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The Effect of Intrapreneurship and Organizational Factors on the Innovation Performance in Hospital

Erhan EKINGEN¹, Mehmet Ali EKEMEN², Ahmet YILDIZ³, Fuat KORKMAZER⁴

Abstract

In the context of environmental uncertainty and competition, organizations are trying to find new ways to improve their performance. The development of novelties based on innovation, especially in the service sector, is the departure point for many organizations. Intrapreneurship and organizational structure are important factors for organizations to improve the innovation performance. In this study, it is aimed to investigate whether intrapreneurship and organizational factors influence the innovation performance. The data were collected from a hospital by means of intrapreneurship scale, organizational factors scale and innovation performance scale. According to the results of Structural Equation Model analysis, intrapreneurship has positive influences on innovation performance. Organizational factors directly and indirectly affect innovation performance. Moreover, intrapreneurship has mediation effect between organizational factors and innovation performance. Lastly, Intrapreneurship enhances the effect of organizational factors on innovation performance.

Keywords: intrapreneurship, innovation performance, organizational factors, hospital, human resources.

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Introduction

A rapid change in market conditions and uncertainty in environmental conditions forces organization to offer innovative products and services. Innovation in services and products provides on the one hand added extra values to an organization and economy, on the other hand to support the development of the sector. Entrepreneurship has always been a focus for both researchers and practitioners. This mysterious concept was sometimes seen as a savior for businesses and for countries as well. Entrepreneurship and innovation should be addressed at the organizational level and their process of development, and interaction between them at the organization should be examined. Which factors influence intrapreneurship, how intrapreneurship affect and what components it has become the subject of many academic studies. Intrapreneurship may be an antidote to the dinosaurs' syndrome reflecting the lack of inertia and stagnation faced by large organizations (Naktiyok & Bayrak Kok, 2006). Managers should benefit from it effectively in order to be their antidote for their fatal problems. Determining the factors affecting innovation and intrapreneurship at organizational level will shed light on the applications within the organizations. In this study, the interaction among entrepreneurship, innovation performance, and organizational factors will be analyzed at the organizational level.

Intrapreneurship

Intrapreneurship is defined as entrepreneurship in organizations (Antoncic & Hisrich, 2001). The term is not new but popular for almost three decades in academic and business area (Antoncic & Hisrich, 2001; Letsie, 2017; Menzel, 2008). Intrapreneurship is the marketing of new products or services that the firm has never marketed hitherto, it requires new materials, new human resources or new information (Sharma & Chrisman, 2007). Terms such as intrapreneuring (Pinchot, 1985), corporate entrepreneurship (Burgelman, 1983; Guth & Ginsberg, 1990; Jeffrey S. Hornsby, Naffziger, Kuratko, & Montagno, 1993; Stopford & Baden-Fuller, 1994), corporate venturing (Macmillan, Block, & Narasimha, 1986; Miles & Covin, 2002) and internal corporate entrepreneurship (Jones & Butler, 1992) have been used in order to describe the phenomenon of intrapreneurship (Antoncic & Hisrich, 2001). However, intrapreneurship can be seen as the most appropriate concept to characterize entrepreneurial activity within an existing organization (Christensen, 2004).

According to Thornberry (2001), intrapreneuring, first espoused by Pinchot (1985), is an attempt to take the mindset and behaviors that external entrepreneurs have, and inculcate these characteristics in their employees. The concept of intrapreneurship in the study (Antoncic, 2000) was seen in various forms. In these definitions, the concept is defined as "a process in which the individuals in the organization chase opportunities independently of the resources they control",

“doing new work to get opportunities and giving up old habits” and “the spirit of entrepreneurship in an existing organization”. As we see from these definitions, it can be understood that an existing organization creates or renews new organizations or innovations in the organization (Agca & Yoruk, 2015). Intrapreneurship has been described as an entrepreneurial action within an organization (Antoncic & Hisrich, 2003) focusing mainly on the establishment of new ventures. Kolchin and Hyclak (1987) have suggested that intrapreneurship had been narrowly defined as the development of new products or businesses, proposing that intrapreneurship can also be the introduction of a new process or the adaptation of an existing one. Antoncic and Hisrich (2003) have described intrapreneurship as a sub-field of entrepreneurship, consisting of innovative activities within an organization that creates new services and products strengthening the competitive position of the organization. Intrapreneurship often focuses on non-core business activities (Nielsen, Peters, & Hisrich, 1985) that serve to add extra values to organizations (Gapp & Fisher, 2007). According to the literature study, proactiveness, risk-taking, innovativeness, competitive aggressiveness, and autonomy have been studied as entrepreneurship variables at firm level (Wales, Gupta, & Mousa, 2013).

Menzel (2008) emphasizes that employees must have entrepreneurial potentials for intrapreneurship and at the same time, organizations and managers must have an understanding of supporting entrepreneurship within organizations. In general, when the definitions and relevant concepts in the literature are examined, intrapreneurship can be regarded as the creation of new possibilities and capabilities for both customers and employees, by using the facilities and capabilities of the organization. Intrapreneurship refers to a process that drives on within an existing company, regardless of its size, and leads not only to new business initiatives, but also to other innovative activities and orientations such as the development of new products, services, technologies, administrative techniques, strategies, and competitive positions (Antoncic & Hisrich, 2001).

