we would like to now discuss another key independent variable of our study which is organizational culture. Schein suggests that organizational culture is even more important today than it was in the past since increased competition, globalization, mergers, acquisitions, alliances, and various workforce developments have created a greater need for product innovation, strategy innovation and process innovation and the ability to successfully introduce new technologies, such as information technology. According to Schein (1985; 9) we may define organizational culture as "a pattern of basic assumptions-invented, discovered, or developed by a given group as it learns to cope with its problems of external adaption and internal integration- that has worked well enough to be considered as valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems." Organizational culture refers to the complex set of ideologies, traditions, commitments, and values that are shared throughout the organization and that influence how the organization conducts its whole performance becoming a potential source of innovation, advance and advantage. (Poškienė, 2006) Thus, cultural values and norms are a powerful means of stimulating innovation. Successful innovation may depend on organizational cultural norms that groups develop and the extent to which the group's cultural orientation aligns with, and is supported by the organization's overall orientation (Amabile, 1996, cited by Poškienė, 2006).

Having examined the existing organizational models in the literature, it would be misleading if we did not explain Quinn and his colleagues'(Quinn, 1988; Quinn and Hall, 1983; Quinn and McGrath, 1985) organizational culture framework since this framework is also closely related to different leadership roles. Accordingly, these scholars have classified organizational cultures based on two basic dimensions (internal/external orientation, and flexibility/control orientation), and developed a typology identifying four organizational cultures (group, developmental, hierarchical, and rational).

Group cultures are defined as internal and flexible in their orientation, with a tendency to people orientation

within the organization. The core values are loyalty and the protection of the existing group. Developmental cultures are defined as external and flexible in their orientation, with an emphasis on dynamic creativity and adaptability, and a recognition of the importance of external clients. Hierarchical cultures are characterized as internal and control oriented, and inclined to promote values like formality, rules, clear roles and tasks, and documentation. Finally, rational cultures are described as external and control oriented, focusing on production and emphasizing values like goals and task accomplishment. (Skogstad and Einarsen, 1999)

Each culture typology is considered to have an association with different leadership roles (Quinn, 1988; Quinn and Hall, 1983; Quinn and McGrath, 1985). For instance, the description of leaders in developmental cultures corresponds to a high degree with the change-centered leadership style described by Ekvall (1991) and Ekvall and Arvonen (1991). Leaders in developmental cultures are typified as entrepreneurial, have willingness to take risks, and able to develop a vision of the future. It is generally assumed that people from a developmental culture, with its external and flexible orientation are likely to report significantly higher levels of change centered leadership when compared to those in a hierarchical culture with its strong emphasis on formality and rules. (Skogstad and Einarsen, 1999)

Cameron and Quinn (1999) have developed an organizational culture framework built upon a theoretical model called the "Competing Values Framework." This framework is based on six organizational culture dimensions and four dominant culture types (that is, clan, adhocracy, market, and hierarchy). Accordingly, clan culture is described as a very friendly place to work where people share a lot of themselves. It is like an extended family. The organization is held together by loyalty or tradition. Commitment is high. Success is defined in terms of sensitivity to customers and concern for people. The organization places a premium on teamwork, participation, and consensus. The adhocracy culture can be characterized as a dynamic, entrepreneurial and creative place to work. The leaders are considered innovators and risk takers. The glue that holds the organization together is commitment to experimentation and innovation. Success means gaining unique and new products or services. The organization encourages individual initiative and freedom. The hierarchy culture can be defined as a very formalized and structured place to work. Procedures govern what people do. Maintaining a smooth-running organization is most critical. Formal rules and policies hold the organization together. The long term concern is on stability and performance with efficient, smooth operations. Finally, the market culture can be typified as a results oriented organization whose major concern is with getting the job done. People are competitive and goal oriented. The leaders are hard drivers and competitors. The glue that holds the organization together is an emphasis on winning. The long term focus is on competitive actions

and achievement of measurable goals and targets. The organizational style is hard-driving competitiveness (Cameron and Quinn, 1999; 82).

