



## EVALUATION OF OPEN LEADERSHIP AND INNOVATION ORIENTATION ON EMPLOYEES AND CULTURE OF THE ORGANIZATION

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Received 12 September 2019; accepted 21 October 2019

**Abstract.** In the production sector, where innovation and creativity activities are intensely realized, organizations need not only creativity activities but also process management in a successful organizational culture in order to be successful in the competitive environment in terms of both leadership and innovation activities. In terms of leadership, institutions need to be managed with a correct understanding. The aim of this study is to analyze the relationships between open leadership, innovation orientation, employee creativity, organizational culture and process management variables. In this study, the effects of open leadership role on innovation and employee creativity activities and process management were investigated. At the same time, innovation orientation mediated effect was demonstrated. In the scope of aim of the study, a survey was conducted with 418 engineers working in the production sector. IBM SPSS 25 program, LISREL program and SOBEL calculation tool were used in the analysis. The data obtained were evaluated. Confirmatory and explanatory factor analysis and reliability analysis were performed on questions used Likert scale. In this study, it is concluded that the mediation variable effect of innovation orientation variable is on both organizational culture and creativity and process management.

**Keywords:** open leadership, innovation orientation, employee creativity, organizational culture, process management, production, company.

**JEL Classification:** L230, O310, M530, M100.

### Introduction

Today's society is experiencing an era of changes. Every kind of change brings with it its own new rules. The primary structures of these new rules are the public / private organizational structures. In this sense, change is triggering a new order and environment for organizations. Surviving in such a new environment requires more and more changes for organizations. According to Gary Hamel, 30 thousand of new products are released each year and 90% are not successful, but the rest can reach the success (Hamel 2006). According to the results of empirical studies on new products, the rate of failure in products is reported to be around 40%, although rates in different sectors differ (Castellion 2012). In the following year, Castellion and Markham (2013) examined studies on new product failure rates and found that these rates were 80% or more over the years.

Experts estimate that businesses in the manufacturing sector spend more than \$ 20 million on a new brand and 80 to 95 percent of new brands fail (Perreault et al. 2013). In other words, only 10%–20% of new products in the production sector can stay on the market every year. This means that hundreds of billions of dollars of spent on products that fail worldwide went to waste. The main reason for this is due to the problems in leadership and the innovation. But in order to ensure change, organizations always need a successful leadership style. In this context, leadership for the organizational structure is actually the art of making a kind of interdependence between organizations and employees acting in the same direction. Because as a fundamental feature of today's modern organizations, it is accepted that no one has complete autonomy, that all employees are connected to each other with the technology, management

systems and hierarchy connection in the organization and they have created a culture of mutual dependence (Kotter 2011). Creativity has the personality structure, intellectual accumulation, the ability to perceive, transfer and intuition life, in which the content is dominated by individual freedom. In this context, creativity is the process in which one uses all of its features in a problem faced by the individual and tries to produce what is not, or, if so, different. When the literature is examined, it is understood that the most important part of the research in the field of creativity is based on the psychological characteristics of individuals such as motivation, their cognitive qualities and accordingly their intellectual and knowledge levels. In other words, the factors that reveal creativity have been investigated in relation to the psychological and cognitive qualities of individuals. However, it has been determined in the researches carried out in the future that it is effective in the emergence of creativity in social and environmental factors. In fact Sternberg and Lubart (1999), listed the scientific studies in the field of creativity in six main titles such as, mystical, pragmatic, psychodynamic, psychometric, cognitive, social and personality-based approach as based on the characteristics; however, they emphasized that a multi-element approach has been adopted in creativity researches, especially since the 90s (Sternberg and Lubart 1999). In particular, this knowledge accumulation shows that the creativity of employees is a valuable resource that increases organizational competence (eg efficiency of production innovation), financial performance (eg, relative sales, return on investment and profitability) and marketing performance (eg. market share) (Lopez-Cabrales et al. 2009, Shin et al. 2012). According to the literature, continuous improvement, creativity, process management and organizations must explore a common approach to discover and implement new ways of improving operations (Anand et al. 2009). In this respect, the importance of open leadership and innovation focus is essential for the sustainability of the activities of the organizations. Because sustaining innovation and having a leadership understanding that supports innovation are important elements of being successful in a competitive environment. In addition, a research model has been developed to determine whether both open leadership and innovation orientation practices can facilitate the development of creative effectiveness in organizational employees, affect organizational culture and are effective on process management.

