



Activate Climate of Change to Motivate Users toward Using Innovative Public E-Services

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Abstract

Purpose- The purpose of this paper is to assess the factors that motivate users toward using innovative public e-services that provided by e-governments, to enhance services and reduce costs. The effect of users' demographic characteristics on motivation factors are examined as well. **Design/Methodology-** A questionnaire survey was contact on sample of 676 users of public e-services, and research hypotheses were tested using variance analysis with SPSS software. **Findings-** The results showed that *benefits, cost, risk*, and opportunity have a positive significant relationship toward motivate users to use innovative public e-services. The demographic characteristics *education, age, and job type* have no statistically significant differences on using innovative public e-services, except *gender* have statistically significant effect on *risk* and opportunity. **Originality/Value-** paper extends the previous research that investigated impact of e-recruitment as one of the online services provided by organizations, innovative public e-services are important to any organization in doing services online with shortest time and less cost.

Keywords: E-government; Information technology; Benefits; Opportunity; Risk; Cost.

1. Introduction

Today, information technologies have influenced and changed our lives in different ways. Countries face great and multiple challenges, which create more, stress and produce many obstacles, when dealing with public and private services for organizations and governments. The organizations are required to change their methods of traditional management and adopt modern concepts if they want to achieve their goals efficiently and effectively in order to reach development and distinction (Waaer, 2010).

Government organizations around the world are increasingly making their services available online. E-government services are very important in reducing costs and improving services compared to traditional modes of government services delivery (Carter and Belanger, 2005). The provision of suitable public e-services is the factor affecting users' satisfaction and consequently, customer maintenance, and customer's satisfaction with provided services leads to recommending the products/services to others by the customers (Mansoori and Baradaran, 2010). Organizations in the public sector are under increasing pressure to demonstrate that their services are customer-focused, and that continuous performance improvement is being delivered (Ramseook-Munhurrun *et al.*, 2010).

The public sector is facing large and fast changes that require a quick business process response, which can be secured by management applications and information integration by the governmental institutions, to guarantee the satisfaction of the customers and to itself sustain within the fields of competition, survival, and development. The benefit of public e-services is speed and convenience, while taking public approval or opinions, and thus helping to enhance government services (Dhindsa *et al.*, 2013).

The purpose of this paper is to evaluate the factors that affect on motivating users to use innovative public e-services by examining the climate of change that the governmental organization can provide to users. Survey data collected from a sample of Arabic countries has been used e-services to examine users' motivation,

The paper consists of five sections. After the introduction, the research model is explained and research propositions are developed. Next, research methodology is presented, including sample description and research instrument. Data analysis and main research findings are provided in the fourth section. Finally, research results are discussed and directions for future researches are introduced.

2. Theory and Research Hypotheses Development

Electronic government refers to the delivery of government-related information and services online through the Internet (West, 2004). E-government initiatives have the potential to deliver better services (Yaghoubi *et al.*, 2011). The United Nations defined e-government as "the use of Information and Communication Technology and its application by the government for the provision of information and public services to the people" (United Nations, 2012). The World Bank defined "e-government is the use of government agencies information technologies such as the Internet to have the ability to transform relations with citizens, businesses, and other arms of government" (World Bank, 2012). To maximize the benefits of e-government, service delivery and administration must be integrated across all branches of government, so called One-Stop-Shop e-government model (Alyaqoub, 2016).

There is still no agreed on definition about the concept of users' satisfaction because most of the definitions are about users' expectations or the comparison between users' expectations and their perceptions of service quality

(Alangari, 2013). Many organizations are shifting from a product centric to a customer centric model to meet customer demands and satisfying those (Mazidi et al., 2014).

The results of Orgeron (2011) showed that different factors influenced users' satisfaction with the e-services provided by the Mississippi state USA government, the e-services quality needed to perform better to gain more users' satisfaction. Bavarsad and Mennatyan (2013), recommended that the public sector should encourage people to use e-government services. Prajakta and Hemalatha (2015), advised in their study to collect citizens' feedback frequently and advice mechanisms that will help the government provide e-services that are more effective.

