

## INFORMATION SYSTEMS SUCCESS AND ORGANIZATIONAL AGILITY: A CORRELATIONAL STUDY ON INSURANCE COMPANIES

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### Abstract

Organizational Agility and Information Systems (IS) are the contemporary key factors for organizations in terms of operational excellence and competitive advantage. Since organizations have to be flexible and proactive against all environmental changes for survival, information flow through the organizations and their environment should be managed properly. Information systems (IS) enable organizations to manage this information flow and to have necessary features for survival. In this study, the relationship between information systems success (IS Success) and organizational agility is discussed based on literature review and a correlational study. To do so, IS success and organizational agility questionnaires applied to 75 insurance companies that use insurance information and monitoring information system (TRAMER). Collected data was analyzed and results show that all IS success factors significantly related with organizational agility. Regression analysis show that almost half of (54%) organizational agility can be explained by IS success. Moreover, it is observed that service quality, information quality and net benefits factors have relatively higher effects on organizational agility.

**Keywords:** Information Systems Success, Organization agility, Insurance Company, TRAMER.

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## BİLİŞİM SİSTEMLERİ BAŞARISI VE ÖRGÜTSEL ATIKLIK: SİGORTA ŞİRKETLERİ ÜZERİNE İLİŞKİSEL ÇALIŞMA

### Özet

Örgütsel atiklik ve Bilişim Sistemleri (IS), operasyonel mükemmeliyet ve rekabet avantajı açısından kuruluşlar için çağdaş temel faktörlerdir. Kurumların hayatta kalabilmeleri için tüm çevresel değişikliklere karşı esnek ve proaktif olmaları gerektiğinden dolayı, organizasyonlar ve çevrelerindeki bilgi akışı düzgün bir şekilde yönetilmelidir. Bilişim sistemleri (IS), kuruluşların bu bilgi akışını yönetmesini ve hayatta kalabilmek için gerekli özelliklere sahip olmalarını sağlar. Bu çalışmada; bilişim sistemleri başarısı ve örgütsel atiklik arasındaki ilişki, literatür taraması ve korelasyonel çalışmalara dayanarak, tartışılmıştır. Bunu yapmak için, TRAMER bilgi sistemini kullanan 75 sigorta şirketine bilişim sistemleri başarısı ve örgütsel atiklik anketleri uygulanmıştır. Toplanan veriler analiz edilmiş ve sonuca göre; bütün bilişim sistemleri başarı faktörlerinin örgütsel atiklikle ilişkili olduğu görülmüştür Regresyon analizi ise, örgütsel çevikliğin neredeyse yarısının (% 54) IS başarısı tarafından açıklanabileceğini göstermektedir. Ayrıca, hizmet kalitesi, bilgi kalitesi ve net fayda faktörlerinin örgütsel çeviklik üzerinde nispeten daha yüksek etkileri olduğu gözlemlenmektedir.

**Anahtar Kelimeler:** Bilişim Sistemleri Başarısı, Örgütsel Atiklik, Sigorta Şirketleri, TRAMER.

### INTRODUCTION

Organizations are composed of rights, responsibilities and privileges for problem or conflict resolution. In addition to these behavioral definitions, organizations are also defined from technical perspective as social structures which interact with their environments and components. This interaction is divided into three main steps; i) obtaining resource from the environment, ii) processing them and iii) producing outputs (Laudon and Laudon, 2013). Recently, business researches focus on the development and improvement of those steps to increase efficiency and effectiveness of organizations. One of the tools for achieving this aim is utilizing information technology (IT) for managing these processes much more properly. However, IT tools are not sufficient without managerial perspective.

In this point, information systems (IS) come in to play for innovations for these input, processing and output phases of organizations. However, this brings a new question about the level of IS usage in organizations. On the other hand, in the dynamic business environment, organizations need to have adaptability capabilities. Although IS may provide ability to

organization having such adaptability, theoretical facts drawing a frame and having supportive characteristics are needed. One of the facts is organizational agility which also tells what should do and how organizations should act to overcome the changing environment and uncertainty. That is, this is a response ability to stimulant coming from the environment. Still, in which level an organization is agile is another question to be answered.

In order to answer these two questions, there are various scale have been developed. For example, to answer the first question about IS usage measurement, IS success model have been developed with factors such as system quality, service quality, information quality, user satisfaction, intention to using/system use and net benefits (DeLone and McLean (2003). For the second questions, Zain, Kassim and Mokhta (2003) is one of the study which proposed organizational agility dimensions and measurement scale.

