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AN ANALYSIS OF THE RELATIONSHIP BETWEEN THE ELEMENTS ENCOURAGING INNOVATION AND INNOVATION PERFORMANCE FOR SMES

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ABSTRACT

A holistic approach and innovative point of view are needed for getting integrated into global markets and initiating a structure of global norms; and also for developing goods and services appropriate for the needs of specific markets thus gaining a share of world trade. Making use of the potential opportunities emerging due to the reflections of the rapid changes and preventing potential threats resulting in the sustainability of the enterprise are of the primary objectives. Analyzing the studies on innovation management aimed at these primary objectives proves that the technological aspect and human factor play a leading role in innovation management. Moreover, as for the evaluations concerning integration of innovation management with other disciplines, technological sources and information management are apparently the most influential ones. In addition, technology used by the organization, leadership, team management, carrier management and productivity culture can also be analyzed under the innovative structure. In this study, the elements encouraging innovation will be discussed; furthermore, it is intended to establish an integrated aspect of technology and human in innovation management making use of the modeling designed to determine the innovation performance. These elements seem to be important factors of organizational structure. Technology management and human factor, which constitute two fundamental factors of innovation management, will be discussed under two different titles and their relationship with innovation management and with each other will be analyzed in detail. This study will be performed as a field study.

JEL CLASSIFICATION & KEYWORDS

■ M10 ■ Innovativeness ■ Innovation Performance ■ Elements encouraging innovation ■ SMEs

INTRODUCTION

In today's rapidly changing business world, globalization and global competition have a significant influence on revealing the differences between organizations. It is observed that recent rapid changes in technology have caused important changes in organization models and understanding of management. In this process, organizational creativity, which constitutes the essence of organizational innovation, plays a key role in the success of organizations within the world of competition. As a result of globalization created by information and communication, economic relations have increased worldwide; however, ideological differences decreased and a period of liberalization was initiated (Çavuş and Akgemici, 2008:229). In Turkey, the studies on the innovation activities in Small and Medium Sized Enterprises (SMEs) determined that the directors of these enterprises think that innovation activities are more costly for the small and medium sized enterprises and they are more suitable for the large-scaled enterprises. However, the innovative enterprises in the USA and EU countries are mostly the SMEs. In other words, the SMEs have been more successful than large businesses in producing new goods and services or developing and diversifying the existing goods and services and supplying them in different markets. The innovation activities are beneficial for SMEs to increase their competitive power in market, gain originality in their field, acquire a different character and thereby grow. The European Union requires some regional researches for evaluation of innovation activities in SMEs from the member countries within the Oslo guide. The first regional research in this field was performed in Mersin in Turkey (Şahin, 2009: 266). SMEs are the organizations operating with limited resources, focusing on the market place and having a limited number of customers. The contribution of SMEs to the country economy results from their high flexibility in innovation compared to the large-scaled enterprises and their sensitivity in terms of customer demand. To make use of this innovation ability, the SMEs are supposed to benefit from information technologies as much as possible. Thanks to information technologies, the SMEs are more skilled in taking part in the international markets (Aslan and Özata, 2007:15-16).

Innovation management

Innovation capability is increasingly described as one of the most significant factors in development and having a sustainable competition advantage. As a fundamental element, managing innovation process and building innovative organizations are harped on for the organization to stand (Humphreys, McAdam, Leckey, 2005:283). In his study on innovation method, Tang (1999) defined innovation as a synthesis of information as an integrated model consisting of six sub-fields. There is a mutual interaction between these fields. These six sub-fields of organizational innovation are as follows: development and application of projects; knowledge and skills of employees; employee behavior and integrating them; information level and sharing within the organization; counseling and support services for employees; and external environment. Organizations have the open system characteristic as they evaluate the external information (Tang,1999:41). Evaluation of the studies on innovation management reveals that the technological aspect and human factor are perceived as important factors on innovation. Technological resources and information management are always included in the evaluations of integrating innovation management with different fields. Moreover, the technology used by the organization, leadership, team management, carrier management and productivity culture are analyzed in this respect. In literature, the close relationship between technology and R&D with the organizational structure and culture is usually underlined in the case of innovation management. (Prajogo and Ahmed, 2006:499-500).

The ınnovation literature can be categorized into four different approaches as individual-oriented, structure-oriented, interactive-oriented and systems of innovation–oriented (Johannessen, Olsen, Lumpkin, 2001:21). In line with the aim of the researcher, the main factors of innovation management are mentioned below.