Osman et al. (2011), introduced the COBRAS model with four factors; *benefit, cost, risk, and opportunity* that affect user's satisfaction. These factors influence the attitudes toward using e-services. The COBRAS model used to measure e-services success from diverse users' points of view. It depends on the *benefit, cost, risk, and opportunity* analysis of the users' engagement with e-services for determining the users' satisfaction with e-services (Mukumbareza, 2014). It also allows policy makers to compare one or more homogenous e-services in the same country or compare them to similar e-services in any other countries (AIBalushi and Ali, 2015). E-recruitment as one of the e-services increased users' satisfaction, because selecting candidates have high transparency (Alsultanny and Alotaibi, 2015).

3. Research Methodology

Based on COBRAS model (Osman et al., 2011) to test our expectation and gain better understanding for the factors affect on motivation users to use innovative public e-services, the research model of this paper was designed as shown in Figure 1. This model has four independent factors: *benefit, cost, risk, and opportunity*. These factors will be used to test innovative public e-services, which are considered independent variables. The demographic information added to COBRAS model to test the effect of demographic information: *gender, education, age, and job type* on motivation users to use innovative public e-services. Our propositions are;

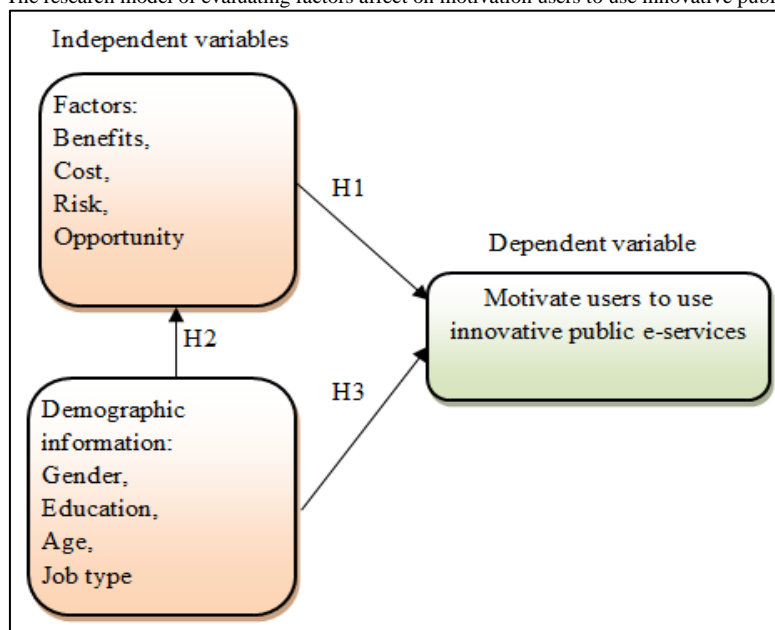
H1: The e-government services factors (*benefits, cost, risk, and opportunity*) have a positive effect on *motivate users to use innovative public e-services*.

H2: There are statistically significant differences of the e-government services users' demographic information (*gender, education, age, and job type*) on the factors (*benefits, cost, risk, opportunity*).

H3: There are statistically significant differences of the e-government services users' demographic information (*gender, education, age, and job type*) on *motivate users to use innovative public e-services*.

The quantitative approach used in this paper. The research tool is a questionnaire developed from two parts, the first part is for demographic information and questions concerning general information. The second part consists of 33 statements divided into four factors and users motivation to use innovative public e-services. The statements of the questionnaire rated using the 5-points Likert-scales from 1 (strongly disagree) to 5 (strongly agree).

Figure-1. The research model of evaluating factors affect on motivation users to use innovative public e-services



The relative acceptance was assigned based on the following formula:

$$\text{Relative acceptance} = [\text{Mean}/\text{Top scale (5)}] * 100 \dots (1)$$

The scale used to determine the respondents' acceptance level of the results are; 0-59% Poor (P), 60-69% Accepted (A), 70-79% Good (G), 80-89% Very Good (VG), and 90-100% Excellent (E).