In this study, IS success and organizational agility studies are examined from the literature. Their similar and different points are compared. Moreover, in order to explain their relatedness quantitatively, a correlational study is conducted. According to the findings, IS success factors significantly predict organizational agility in general. Detail analysis shows that IS factors including service quality, net benefits and system use have statistically significant effect on organizational agility. This means that, in order to be an agile organization, employing information system successively may make a major contribution, or vice versa.

In the literature section of this study, related researches, organizational agility, information systems success and comparison of those based on literature are mentioned. In the methodology sections, detail information about research method, participants and their characteristics is presented. In findings part of this study, correlational statistics is presented in detail. The conclusion of the study is criticized in the last part of this study.

## **1. LITERATURE**

### **1. 1. Organizational Agility**

Business pressures, solid competitiveness and other environmental factors force organizations to be adaptive, flexible and agile. Agility is

the ability of directed response to the stimulant from business environment where the change and uncertainty are uncontrollable. In this respect, compatibility with information technologies is one of the requirements that enable organizations to have an appropriate and timely acting of maneuvers against predictable or unpredictable uncertainties. Besides, focusing to core competencies, flattening of hierarchical structure, adoption of virtual organization structures, and having an information based organizational body are important factors for organizational agility (Tseng and Lin, 2011: 3698). Speed, flexibility, reaction ability, and having the required infrastructure are listed among the properties that are necessary to have such capabilities (Ganguly, Nilchiani & Farr, 2009: 410-412).

In addition, organizational agility can be defined as a fact supported by technological tools to create a harmony and balance among customer demands, organizational processes and resources. In order to have deep understanding of organizational agility, re-investigation of leadership, organizational culture, labor-management relationship, award system suppliers, customers and information technology is needed (Crocitto & Youssef, 2003: 388-394; Sherehiy, Karwowski & Layer, 2007: 445; Zain, Rose, Abdullah & Masrom, 2005: 831).

Organizational agility requires preparedness and readiness of business processes and production systems towards changing and uncertain condition. This implies that the base function of organizational agility is to provide harmony among cost, quality, and other attributes, and to make organization get thorough from the crisis situation arise from those factors. This point is mentioned in the study of Ganguly, Nilchiani and Farr (2009) as the fact that the organizational agility is supported by responsiveness and knowledge management.

On the other hand, in Narasimhan, Swink and Kim (2006: 442) it is summarized that in order to achieve organizational agility, just in time production, quality management, information sharing with supplier, education, research and development facilities, information and communication technologies, production technologies, hardware and software, organization wide communication and network systems, worker empowerment and team work support should be provided. That is; to achieve organizational agility, both market-oriented and organization-oriented approaches are mandatory.

Studies conducted by Lu and Ramamurthy, (2011) and Nijssen and Paauwe, (2012) mention that the investigation of consumers' manners and behaviors, access to and management of outer source information (i.e. market capitalizing agility) as well as making intra organizational structure and processes swift and flexible (i.e. operational adjustment agility and highly adaptable organizational infrastructure), providing organizational learning (i.e. fast organizational learning), and re-regulation of employees relations (i.e. scalable workforce) are necessary factors for organizational agility.

Organizational agility relies on four main dimensions (Zain et al., 2003; 71). These are; enriching customers, cooperating to compete, mastering change and leveraging resources. Those dimensions are also explained by Coronado M. et al. (2012) as focusing on costumers-shareholders (i.e. enriching customers), inside and outer cooperation with an awareness of competitiveness and constructing flexible teams (i.e. cooperating to enhance competitiveness), capability of change and indeterminacy management (i.e. organizing to master change and uncertainty), and development of leveraging capability (i.e. leveraging). These require having close relationships with suppliers and customers, flexibility in production process, focusing on information, having multifaceted capabilities, attainment of a flexible and team based learning organizational structure (Coronado M., Sarhadi & Millar, 2002: 63; Zain et al., 2003: 70-71 ).

In brief, the dimensions of organizational agility are explained and mentioned in a more detailed and focused perspective by the study of Zain et al. (2003), Coronado M. et al. (2012), Lu and Ramamurthy (2011) and Nijssen and Paauwe (2012).