Technology factor in innovation management

Innovation has been analyzed in connection with technology, trade, social systems and economic development (Bigliardi and Dormino, 2009:23). Rycroft and Kash (1999) claim that innovation requires an evolution process of technology and culture. Technology is seen as

an important factor on innovation and a source of competition advantage and new product development. Small and Medium-sized enterprises have difficulties in this field because of the lack of sources (Humphreys, McAdam, Leckey, 2005:285). Technologies especially come in to prominence as a powerful facilitating element of market innovation in individual and enterprise markets of information technologies. As an example, today, many banks make basic product characteristics more flexible as a competition means for individual banking in financial services (Johne, 1999:10). Technological change means an increase in contemporary knowledge needed for application of technology as well as the changes of the material and social phenomena concerning production. In other words, technological change includes all the aspects, such as developing new production techniques and designs for existing products, re-organization in accordance with the products developed, marketing and management techniques (Barutçugil, 1991:2). Innovations to be applied by organizations depend on technological opportunities. Technological opportunities depend on the capacity of the technology internalized by organizations to some extent. The capacity of internalizing the technology is related to the basic effect of new technology applied on innovation and human resources. The capacity of internalization is especially important for organizational learning. It begins with the organization's eagerness to internalize the external technological information and ends with regeneration of the existing information within the organization through comparison with other information together with the organizational learning. Therefore, the capacity of the organization to internalize the existing technology affects its ability to turn technological opportunities into innovation. So the enterprises can combine the accumulation of information that they gather about critical subjects with their capacity to internalize technology to some extent and make use of the advantages created by the sum of the technological opportunities (García-Morales; Ruiz-Moreno, Llorens-Montes, 2007:531-532).

Innovation changes by the perception of market or someone using it. Innovations are divided into two groups as radical (revolutionary/progressive) and gradual (evolutionary/progressive). While the radical innovations include totally new production categories or systems of production and delivery, gradual innovations include improvement, development and adaption of existing goods and services or systems of production and delivery. Radical innovation means development or invention of basic goods and services and processes causing dramatic change in an industry or creates a brand new industry by itself. Radical innovations are usually realized outside the existing enterprises of industry although they are initiated by entrepreneur individuals or organizations. On the basis of radical innovations there is expansion and commercialization through presenting into the market of developments realized in laboratories under the supervision of science and engineering and deemed as invention, which are not based on the existing product and/or production-processing procedures in the market. (Güleş and Bülbül, 2004:131). Existence of a radical innovation necessitates two conditions. Firstly, this innovation or invention should bring about a brand new proposal of value that can change or influence the consuming habits of existing customers radically. Secondly, the business that invents this innovation suddenly causes the basic skills and assets of other businesses in the market to become meaningless and invalid. Considering these two features, automobile invented at the end of the 19th century, television invented in the 1940s and other inventions following them such as computers, mobile phones, and medical imaging systems can be listed as examples of radical innovations (Kırım, 2005: 53-54).

The entrepreneurs are responsible for producing goods and services appropriate for the market expectations using science and technology in production and processing management. Besides, the rate and density of innovativeness is determined by the tendencies of the individuals in terms of savings, investments, education and taking risks. It is also an absolute fact that the basic determiner of these tendencies is the government. Adequate R&D resources should be allocated to the advanced technology fields such as informatics, telecommunication, biotechnology, aviation and nuclear energy, which are new technologies themselves. The countries allocating adequate resources to the advanced technology fields seem to be more innovative. USA and Japan, which are developed countries, can be given as examples (Özçer, 2005:99).

Today, it is obvious that the R&D laboratories and departments of the industrial businesses have been gaining importance as the resources of technological innovations and invention do. In the 19th century, the R&D activities were realized in an amateur manner and on an irregular basis. Today, on the other hand, the R&D activities are performed on a large scale, with scientific content and within occupational consensus. Most of the recent technological advances are reached in specialized laboratories or pilot plants by highly qualified full-time personnel. So the objective of the R&D strategies of today's enterprises should be making innovations and setting rules and methods concerning strategies and techniques that would maintain consistent, stable and beneficial growth (Barutçugil, 1991:12-33).