How intrapreneurship can be measured and what its dimensions are discussed in the literature (Gapp & Fisher, 2007; Kayalar & Arslan, 2016; Larsson, 2010). The ENTRESALE (Khandwalla, 1977) and the corporate entrepreneurship scale (Zahra, 1991) were developed as two main measures of intrapreneurship but both lack validity for cross-national comparisons and do not link all four dimensions of intrapreneurship when used independently (Antoncic & Hisrich, 2001). Then Antoncic and Hisrich (2001) integrated these two scales in order for measuring intrapreneurship.

Based on the previous study, Antoncic (2000) determined that intrapreneurship has seven dimensions: new business venture, product/service innovation, process innovation, self-renewal, risk-taking, proactivity and competitive aggressiveness. In later work, Antoncic and Hisrich (2001) developed a scale with four dimensions: these are new business venturing, innovativeness, self-renewal and proactiveness. New business venturing occurs when “individuals and small teams form entrepreneurial groups having capacity of convincing others to change their

behavior, and influencing the creation of new resources inside an organization (Sharma & Chrisman, 2007). The innovativeness dimension refers to product and service innovation with an emphasis on development and innovation in technology (Antoncic & Hisrich, 2001). The self-renewal dimension is related to the transformation of organizations through the renewal of key ideas on which they are built (Guth & Ginsberg, 1990; Zahra, 1991). The final dimension, proactiveness, is associated with aggressive posturing related to competitors (Knight, 1997).

In Larsson's (2010) study, intrapreneurship has five dimensions: autonomy, innovativeness, risk-taking, competitive aggressiveness and proactiveness. The term proactiveness is associated with capacity of firms managing to take initiative and shaping the environment and creating new demand and needs. Risk-taking is to continue to venture despite the awareness of risk and to be able to take a certain risk (Alpkan, Ergun, Bulut, & Yilmaz, 2005). Competitive aggressiveness was accepted as a firm's ability to react to provide competitive advantage (Lumpkin & Dess, 1996). Autonomy suggests a person or a team acting independently to produce for achieving new ideas or visions (Lassen, Gertsen, & Riis, 2006; Lumpkin & Dess, 1996). Kayalar and Arslan (2016) suggest a 4-dimensional scale to measure intrapreneurship. They employed this scale in their studies and stated that its validity and reliability were high. These dimensions are risk-taking, competitive aggressiveness, self-renewal and autonomy.

Another component of the intrapreneurship process is the organization itself because intrapreneurship is essentially carried out within an existing organization. The organization has quite different and distinguishing features from the people who make up it, and therefore it is of an independent element. Organizations using a strategy to achieve their own goals have their own value structure and culture. If an organization wants to become an entrepreneur one, it must be able to continuously develop its own organizational structure, culture, systems and processes, and try to adapt to its surroundings (Naktiyok, 2004: 61).

Innovation Performance

Organizations need to reshape themselves according to market conditions and to offer new products in order to ensure continuity in uncertain environments. In this context, innovation has vital importance in increasing the economic performance of organizations. Innovation can be seen as the creation, development or commercialization of a new idea (Ahuja & Lampert, 2001; Luecke, 2008; Schumpeter & Schumpeter, 1934). Innovation also involves the introduction of new products, services, systems, processes or the adaptation of existing ones (Gapp & Fisher, 2007).

According to Orfila-Sintes and Mattsson (2009), innovation should be new to the firm; it is not compulsory for the market to be new and it has no importance if the innovation was developed by itself or by another firm (Arslan, 2012). The important thing in innovation is that it is perceived as new and used to solve a

problem (Arslan, 2012; Ottenbacher & Gnoth, 2005; Rogers, 1976). However, according to Meeus and Oerlemans (2000), in an innovation, contribution to the economic performance of the organization is quite essential (Ergun, Bulut, Alpkan, & Demircan-Cakar, 2004).

As firm-level innovations are often considered as product or process innovations (e.g. Tidd, Bessant, & Pavitt, 2005) traditional categories may be insufficient for service-related innovations (e.g. Bitran & Pedrosa, 1998; de Jong, Bruins, Dolfsma, & Meijaard, 2003) Service innovation may include both product and process innovations, or as de Jong *et al.* (2003) stated, due to the simultaneity of services, product and process innovations usually coincide (Aas & Pedersen, 2011).

Most researchers agree that innovation in service firms has some more different characters than in manufacturing ones (e.g. de Jong *et al.*, 2003; John & Storey, 1998) Innovations in the service sector are often non-technological. They mostly contain small and incremental changes in processes and procedures. Many service innovations do not have very radical characters and have often already been implemented in other service organizations (de Jong *et al.*, 2003). Another issue contributing to the complexity of service innovation is that its activities are found in both service and manufacturing firms (Aas & Pedersen, 2011).

In practice, most innovations appear to be a mixture of major and minor changes and of adaptations of existing services. The distinctions between product and process innovations are less suitable to adequately describe innovation in service sectors. These innovations are rarely limited to offer change in the characteristics of the service. Researches show following four dimensions can be used to describe a new service: the service concept, the client interface, the service delivery system and technological options (Hertog, 2000; Bilderbeek, Hertog, Marklund, & Miles, 1998). These dimensions appear to be quite useful to describe the diversity of innovation in services (de Jong *et al.*, 2003).