## **1.2. Information Systems Success**

Information systems success is an elusive concept to define. Information systems success has both social (management) and technical dimensions, and is also related with whole inside and outside factors. These considerations make it difficult to provide a definition of information systems success (Wu & Wang, 2006: 729; Yen, Li & Niehoff, 2008: 394; Agourram, 2009: 129).

Information successes can be measured via its individual and organizational impact depending on user satisfaction and usage value

resulting from provided information and infrastructure quality. However, by the continuous developments and proliferation of information systems, new measurement factors for information systems success have emerged. These new factors are service quality and net benefit. While previously service quality was considered under system quality factor, contemporary needs make it necessary to consider this factor separately. Net benefit, on the other hand, is a more comprehensive factor that is considered through individual and organizational impacts (Wang & Liao, 2008: 719-721; Zheng, Zhao & Stylianou, 2013: 514; Landrum, Prybutok & Zhang, 2010: 134; Gorla & Somers, 2014: 322).

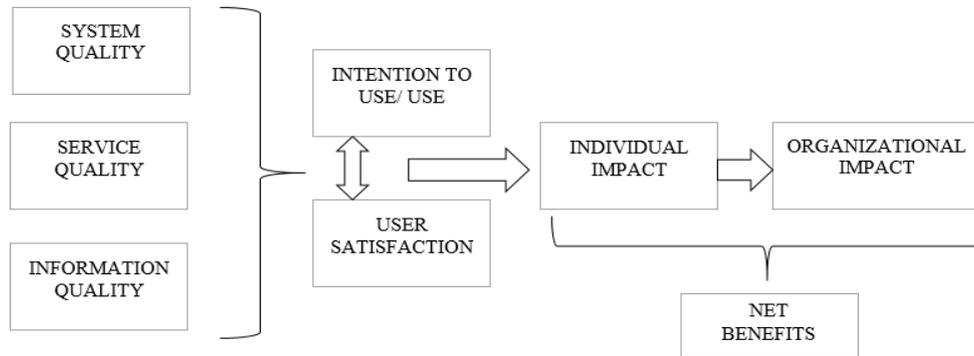
System quality is the system property that refers to harmonization capability, providing timely output with information having high validity and reliability, and high usability. Accordingly, high system quality provides an increase in both the usage of and the positive attitude towards information systems, and elevates the user satisfaction to the desired level (Ramayah, Ahmad & Lo, 2010: 5423).

Service quality is the level of meeting with customer satisfaction. It requires information system providers to be consistent, reliable, be capable of providing feedback, making commitment for products and empathizing (Jiang, Klein & Discenza, 2002: 19-20; Bharati & Berg, 2005: 368-369; Balaban, Mu & Divjak, 2013: 399). In this context, five basic components of service quality are identified as tangibles, reliability, responsiveness, assurance and empathy. (Raghavan, Zhang & Jeyaraj, 2010: 5).

Information quality is the information systems success factor that refers to provided information being up-to-date, consistent, relevant, and clear. It is clear that the information systems that provide information with high quality is used more (Lee & Kozar, 2006: 1388). Information systems with high system and service quality, and information quality create intention to use and increase the customer satisfaction. Intention to use and consumer satisfaction mutually supports each other (Wang & Liao, 2008: 722). Intention to use is the willingness of staff and customers to use information systems. Increase in users' inclination to use the system due to providing high level benefits to user groups is taken as an indication of systems success (Petter & Fruhling, 2011: 482).

As is shown in Figure 1, intention to use and user satisfaction are two mutually interactive success factors. Both of these two factors are related to the period after the system release. Besides, they both refer to system offerings such as audio and visual options, calculation tables, reports and ease and pleasure of use, and are measured by repetitive alacrity usage of the system (Halonen, Acton, Golden & Conboy, 2009: 5; Petter, DeLone & McLean, 2008: 239; Baraka, Baraka & El-Gamily, 2013: 101).

Net benefit refers individual and organizational impacts to improve performance. That is, information systems are considered as successful if they have an increasing effect on performance (Prybutok, Zhang & Ryan, 2008: 146), because organizational success requires individual success. By this respect, employers that get access to information systems increase net benefits first individually, and then contribute to the attainment of organizational objectives (Cho, Park & Michel, 2011: 271). DeLone and McLean (2003), indicates net benefits factor as the correspondence of other factors to customer, workgroup, industry and social levels (Raghavan et al., 2010: 3). Figure 1, which bases on these considerations, shows the information systems success factors and relations among them.