The success of the enterprises proven to be skillful in the sector is due to being able to sell their existing ideas, goods and services to larger groups of customers, rather than finding new ideas, goods and services. Instead of creating a brand new invention they prefer using their already existing skills and beginning mass production of a new idea of goods and services that have become popular in the market and start mass production of it; that is a good decision for the large-scale companies in the sector. Moreover, it is a well known fact that the one who starts the mass production of a new technology of goods and services and reaches large groups of consumers would be successful rather than the one who starts it in the sector. Herein, innovations should be turned into mass markets. This ability especially belongs to established large companies. At the same time, having looked into the history of innovations, it is proven that those who find new ideas and those who make money from them are different persons and companies. Besides, the data concerning innovativeness states that those who start radical innovations have not been able to use them in mass markets. But the opposite is also true; the possibility of initiating radical innovations is quite low for the enterprises turning innovations into mass markets. (Kırım, 2005: 61-62).

Human factor in innovation management

It is not a coincidence that successful businesses have competitive advantages in the market due to innovation and creativeness. These businesses make use of their human resources and direct them effectively in creating new goods and services for and marketing of them. The most important resource of innovative organizations is human beings. The more the employees of a business are encouraged for innovative productiveness the higher capacity is to realize

innovations for that business. The most important difference between the individuals producing new ideas is their motivation (Güleş and Bülbül, 2004:308).

The role of leaders in innovation

Creativity and innovation do not emerge in businesses spontaneously. To be successful in creativeness and innovativeness the organization should be managed with a decisive leadership. Innovations causing radical changes necessitate a disturbing, risky and costly learning and changing level for organization. Thus, the senior management in control of energy resources and power can deal with organizational inactivity. A creative and innovative organizational culture should be generated by managers (Prajogo and Ahmed; 2006: 501; Özçer, 2005: 99). Management processes of innovation and creativity constituting the core of innovation is a process covering dissident people, ideas and even discussions. Discussions are also important for problem solving and determining alternative opportunities. Therefore, if a company chooses its employees among people who are like each other it would create a staff having similar opinions, education, and interests. Such a selection would cause the company to lose different points of view for solving problems. So no creative discussion would take place and as no creative idea is produced, innovative activities would never take place (Leonard and Straus: 1999: 58-59). Management should teach the employees taking risks, learning from their mistakes and perceiving contradictions and disagreements as opportunities. The managers should not intervene with conflicts among the employees unless they become personalized and even may encourage them. Thus the managers will have improved the employees' ability to produce ideas and solve problems (Top, 2008: 355). Even though they do not agree, the leaders should be willing to understand their subordinates' and workers' needs and expectations and to communicate with them. It is a fact that innovative people are comparatively more intellectual and they need attention a lot. If each employee is treated in the same way within the organization, lack of energy and excitement against doing new things would emerge. Leaders should let the employees feel that they are trusted as much as possible and support and praise them and give them inspiration for innovation and creativity (Durna, 2002:180-184).

Benefiting positively from one's mistakes is very important for creativity and innovation management. As an example, we see in filming studios that even the most talented actors are applauded during the filming of a single scene. Most of these applauses are received when they make a mistake. They are not generally criticized even in such a situation. The director encourages and instructs the actors and actresses instead of criticizing them. However, only the actors and actresses, who understand and interpret this attitude of the director best, can become successful. These "mistake applauses" provide a unique possibility of learning and improvement to the actors and actresses. But the actors making the mistake should figure out what to change in the next "applause" and how to create the chance to receive the "correct applause". It is beneficial for the managers to apply these four activities when the employees cause mistake applauses (Bentley, 2006:81):

- Not to criticize the mistakes,
- to determine and explain to the employees what they do wrong,
- to instruct the employees about how to correct their mistakes.

Employees and culture in innovation

In order to direct the employees towards innovations, the applications affecting the spirit of entrepreneurship negatively within the organization and causing employees to avoid from entrepreneurship behavior should be abandoned at once. Therefore, it is necessary to avoid from the traditional management habits such as implying* standards and strict procedures as a precaution against mistakes within the organization, inflexible long term planning, avoiding from taking risks, evaluating new formations by the existing experiences and promoting the most harmonious personnel. After these obstacles are removed the employees can be directed towards innovations (Naktiyok and Kök, 2006: 81-82).