RESEARCH METHODOLOGY

Under the methodology section of this study, the following important issues concerning the sampling frame, data collection technique and method of analysis are aimed to discuss. The sampling frame of this research consisted of employees working in six different firms. While determining these firms, the accessibility of companies in different sectors and convenience of data collection became the primary concerns. The number of questionnaires distributed to firms under consideration was 200 and the number of valid responses which were included in our study was 113. Therefore, it can be said that the narrow size of the sample constituted the major limitation of this study. The relevant data was collected through a survey instrument. The survey consists of four parts and seventy five items. The first part of the survey was composed of the questions in determining the firms' leadership styles, the second part of the survey consisted of the questions in order to explain innovativeness, the third part was constructed to describe firms' organizational culture typologies and finally the last part of the survey was designed in order to assess the demographic profile of the respondents.

The questions in the first part of the survey with regards to leadership styles was constituted based on a scale developed by Ekvall and Arvonen (1991) including thirty six items. Of these thirty six items, fourteen of them aim to measure employee orientation, twelve of them aim to measure production orientation and the rest ten items aim to measure change orientation. According to Skogstad and Einarsen (1999), compared to transformational leadership behaviours, change centered leadership are less evident in the leadership literature. The innovativeness scale of this study which was originally developed by Zahra (1993) was used based on Fi and Çetindamar (2007) study including nine items. The underlying factor benefiting Fi and Çetindamar (2007) study to measure firm's innovativeness is because the validity of Zahra (1993) innovativeness scale was tested for Turkish literature in Fi and Çetindamar (2007) study. The questions in the third part of the survey regarding organizational culture typologies were constructed based on Organizational Culture Assessment Instrument (a total of twenty four items) developed by Cameron and Quinn (1999) study. This instrument was based on six organizational culture dimensions (dominant characteristics, organizational leadership, management of employees, organization glue, strategic emphases and criteria of success) and four dominant culture types (clan, adhocracy, market, and hierarchy). These twenty four items were grouped on the basis of each culture typology. So, each of these four distinct organizational culture typology represents six items including organizational culture dimensions. The last part of the survey was composed of questions related with demographic characteristics of respondents concerning scope of business, age, gender, working period in particular firm, department and position details. A likert type five point scale was employed in order to measure the variables under the examination of this study. The alternative responses started from 1 representing "I never agree" to 5 representing "I absolutely agree".

To reach scientifically rigor results, instrument reliability was also established. In assessing the reliability of scales used in the questionnaire a coefficient of internal consistency was calculated using Cronbach's alpha methodology. The overall alpha for all dimensions of leadership styles was found to be 0.97 ($\alpha = .94$ for employee oriented leadership, $\alpha = .90$ for production oriented leadership, $\alpha = .90$ for change centered leadership); the overall alpha for all types of organizational culture was found to be 0.96 (α

= .89 for clan, α = .89 for adhocracy, α = .88 for market, and α = .87 for hierarchy); and the overall alpha for innovativeness variable was found to be 0.93. Based on these reliability scores, it can be said that the overall reliability of the survey instrument used in this study is high.

Several statistical methods for data analysis concerning descriptive statistical techniques, regression analysis (stepwise method) and variance analysis were used in order to explain the causality among the variables.

RESEARCH FINDINGS

Findings regarding demographic characteristics

The employees of six different firms were included in this study. By considering their scope of business, the sample consisted of 11 respondents from construction sector, 31 respondents from steel and iron sector, 37 respondents from pharmaceutical sector, 16 respondents from aviation sector, 10 respondents from chemical industry and 8 respondents from automotive supplier industry. (a total of 113 respondents) When we examine the age profile of the respondents, we can see that 14.2% of all respondents (16 employees) are between 20-25 years, 32.7% (37 employees) between 26-30 years, 17.7% (20 employees) between 31 and 35 years, 7.1% (8 employees) between 36 and 40 years and 22.1% (25 employees) between 45 years and over. Based on this age profile, it can be said that young adults constituted the significant number of the sample. When we examine the gender profile of the respondents, 35.4% (40 employees) of all respondents are woman and 62.8% (71 employees) are male. Two respondents' gender data are missing.