The basic cultural features necessary for the innovation to take place include trust, the attitude of risk-taking to experience new ideas, the diversity of employees' education, the willingness to share information and to cooperate (Dervitsiotis, 2010). It would not be wrong to say that innovation has different structural characteristics in the service sector such as hospital. In the context of a hospital, innovation involves emerging new services and the innovative behavior of organizational employees.

Measuring the innovation performance of organizations is one of a very controversial issues in the literature (Atuahene-Gima, 1996; Avlonitis, Papastathopoulou, & Gounaris, 2001; Dobni, 2000; Zhao, 2005). While more visible criteria such as product widespread, organizational effectiveness, expansion of product range are suggested during the development of a product (Alegre, Lapiedra, & Chiva, 2006), different criteria are proposed in service sectors (Atuahene-Gima, 1996). If the sentence of "innovation should be new for the

organization and not for the sector” is taken into account, it is revealed that the perceptions of employees are also important when the innovation is measured. Hospitals are large, complex and dynamic organizations (Dias & Escoval, 2013). So that it would not be wrong to claim that innovations in hospitals, as a service sector, have different structural characteristics. When considered in the context of a hospital, innovation involves devising new services and innovative behaviors of the employees in the hospital. In this study, the scale developed through considering these definitions that we talked about so far was used.

In order to measure the innovation performance, the scale validity and reliability of which conducted by Ayazlar (2012) was employed. This scale was based on the work of Hu and Sun (2009). The scale has two sub-dimensions: service innovation behavior (6 items) and new service development (8 items). Expression of organization in this scale has been replaced by hospital.

Hospital innovation is an indispensable element for the competitiveness and high-class performance of hospitals and excellent care (Irwin, Hoffman, & Lamont, 1998). Hospital innovation is defined as medical and administrative one (Alexander, Weiner, Shortell, Baker, & Becker, 2006; Fernández, 2001; Wu & Hsieh, 2011). Medical innovation involves a new technology or a new method for effective diagnosis, treatment and prevention of disease. Administrative innovation contains new service process for internal or external work (Wu & Hsieh, 2011).

The positive attitude of the employees towards the organization and innovation in the adaptation of it for an organization has an important role in the easy implementation and acceptance of the innovation (García-Goñi, Maroto, & Rubalcaba, 2007). In a sense, employees must be demonstrating innovative behaviors. The main role of hospital managers is to create the right climate for innovation and to prepare the hospital system (Lega, 2009). Nevertheless, it is inevitable that they should manifest positive attitudes towards innovation like their employees.

Organizational Factors

When we think intrapreneurship and innovation are valid in existing organizations, it is impossible to imagine that the characters of the organization have no effect on intrapreneurship and innovation. In the literature, there are many studies on which characteristics of organizations are effective in this process (Atuahene-Gima, 1996; Ayazlar, 2012; Kayalar & Arslan, 2016; Zahra, 1991).

Some of the factors related to the organization affect intrapreneurship positively, but some factors can block it as well (Kuratko, Montagno, & Hornsby, 1990). For example, operational difficulties, inadequate planning, unrealistic corporate expectations, insufficient corporate support, and misreading the market are the blocking factors.

Organizational factors are expressed as openness in communication, control mechanisms, environmental scanning intensity, organizational and managerial

support, and organizational values (Antoncic & Hisrich, 2001). In the study conducted by Onay and Cavusoglu (2010), organizational factors affecting intrapreneurship were identified as “organizational and managerial support”, “strategic importance” and “resource existence”. According to Letsie (2017), to flourish intrapreneurship leaders must provide employees with autonomous, empowered and unpunished environment. Leadership is the vital power for the success of any organization (Ho & Fu, 2018). So that the structure and environment of the organizations are the factors that directly affect the intrapreneurship and innovation.

Measurement of organizational factors is directly related to the measurement of organizational characteristics assumed to influence intrapreneurship and innovation. In the literature, many different scales have been developed to measure these organizational characteristics (e.g. Covin & Slevin, 1989; Kuratko *et al.*, 1990; Zahra, 1993). Based on other studies in the literature, Aslan (2012) has developed a scale measuring organizational factors effective in intrapreneurship and innovation, especially for using in the service sector. According to this scale, leadership, organizational structure, organizational cultures, resource utilization in organizations are influential in innovation and intrapreneurship.

Theoretical Model among intrapreneurship, Organizational Factors and Innovation Performance

In the literature search on intrapreneurship and service innovation, some researchers (Russell, 1999; Wiklund, 1999; Zahra & Covin, 1995) have found fact that the intrapreneurship has positive effects on creating a sustainable innovation. García-Goni *et al.*, (2007) and Lassen *et al.* (2006) found that organizations have a positive relationship between intrapreneurship and radical innovation, and that organizations can make radical innovations with the help of intrapreneurship tendencies. Larsson’s (2010) research has found that intrapreneurship activities are more involved in firms with high innovation power. Ergun *et al.* (2004) have examined the relationship between intrapreneurship and innovation, and have found that intrapreneurship influences innovation performance. According to Agca and Yoruk (2006), intrapreneurship provides revitalization and improvement performance in organization. The behavior of intrapreneurship indicates that the organization is inclining towards innovation (Thornberry, 2001). Therefore, it is seen that there is a meaningful and one-to-one relationship between intrapreneurship climate dimensions and company performance dimensions (Yazgan, Erdirencelebi, & Sendogdu, 2016).