Companies should encourage their employees and managers for better performance with incentives such as extra wages, bonuses, shares and profit shares. None of these incentives is related to the success of the employees. They can be influential for a candidate to accept the job. However, after the candidate starts to work, these incentives do not contribute at all. Innovations cannot be realized or increased by external incentives. Because what causes the managers and the employees to work more eagerly is an internal incentive. On the other hand, if the external incentives are given as for the educational experiences and employees' profession, they can increase their motivation towards innovations (Johansson, 2007:170). As the employees are rewarded as for their performance, this reward should be given by the evaluation of their contribution to the performance of the business and results. In order to reward employees, a relationship should be established between the performance and reward and their abilities, attitudes, and behavior must also be included (Lau and Ngo, 2004: 689-690). In order to form new ideas, managers and employees from lower levels should also be included; this would increase the possibility of developing innovations. Moreover, creation of an encouraging atmosphere within the organization, supporting the managers and employees from the lower levels would facilitate formation of innovations. Besides, some innovative companies such as Hewlett Packard, Wang laboratories and Toyota always encourage their staff for innovation and they support new ideas even though they contradict with the traditional existing values of the company. Development of new ideas depends on the culture and procedures of an organization. Cultural features of an organization may support or increase development and application of creative ideas. If the organization's structure is strict and hierarchical, this would block free discussion of new ideas in the organization and disturb healthy flow of information and ideas among individuals and departments, which in turn cause inability to produce new ideas (Durna, 2002: 117-118). Transfer of authority has positive effects on the employees and subordinates. The subordinates and employees, who were transferred authority, will have the chance to gain experience and knowledge. Moreover, these employees will feel that they have become important members of the organization because of the transferred authority and they would improve their self-confidence (Eren, 1998: 193). According to recent studies, the obstacles such as long political procedures in which the internal entrepreneurs (employees) encounter when they want to reach company resources affect them negatively in terms of entrepreneurship. Extreme centralization, inflexible and long decision making mechanisms, highly bureaucratic structures make the process of entrepreneurship longer and more difficult. Because, too much of instruction of the employees about the innovations within the company affect the internal

entrepreneurs negatively. Herein, the importance of a high level of autonomy for the internal entrepreneurs and employees is underlined. Porter and Caves believe that the companies will reach a better financial performance due to the advantage that the internal entrepreneurs of the company would enjoy in reaching the company resources. According to them, the companies supporting the internal entrepreneurs would gain many advantages that affect the performance of the enterprises such as delivery system, sales power, brand image and trade mark (Ağca and Yörük, 2006: 167-168).

Information management in innovation

Within innovation process, information is evaluated after it is gathered as for the technical facilities of the organization and then this information is used for developing ideas that constitute the core of innovation and finally the innovation process is completed by turning these ideas into tools and methods of design and production (Eren, 1982: 29). Individuals and organizations have been aware of the role of information within the rising competitive environment since the beginning of 1980s. Organizations have given priority to developing and managing their information-based assets such as technological information and innovation. The increasing popularity of information-based management techniques and resource-based competition model among organizations prove the importance they give to this subject. For instance, the resource-based theory states that it is necessary to form and disperse organizational information due to decreasing resources and changing competition conditions. Because the resource based theory accepts that beneath the basic skills of company lies information and this basic skill differentiates the company from others and the other companies would not easily imitate these companies. In other words, in order to reach a competitive advantage, companies should be able to create their information assets, transfer them and make use of them (Güleş and Bülbül, 2004: 210). As a popular viewpoint in strategic management literature, resource-based theory of competitive advantage means that the companies can have a predominant performance, sustainable competitive advantage and resources and skills, which are unique, difficult to be imitated or temporary (Zhang, 2011:120). The focus of the contemporary definitions of information management is creation of value. Today, the companies, profit oriented or not, are not only organizations producing goods and/or services but they are also “value based” institutions. Products are the incarnate forms of values. “Creation of value” and “exchange” as the focus of all economic activities do not only mean physically creating values (production) and de facto exchange of the product, but also they imply information creation by using communication and computer technologies and performing innovations, which result in rising importance of direction of physical flows (raw material - production-selling) making use of this information. Today, “information” is the output creating most of the values (Koç, 2004: 426-427).

The information creating process within an organization begins with the information gathered from external resources or creation of new ideas within the organization. As an example of the external information; the factors such as customers, providers, technological advancement and economical developments can be listed. The internal information resources of an organization are those who have knowledge in some fields concerning the basic functions of the organization. In order to produce new information, distributing and sharing the information produced within the organization is very important. For production and distribution of internal and external information, the company should have a strong information infrastructure. Organizations are able to reach information rapidly and use them for innovations due to information technologies. Besides, it is necessary to establish a system for sharing the information produced by information technologies (Aslan and Özata, 2007:18). It is possible to produce new information only if the information produced within or around the organization is distributed within the organization. Preventing the units or individuals in the organization from reaching to this information would affect the process of producing new information in a negative way. What comes next is that the stage in which the recipients of information understand and interpret this information and they figure out its meaning. Last comes the stage where they use the information they acquired or produced to produce new information. If the employees within the organization are not given the right to use the information they have obtained, a full organizational learning cannot be achieved. Thus, the employees should be fully authorized both to produce and use the information. In order to achieve organizational learning, the employees would collectively learn and the activities in the processes would be organized with reference to each other (Yazıcı, 2001: 125-128).