## 1. Theory

### 1.1. Open leadership

One of the most important forces in organizations' ability to continue their activities in a competitive environment is undoubtedly the leaders (Johan and Handika 2018). Leaders

always use their powers to improve the performance of the organizations they manage (Lohrke et al. 2004). Open leadership is one of the leadership styles examined whether organizations are successful in innovation, process and performance (Dewey 2019). Although the concept of open leadership is very new in the literature, it is a leadership style that stands out among other types of leadership due to the change in the interpersonal relationship process and the emphasis on the quality of this situation (Li 2010, Uslu et al. 2015). Especially due to the intense interest in social networking technologies (internet based) in the interpersonal close relationship process in the 21st century; sharing, commenting, organizing and controlling elements are more prominent than in previous periods (Li 2010). Open leaders have the characteristics of being able to think independently, be cooperative and optimistic. Open leadership is based on trust in the work they do with the employees in the relationship between them and the realization of the goals of the realization of the principles of behavior in the process (Reichstein and Michelis 2015). Characteristics expected to be in open leaders; is to accept the power of employees, to guide all kinds of processes and to accept the potential of the employees / service recipients to influence. In organizational culture, the importance of leadership style is seen in terms of reflecting the creativity activities of the employees to the process management (Adeel et al. 2018). Especially in innovation-oriented organizations, the creativity activities of the employees are positively reflected in the performance.

The most important characteristics of open leaders are the fact that they are contributing to creating new relationships and trust between employees and customers through social networks such as blogs, twitter, facebook and other new technology products (Karcioğlu and Kurt 2009). Thanks to this feature of leaders with open leadership characteristics, innovation orientation can positively reflect the organization's process and performance. Open leaders display curiosity about what one is doing / why something is important to that person. Open leaders provide all kinds of comments to the employees about the activities carried out, but people should be aware that they will be responsible for the consequences when they abuse the right to comment. Open leaders should be able to achieve a sense of trust within the organization and pursue an accountability philosophy by understanding the importance of supporting this with continuous sharing. It should maintain a leadership path with the virtue of forgiving failures as necessary by supporting all kinds of curiosity and modesty (Polat and Arabacı 2014). For this reason, the effects of open leadership on the organization and employees as well as the intervening variable effects of innovation orientation on the organization are examined.

## 1.2. Innovation orientation

Innovation orientation is a philosophy that promotes openness to new ideas and reflects an organization's willingness to change through the adoption and application of new technologies, resources, skills and administrative systems (Han et al. 1998). Innovation orientation promotes risk taking and increases the likelihood of designing and developing entirely new and innovative products (Olson et al. 2005). Innovation orientation is a way of thinking and pioneering that makes the organization long-term and innovative (Siguaw et al. 2006). Innovation offers significant advantages to organizations such as maintaining or increasing market share, performing better than its competitors (Lisboa et al. 2011, Wendra et al. 2019). The imbalance in customers' preferences and expectations significantly limits an organization's ability to satisfy existing products by making small changes or even increasing innovations (Zhou et al. 2005). On the other hand, demand uncertainty requires the adoption of more radical innovations that will meet the needs of changing customers and strengthen the competitive position of the organization in the market. Organizations can develop a competitive advantage by exhibiting innovative behavior (Hurley and Hult 1998). Some researchers see innovation as the best way for an organization to gain a competitive edge and renew its competitive advantage (Olarrieta and Friedmann 2008).

Innovative organizations can perform better than their competitors by effectively replacing existing products or offering new products to the market that benefit customers (Deshpandé et al. 1993, Szymańska et al. 2017). These organizations, in an intensely competitive environment of innovation, can deter organizations from investing in innovation, but at the same time, they can decide to imitate competitors' innovations to reduce costs (Olarrieta and Friedmann 2008, Zhou et al. 2005). In a broad sense, the definition of innovation includes not only product or service innovations but also innovations in production and technologies and administrative processes that can contribute to significant cost reduction and operational efficiency (Gatignon and Xuereb 1997, Han et al. 1998). Siguaw et al. (2006) argue that the long-term success of an organization can be based on a innovation orientation at the general firm level, which produces innovations and less specific endeavors. There is a culture of innovation that encourages new ideas in organizations that operate in competitive markets (Hurley and Hult 1998). Innovation orientation has been providing innovative behavior to improve quality and significant benefits over many years. In addition to the values offered to customers, it is aimed at increasing the efficiency of value chain activities. Particularly in the research, the reason for analyzing the intervening variable effect of the innovation orientation variable as an interim variable is the intensive realization of innovation activities in the

production sector, and therefore the effects of both organizational culture and creativity and process management. In the context, the following hypothesis was developed:

H1: There is a positive relationship between open leadership and innovation orientation.