58.4% of all respondents (66 employees) have a working period of 5 years and less in their organizations, 25.7% (29 employees) have a working period between 6 and 15 years, and 9.7% (11 employees) have a working period of 16 years and over in their organizations. Seven respondents did not indicate any information related with working period in organizations.

When we look at respondents' departments and positions in their respective organizations, 46% of all respondents (52 employees) indicated their department as production-manufacturing, R & D, quality control, and purchasing, 7.9% (11 employees) indicated as human resources-personnel, accounting and finance, and 41.6% (47 employees) indicated as marketing. 37.2% of all respondents constitute the lower level subordinates, whereas 60.1% of all respondents constitute the middle level management.

Findings regarding variables

Based on the demographic characteristics of the participants, we tried to explore how employees perceived the key variables of this study concerning leadership styles,

organizational culture and innovativeness. Before the correlation and regression analysis among the variables, we tried to test whether there is a statistically significant difference in employees' perception of those variables with the help of Post Hoc Test-LSD. The findings of this test are summarized below.

The perceptual differences from the view point of firms

Leadership

There was a statistically significant difference in perceiving the production orientation dimension between the pharmaceutical firm and firms from other sectors. This difference occurred for construction firm (.4932, significance level at 0.03), steel and iron firm (.4287, significance level at 0.01), aviation firm (.5192, significance level at 0.01) and chemical firm (.5849, significance level at 0.01). There was no statistically meaningful difference in perceiving the production orientation dimension for automotive supplier company.

A statistically significant difference in perceiving the change centered leadership dimension between the pharmaceutical firm and steel and iron company was noted (.3665, significance level at 0.04). We have found no statistically meaningful difference in perceiving the employee orientation dimension for entire participant firms within this study.

Clan culture

It has been found a statistically significant difference in perceiving the clan culture between the pharmaceutical firm and other firms within the scope of this study. This difference occurred for construction firm (.6511, significance level at 0.006), steel and iron firm (.4498, significance level at 0.01), aviation firm (.9304, significance level at 0.000), chemical firm (1.4450, significance level at 0.000) and automotive supplier firm (.6492, significance level at 0.01). On the other side, it was found that there were perceptual differences towards clan culture among firms themselves. For instance, there is a perceptual difference towards clan culture between chemical firm and construction firm (-.7939, significance level at 0,009), between steel and iron and automotive supplier firm (-.7958, significance level at 0.01) and between steel and iron and aviation firm (.4806 significance level at 0.02).

Adhocracy culture

A statistically significant difference in perceiving the adhocracy culture between the pharmaceutical firm and other firms was found. This difference occurred for construction firm (.7645, significance level at 0.001), steel

and iron firm (.3576, significance level at 0.03), aviation firm (.9634, significance level at 0.000), chemical firm (1.4842, significance level at 0.000) and automotive supplier firm (.7134, significance level at 0.005). Similarly, there was a perceptual difference towards adhocracy culture between employees working in the chemical firm and the construction firm (-.7197, significance level at 0.01), between chemical firm and steel and iron firm (-1.1265, significance level at 0.000), between chemical firm and aviation (-.5208, significance level at 0.04), between chemical firm and automotive supplier firm (-.7708, significance level at 0.01).

Market culture

A statistically significant difference in perceiving the market culture between the pharmaceutical firm and other firms within the scope of this study was noted. This difference occurred for construction firm (.7678, significance level at 0.001), steel and iron firm (.4572, significance level at 0.006), aviation firm (.7671, significance level at 0.000), chemical firm (1.5405, significance level at 0.000) and automotive supplier firm (.7072, significance level at 0.005). On the other side, it was found that there were perceptual differences towards market culture among firms themselves. For instance, there was a perceptual difference towards market culture between chemical firm and construction firm (-.7727, significance level at 0.007), between chemical firm and steel and iron firm (-1.08333, significance level at 0.000), between chemical firm and aviation (-.7708, significance level at 0.003), between chemical firm and automotive supplier firm (-.8333, significance level at 0.007).