In their research, Gapp and Fisher (2007) have identified that intrapreneurship is a prerequisite for innovation in service and manufacturing sector. Salge (2012), Dias and Escoval (2013) reported that the driving force of innovation was intrapreneurship when working in hospitals. Wu and Hsieh (2011) observed that innovations improve the quality of care in the research done in Taiwanese

hospitals, and said that it will provide a competitive advantage by more efficient use of resources.

Goodale *et al.* (2011) examined the relationship between intrapreneurship and innovation performance and then found that intrapreneurship determines the innovation performance of managerial support in the literature survey of organizational factors affecting intrapreneurship and service innovation performance. In their work, Lee and Hong (2014) have observed that supportive leadership and trust influence innovative behavior. Plsek (1999) has shown that ordinary clinical and administrative staff in a large health care facility can produce wonderful innovative ideas for clinical and service delivery processes in a supportive setting. In Iran hospitals, managers' entrepreneurial behaviors have a very positive influence on employee intrapreneurship and organizational entrepreneurial power (Raadabadi, Fayaz-Bakhsh, Nazari, Mousavi, & Fayaz-Bakhsh, 2014).

In this study, the following hypotheses will be tested:

H1: Intrapreneurship is positively related to the innovation performance.

H2: Organizational factors is positively related to the innovation performance.

H3: Intrapreneurship has mediation effect on the relation between organizational factors and innovation performance.

Importance of the topic

Health care organizations can be accepted as complex systems (Plsek & Greenhalgh, 2001; Sweeney & Griffiths, 2002). "A complex adaptive system is a collection of individual agents who have the freedom to act in ways that are not always totally predictable, and whose actions are interconnected such that one agent's actions change the context for other agents" (Plsek, 2003). According to Lega (2009), for hospital, innovation is repetitive, exponential and the significant element in building the distinguishing competencies which reinforce the identity and attractiveness of the most important hospitals (Lega, 2009).

In the literature survey, it was determined that studies on the effects of innovations in the hospital environment were conducted independently. In other respects, the effects of entrepreneurship on innovation in field studies involving many sectors have been investigated. There are also studies indicating organizational factors influence innovation performance. In this study, it will be investigated how organizational factors and intrapreneurship influence innovation performance in a hospital.

Methods

Sampling

The study was carried out in a public hospital in a province located in the south of Turkey. Along with the general budget, this regional state hospital has extra revolving fund budget. Therefore, in order not to have financial difficulties for hospital and to carry out the activities completely, the number of patients and high valued services are very important. In the city, there are five very well-organized and nationally well-known private hospitals. They meet the expectations of the patients quickly and adapt novelties in this sector. For the companions of patients coming from the Middle East, these private hospitals have opportunities to host in private hotel rooms, for the patients they offer very fast and reliable diagnosis and treatment process. Additionally, the presence of these private hospitals will inevitably make them more competitive. The most effective value to provide this competition will be the innovation and the intrapreneurship of the employees having the power to create new services and having authority to put them into practice as fast as possible.

Data Collection Tools

There are two fundamental scales in the literature to measure intrapreneurship. The first one is ENTRESALE developed by (Khandwalla, 1977) and tested for cross-cultural validity and reliability by (Knight, 1997). The second one is the Corporate Entrepreneurship Scale developed by Zahra (1991, 1993). In study (Antoncic & Hisrich, 2001), these scales were synthesized and used together. The adaptation of the scales to Turkish was done in these two separate studies conducted by (Naktiyok & Bayrak Kok, 2006) and (Meltem & Cavusoglu, 2010). In Turkish form, the validity and reliability of the scale is determined. In the research conducted by Aslan (2012) in the service sector, it was considered that risk-taking, competitive aggressiveness, self-renewal and autonomy were the sub-dimension of intrapreneurship scale. The level of intrapreneurship was measured by using the scale used in similar studies in intrapreneurship literature. The scale has four sub-dimensions: risk-taking (4 items), competitive aggressiveness (4 items), self-renewal (3 items) and autonomy (3 items).

The adaptation of a Turkish version of the organizational factors scale and the validity and reliability of scale were conducted by Arslan (2012). In this study, this scale was used directly. According to Arslan (2012), the scale was formed by examining the items of many studies (Covin & Slevin, 1989; Hornsby, Kuratko, & Zahra, 2002; Kuratko *et al.*, 1990; Zahra, 1991, 1993). The scale has four sub-dimensions: leadership (5 items), structure (6 items), culture (4 items) and the resource usage (3 items). The sub-dimensions of the scale can be evaluated within themselves and results can be obtained for each sub-dimension, and organizational

factors score were obtained with the collection of all sub-dimensions. Items on the whole scale are structured as expressions to be directed to health workers in health care organizations.

In order to measure the innovation performance, we used the scale of which validity and reliability conducted by Ayazlar (2012). The scale was based on the study (Hu, Horng, & Christine Sun, 2009). Service innovation behavior (6 items) and new service development (8 items) are the two sub-dimensions of this scale.

All scales used in the study are of 5 Likert type (1=definitely disagree, 5=definitely agree). A score closer to 5 was interpreted as positive, whereas a score closer to 1 was negative. Reliability of the scales was evaluated with Cronbach Alpha coefficients. Cronbach Alpha values for scales and its range are between 0.75 – 0.95. This means that scales are highly reliable (See *Table 1*).