## 1.3. Employee creativity

The creativity of employees is a phenomenon at the individual level and defines the production of new and organizationally valuable ideas (Amabile 1995). The climate of the organization is defined as one of the most dominant predictors of employee creativity (Mumford et al. 2002). In a supportive organizational climate, it is an inseparable feature that can help employees pursue creativity and use their creative potential (Williams and Foti 2011). Supportive innovation of an organization can positively affect an employee's creative and innovative behavior (Jung et al. 2003). Černe et al. (2013) stated that promoting innovation plays an important mediating role in promoting creativity among individuals. Thus, individuals who value innovation and work with an approach that tolerates errors exhibit higher levels of creative behavior. Wang et al. (2013) stated that employees' creativity has improved significantly in organizations with high innovation climate. To get support from their organizations, employees can develop and adopt the behaviors expected by the innovation climate (Dragoni 2005). Therefore, it is rational to suggest that the climate of innovation of the organization has a positive relationship with the creativity of the employees. Creativity is expressed as the production of new and useful ideas in any subject (Amabile 1983); According to another definition, creativity is the discovery, combination and production of new ideas from existing ideas (Higgins and Morgan 2000). Barker defines creativity as the ability to create new ideas and an activity that brings innovation (Barker 2002). Levitt's creativity, according to most people, is very important and describes the original ideas as throwing (Levitt 2002). According to Toffler, in order for innovation to occur, firstly there must be a creative and applicable idea, the application of this idea and the application of the applied thought must be expanded (Toffler 1981). Boden recognizes creativity as creating new, illuminating, useful and useful ideas (Boden 1990). We can define creativity from the definitions of creativity in the literature as producing new, original, useful and helpful ideas and methods in any subject. In creativity, not only is the idea produced new, but it should also be original, useful and helpful. It is stated that the individual is the most important source of creativity (Redmond et al. 1993). Although creativity is thought to be an innate trait, inspiring and uncontrollable power, it is an idea production that can be acquired and processes. Rawlinson explains that in every human being, there is creativity, but in some individuals, external factors and creative abilities

are forced to be covered by another set of skills (Rawlinson 1995). In the research, the effects of the organizations on the creativity activities are examined with the adoption of both the leadership styles and the leadership style of the organizations in the intense competition environment. In the context, the following hypothesis was developed:

H2: There is a positive relationship between open leadership and employee creativity.

H5: There is a positive relationship between innovation orientation and employee creativity.

H8: In the relationship between open leadership and employee creativity, the innovation orientation intervening variable has a positive effect.

#### 1.4. Organizational culture

Organizational culture is described as the ultimate effect of individuals on conscious and subconscious thought and decision making, as well as the ultimate effect of improving and maintaining organizational performance (Lok and Crawford 2003). Camic (1986) argues that not only the employees but also their managers involved, on the one hand, consciousness or reflection, on the other hand, the cultural culture is adopted within the organization and the organizational culture. Essentially, organizational culture is the common awareness of colleagues with common assumptions, values, beliefs and norms (Schein 1985). Lai and Lee (2007) explain that organizational culture consists of an understanding of evolving shared interpretations and organizational events. Schein (2004) explains that organizational culture, beliefs, and values are shared by internal stakeholders, and that employees are formed by the adoption of facts such as language, story, ceremony. Organizational culture includes values, philosophy and missions, but also reflects employees' actions and perspectives (McDermott and O'Dell 2001). Organizational culture is considered to be a critical factor that strongly influences employees' knowledge sharing behavior in the organization (Lee et al. 2016). Organizational culture is seen as an effective "glue" that brings together the organizational members by providing the cultural characteristics of consistency and consistency. Within the concept of organizational culture, it may be possible for the employees to have a different understanding of authority in high standards, regular, cautious and systematic ways of working (Chen et al. 2012). Because if there is an authoritarian understanding of leadership in the sense of leadership, employees can perform a lower performance, and employees in such an organizational culture may be deprived of autonomy and independence. In contrast, the autonomy given to employees when organizational culture is governed by a non-authoritarian leadership style is often seen as an important component of psychological well-being for employees, as noted by Ryff and Keyes (1995) and Ryff and Singer (2008).

Jung (1933), emphasizing the importance of organizational culture, emphasizes the importance of autonomy, that is, the importance of "individualization" in the adoption of the organizational culture of employees. Wallach (1983) and Yiing and Ahmad (2009) state that organizational culture must have a creative, challenging, result-oriented and risky working environment to adopt an innovative culture. Members of the organization involved in an innovative culture are more creative and free; therefore, they are more likely to be useful to the organization (Chen et al. 2012, Koberg and Chusmir 1987). Organizational culture also has the property of encouraging employees not only to carry out designated tasks, but also to continuously improve their potential (Ryff and Singer 2008). For this reason, it is aimed to examine and analyze the effects of open leadership style and innovation phenomenon on the culture of the organization. In the context, the following hypothesis was developed:

H4: There is a positive relationship between open leadership and organisational culture.

H6: There is a positive relationship between innovation orientation and organisational culture.

H9: Innovation orientation has a mediation variable effect on the relationship between open leadership and organisational culture.