Hierarchy culture

A statistically significant difference in perceiving the hierarchy culture between the pharmaceutical firm and other firms within the scope of this study has been found. This difference occurred for construction firm (.685, significance level at 0.002), steel and iron firm (.339, significance level at 0.03), aviation firm (.695, significance level at 0.000), chemical firm (1.449, significance level at 0.000) and automotive supplier firm (.528, significance level at 0.03). Furthermore, there was a perceptual difference towards hierarchy culture between chemical firm and construction firm (-.763, significance level at 0.006), between chemical firm and steel and iron firm (-1.1098, significance level at 0.000), between chemical firm and aviation (-.7541, significance level at 0.003), between chemical firm and automotive supplier firm (-.9208, significance level at 0.002).

Innovativeness

By considering innovativeness, it was found that there

was a statistically meaningful difference in perceiving the innovativeness variable from the perspective of firms under the scope of this study. Based on the firms perceptual differences, steel and iron firm perceive innovativeness differently when compared to construction firm (.6731, significance level at .008), pharmaceutical firm (-.6364, significance level at .000), aviation firm (.4650, significance level at 0.04) and chemical firm (-.8682, significance level at 0.001)

This perceptual difference towards innovativeness was found among the employees between pharmaceutical firm and construction firm (1.3095, significance level at 0.000), between pharmaceutical firm and aviation firm (1.1015, significance level at 0.000), between pharmaceutical firm and automotive supplier firm (.9876, significance level at 0.000). There was also a perceptual difference towards innovativeness among the employees between aviation firm and chemical firm (-1.333, significance level at 0.000), between chemical firm and automotive supplier firm (1.2194, significance level at 0.000).

When we take into account all these perceptual differences of companies which are under the scope of this study, there appears to be a divergent view among firms in perceiving almost any variable within this research. This situation might arise from two important reasons. Firstly, firms differ in perceiving both organizational culture variable and leadership variables due to the narrow and limited size of the sample, as we have mentioned earlier. However, it should also be noted that the data set was found to be highly reliable based on reliability analysis. Secondly, these perceptual differences could be attributed to a number of factors such as: specific environment (customers, distributors, unions, competitors and so on) that surrounds the organization varies greatly from one firm to the other and each firm has its own unique culture, different managerial practices and uses different technologies. Given these dissimilarities, it can be said that it might be natural to observe varying degree of divergent perceptions on innovativeness among the firms. This is an important issue which is highly emphasized in the literature.

On the other side, considering the demographic characteristics such as gender, position and age, no statistically significant relationship has been found towards organizational culture and leadership styles. However, if we examine the effect of seniority on perception of innovativeness, we can see that employees working in that particular firm 5 years or less has a statistically meaningful difference in perceiving the innovativeness variable compared to those who work between 6 and 10 years (-.6718, significance level at 0.004) and 11 years and more (-.54871, significance level at 0.04)

One of the important findings which have been found through this research is that perceptual difference (both organizational culture and leadership) among different departments has been noted. We would like to discuss

Table 1. Innovativeness variable, stepwise regression analysis (for the entire sample).

Model 1	R	R ²	B	Std. Error	Beta	t	Sig.
adhocracy ^a	.490(a)	.240	.538	.096	.490	5.618	.000(a)
F:31.563							

(a) Predictors: (Constant), adhocracy.
Other variables did not come into the analysis.

these differences in more detail below:

Perceptual differences of different departments

Considering the leadership dimension, employees working in human resources, personnel, accounting and finance departments perceive employee oriented leadership differently when compared to employees working in production and manufacturing department (-1.06 , significance level at 0.03). Furthermore, we would like to state that marketing and sales departments have a different perception towards employee oriented leadership when compared to other departments. (-1.226, significance level at 0.01)