Table 1. Cronbach Alpha coefficients for scales and dimensions, mean and Standard Deviation values

Scales and Sub-Dimensions	Items	Cronbach Alfa
Intrapreneurship	14	0.84
Risk Taking	4	0.78
Competitive Aggressiveness	4	0.95
Self-renewal	3	0.80
Autonomy	3	0.93
Organizational Factors	18	0.83
Leader	5	0.86
Structure	6	0.92
Culture	4	0.87
Resource Usage	3	0.75
Service Innovation Performance	14	0.86
New Service Development	8	0.81
Service Innovation Behavior	6	0.83

^aMean, ^bStandard Deviation

Analysis

In this study, while organizational factors were accepted as independent variables, intrapreneurship and Service Innovation Performance (SIP) were accepted as dependent variables. The effects of independent variables on dependent variables were tested by Structural Equation Modeling (SEM). The correlation among variables was tested by Pearson Correlation analysis. The professions and demographic characteristics of the health workers who participated in the study were analyzed by descriptive statistics such as mean, standard deviation, frequency and percentage.

Before the structural equation modeling, multivariate normal distribution evaluation of the data was done; the validation factor analysis and the assessment of normality for the structural equation model are based on a critical ratio of less

than 10. According to Kline (2005), the critical rate is an estimation of normalized multivariate kurtosis, or z value. In this study, the kurtosis coefficients were -1.362 and +0.643, skewness coefficients were -0.716 and +0.261, critical ratios were -5.594 and 2.640, multivariable critical ratio values were 6.224, and data has normal distribution.

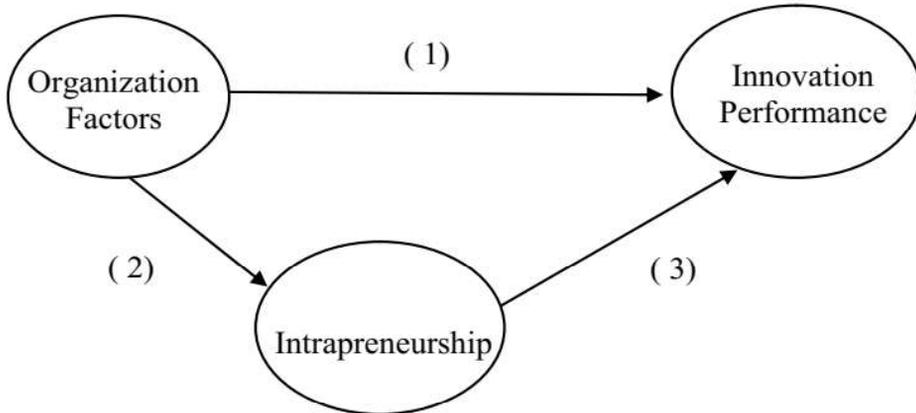


Figure 1. Hypothetical Mediation Effect of Intrapreneurship

The Sobel test was used to test the mediation effect. For the Sobel test, MedGraph-I program developed by Jose (2013) was used.

$$z = \frac{ab}{\sqrt{b^2 S_a^2 + a^2 S_b^2}}$$

In this formula; a: raw (unstandardized) regression coefficient for the association between organization factors and intrapreneurship.

S_a : standard error of a.

b: raw (unstandardized) regression coefficient for the association between organization factors and innovation performance.

S_b : standard error of b.

Findings

It is observed that a significant proportion of the employees (59.5%) surveyed are between the ages of 31-40. More than half of the respondents (53.8%) were male. As to the educational status, it is observed that the 35.1% of participant have undergraduate degree. According to the unit of department, it is observed that the

number of employees in the internal units (32.6%) and the number of employees in the surgical unit (30.4%) are close to each other but the number of employees in the internal units is higher. The working experiences of the employees range is from 3 to 9 years (hospital establishment date 2009), and the average is 5.5 years.

Table 2. Occupation types and demographic characteristics of health workers

		N	Percentage	Mean. ^a ± SD ^b (Max. ^c – Min. ^d)
Age (Year)	≤ 30	107	26.4	28.21 ± 5.42 (49 – 24)
	31 - 40	241	59.5	
	≥ 41	57	14.1	
Sex	Female	187	46.2	
	Male	218	53.8	
Education Level	High School of Health	44	10.9	
	Junior College	89	22.0	
	Undergraduate	142	35.1	
	Graduate	130	32.0	
Occupation Types	Assistant Health Workers	230	56.8	
	Physicians	91	22.5	
	Others	84	20.7	
	Internal Services	132	32.6	
Department	Surgical Services	123	30.4	
	Intensive Care	49	12.0	
	Operating Room	46	11.4	
	Emergency Service	55	13.6	
Work Experience in the Institution	≤ 3	61	15.1	5.57± 1.81 (9-3)
	4 - 7	215	53.0	
	≥ 8	129	31.9	

^aMean, ^bStandart Deviation, ^cMaximum, ^dMinimum

The level relationship is accepted high if the absolute value of the correlation coefficient is between 0.70-1.00; medium if it is between 0.30-0.70; low if it is between 0.00-0.30 (Buyukozturk, Kılıc Cakmak, Erkan Akgun, Karadeniz, & Demirel, 2013). There is a high level of relationship between service innovation performance and intrapreneurship ($r=0.801$). In the comparison of the levels of correlation between the sub-dimensions, a correlation coefficients have been changing between 0.351 and 0.857. The least correlation level is moderate level. There is also a high level of correlation between service innovation performances and organizational factors ($r=0.794$). The lowest correlation coefficient between the sub-dimensions 0.392 and the highest correlation coefficient 0.794. There are moderate and high-level correlations among sub-dimensions. There is a moderate relationship between the organizational factor and intrapreneurship ($r = 0.648$).