#### 1.5. Process management

One of the most important stages in the organizations in the production sector is that they can have continuous improvement competence. They have a dynamic structure in the competitive environment in organizations that are in continuous improvement. Organizations need to be able to manage this process very well in order to be successful in process improvement. Organizations primarily focus on processes and stages as a basis for current work on new product development and creativity (Kindström and Kowalkowski 2009). In the new product development and creativity stages, the organization should give importance to the feedback from customers (Carbonell et al. 2009, Lundkvist and Yakhlef 2004), and at the same time the most important factors in new product development and creativity are profitability, market share and cost management. Because of these factors, the organization can allocate resources to R & D, that is, new product development process (Chen et al. 2009, Melton and Hartline 2010). Process management in manufacturing companies is very different from the process development in service companies. While organizations tend to rely on R & D departments in process management, they also acknowledge that their success is related to employee skills in the R & D department (Nijssen et al. 2006). It is suggested that the skills of the employees are an important source for the organizations to achieve competitive advantage and to be

competitive (Colbert 2004). This applies not only to managers and employees, but also to employees in the operational process in production departments. The role of employees is becoming more important as they have to deal with more complex tasks such as developing specialized products and improving product processes. By undertaking such complex tasks, employees are enabled to be more competent in improving process management performance with the changing needs of customers and developing new product processes (Johnson et al. 2000, Ordanini and Parasuraman 2010). In addition, this understanding provides employees with insights into the need to overcome challenging tasks, such as understanding customer needs, analyzing product problems, developing new product processes, and learning new skills while engaging employees in process management activities. When the literature on the performance of employees regarding the effective implementation of these challenging tasks is examined, process management shows that employees can be highly relevant in terms of being creative, seeking innovation and excellence in their tasks, and dynamically performing well (Baer and Oldham 2006). In the research, the effects of both leadership style and innovation orientation concept on process management are analyzed because of the product development activities of the production companies. In the context, the following hypothesis was developed:

H3: There is a positive relationship between open leadership and process management.

H7: There is a positive relationship between innovation orientation and process management.

H10: Innovation orientation has a mediation variable effect on the relationship between open leadership and process management.

## 2. Methodology

Within the scope of the study, a survey was conducted with 418 engineers working in production companies. In the analysis, IBM SPSS 25 program, LISREL program and SOBEL calculation tool were used progressively, the data were evaluated and presented in demographic information. Factor analysis and reliability analysis were performed on questions using Likert scale. Correlation analysis was used to examine the relationships between variables, regression analysis was used to test of hypotheses. In the first part of the two-part questionnaire questions, questions about the participants' demographic information and work are included, The second part of the survey consists of scales related to Open Leadership, Innovation Orientation, Employee creativity, Organizational culture and Process Management.

The survey questions consists of questions represent 5 variables. In the first part of the questionnaire, the demographic information of the individuals and the information related to the work are given. In the second part of

the questionnaire, there are questions representing 5 variables. In the literature studies for the Open Leadership scale, important studies referenced in many studies have been considered; it was included in the analysis after conducting factor and reliability analysis using the 5-point Likert scale used in the study conducted by Polat and Arabacı in 2014/2015. The scale developed by Pelham and Wilson (1996) and Hurley and Hult (1998) was used to measure the Innovation Orientation in the sample population. For Employee creativity, Tierney et al. (1999), Tierney and Farmer (2002), Muñoz-Doyague et al. (2008), Gong et al. (2009), Richter et al. (2012), Tierney and Farmer (2011) scales were searched. In measuring organizational culture, the scales used and developed by Wallach (1983), Dension and Neale (1996), Sarros et al. (2005), Cameron and Quinn (2011), Jung et al. (2009) were used. In our scale that Process Management is evaluated, scales used and developed by Choo et al in 2007, Peng et al in 2008, and in Yang et al. in 2016 were used.

### 2.1. Research aim

In this study, it is aimed to determine the effects of open Leadership's Innovation Orientation intervening variable Effect on Employee creativity, Organisational culture and Process Management on engineers working in production sector. The selection of the production sector is due to the fact that product innovation activities take place within this sector. The reason why white-collar engineers are selected is because of their role in both product innovation and creativity and process management. Therefore, the aim of our research is to evaluate and analyze production firms in terms of both leadership and innovation and organizational culture, creativity and process management. To test the propositions, a field survey was conducted using the survey.

### 2.3. Findings

Our questionnaire was applied on 126 firms. 418 engineers working in these companies participated in the survey. 348 of the participants were male and 70 of them were female. 36.7% of the participants were between the ages of 17–27 and 49.7% of them were between the ages of 28–40. The number of participants over the age of 41 is 13.1%. 83.9% of the employees who answered the questionnaire were university graduates, 15% of them have master's degree and 1.1% have PhD degree. The level of achievement of the goals of the employees stated by 36 participants as "Too Low", 58 of them as "Low", 147 of them "Medium" 132 of them "High" 45 of them "Very High".