**Figure 1 Information Systems Success Factors and Relations**

(Source: Wu & Wang, 2006: 730; Wang & Liao, 2008: 720-722)

### 1.3. Organizational Agility and Information Systems Success Relations

There are various studies in the literature that investigate the positive relationship of organizational agility and information systems. These studies mostly point that effective, competent, and usable information

systems is a necessity to acquire organizational agility. For example, information systems with a high quality infrastructure are reported to be effective on the agility of business processes (Raschke, 2010: 308). Besides, it is proposed that the intention to use information systems increase in the business where there is high quality information and satisfactory level of senior management support (Zain et al., 2005: 837).

Successful information systems may contribute to management level of organizational agility by providing high quality information. Strong relation between organizational agility and information systems success points the businesses' being a digital age organizations, since digital age businesses are the ones that are capable of building close relationships with their environments (consumers, suppliers, employers, etc.), and of easily adaptable to changes via their flexible organizational structures. Also, these organizations are capable of building strategical cooperation. With these properties, digital age businesses are the ones that can offer new products and services, adopt up-to-date production processes and techniques, build close relationship with consumers and suppliers, take effective decisions, and survive as a pioneer in the market competition (Laudon & Laudon, 2006: 7-8). So, successful information systems that are capable of providing high quality information and satisfactory infrastructure facilitate the adaptability of management and policies to organizational agility.

### **1.3.1. Effects of System Quality, Service Quality, and Information Quality on Organizational Agility**

High capacity information systems are considered as to be accorded to business strategic objectives and business processes that also contribute to them. It is proposed that information systems capacity increase by their having an easy, flexible, and usable infrastructure (i.e. IT infrastructure capability), providing up-to-date and high quality information that supports the objectives of business (i.e. IT business spanning capability), and their contribution to businesses to be aware the changes in the environment (i.e. IT Proactive Stance). Studies show that information system capacity has a positive impact on organizational agility (Lu & Ramamurthy, 2011: 932-936). Figure 2 shows the relation of information system capacity and organizational agility.

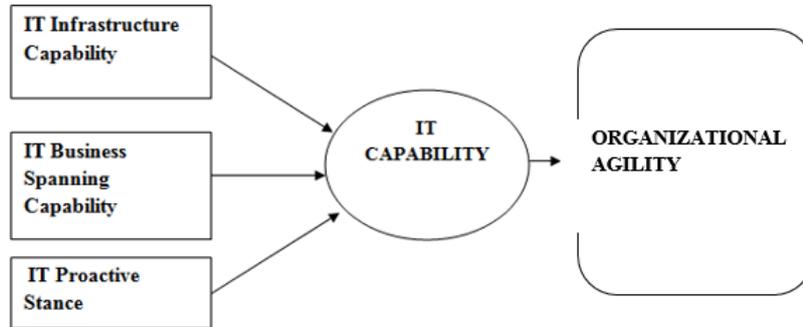


Figure 2 Information System Capacity and Organizational Agility Relation  
(Adapted From: Lu & Ramamurthy, 2011: 935.)

### 1.3.2. Effect of the System Use Intention on Organizational Agility

The effect of increase in information system use, due to need and pleasure of use, on organizational agility can be inferred from the studies that employ IS Continuance Model to investigate the IS system use in organizations. IS Continuance Model is developed by Bhattacharjee (2001) and aims to explain use continuance behaviors of IS system users. According to the model, user satisfaction and perceived usefulness are the two main factors that lead to continuity in IS use. Where user satisfaction depends on user experience, perceived usability depends on user expectations (Yoon & Rolland, 2015: 1).

Marett, Otondo and Taylor (2013) identify the reasons to use a particular information system as environmental contributions that a system offers for the environment of the user, financial contributions offered to user, and enabling environmental acceptance of the user. Also, business environment of the user may have an effect on the use continuance of the required systems (Marett, Otondo & Taylor 2013: 1302-1305). Ratten (2015: 2-3) proposes that organizational tendency to use an information system also increases the organizational capabilities in facing environmental risks (Ratten, 2015: 2-3). In their empirical study DeGroot and Marx (2013: 913) conclude that increase in information technology use contributes to the supply chain agility due to easy access to qualified information and integration of information to each process.

### 1.3.3. Relation between Net Benefits and Organizational Agility

Examination of IS Success model (Figure1) reveals that intention to use that is created through system quality, service quality and information quality provides net benefits. There are also studies that conclude that IS Success has a direct impact on organizational performance (Tallon & Pinsonneault, 2011: 465-466).