Analysis of the relations between innovation performance, innovative technology and human factor

It is vital to be understood that various kinds of innovations are related to the old and future performance (Bowen, Rostami, Steel, 2010:1180). Organizational innovations increase organizational performance only under such circumstances. There is a positive correlation between different dimensions of organizational innovation (design, speed and flexibility of innovation) and organizational performance (García-Morales; Ruiz-Moreno, & Llorens-Montes, 2007: 536-558). Is innovation limited to developing new products or research and development of activities? Drucker (1998) defines innovation as “a new change in performance”. Concurrently, innovation according to Booz and Hamilton (1982) is related to introduction of a new product, adding a newly improved or revised product to the existing product line, reducing product costs or repositioning the existing goods in the market. Only introducing a new product, innovation is regarded on a radical basis while innovation is approached slowly in other cases (Malaviya and Wadha, 2005:2).

Innovation is classified by various criteria. Innovations related to the structure, product and management are the common ones (Bowen, Rostami, Steel, 2010:1180). Radicalness of the innovation and dual-core model of Damanpour (1991) is one of the broadest classification methods. According to this model, innovations are classified as the representative of an open innovation resulting from the applications, which increase or emerge when basic changes emerge in organization activities and they result in a low-level innovation. According to the dual-core model, there are differences between technical and managerial innovations. Technical innovations include new technologies, products and services. Managerial innovations include new processes, policies and organizations forms. (Valencia, 2010:467,468, Jimenez-Jimenez, Sanz-Valle, 2011:409). It is pointed out that only a small number of companies operating in construction sector has resources or stimulations to run an official R&D programme. This situation emphasized the importance of effective application processes that allows companies to adapt innovations developed in any place successfully. Absorbing capacity, championship, culture, coding information, agents of innovation and relations with producers are included in that context (Blayse and Manley, 2004:152).

Innovative capacity is the key to the success of a country. Thus, an index has been developed to measure innovative capacity of countries. The development level of a country is based on sustainable innovation. Innovative capacities of different countries were comparatively measured using the measured index. The power exerted by each of the speciality variables in this index on different fields has been measured. The elements of the mentioned index are as the follows; total number of R&D personnel, total R&D investments, percentage of R&D funds used by private sector and academic institutions, investment in higher education, openness in international trade and investments, and gross domestic product in a given country. In the regression analysis covering the innovations of seventeen OECD member countries between 1973 and 1995, a statistically significant correlation was discovered between these factors and the capital had been spent on purchasing international patent rights. International patent means acquiring a patent that is valid both at the home country and international markets. Being patented by a foreign country shows both openness and approval of foreign technology (Valery, 1999: 4).

There are some studies on the relations between organizational information gathering and innovative performance. In organizations, there are two types of information gathering processes that lead to innovation. The organization either acquires the information on its own or transfers it. The information coming from R&D is the most valuable one. Hence, the relationship between innovative performance and R&D expenditures are evaluated to shed light upon the correlation between information and innovative performance. In the literature, there are cases that differently estimate innovative performance based on innovative performance and the information transferred from an external institution or company. For instance, the company may purchase R&D from an external source or it may run joint R&D projects with other institutions or companies or transfer information from other sections in the same organization. In the literature, there are studies related to the relationship between innovation performance and information obtained from different sources (Frenz and Ietto-Gillies, 2009: 1126). It can be deduced that joint action, joint R&D studies and using information within the company are important factors (Frenz and Ietto-Gillies, 2009: 1133).

In the literature, there are researches studying the correlation between the sizes of technology companies and their innovation performance. Company size can be determined by the financial and technological resources owned by the company. It is an important factor for the company to determine potential innovations. That is why* larger companies may be active at all levels of innovation process. These activities are related to basic research, product development and selling the developed product. However, smaller technology companies position themselves by redeveloping those products previously researched and marketed either by larger companies or other institutions (Hall and Bagchi-Sen, 2002: 233).

Some studies on the relationship between innovation and performance have reached complicated results. Some studies report that the innovation has no effect on the firm performance or affects it negatively; whereas others point out that there is a positive effect (Rosenbuch, Brinckmann, Bausch, 2010).