In a similar vein, employees working in human resources, personnel, accounting and finance departments perceive production oriented leadership differently when compared to those working in production and manufacturing department (-.8597, significance level at 0.04), marketing and sales departments have a different perception towards production oriented leadership than another departments. (-1.149, significance level at 0.005) Considering the change centered leadership, it has been found that a statistically meaningful difference in perceiving the change centered leadership exists between marketing, sales and other departments concerning human resources, personnel, accounting, finance (1.069, significance level at 0.01). Considering clan culture, marketing departments perceive clan culture differently compared to human resources-personnel, accounting, finance departments (.963, significance level at 0.03). For adhocracy culture, marketing department perceive adhocracy culture differently from production department (.399 , significance level at 0.04) and human resources-personnel, accounting, finance departments (1.294, significance level at 0.004) Considering market as one of the organizational culture typologies, marketing department perceive market culture differently when compared to human resources, personnel, accounting, finance(.866, significance level at 0.04) and production-manufacturing (.518 , significance level at 0.01) Considering hierarchy culture as the one of the organizational culture typologies, there was a difference in perception between marketing department and other departments concerning human resources, personnel, accounting, finance (1.127, significance level at 0.008).

Besides, innovativeness variable is perceived differently between marketing and production department (.751, significance level at 0.001). Under the light of relevant scientific evidence, in order to explain the innovativeness variable by showing the effects of different organizational culture typologies and leadership styles, the step wise regression variance analysis was made and the relationships among the variables were constructed below.

The relationships among the variables

A stepwise regression analysis in order to explain the effects of certain leadership styles and organizational culture typologies on innovativeness variable has been conducted. The results demonstrated that innovativeness variable is explained by the adhocracy culture for the entire sample as shown in Table 1.

By interpreting the figures shown in Table 1, the innovativeness variable is explained by adhocracy culture with an explanatory percentage of 24%. This means that twenty four percent of firm's innovativeness can be explained with the help of adhocracy culture. This finding is consistent with the literature since adhocracy culture emphasizes greatly the development of new and creative ideas which strengthens the likelihood of innovativeness within an organization. Adhocracy culture is also related with finding new markets, focusing on achievement and generating creative solutions to existing problems. It is important to keep in mind that having this kind of organizational culture might facilitate firms' innovation capability. When we look at the major characteristics of this organizational culture typology, it can be easily seen that openness to change come to the forefront in adhocratic organizations. Leaders are innovative, creative, risk taking and future oriented in organizations driven by the adhocracy. For this reason, change centered leadership is assumed to place a great emphasis on adhocratic cultures.

As we have discussed earlier, we have found paramount differences in perceiving culture and leadership dimensions on the basis of firm level and departmental level. Therefore, it is crucial to be able to explain the underlying factors lying behind the innovativeness from the viewpoint of both firm and departmental level of analysis.

Table 2. Stepwise regression analysis of firms (Model summary)(f).

Firms	Model	R	R Square	F	Sig.
Construction	1	.826(a)	.682	19.337	.002(a)
Steel and iron	1	.732(b)	.536	23.104	.000(b)
Pharmaceutical	1	.559(c)	.313	15.912	.000(c)
	2	.641(d)	.411	11.846	.000(d)
Aviation	1	.654(e)	.428	8.977	.011(e)
Chemical	1	.632(a)	.400	5.329	.050(a)

(a) Predictors: (Constant), market, (b) Predictors: (Constant), employee orientation leadership, (c) Predictors: (Constant), hierarchy, (d) Predictors: (Constant), hierarchy, change centered leadership, (e) Predictors: (Constant), adhocracy (f) Dependent Variable: innovation.

Table 2a. Coefficients according to firm level of analysis (a)

Firms	Model		Unstandardize Coefficients		Standardized Coefficients		
			B	Std. Error	Beta	t	Sig.
Construction	1	(Constant)	-.244	.724		-.337	.744
		Market	.902	.205	.826	4.397	.002
Steel and iron	1	(Constant)	1.546	.444		3.479	.002
		Employee orientation leadership	.564	.117	.732	4.807	.000
Pharmaceutical	1	(Constant)	1.183	.754		1.569	.126
		Hierarchy	.708	.178	.559	3.989	.000
	2	(Constant)	1.625	.732		2.220	.033
		Hierarchy Change centered leadership	1.086 -.517	.230 .217	.858 -.433	4.715 -2.379	.000 .023
Aviation	1	(Constant)	.504	.888		.568	.580
		Adhocracy	.830	.277	.654	2.996	.011
Chemical	1	(Constant)	3.448	.422		8.179	.000
		Market	.357	.155	.632	2.308	.050

(a) Dependent variable: innovation.