### 2.4. Research framework

Based on literature search, a research model as Independent Variables; Open Leadership, Intervening

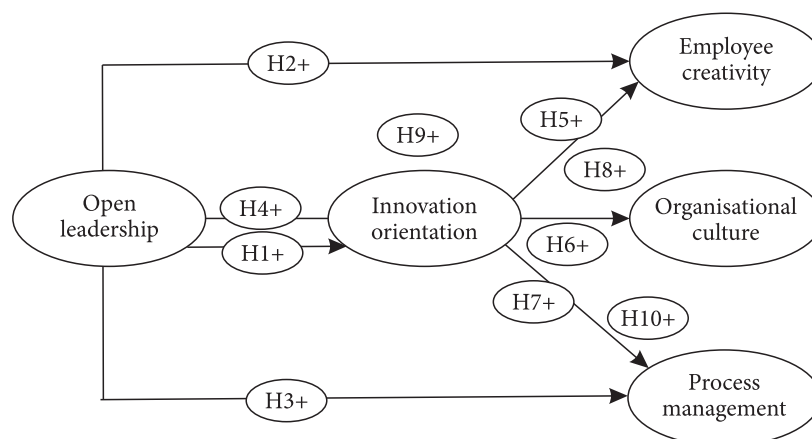


Figure 1. Research model

Variable; Innovation Orientation, Dependent Variables; Employee Creativity, Organizational Culture and Process Management was applied. In the study, a quantitative approach was adopted because the data were analyzed in order to determine the relationship between the statistical concepts. In a quantitative research test, we use the independent or dependent variable to judge the effect on the dependent variable (Thomas et al. 2015). The research model is presented in Figure 1.

### 3. Analysis

Factor analysis was performed to investigate the construct validity of the scale used in the study. Büyüköztürk (2014) defines factor analysis as a multivariate statistical method which aims to explore a few unrelated conceptually significant new variables (factors, dimensions) by combining the variables related to each other. In order to determine whether the data obtained from pretreatment were suitable for factor analysis, the Kaiser-Meyer Olkin (KMO) sample suitability test and Bartlett's sphericity test were performed to evaluate the diagonal values of the anti-image correlation matrix. In this study, it is examined whether the model given by using confirmatory modeling strategy is supported. For this purpose, a preliminary test of 103 units was performed. In this scale, it is determined how much the structure and the number of the questions will be. Questions that are likely to be misunderstood have still been introduced. The questionnaire presented in the pre-test phase has 43 variables. 11 pre-test results have been excluded from the scale, which do not produce the appropriate factor loads, are misunderstood or most likely misunderstood, with a total of 32 expressions obtained, a structure supported by 5-factor literature has been reached. The scale was applied to 424 personnel working in different enterprises for the model and model scales supported by the literature. As a result of the study, it was seen that some of the surveys were misunderstood and lowered the scale reliability value

and 6 surveys were excluded from the study. For the 418 questionnaires, the hypothesis in the research model will be tested. Factors under each factor, the factor loads obtained by the factor analysis of SPSS, Factor Numbers and the standardized values calculated by the LISREL program and the T values calculated by LISREL are presented in Table 1.

Table 1 contains the number 1 expressions Open Leadership (OL), number 2 expressions Organization Culture (OC), number 3 expressions Employee Creativity (EC), statement 4 Innovation Orientation (IO) and number 5 expressions Process Management (PM). Factor load values, standardized LISREL results, t-test results of the observed variables and p-value values showing whether this test result is significant that are created for five different factor by statements are presented in Table 1. According to these results, the analysis results of all observed values are significant (all p-value values <0.01). KMO and Bartlett's Test results are shown in Table 2 for factor analysis in SPSS 25 program. When Table 2 was examined, the KMO value indicating the suitability of the data for Factor analysis was found to be .953. KMO is higher than 90 is interpreted as "perfect" result (Tavşancıl 2002). While this value shows that the data is appropriate for the analysis, the sig value at the Bartlett's Test is 000 (sig <0.05), which indicates that the data obtained for the factor analysis is Chi-Square is significant and the data comes from a multivariate normal distribution. When the Total Variance Explain table was analyzed in factor analysis, it was seen that a 5 factor structure explained 68% of the structure to be investigated.

The fit indices obtained from the models are given in Table 3. If the values in the table are examined, it can be seen that the model has good fit values for all goodness of fit values (Erkorkmaz et al. 2013, Jöreskog and Sörbom 1993, Kline 2015, MacCallum et al. 1996, Schermelleh-Engel et al. 2003, Tabachnick and Fidell 2007, Wheaton et al. 1977).