According to literature review mentioned above, it can be derived that there may be correlation between information system employment and organizational agility. Nevertheless, the role of information systems on organizational agility is not clear enough since there is lack of quantitative evidence in the literature. Hence, this correlation should also be tested quantitatively to contribute to the literature since there are limited quantitative studies about this subject. In this study, in order to pinpoint and cross check this relation inferred from the literature, the research question addressed is “Is information system success factors related with organizational agility?” In order to investigate this research question, the relation between IS Success factors and organizational agility should be divided sub research questions as follows;

- Is service quality related with organizational agility?
- Is system quality related with organizational agility?
- Is information quality related with organizational agility?
- Is user satisfaction related with organizational agility?
- Is system use related with organizational agility?
- Is net benefits related with organizational agility?

## 2. CORRELATIONAL STUDY

### 2.1. Hypothesis

In the literature, apart from the studies that propose a significant and positive relation between information systems and organizational agility, there are also studies that posit the independence of these two and even the negative impact of organizational agility on information systems (Tallon & Pinsonneault, 2011: 469). In order to investigate the quantitative relationship between organizational agility and IS success, this correlational study is conducted with the main hypothesis as follow.

*H<sub>1</sub>: There is a significant relation between IS Success and organizational agility*

In addition, following sub-hypotheses are proposed to determine this research objective which includes deeper understanding of the relationship between dimensions of IS success factors and organizational agility.

*H<sub>1a</sub>: There is a significant relation between system quality and organizational agility.*

*H<sub>1b</sub>: There is a significant relation between service quality and organizational agility.*

*H<sub>1c</sub>: There is a significant relation between information quality and organizational agility.*

*H<sub>1d</sub>: There is a significant relation between intention to use and organizational agility.*

*H<sub>1e</sub>: There is a significant relation between net benefits and organizational agility*

## **2.2. Methodology**

To test the inferences derived from literature a survey is conducted to compare the organization agility and information system success model that investigate at which level IS success is relevant to being an agile organization.

There are various IS models developed in MIS literature. Several models developed after 1980s are Technology Acceptance Model (1986), Cognitive Fit Theory (1991), Task Technology Fit (1995), UTAUT (2003), and IS Continuance Model. Cognitive Fit Theory focuses the possible advantages of information systems in the improvement of problem solving performance (Vessey & Galletta, 1991: 65-66). Technology Acceptance Model (TAM) focuses on the measurement of the user attitude reasons via perceived usability and ease of use (Davis, 1985: 24-25). Task-Technology Fit (TTF) model investigates the domain specific and facilitative factors that a system should have to provide advantages to the users (Goodhue & Thompson, 1995: 213). IS Continuance Model examines the behavioral attitudes towards the use of a system (Bhattacharjee, 2001: 356). The Unified Theory of Acceptance

and Use of Technology (UTAUT) model, which is developed with the integration of mentioned eight models, focuses on the social and individual factors that are effective in a system's use (Wang & Shih, 2009: 159). As it can be seen, IS Success Model addresses all aspects of information systems where other scales cover only user (i.e. behavioural) or output (i.e. technological) aspects. When all these models are considered, IS Success Model can be seen as the most comprehensive and well situated one for the scope of this study.

The scale that is developed by Zain et al. (2003) is used as organizational agility scale. Examination of several scales in different studies (Lu & Rammamurthy; 2011 and Nijssen & Paauwe, 2012) reveals that these scales consider only customers, employees, and production processes as the inner and outer organizational factors. However, Zain et al. (2003) address all factors like customers, financial status of the organization, strategical relations with competitors, inner factors affecting the competitiveness of the organization, and uncertainty and change management abilities. So, it can be said that the scale developed by Zain et al. (2003) is the most comprehensive and realistic one with regard to the current business environment.

### **2.2.1. Design**

This research is designed as a correlational study which is used to test correlation between two or more different phenomena or groups. In order to investigate the correlation, data is collected from the participants via questionnaire.