According to Gerstman (2003), the correlation has a different interpretation in the range of values, a value of $|r| > 0.7$ which implies that there is a strong correlation between variables, $0.3 < |r| \leq 0.7$ moderate correlation, and $0 < |r| \leq 0.3$ weak correlation.

Before distributing the questionnaire, the validity was checked. The content validity was investigated. Content validity was attained by selecting most of the statements of the questionnaire from literature and other previous

research. The questionnaire piloted by interview with 8 university professors and experts in the field of information technology. They were asked to evaluate the content with regard to the language, accuracy, completeness, and clarity.

The questionnaire was sent randomly to 1045 real users of innovative public e-services in the Arabic region via an online questionnaire link. The data was gathered in three months; only 676 complete questionnaires were analyzed with an effective response rate of 64.7 %.

The data collected by questionnaire survey method were analyzed by using various statistical methods. Reliability is the degree to which the observed variable measures the true value and is error free (Zikmund *et al.*, 2009). Cronbach's alpha (α) coefficient is used to test the reliability, the results of testing showed the Cronbach's alpha is .961 for all the factors, which indicates a high consistency between the statements of the questionnaire, because it is above then the suggested value of .70, as well as each factor has value above .70 (Field and Kim, 2008). Thus the measures used in this study valid and internally consistent.

The results of testing normal distribution by Kolmogorov-Smirnov showed the statements of the questionnaire have normal distribution, because the sig values for each statement are greater than 0.05. The results of Levene's test for homogeneity showed that the collected data from responds are homogenous, because each statement has $\text{sig} > 0.05$.

4. Data Analysis and Research Findings

The descriptive analysis of 676 responds was applied. The results of the analysis show that 457 (67.6%) respondents in the sample are males and 219 (32.4%) respondents are females. This means that most of the respondents are men. For education, 491 (72.6%) respondents hold a university degree or higher, and 185 (27.4%) of the respondents hold a high school degree or less. Most of the respondents 471 (69.7%) are between 20–35 years, 103 (15.2%) respondents in the sample are 20 years of age or less; respondents; 72 (10.7%) respondents are 36–45 years; while the lowest 30 (4.4%) respondents are above 45 years. For the job the majority of respondents 233 (34.5%) are students, the public sector has a proportion of 197 (29.1%) of the respondents and private sector has 137 (20.3%), there are 53 (7.8%) working in organizations that belong to the military sector, and the percentage of unemployed is 28 (4.2%), there are 15 (2.2%) retired respondents in the sample. Most of the respondents 556 (82.2%) have an excellent ability to use computers, the others 120 (17.8%) have a good ability to use computers.

Table 1 shows the average, standard deviation (SD), relative acceptance, level, and rank (importance of statement for each factor). The average value of the statements for the factor *Benefits* ranged between 3.52 and 4.13, while the values of standard deviations ranged between 1.23 and 1.28. The relative acceptance range was between 73.0% and 82.6%. The first rank goes to S4, which is stated: “*The innovative public e-services are useful*”, with the highest average of 4.13, which is a very good level of acceptance. The average of this factor is 3.73 with relative acceptance of 74.7%, which is a good level of acceptance. It can be considered that all the users agreed that this technology and its new features could helpful in completing their serves online. This result supported by Alrogibah (2011) study that the online information should be updated regularly to enhance the users' satisfaction.

The *Cost* factor has average values ranged between 3.01 and 4.28, while the values of standard deviations ranged between 1.26 and 1.43; the relative acceptance range is 60.2% to 85.6%. The first rank goes to S7, which is stated: “*Using the innovative public e-services saves my time*”, with the highest average of 4.28, which is a very good level of acceptance. The average of this factor is 3.80 with relative acceptance of 76.0%, which is a good level of acceptance. It can be considered that all the users agreed that this technology and its new features could save time and money. The results supported by the study held by Lehemets (2012), e-services will result in significant cost savings to governments and citizens alike.