In the next part of the analysis, the relationship between the reliability analysis and the questions was revealed. In the literature, Nunnally (1978)'s Cronbach Alpha coefficient

Table 1. SPSS factor results and lisrel results

Items	E.N.	F. Scores	S. Scores	T Scores	p-value
Twitter, facebook and other social networks are used by managers when it is necessary for in house communication.	1	.938	.71	20.78	.000
Employees are encouraged to develop leadership skills.	1	.916	.69	21.65	.000
Social networks such as twitter, facebook, etc. are used in order to be informed of internal information updates.	1	.832	.74	22.14	.000
The use of social technologies such as twitter, facebook, etc. within the institution is encouraged.	1	.806	.88	26.91	.000
Announcements on any subject are made using social networking technologies such as twitter, facebook, etc.	1	.797	.79	23.74	.000
Social networks are used to facilitate communication in the institution.	1	.770	.88	24.59	.000
Sufficient time is spent for the disclosure of managerial decisions to the employees of the institution.	1	.690	.84	22.25	.000
Employees who exhibit potential leadership behaviors are favorably supported.	1	.670	.83	24.18	.000
Employees feel comfortable sharing information.	1	.604	.86	23.23	.000
My organization monitors strictly established systems and operational procedures.	2	.884	.58	22.67	.000
Employees trust each other.	2	.866	.58	21.67	.000
Organizational hierarchy is quite strict.	2	.791	.59	21.22	.000
It always encourages employees for creativity.	2	.766	.57	19.17	.000
The failure of the institution is seen as an opportunity for development.	2	.756	.62	23.32	.000
The interaction between members in my institution is very important.	2	.756	.62	23.03	.000
The institution I work for is seen as an opportunity for learning failure.	2	.724	.61	23.85	.000
The institution I work with encourages trial and error.	2	.627	.59	24.06	.000
Employees in the institution I work in likes challenging tasks.	2	.575	.46	14.43	.000
I am looking for ways to solve new ideas and problems in the institution where I work.	3	.888	.61	20.60	.000
In my institution, I produce new but executable business-related ideas.	3	.804	.67	27.05	.000
I am looking for new ways of doing business in my institution.	3	.787	.56	21.57	.000
I give importance to authenticity in my work.	3	.685	.62	22.23	.000
Innovation at my institution is easily accepted for program / project management.	4	.850	.54	14.07	.000
The organization I work for actively seeks innovative ideas.	4	.580	.55	20.00	.000
Employees at my institution are free to express their innovative ideas.	4	.572	.67	21.09	.000
The institution I work in emphasizes the need for innovation for development.	4	.502	.64	17.13	.000
Innovations based on research results are readily accepted in the institution I work with.	4	.484	.60	20.62	.000
Faulty products may find operational errors before they reach customers.	5	.828	.82	24.05	.000
In my institution, most of all transactions are under quality control.	5	.690	.61	15.89	.000
The institution I work with always meets different customer needs.	5	.633	.72	22.22	.000
The institution has the experience and knowledge required for today's problem solving.	5	.540	.72	22.72	.000
It has the ability to perform smoothly in an integrated manner on all production lines.	5	.537	.67	20.05	.000

Table 2. KMO and Bartlett's test results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.953
Bartlett's Test of Sphericity	Approx. Chi-Square	13967.194
	df	496
Sig.		.000

Table 3. Goodness fit index value and reference ranges

Goodness of Fit Statistics	Value	Reference Values
Chi-Square ()	2258.16	2<()/Df<5 good fit
Degrees of Freedom	454	
Root Mean Square Error of Approximation (RMSEA)	0.079	RMSEA<0.05 perfect fit RMSEA<0.08 good fit 0,08=<RMSEA<0.10 mediocre fit 0.10=>RMSEA poor fit
Root Mean Square Residual (RMR)	0.042	RMR<0.05
Normed Fit Index (NFI)	0.96	NFI>0.95 good fit
Non-Normed Fit Index	0.97	NNFI>0.95 good fit
Comparative Fit Index (CFI)	0.97	CFI>0.95 good fit
Relative Fit Index (RFI)	0.96	0<RFI<1 1'e Close to 1 better fit
Goodness of Fit Index (GFI)	0.87	GFI>0.85

Table 4. Reliability statistics

Factors	Number of Items	Cronbach Alfa (α) Values
Open Leadership (OL)	9	.940
Organization Culture (OC)	9	.917
Employee Creativity (EC)	4	.867
Innovation Orientation (IO)	5	.812
Process Management (PM)	5	.858

Table 5. The results of the hypotheses tested H1–H7

H	Independent Variables	Dependent Variables	Corr.	Std. β	Sig.	Adj. R Square	F Value	Reject/ Accept
H1	Open Leadership	Innovation Orientation	.551**	.551	.000	.303	268.625	Accept
H2	Open Leadership	Employee Creativity	.471**	.471	.000	.220	175.440	Accept
H3	Open Leadership	Process Management	.709**	.709	.000	.502	623.748	Accept
H4	Open Leadership	Organisational Culture	.569**	.569	.000	.323	295.469	Accept
H5	Innovation Orientation	Employee Creativity	.606**	.606	.000	.367	358.058	Accept
H6	Innovation Orientation	Organisational Culture	.656**	.656	.000	.429	464.264	Accept
H7	Innovation Orientation	Process Management	.495**	.495	.000	.244	199.901	Accept

\*\* Correlation is significant at the 0.01 level (2-tailed).

of 0.50 and above measurements are considered to be sufficient (Nunnally 1978, Büyüköztürk 2014). The reliability coefficients obtained for each factor are given in Table 4.