### **2.2.2. Participants**

In order to investigate the correlation between organizational agility and information systems success, information system intensive private sectors are specified. According to the Erzurum chamber of commerce statistics, private insurance companies are one of the most IS intensive sectors in Erzurum, Turkey. Since all the insurance companies have to use Insurance Information and Monitoring Center information system (TRAMER Information System), insurance companies are determined as population of the study. In Erzurum, there are 100 insurance companies in total. The data collection instruments were sent to those all companies. However, only 90 companies accepted the questionnaires and 75 of those filled the questionnaires. This means that, there is 83.3 % response rate

and this rate is acceptable according to the study of Babbie (1990) which reported that 70% response rate is acceptable. In each company, one manager or authorized person filled the questionnaire (Sivo, Saunders, Chang & Jiang, 2006: 359). A total of 75 subjects, 30 female and 45 male, have participated in this experiment. Detail demographic and experience information is shown in Table 1.

**Table 1. Demographic Information of the Participants**

		N	%
Gender	Male	45	60
	Female	30	40
Age	20-30	18	24
	31-40	47	62,7
	41 +	10	13,3
Age of Company	1-5 years	13	17,3
	6-10 years	44	58,7
	11 years or more	18	24
Participants working experience	1-5 years	15	20
	6-10 years	40	53,3
	11 years or more	20	26,7
TRAMER Use	1-5 years	16	21,3
	6-10 years	41	54,7
	11 years or more	18	24

### 2.2.3. Data Collection and Instrument

In order to obtain data about organization agility and information system success, a questionnaire consisting of three parts was developed based on the literature review. The first part of the questionnaire aims to collect demographic and experience of the participants. The second part include 45 five-point Likert types items about IS Success based on the literature. For this part of the questionnaire, D&M IS Success Model

developed by Delone and McLean (1992; 2003), IS Success questionnaire developed by Seddon and Kiew (1996) and service quality questionnaire proposed by Parasurman et al. (1988) were used. For the third part of the questionnaire that intends to measure organizational agility a questionnaire developed by Zain et al. (2003) was adapted and used. The final version of the questionnaire was reviewed by experts for language treatment.

#### 2.2.4. Validity and Reliability

In order to check internal consistency, Cronbach's alpha were calculated as a reliability analysis. In this study, it can be inferred that the reliability of data collection instrument and participants homogeneity is adequate for this study ( $\alpha=0.93$ ) (Tavakol & Dennick, 2011: 53-54). Moreover, for organizational agility part of the questionnaire and each factors of its success part i.e. system quality, service quality, information quality, user satisfaction and net benefits Cronbach's alpha coefficient was also calculated separately (Table 2).

**Table 2. Cronbach alpha coefficients for all factors**

The Measures of IS Success	Cronbach Alfa
System Quality	0,811
Service Quality	0,704
Information Quality	,822
User Satisfaction/System Use	0,786/0,828
Net Benefits	0,783
Organizational Agility	0,895

#### 2.3. Findings

In order to analyze the data, in addition to frequency analysis, t-test, analysis of variance, Pearson correlation and regression analysis were conducted.

### 2.3.1. Findings about the Participants

Demographic and experience information about the participants were presented in Table 1. In order to analyze the relationship of these variables with IS Success and organizational agility, t-test and ANOVA tests are conducted. The results of those tests are presented in Table 3.

**Table 3. The relationship of demographic information with IS Success Factors and Organizational Agility**

	Gender	Age of Participant	Age of Organization	Experiment of Participant	Using of IS
	<i>t</i>	<i>Anova</i>	<i>Anova</i>	<i>Anova</i>	<i>Anova</i>
System Quality	,925	,683	,548	,972	,915
Service Quality	,490	,855	,660	,896	,783
Information Quality	,151	,337	,079	,122	,084
User Satisfaction	,401	,909	,230	,659	,617
Intention to Using/System Use	,374	,867	,239	,662	,239
Net Benefits	,549	,987	,064	,756	,797
Organizational Agility	,121	,958	,899	,901	,670

\*, The mean difference is significant at the 0.05 level.

According to these result, there is no significant relationship of age, gender, age of the company, experience of the participants with organizational agility and IS success factors.

### 2.3.2. Findings about the Relationship between IS Success and Organizational Agility

To assure the usage of parametric tests data is analyzed for satisfying normal distribution first. Since the statistical normality tests are reported to be more suitable for studies having less than 50 participants, skewness and kurtosis values are calculated (Steinskog, Tjøstheim & Kvamstø,

2007: 1151-1153; Ghasemi & Zahediasl, 2012: 487). In addition to those values, mode, median and mean values also are examined (Table 4). With the help of the histogram graphic of the data, it is decided to use parametric tests to further analysis.