Table 3. Pearson correlation coefficients among intrapreneurship, organizational factor, and SIP

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	Mean	SD
1. Intrapreneurship	1													3.38	0.64
2. Risk Taking	.824**	1												3.43	0.48
3. Competitive Aggressiveness	.805**	.513**	1											3.47	0.54
4. Self-renewal	.833**	.597**	.590**	1										3.27	0.68
5. Autonomy	.848**	.667**	.508**	.612**	1									3.48	0.85
6. Organizational Factors	.648**	.719**	.396**	.528**	.539**	1								3.49	0.54
7. Leadership	.623**	.720**	.383**	.509**	.494**	.904**	1							3.67	0.84
8. Structure	.580**	.611*	.395**	.457**	.479**	.893**	.787**	1						3.57	0.58
9. Culture	.447**	.515**	.238**	.376**	.383**	.724**	.501**	.515**	1					3.27	0.66
10. Resource Usage	.471**	.490**	.284**	.385**	.419**	.778**	.627**	.671**	.361**	1				3.47	0.49
11. SIP	.801**	.804**	.553**	.640**	.679**	.794**	.769**	.705**	.554**	.570**	1			3.54	0.54
12. New service development	.543**	.583**	.351**	.424**	.464**	.619**	.631**	.545**	.392**	.444**	.869**	1		3.65	0.60
13. Service Innovation Behavior	.857**	.830**	.611**	.693**	.724**	.786**	.734**	.701**	.580**	.563**	.916**	.597**	1	3.47	0.68

p < 0.001 ** For All correlation coefficients, p = 0.000.

While the sub-dimensions are on the account, there is a low level of correlation among competitive aggressiveness and culture and resource usage, there is moderate and high-level correlation among other sub-dimensions. Since the significance value is $p < 0.001$, all levels of correlation are statistically significant. When the mean of scales was examined, the lowest mean was 3.27 and the highest mean was 3.67. Participants have high level of intrapreneurship and SIP.

The results of structural equation modeling analysis are presented in *Figure 2* and *Table 4*.

Table 4. Adaptation Index Values of My Research Model

Fitness Criteria	Good Fit	Acceptable Fit	Model	Fit
X ² /fd	≤ 3	≤ 4-5	1,87(1352/723)	Good Fit
RMSEA	≤ 0.05	0.06-0.08	0.046	Good Fit
CFI	≥ 0.95	≥ 0.90	0.945	Acceptable fit
GFI	≥ 0.90	0.85-0.89	0.862	Acceptable fit
AGFI	≥ 0.90	0.89-0.85	0.843	****

Table 4 shows the evaluation criteria for alignment indexes and the goodness of fit index obtained as a result of the analysis. When the model test results show the goodness indexes are compatible with the model and data, hypotheses are accepted; if the goodness indexes are not compatible with the model the data, hypotheses are rejected (Kaplan, 2011; Schumacker & Lomax, 2004). While X²/fd, CFI and RMSEA values were Good Fit, GFI value was in acceptable level. Consequently, we can state that all hypotheses were accepted.

The numbers shown on the arrows in *Figure 1* were the path coefficient. Path coefficient was standardized regression coefficient that represents the direct effect of the independent variable on the dependent variable (beta-β). A path coefficient shows a unit changes in independent variables can causes how many unit changes in dependent variables (Schumacker & Lomax, 2004). According to *Figure 1*, one unit of increase in the level of intrapreneurship escalates 0.83 unit of the level of SIP. Also, one unit of increase in the level of organization factors directly increases 0.25 unit of the level of SIP.

Table 5. Sobel Test Results for Mediation Effect

	Significance of Mediation	Significant
Sobel z-value	7.788526	$p = < 0.000001$
95% Symmetrical Confidence Interval		
Lower	.19024	
Upper	.31818	
Unstandardized indirect effect		
a*b	.25421	
se	.03264	

To Sobel test result, the mediation effect of intrapreneurship between organization factors and SIP is statistically significant. The total effect is calculated as 0.794 and indirect effect is calculated as 0.538.