The correlation coefficient gives the degree of the relationship between the data (Landau 2004). The relationship between the factors themselves is calculated in Table 5. Once the suitability of the data is determined, the testing of the hypotheses will proceed. The results of the hypotheses tested H1–H7 hypotheses below are presented in Table 5.

According to Table 5, the values with double stars next to them have a significant correlation with 1% significance level. Thus, there is a significant correlation between all factors. R Square values showing how much the argument changes the dependent variable and Sig values calculated for F Value values indicating whether the model is meaningful as a whole are given in Table 5. According to the results, all hypotheses were accepted since all sig values were less than 0.01. There is a relationship between the given variables. These relationships have also been shown to be correlated with the correlation coefficients.

To test the H8–H10 hypothesis, Sobel test was used to measure the inter-variable effect by multiple regression analysis. The obtained values are given in Table 6.

When examined, it can be seen that all sig values are smaller than 0.01. This value indicates that multiple regression equations are significant and can be used for prediction purposes. Intervening variable effects were calculated by Sobel test. Sobel Calculator was used for this test. Firstly, the regression coefficient values between the independent variable and the intermediate variable were determined, and multiple regression was performed for the effect value of the independent and intervening variables on the dependent variable. Thus, a, b, Sa and Sb values to be used in the calculation of Sobel Test were found.

Sobel test equation

$$z\text{-value} = a \times b / \text{SQRT}(b^2 \times sa^2 + a^2 \times sb^2)$$

Calculations have shown that the H8–H9 and H10 hypotheses were accepted. In other words, the Innovation Orientation variable has an intervening variable effect for all hypotheses.



Table 6. Results of multiple regression and mediation effect analysis

H	Indepen. Variables	Depen. Variables	Std. $\beta$	Sig.	Adj. R Square	F Value	Sobel Test Stat.	Sobel P-Value	Reject/ Accept
H8	Open Leadership	Employee Creativity	.498	.000	.392	200.293	10.23***	.000	Accept
	Innovation Orientation		.196	.000					
H9	Open Leadership	Org. Culture	.491	.000	.490	297.770	10.82***	.000	Accept
	Innovation Orientation		.299	.000					
H10	Open Leadership	Process Management	.150	.000	.517	331.383	4.34***	.000	Accept
	Innovation Orientation		.627	.000					

#### 4. Discussion

Human capital plays a major role in achieving success in today's rapidly changing business environment. Considering the development of management science, the importance given to human beings is clearly seen (Palmer and Winters 1993). In order to be successful and achieve a competitive advantage, organizations have attempted to pioneer innovations by effectively using their most valuable assets, human resources. The way to renew the organizations is through the creativity capacity of employees (Budak 1998). Organizational management plays an important role in the discovery or exploration of creativity activities. This important support can be seen in open leadership. Innovative activities can be carried out successfully thanks to open leadership and employees can reflect their ideas and creativity to creativity (Reiter-Palmon and Illies 2004). Creativity is a key element for employees to develop ideas and methods and helps in the development of the organization. In today's business world where competition is accelerated, resource scarcity is significant, and workforce and equipment costs are continuously increasing, every creative action that creates more efficient and efficient business methods plays a very effective role in maintaining the existence and success of the organization (Simsek et al. 1998). Drucker defined creativity as a creative worker of the 21st century, who stated that creativity is related to the individual's internal structure and values, but that social, cultural and environmental conditions support or prevent creativity (Drucker 2000). Woodman et al. (1993) described creativity on the individual level as a functioning of personality, talents, cognitive style, knowledge, intrinsic motivation, social and environmental impacts. Naturally, it is concluded that the results obtained from the research have positive results when it comes to the leadership style of the employees in the organizational culture. A supportive culture consists of trust, interactions, cooperation, incentives and equality