Importance, aim, scope and method of study

Today, the success of enterprises depends on innovative structure. This structure determines the focus of the strategies to be applied by the company in the market. Hence, developing the innovative performance of enterprises, determining and developing the aspects encouraging innovation, remains an important issue. The present literature underlines that technology and R&D are closely related to the structure and culture of the organization in innovation management. This study will cover the elements encouraging innovation (EEI) and emphasize the integration of technological and human aspects in innovation management through the model developed for determining innovation performance (IP). The mentioned factors are important factors related to organizational structure. The present study has been carried out as a field study. Questionnaires have been used in the study for systematic data collection. The questionnaire is composed of three sections comprising variables related to the qualities of the business managers, variables related to the qualities of the enterprise and the elements encouraging innovation and variables related to innovation performance. The variable sets used in the questionnaire were prepared making use of the study by Prajogo, Ahmed (2006). The research was carried out in the companies operating in Bursa Chamber of Trade and Industry, Organised Industrial Zone. The data obtained from the field study were processed using multi-variable statistical methods SPSS 13.0 and MS Office Excel software. In the study, both descriptive statistical analysis methods including frequency, percentage and average and interpretative statistical methods for determining relations that include corelation and regression analyses were used.

Research hypotheses

First of all, specifications of the company and differences in their understanding of innovation are studied with regard to the aim of the study. The second phase is marked by a causality analysis for determining the factors affecting innovation performance and the relations between the factors and their relation to innovation performance and impact on it. The following hypotheses were raised and tested:

H1: The elements encouraging innovation display significant differences varying by company specifications

H2: There is a significant relationship between the elements encouraging innovation and innovation performance

H3: The elements encouraging innovation affect innovation performance

The scope and findings of the study

The field study was carried out on the companies operating at Bursa Chamber of Trade and Industry, Organised Industrial Zone. The contact information of the companies operating at Bursa Chamber of Trade and Industry, Organised Industrial Zone was taken from the website of the chamber. The scope of the study covers the list of companies obtained from the mentioned website. The companies included in the study were determined through the obtained addresses. 210 out of 230 companies received the questionnaires as a part of convenience sampling method. 83 questionnaires were returned and analysed. The return rate of the questionnaires was realized as 39,5%. The data obtained from the questionnaire method for determining the specifications of the company and the managers via descriptive statistical analysis methods comprising frequency, percentage and average and the data pertaining to interpretative statistical analyses including correlation and regression data are given below. The reliability of the scale used in the research was analysed using Cronbach's alfa (α) coefficient. Reliability analysis was applied to the entire scale. As a result of the analysis, the (α) value was

determined as 0,90 suggesting that the scale has a high reliability level.

Descriptive statistical analyses

Gender, education level, administrative position, and management experience of the participating managers and the number of employees, engagement in export trade, number of export countries, holding quality certificates and specifications in their fields of activity of the companies were studied within the scope of descriptive statistical analyses. The variable, "number of export countries", received responses from 32 companies with an average of 5,25. The number of export countries varies from 1 to 11. Some companies returned blank responses for this item. "Holding quality certificates" variable returned results including TSE, ISO:9000, ISO:9001, ISO:9002, ISO:13485, ISO:18001, oeco tex 100, nıszert, sedex bscı, control unıon cert., global com pact, sea8000 social accountability certificate, wrap certificate. Many companies participated in the study did not answer this variable. The frequencies, percentages and averages pertaining to other specifications are given below.

Table 1: Descriptive data pertaining to manager and company specifications

Gender	Fr.	%	Field of Activity	Fr.	%
Female	38	45,8	Mining Industry	2	2,4
Male	45	54,2	Food and Tobacco Industry	3	3,6
Level of Education			Textile and Apparel Industry	28	33,7
Secondary	1	1,2	Paper Products and Packaging Industry	5	6
High School	18	21,7	Chemicals, Petroleum Products, Tyres and Tyre Industry	6	7,2
College	13	15,7	Rock and Soil Based Production Industry	--	--
B.A/B.Sc.	45	54,2	Machinery and Metalware Industry	13	15,7
M.A/M.Sc./Ph.D.	6	7,2	Automotive Industry	9	10,8
Managerial Experience	Fr.	%	Electronic Tools and Gadgets Industry	--	--
1-5 Years	37	44,6	Forestry and Furniture Industry	--	--
6-10 Years	31	37,3	Information Technologies Industry	--	--
11-15 Years	10	12	Others	17	20,5
16- Years and above	5	6	Total	83	100
Exports Experience	Fr.	%	Number of Employees	Fr.	%
1-5 Years	22	26,5	1-50	46	55,4
6-10 Years	18	21,7	50-250	29	34,9
11-15 Years	3	3,6	250>	8	9,6
16- Years and above	3	3,6	Participation in Export	Fr.	%
Holding Quality Certificate(s)	Fr.	%	Yes	46	54,2
Yes	53	63,9	No	37	44,6
No	26	31,3			

Source: Author

The averages and standard deviation values pertaining to the factors encouraging innovation and innovation performance are given below.