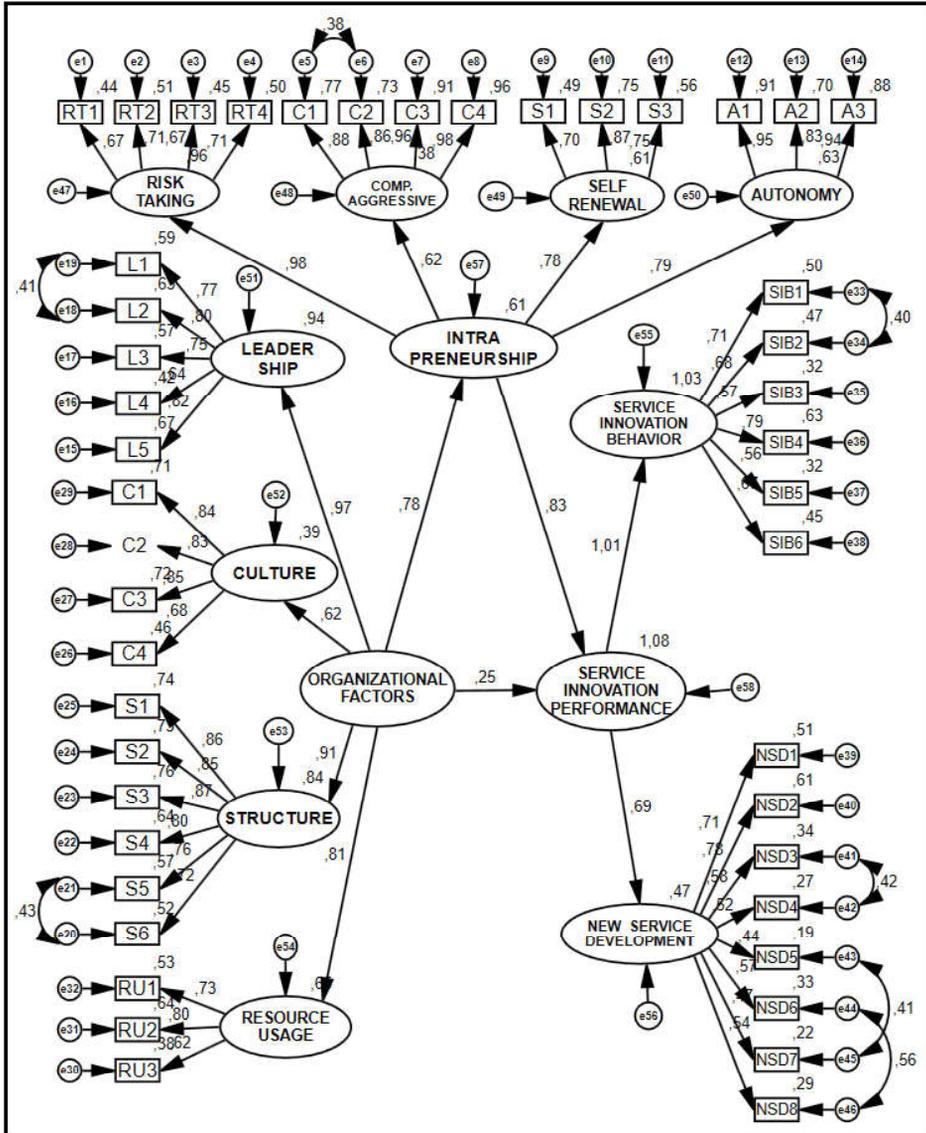


Figure 2. Research-related structural equation modeling

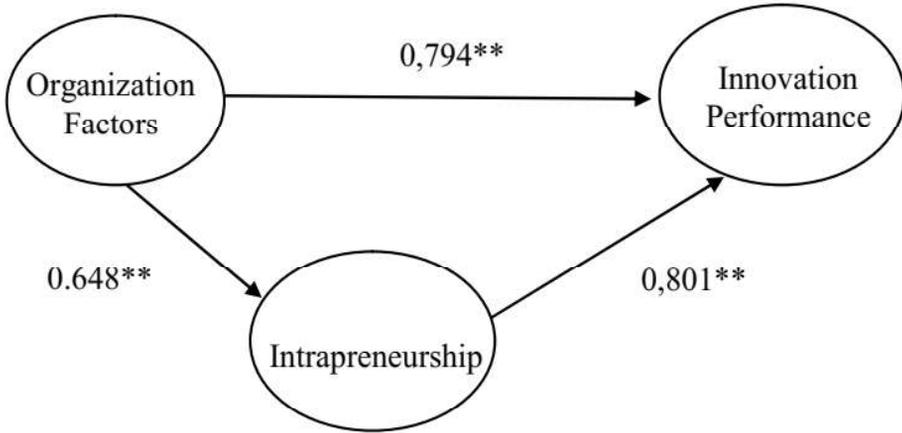


Figure 3. Mediation Effect of Intrapreneurship and the Effect Values

According to the findings, intrapreneurship has mediation effect on the relation between organizational factors and SIP. Intrapreneurship enhances the effect of organization factor on SIP. Organizational factors have both direct and indirect effect on the performance of intrapreneurship and SIP. The path coefficients on the arrows appearing in the model show direct effects. The indirect effect, the effect of an independent variable on the dependent variable, is determined by one or more mediation variables (Cokluk, Sekercioglu, & Buyukozturk, 2014). Accordingly, organizational factors have an indirect impact on SIP through intrapreneurship. Indirect effects are obtained by multiplying path coefficients on the road ($0.78 \times 0.83 = 0.64$). With the collection of direct and indirect effects ($0.25 + 0.64 = 0.89$), total effects are obtained (Schumacker & Lomax, 2004). In this respect, a unit increase in organizational factors provides a 0.89 unit increase in level of SIP.

Results and Discussion

The information in this section will be presented in the context of research findings. Firstly, general information about research and scale will be introduced. Secondly, the findings between intrapreneurship and innovation will be presented. Then, information regarding the relationship between organizational factors and innovation will be given. In the last part, the relationship among all three concepts will be evaluated.