The regression analysis results of firms are presented in Table 2. Accordingly, innovativeness in construction and chemical firms is explained by market culture. Innovativeness in aviation sector could be explained with the help of adhocracy culture which is also consistent with the literature since Cameron and Quinn (1999) pointed out that adhocracy organization may frequently be found in industries such as aerospace, software development, think tank consulting and film making. Innovativeness in pharmaceutical firm is explained by the hierarchy culture whereas innovativeness in steel and iron firm is explained by employee oriented leadership. These results could also be checked from Table 2.

By interpreting the figures shown in Table 2a, we can say that a quite strong and positive relationship has been found between market culture and innovativeness particularly in construction and chemical firms. This can be easily seen from Beta coefficients. Based on these results, it is likely to say that these firms are achievement oriented and seek to maximize their profit in new markets with the help of aggressive strategy. As a result of being

achievement oriented and aggressive in the market place, the leadership approach in these organizations is assumed to be based on aggressive, result (outcome) oriented focus. Leaders heavily rely on hitting stretch targets and winning in the marketplace. When we consider the results of pharmaceutical firm, it might be seen that the innovativeness variable is explained by two phased model. In the first model, innovativeness variable is explained by the hierarchy whereas in the second phase change centered leadership is incorporated into the model and it is important to keep in mind that there is an inverse relationship between changes centered leadership and hierarchy culture.

Another considerable finding for the pharmaceutical firm is that as the change centered leadership comes into the model, beta coefficient in explaining the innovativeness increases. Such rise in beta value shows us the explanatory power of change centered leadership on innovativeness. This is a significant finding demonstrating that there is a strong desire for change in the organization. The finding is also relevant and consistent from

Table 3. Stepwise regression analysis based on departments model summary (e).

Department	Model	R	R Square	F	Sig.
Production	1	.532(a)	.283	5.527	.034(a)
	2	.746(b)	.557	8.156	.005(b)
	3	.869(c)	.755	12.332	.001(c)
Marketing	1	.531(d)	.282	28.643	.000(d)

(a) Predictors: (Constant), market, (b) Predictors: (Constant), market, hierarchy.

(c) Predictors: (Constant), market, hierarchy, change centered leadership, (d) Predictors: (Constant), adhocracy, (e) Dependent Variable: innovation.

Table 3a. Coefficients (a) based on departments.

Department	Model		Unstandardized coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta	B	Std. Error
Production	1	(Constant)	.766	1.107		.692	.500
		Market	.741	.315	.532	2.351	.034
	2	(Constant)	3.035	1.208		2.513	.026
		Market	1.626	.405	1.167	4.017	.001
	3	Hierarchy	-1.458	.515	-.823	-2.831	.014
		(Constant)	2.529	.948		2.667	.021
		Market	1.605	.313	1.152	5.126	.000
		Hierarchy	-1.839	.417	-1.038	-4.413	.001
		Change Centered Leadership	.532	.171	.500	3.119	.009
Marketing	1	(Constant)	1.725	.399		4.320	.000
		Adhocracy	.577	.108	.531	5.352	.000

(a) Dependent variable: innovation.

the viewpoint of literature. Since Skogstad and Einarsen (1999) stated that change centered leadership encourages discussions about future possibilities, promotes new ideas for change and growth, and stimulates new projects, products and ways of doing things. Therefore, it can be said that change centered leadership establishes a ground for the innovativeness within the organization. On the other side, it has been found that a strong and positive relationship exists between employee oriented leadership and innovativeness for the steel and iron company. Considering the production process of steel and iron, we might say that it relies heavily on technology and a complex specific environment. Given this background, employee oriented leadership emphasizes interpersonal relations; taking a personal interest in the needs of employees and accepting individual differences among members (Robbins, 2003). From the viewpoint of aviation firm, a strong and positive relationship exists between adhocracy culture and innovativeness.