It is observed that the factors encouraging innovation and innovation performance averages of the participating companies vary from 3,12 to 3,30. The variables with the highest average have been determined as "participation of employees" and "technological follow-up". However, all the mentioned variables have mid-level importance from an innovative structure perspective.

Table 2: Averages pertaining to EEI and IP

Variables	N	Min.	Max.	$\bar{x}$	sd
Support of Management	83	1,83	5	3,28	0,65
Participation of Emp.	83	2	4,56	3,3	0,54
Development and Learning	83	2	4,3	3,12	0,6
Technological Follow-up	83	2	4,86	3,39	0,56
Innovation Performance	83	1,89	4,44	3,31	0,64

Source: Author

Interpretative statistical analyses

At first, t-test and f-test were applied for analyzing differences. Then, correlation and regression analyses were carried out to determine the direction and level of the relationship between EEI and IP. Another t-test and f-test were carried out to determine the differences between EEI by the company specifications revealed through the field study. The findings are given below.

Table 3: Difference Analyses Based on Company Specifications

	Elements Encouraging Innovation (EEI)				
Number of Employees	**SM**	**PE**	**TF**	**DL**	**IP**
1-50	3,25	3,28	3,44	3,11	3,26
50-250	3,26	3,33	3,4	3,07	3,32
>250	3,47	3,31	3,1	3,33	3,6
F-value	0,425	0,083	1,379	0,616	0,951
P	0,656	0,921	0,258	0,543	0,391
Participation in Export					
Yes	3,41	3,45	3,46	3,19	3,38
No	3,17	3,12	3,32	3,02	3,21
t-value	2,045	2,802	1,12	1,256	1,293
p-value	0,44	0,06	0,267	0,213	0,2
Exports Experience					
1-5 Years	3,37	3,53	3,6	3,33	3,42
6-10 Years	3,39	3,31	3,36	3,06	3,28
11-15 Years	3,72	3,66	3,33	3,13	3,66
15> and above	3,61	3,62	3,61	3,36	3,81
F-value	0,35	0,891	0,717	0,776	736
p-value	0,789	0,454	0,548	0,514	0,536
Field of Activity					
Mining	2,66	3,44	2,92	3,05	3,27
Food	3,27	3,3	3,42	3	3,55
Textile	3,1	3,1	3,28	2,84	3,16
Paper	3,66	3,82	3,65	3,72	3,91
Chemicals	3,27	3	3,66	3,31	3,51
Machinery	3,34	3,51	3,49	3,23	3
Automotive	3,57	3,47	3,47	3,42	3,5
Others	3,31	3,46	3,33	3,07	3,41
F-value	1,115	1,971	0,793	2,39	1,721
p-value	0,363	0,07	0,596	0,029	0,117

Source: Author

Having analyzed the results of the t and f-tests, H_{1A} hypothesis has been refused as the p-values of all variables have been p>,05 after the one-way anova analysis for number of employees variable. There are not any significant differences among the EEI in view of number of employees.

Secondly, H_{1B} hypothesis has been refused as p>,05 after the free t-test concerning the discriminant analysis for participation in export trade. P has been <,05 only for "support of management" and "participation of employees" items and it has been observed that there are significant differences between exporting and non-exporting companies with regard to "support of management" and "participation of employees" items. It has been observed that "support of management" and "participation of employees" variables are different in exporting companies compared to non-exporting companies. Thirdly, one-way anova analysis concerning the export experience of companies has been carried out. As the F-values have been p>,05, the H_{1C} hypothesis has been refused and a one-way anova analysis has been carried out concerning the field of activity variable. As the F-values have p>,05, H_{1D} hypothesis has been refused. Only development and learning variable was significantly different at p<,05 level and this difference was observed at 'textile and apparel industry' and 'paper and packaging industry'.