**Table 4. Tests of Normality**

	System Quality	Service Quality	Information Quality	User Satisfaction	Intention to Using/System Use	Net Benefits	Organizational Agility
Skewness	-4,42	-3,02	-4,31	-2,24	-1,87	-2,27	-1,94
Kurtosis	4,81	3,63	6,94	<b>0,82</b>	<b>0,13</b>	<b>0,74</b>	<b>0,12</b>
Mean	<b>4,00</b>	<b>4,11</b>	<b>4,27</b>	<b>4,19</b>	<b>4,00</b>	<b>4,09</b>	<b>4,18</b>
Median	<b>4,10</b>	<b>4,20</b>	<b>4,40</b>	<b>4,11</b>	<b>4,00</b>	<b>4,00</b>	<b>4,31</b>
Mode	<b>4,00</b>	<b>4,00</b>	<b>4,00</b>	<b>4,00</b>	<b>4,00</b>	<b>4,00</b>	<b>4,00</b>

Firstly, in order to find out the relationship between IS success factors and organizational agility, Pearson product-moment correlation coefficient which is used to identify relationship between two variables was computed (Kremelberg, 2011: 121). The test also reveals the direction and strengths of the relationship. Accordingly, there was a positive correlation between organizational agility and IS success factors. All correlational values about those variables are listed in Table 5. This means that H1 is accepted.

**Table 5. Pearson Correlation**

	System Quality	Service Quality	Information Quality	User Satisfaction	Intention to Using/System Use	Net Benefits	Organizational Agility
System Quality	1						
Service Quality	r=0.548 p=0.000	1					
Information Quality	r=0.505 p=0.000	r=0.623 p=0.000	1				

User Satisfaction	r=0.233 p=0.044	r=0.537 p=0.000	r=0.618 p=0.000	1			
Intention to Using/System Use	r=0.271 p=0.019	r=0.374 p=0.001	r=0.547 p=0.000	r=0.462 p=0.000	1		
Net Benefits	r=0.262 p=0.023	r=0.440 p=0.000	r=0.486 p=0.000	r=0.477 p=0.000	r=0.436 p=0.000	1	
Organizational Agility	r=0.308 p=0.023	r=0.600 p=0.000	r=0.560 p=0.000	r=0.449 p=0.000	r=0.521 p=0.000	r=0.571 p=0.000	1
Means	4.0013	4.1147	4.2733	4.1911	3.9956	4.0933	4.1785
Standard Deviation	0.6270	0.5828	0.4241	0.4931	0.6547	0.6030	0.5479

It was decided to employ linear regression analysis to make deeper analysis revealing the relationship between IS success factors (system quality, service quality, information quality, user satisfaction, intention to using/system use, net benefits) and organizational agility separately. This enables us to understand the relationship mathematically (Chatterjee & Hadi, 2006: 1). However, in order to understand the interrelatedness of the independent variables, variance inflation factors (VIF) test should be employed for collinearity analysis (Liao & Valliant, 2012: 53). According to the findings shown in Table 6, all VIF values for the factors are less than 5. According to Montgomery (2001), this results show that there is no collinearity between the IS success factors (Reddy, Balasubramanyam & Subbarayudu 2013: 28). That is to say, all relationships obtained from the regression analysis (Table 6) will represent the effect of the each factor on organizational agility.

**Table 6. Multiple Regression Analysis Result**

	Beta	T	P	VIF
System Quality ( $x_1$ )	-0.88	-,969	,336	1,605
Service Quality ( $x_2$ )	0.37	3,268	,002*	2,093
Information Quality ( $x_3$ )	0.19	1,126	,264	2,521
User Satisfaction ( $x_4$ )	-0.08	-,620	,537	1,935
Intention to Using/System Use ( $x_5$ )	0.19	2,237	,029*	1,539
Net Benefits ( $x_6$ )	0.26	2,864	,006*	1,489
R <sup>2</sup>	54			
Adjusted R <sup>2</sup>	50			
F	13,163			
P	,000			
Constant	0,704			

\*, Correlation is significant at the level 0.05 level

According to the Table 5, IS success factors significantly predicted organizational agility ( $R^2 = 0.54$ ,  $F(6, 68) = 13.163$ ,  $p < .001$ ). This means that, almost half of (54%) organizational agility can be explained by IS success factors. In terms of significance level, service quality ( $\beta=.370$ ), net benefits ( $\beta=.26$ ) and system use ( $\beta=.19$ ) have effects on organizational agility. These give information about the relationship between the IS Success factors and organizational agility. As one can see from the Table, however, three of IS success factors including system quality, information quality and user satisfaction have not statistically significant effect on organizational agility.