The details of the regression analysis on the basis of departments are shown in Table 3. Accordingly, two departments which are production and marketing come to the forefront for explaining the innovativeness within the

organization considering the production departments of firms, it was seen that three phased approach in explaining the innovativeness. According to first model, market culture explains the firm's innovativeness. In the third model, when "hierarchy" and "change centered leadership" get involved into the model, the explanatory power of the model increases by 75%. On the other side, as obviously seen from the associations among the variables, an inverse relationship exists between hierarchy and market culture whereas a positive relationship between change centered leadership and market culture has been noted. Another remarkable finding was that adhocracy culture has been found as the leading variable to explain the innovativeness in marketing departments of all firms within the sample.

Conclusion

Having taken all relevant findings into consideration, we may conclude that organizational culture has "sui generis" characteristics. This study once again proved that each organization has its own organizational culture.

Even though the research has been conducted with a limited sample size, the clear cut differences in perceptions confirm the uniqueness of organizational culture. The most significant finding of the study is that adhocracy culture has been found as a common variable for all firms in explaining innovativeness. Furthermore, it can be seen that the explanatory power of organizational culture on innovativeness is more important when compared to leadership. This is partly due to the fact that organizational culture is holistic, evolves over time and relies heavily on permanent behavioral patterns.

Even though it is generally voiced that it is very difficult to measure organizational culture, using an appropriate and reliable scale facilitates the measurement of organizational culture dimensions and drawing significant conclusions regarding organizational culture. The instrument we employed within this study to determine firm's organizational culture profile has been rarely tested and studied empirically. Therefore, we believe that the current study will also be beneficial for identification of firm's organizational culture. Our study will also open a new path for further research examining the relationship between organizational culture typologies (market, clan, adhocracy, hierarchy), change centered leadership style and firm's innovativeness. On the other side, it would be misleading if we ignore the effect of leadership styles on firm's innovativeness.

One of the biggest contributions of this study is to highlight an issue of third leadership dimension which is change centered leadership. More importantly, firm's innovativeness could only be understood if leadership and organizational culture are jointly evaluated. For instance, if we want to explain the innovativeness of production department by market culture solely, only 28% of production department's innovativeness could be attributed to market culture. Instead, if we explain the innovativeness of the same department with market, hierarchy and change centered leadership together, the explanatory power of the model increases up to 75%. Therefore, organizational culture typologies and leadership styles should be taken into analysis together in order to understand the real determinants of innovativeness. Given this fact,

Considering the limitations of this study, upper level of statistical analysis (such as structural equation modeling, path analysis and confirmative factor analysis) seems to be necessary for further research in order to arrive at more generalizable results.

By extending the sample size, the determination of implicit variables in the model will contribute significantly to the current literature. We should also indicate that one of the significant findings of this study is that production oriented leadership has not been found in any analysis regardless of firms. In other words, production oriented leadership was not perceived as significant by employees in any firm within the sample. This is an important signal in the management literature showing that there is an ongoing shift and orientation towards organic processes. It can be said

that employees have expectations of contemporary approaches from their top management. Especially during the era of an economic crisis just as we experience now throughout the world, need for a new paradigm seems to be inevitable. Under these circumstances, today change is the natural state in most organizations and thus leadership is more focused on renewal and change and less on stable efficiency (Sellgren et al., 2006). This can only be achieved through a new leadership behavior which focuses on change within the firm. This new way of leadership can be seen as a combination of three leadership dimensions which are employee orientation, production orientation and change centered leadership. The current developments in management and organization call for a new style of leadership so called change centered leadership. The need for change in organizations seems to be met via change oriented leaders since they offer ideas about new ways of doing things, push for growth, initiate new projects, give thoughts about the future, like to discuss new ideas which eventually lead to firm's innovativeness (Ekvall and Arvonen, 1991). Based on Hofstede (1980) and Schwartz (1999) cross cultural studies, Turkey was found to be a collectivistic culture whereas this study reveals a strong emphasis on adhocracy culture and thereby change centered leadership in organization settings which can also be evaluated as an evidence for need of change culture which may lead the researchers to investigate on a further research topic.

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