Table 4: Correlation analysis concerning the relationships between the EEI and IP

Variables	r	SM	PE	DL	TF
SM	Pearson-Correlation				
H_{1A} (p>,01 REF.)	p (two-way)				
PE	Pearson-Correlation	0,348			
H_{1B} (p<,01 APPR.)	p (two-way)	0,001			
DL	Pearson-Correlation	0,318	0,604		
H_{1C} (p<,01 APPR.)	p (two-way)	0,003	0		
TF	Pearson-Correlation	0,309	0,476	0,547	
H_{1D} (p<,01 APPR.)	p (two-way)	0,004	0	0	
	Pearson-Correlation	0,167	0,528	0,469	0,51
IP	p (two-way)	0,13	,000*	,000*	,000*
*Two-way significance at N (83); p: ,01 level					
Source: Author					

It has been determined as a result of the correlation analysis that the EEI has positive and significant relationships with innovation performance and between themselves. The highest relationships between the variables are "participation of employees" and "development and learning" (r:0,604, p:0,000) variables. It might be asserted that human factor is important in innovative companies and when the employees are provided with necessary internal conditions, development and learning will positively take place. Positive and significant relationships are respectively observed between innovation performance and participation of employees (r:0,528, p:0,000), technological follow-up (r:0,510, p:0,000) and development and learning (r:0,469, p:0,000). No relationship has been observed between 'support of management' and 'innovation performance'. It has been observed that support of management was positively related to other variables. It is possible to enhance innovation performance through other factors realized with support of the management.

As a result of the regression analysis, the coefficients of the model have been found to be statistically significant (F: 11,891 p:0,000). A positive and mid-level relationship has been determined between EEI and IP at 0,615 level. Furthermore, the variables used in the model account for 38% (R^2:0,379) of the variance of the dependent variable.

Table 5: Analysis of the elements encouraging innovation and their effects on innovation performance

Variables	Beta Coef.	t	P	Hypotheses
Constant Coef.	-0,686	-1,592	0,115	
SM	-0,083	-0,871	0,386	H_{2A}: (p>,01 REF.)
PE	-0,395	2,885	0,005	H_{2B}: (p<,01 APPR.)
DL	-0,133	-1,027	0,308	H_{2C}: (p>01 REF.)
TF	-0,347	-2,794	0,007	H_{2D}: (p<,01 APPR.)
p:0,05, r: 0,615, R2: 0,379, F: 11,891 p:0,000				
Source: Author				

It has been determined that the independent variables, 'support of management' and 'development and learning', do not affect innovation performance (p>0,05). Participation of employees and technological follow-up are independent variables affecting innovation performance. Support of management represents a factor that protracts others and 'development and learning' rests upon participation of the employees. This point is important since it is influenced by technological and human aspects of innovation performance; thus, it has been also emphasized by other studies in the field.

Result

Innovation performance represents a core area that should be continuously improved within the organizational structures of companies since it contributes to both organizational success and nationwide success. Classification and individual analysis of the factors affecting the mentioned area bear basic and important roles in the architecture of success. The main aim of the field study thus emerges as analyzing the elements encouraging innovation in literature and their impacts on innovation performance. In this view, the results obtained from the questionnaire, which is based on the research carried out at Bursa Chamber of Trade and Industry (Organised Industrial Zone), similar to other studies in the field. Having evaluated the results, technological follow-up and human factor emerge as remarkable issues. It is obvious that human factor largely contributes to the innovative codes embedded within the organizational norms of innovative organizations. Therefore, the support of higher managers, encouraging innovation, and their incorporation into the organizational culture will constitute an important organizational factor in building the future. Innovative companies are the organizations composed of heterogenous groups and individuals, who are not criticized for their mistakes and learn from experiences. These organizations form the resources that are not easily forged by rival companies through constantly updating employees and the technology which enables them to efficiently use these resources to their maximum* for the success of the company. We would recommend the companies to classify and efficiently analyse the elements encouraging innovation in order to achieve a sustainable development and consistent profitability. Success will be constructed through developing competitive skills and strategies. An important milestone of this success will be constituted with the support of top managers in emphasizing the development of human and technological features.

This paper is a local research and decisive in developing innovation performances of the units, which have been studied. In this study, there are findings to determine the factors affecting innovation performance and these findings support the findings in the literature. The fact that small and medium-sized enterprises have limited resources and skills requires the necessity of giving importance to human factor and managerial properties. Having analyzed the findings of

this paper, it is suggested that developing innovation through the agency of building development and learning within the organization atmosphere in which the employees are participated should be given importance.

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