Moreover, marginal effect test have been conducted via STATA 11 software. This test is used to indicate the effect of per unit change of independent variables on the dependent variable (Powers & Xie, 2000:

77). The result is shown in following formula and other related results are shown in Table 7.

$$Y = (x_1 * -0,88) + (x_2 * 0,37) + (x_3 * 0,19) + (x_4 * -0,08) + (x_5 * 0,19) + (x_6 * 0,26) + 0,704$$

(1)

Where,  $x_1$ ,  $x_2$ ,  $x_3$ ,  $x_4$ ,  $x_5$  and  $x_6$  represent system quality, service quality and information quality and user satisfaction, intention to using /system use and net benefits respectively.

**Table 7. Marginal Effects after Regression**

	dy/dx	Standard Error	z	P>  Z
System Quality	-0.88	0.091	-0.97	0.333
Service Quality	0.37	0.112	3.27	0.001
Information Quality	0.19	0.169	1.13	0.260
User Satisfaction	-0.08	0.128	-0.62	0.535
Intention to Using/System Use	0.19	0.085	2.24	0.025
Net Benefits	0.26	0.091	2.86	0.004

## DISCUSSION AND CONCLUSION

In this study, the effect of IS success on organizational agility was investigated. In order to address the relationship of both factors and respond to the research questions, data collected from the participants were analyzed by using, correlation, and regression and variance analysis.

According to the correlation analysis conducted to assess the relation between IS success and organizational agility, all IS success factors significantly related with organizational agility. The correlations between each IS Success factor also have parallel characteristic in the study of Wang and Liao (2008). These characteristics refer to each IS Success

factor's having intimate relation with the others. This correlation is also investigated by regression analysis and it is concluded that IS success factors have approximately 50% effect on organizational agility. While the service quality factor of IS success have the highest effect on organizational agility, system quality factor have the least effect.

Based on these results and literature review, organizational agility and information systems success have two-way effects. This means that, in order to be an agile organization, employing information system successively may make a major contribution, or vice versa. This two-way and mutual relation enables organizations to be adaptive to their environments and improve skills to enter into new communications. Thereby, organizations may catch the era of being digital firm which gives additional competitive advantage to the organizations. To achieve this aim, organizations should re-evaluate information system they are using based on IS success criteria and re-new or repair accordingly to improve the contribution of IS. This statement is also supported by the result of this study that shows successful utilization of information systems effects organizational agility at 50 % level.

From the findings, it can be inferred that policy and attitude of any company providing service via information systems may have great importance on the maximization of the effect of information systems on organizational agility. Specially, pre-sale and after sale service policies of an organization may affect customer confidence in IS use. This is important for using information extracted from the IS for organization facilities. In this study, since the system quality factor of IS success is related to after sales services, it has lower effect on organizational agility. In addition to system quality, information quality that IS provide is also an important factor on organizational agility. That is to say, based on the findings, it is obvious that both high information quality and high system quality increase the utilization of IS. In the detailed regression analysis it is observed that when considered with other factors, system quality and customer satisfaction factors has a negative impact on organizational agility. These findings may be further investigated in future studies.

It is also inferred from the study that increase in service quality, intention of use and net benefits of IS, contribute organization to achieve being an agile and proactive organization. This may because of the fact that IS flatten the hierarchical structure of organization and lessen the

business processes load on decision making process. However, these technical issues of IS explain the half of organizational agility. Remaining part still depends on managerial and organizational principles and policies (But see also Lee & Kozar, 2006). It is important to note that, IS success is highly related to user attitudes and utilization of IS. In the study by Coronado M. et al. (2002), it is also recommended that organization should take business processes into high consideration to have high quality information system.

The data of this study was acquired from the insurance companies in Erzurum, Turkey. This is an important limitation of the study. However, it is important to note that all insurance companies serving in Turkey are required to use TRAMER system. Moreover, most of those companies are international firms and they located their branches in Erzurum. This is an advantage for generalizability of the results. Nevertheless, this study may extend to other regions or other sectors to prove the relationship between IS success factors and organizational agility in different context.

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