among members of the organization; this results in a more friendly organization (Yiing and Ahmad 2009). Chen et al. (2012) also indicate that a supportive culture will provide a harmonious environment in which members can work with other colleagues. This emphasizes the importance of organizational culture. Together with the speed of change in technology, the increasing competition every day forces organizations to develop new products in a dynamic structure and this reveals the importance of long-term impact on performance. One of the pioneering leadership styles to discover this speed of change is open leaders. In open leadership approach, environmental impacts are taken into consideration and paths are determined. Therefore, organizations perform better with an innovative approach. The success of many organizations is achieved by focusing on activities to deliver innovative products to the market. In order to survive in an intense competitive environment, organizations must be innovative in achieving and maintaining competitive power (Calantone et al. 2002). When the literature researches, the concept of innovation; a new perspective, development and presentation of a new product in production, is expressed as the acquisition of a new perspective (Gupta et al. 2007, Anderson et al. 2014). As a result of the analysis of the data collected from various companies in the production sector, it was seen that innovation-oriented companies were successful in their creativity activities and performances. In this success, we can explain the effect of the open leader who manages the production companies with an open system understanding. Because they analyze the developments taking place around the organization and reflect these analyzes to their organizations in a useful way. With the innovation focus, organizations develop products that can be successful in the market and that can meet customer demands and needs and increase the profits of enterprises (Rahman et al. 2016). Innovative organizations improve the management and production

processes, leading to lower costs and increased productivity (Vazquez et al. 2001). The impact of innovation orientation on new product success performance is also reflected in the developments in financial performance measures such as the return on investments, increase in market share, increase in sales, and increase in profits. It is stated that continuous improvement efforts are in the activities aiming to gradually increase the operational performance (Anand et al. 2009). Research results show that, Leadership style and innovation orientation, organizations must have the name to be successful properties. This success is positively reflected on both employee creativity and organizational culture and process management.

### Conclusions

As a result of the analysis of the surveys obtained from the firms in the manufacturing sector, one of the important leadership styles that the organization must have in order to be successful in the creative activities and process management of organizations is the open leadership role. Open leaders are leaders who can make all kinds of comments about the activities carried out. However, employees should also be aware that they will be responsible for the consequences of abuse of this right to comment. Therefore, in order to put forward successful products as a result of the innovation activities and to prevent the competitors in a competitive environment, employees must use the opportunity given to them by the open leadership in order to be able to implement their ideas and ideas freely. Open leaders are the style of leadership that provides the development of a sense of trust within the organization, and recognizes the importance of supporting this with continuous sharing, and gives an accountability philosophy. It should maintain a leadership path with the virtue of forgiving failures as necessary by supporting all kinds of curiosity and modesty (Polat and Arabacı 2014). Employees participate in an organizational culture that can share their thoughts with confidence thanks to this leadership style. Innovation orientation has been providing innovative behavior to improve quality and significant benefits over many years. Particularly in the research, the result of the innovation orientation variable was found to be both organizational culture and creativity and process management. It is an inevitable fact that the organizations in the production sector have innovation orientation. Looking at the practices of successful companies, doing what they do does not always give the right results. Even if a company achieves consistently successful results for ten or fifteen years, it is not a guarantee that it will survive next year. Management professors Hamel and Prahalad (2017) reminds us that companies must rethink how they will succeed in the face of ruthless competition and dizzying change. Today, there is a lot of evidence that

the old-fashioned management model is no longer working: Over the last 20 years, most companies have undergone numerous restructuring. Few of them succeeded. Hamel (2012) says that these interim measures no longer work, that companies need Management Renaissance rather than reorganization. Innovation and freedom ideology lies at the heart of the management renaissance. It is the leadership style that nurtures the ideology of freedom. The results of the research show that the importance of leadership and innovation emerges. If it is thought that it is away from innovation, this will blunt the organization's ability to compete. This situation has been seen in technology-oriented organizations in the past years. For example, the reason why Nokia and Sony companies fell back against their rivals is because they understand the concept of innovation late and they move away from the competition as a result of this delay. We can define creativity from the definitions of creativity in the literature as producing new, original, useful and helpful ideas and methods in any subject. Redmond et al. (1993) stated that the individual is the most important source of creativity. The performances of the organizations where creativity activities are intense are constantly developing in a positive way. The basis of creative activities is the management's support to create new and original ideas for employees (DiLiello and Houghton 2006). With the support of management, the creative activities of the employees are progressing positively (West 2002). The results of the research support the literature, both open leadership and innovation orientation can be explained that positively affect the creativity activities of employees. If organizations want to support employees' creativity activities, they should be focused on innovation (Gupta and Banerjee 2016). On the basis of continuous product innovation, creativity lies. Members of the organization involved in an innovative culture are more creative and free; therefore, they are more likely to be entrepreneurs (Chen et al. 2012). In addition, this insight provides insights into the need to overcome challenging tasks such as understanding customer needs, analyzing product problems, developing new product processes and learning new skills while participating in process management activities. With regard to the effective implementation of these challenging tasks, the literature on employee performance suggests that the creativity of employees can be highly relevant, with the creative workers seeking innovation and excellence in their tasks and tend to perform dynamically well (Baer and Oldham 2006).

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