In this study, intrapreneurship (risk taking, competitive aggressiveness, self-renewal, and autonomy) was studied in four sub-dimensions. Risk taking is the

ability to act quickly in a realization of opportunities. Competitive aggressiveness: an ability to respond to competitive advantage. Self-renewal refers to the conversion of basic ideas built on renewal. Autonomy: it is an ability to produce an idea or vision, and act independently to accomplish success. (Antoncic, 2007; Antoncic & Hisrich, 2001; Lassen *et al.*, 2006; Lumpkin & Dess, 1996). Organizational factors (leadership style, organizational structure, organizational culture and resource usage) which we observe its impact on intrapreneurship and SIP, are dealt with in four sub-dimensions. SIP (Service innovation behavior and new service development) are dealt with in two sub-dimensions.

In the context of environmental uncertainty and competition, every organizations want to improve their own performances. Many studies have shown that innovation directly affects organizational performance (Aas & Pedersen, 2011; Dias & Escoval, 2013; Irwin *et al.*, 1998; Wang & Hsu, 2014). Managers have recognized that innovative organizations provide competitive advantage (Dobni, 2000). The development and effective use of innovation on an organizational level are necessary for organizations to survive. Therefore, determining the factors affecting innovation at the organizational level is important for organizational managers and academicians working on this issue. This topic has also been examined in this study.

The findings of our study indicated that intrapreneurship in hospitals has positively effect on innovation performance. There are studies in the literature that intrapreneurship influences and promotes the institution's innovation (Antoncic & Hisrich, 2001; Avlonitis & Salavou, 2007; Camelo-Ordaz, Fernández-Alles, Ruiz-Navarro, & Sousa-Ginel, 2012; Ergun *et al.*, 2004; Goodale, Kuratko, Hornsby, & Covin, 2011; Kayalar & Arslan, 2016). Indeed, in some studies innovation is regarded as a dimension of intrapreneurship (Alpkan *et al.*, 2005; Ergun *et al.*, 2004; Guo, 2003; Khalili, Nejadhussein, & Fazel, 2013). According to Lassen *et al.* (2006), the interaction between innovation and entrepreneurship has been addressed at the macroeconomic level in previous studies. In their study, it was expressed that there was a positive relationship between intrapreneurship and radical innovation at the organizational level.

According to Goodale *et al.* (2011), in order to perform corporate innovation, other influential factors must be included in the process along with corporate entrepreneurship. In the study conducted by Khalili *et al.* (2013), structural equation modeling analysis and path analysis proved that intrapreneurship's dimensions have a profoundly positive impact on innovation performance.

Gapp and Fisher (2007) developed an innovation model in their research that could be effective in the service and manufacturing sectors. According to the model, in order to be able to innovate, it is necessary to have employees or teams having ability to show entrepreneurial behaviors. In a sense, intrapreneurship is assumed to be a prerequisite for innovation. According to the results of studies carried out by Aslan (2012) in the IT sector in Turkey, intrapreneurship is decisive

for innovation, and also intrapreneurship is the predictor of innovation. The data of our study demonstrated that in a hospital, intrapreneurship positively affects innovation performance.

According to SEM results of our study, organization factors affect innovation performance. In a similar study on the service sector, it is showed that the internal structures of the organizations and the applications have an influence on the innovation performances (Ayazlar, 2012). Motivation of the employees to disseminate and adapt innovations influences the organization's innovation performance (García-Goñi *et al.*, 2007). The five dimensions of corporate entrepreneurship (management support, autonomy, reinforcement, time availability, and organization boundaries) affect innovation performance (Goodale *et al.*, 2011).

Especially in health care institutions, managers must have important roles to use innovations effectively. For instance, strategic planning, encouraging and rewarding innovation and risk-taking encourage intrapreneurship and innovation (Guo, 2003). According to Lee and Hong (2014), hospital managers should analyze individual and organizational factors to enhance innovational behaviors and use them to create an organizational climate and system. Lega (2009) emphasized the importance of innovation performance in hospitals. In order to focus on innovation, managers of hospitals should prepare the system such as information input, motivation and antecedent system such as alignment of priorities and identifying key areas of new knowledge.

Mediation effect of intrapreneurship on the relation between organizational factors and innovation performance is another result of this study. According to Alpkan *et al.* (2010), in order to increase the innovation performance, intrapreneurship should be established together with the creation of a supportive environment in the organization, tolerance to risk-taking of entrepreneur employees, high-quality human resources and organizational support.

In conclusion, organizational factors, intrapreneurship and SIP have a statistically significant correlation coefficient. According to SEM results, organizational factors have a direct and indirect effect on SIP. Intrapreneurship has a mediation role in the effect of organizational factors on SIP. Intrapreneurship has a positively effect on SIP.

Implication

Managers should pay close attention to the identified factors affecting their institutions in order to be able to improve their innovation performance. It should also give priority to intrapreneurship in practice for the institution by adding the intermediary effect of intrapreneurship. For researchers, both innovation and intrapreneurship will contribute to the literature. Due to this study was collected from the institutional staffs, the theoretical model was tested with a single sample in a sense. It has also been confirmed by the evidence that intrapreneurship

has an influence on innovation as well as a mediation role in relation between organizational factors and innovation.

Limitations

Since the study data is collected in the context of the service sector and a single organization, it is necessary to be careful to compare or generalize these results with other sectors.

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