The *Risk* factor has average values ranged between 2.64 and 3.85, while the values of standard deviations ranged between 1.27 and 1.48 and the relative acceptance between 52.8% and 77.0%. The first rank goes to S18, which is stated: “*Information provided by users in the innovative public e-services is archived securely*” with the highest average of 3.85 and standard deviation of 1.27, and relative acceptance of 77%, which is a good level. The average for this factor is 3.14 and relative acceptance of 62.8%, which is an acceptable level. This result supported by Osman *et al.* (2011) study. The lower the e-service risk is the higher users' satisfaction.

For the *Opportunity* factor, the first rank goes to S23, which stated: “*The innovative public e-services provide services at any time*” with the higher average of 4.03 and standard deviation 1.30, which is very good level. The average for this factor is 3.67 with a standard deviation 1.31, and relative acceptance 73.6%, which is good level of acceptance. This result is supported by Lehemets (2012) that e-service support includes accessing the services at any time and from any place, personalization of e-services, several delivery periods, responsiveness, process, more attractive, and error correction during a transaction.

The *motivate* users to use innovative public e-services factor has the average value of the statements ranged between 3.71-4.02, while the values of standard deviations ranged between 1.22-1.31. The first rank goes to S32, which states: “*I advise my friends to use the innovative public e-services continuously*”, with highest average 4.02 and standard deviation 1.31, which is a very good acceptance level. The average of this factor is 3.86 with a standard deviation 1.26, and relative acceptance 77.2%, which is a good acceptance level. It can be concluded that users are generally satisfied with the innovative public e-services therefore; they are willing to use it in the future and leave the traditional methods.

Table-1. Descriptive statistics of the study factors

No	Statements	Average	SD*	Relative acceptance %	Level	Rank
S1	The instructions on performing innovative public e-services are helpful	3.67	1.26	73.4	G	3
S2	The referral links to the innovative public e-services are useful	3.78	1.26	75.6	G	2
S3	The information displayed on the innovative public e-services website is updated	3.52	1.24	70.4	A	6
S4	The innovative public e-services are useful	4.13	1.28	82.6	VG	1
S5	The innovative public e-services information is well organized and useful	3.65	1.24	73.0	G	5
S6	The drop-down menus are useful for completing the innovative public e-services	3.66	1.23	73.2	G	4
Factor average – benefits		3.73	1.25	74.7	Good	
S7	Using the innovative public e-services saves my time.	4.28	1.29	85.6	VG	1
S8	The innovative public e-services steps take several attempts to complete the service due to system breakdowns	3.01	1.35	60.2	A	7
S9	It takes a short period of time to acknowledge the completion one of innovative public e-services	3.64	1.26	72.8	G	6
S10	Using the innovative public e-services saves my money	3.75	1.40	75.0	G	5
S11	The innovative public e-services stops any potential bribe to get the service	4.10	1.40	82.0	VG	2
S12	The innovative public e-services reduces the bureaucratic process	3.88	1.34	77.6	G	4
S13	The innovative public e-services limit the need for travel to get service	3.94	1.43	78.8	G	3
Factor average - cost		3.80	1.35	76.0	Good	
S14	I am afraid that my personal information may be used for other purposes	2.95	1.48	59.0	P	3
S15	The innovative public e-services may lead to the wrong payment action	2.64	1.31	52.8	P	4
S16	I worry about conducting online transactions because they require personal financial information	2.64	1.44	52.8	P	5
S17	Using the innovative public e-services leads to fewer interactions with people	3.63	1.38	72.6	G	2
S18	Information provided by users in the innovative public e-service are archived securely	3.85	1.27	77.0	G	1
Factor average - risk		3.14	1.37	62.8	Accept	
S19	The innovative public e-service offers tools for users with special needs (such as: touch screen)	3.44	1.32	68.8	A	8
S20	The information is provided in multiple languages	3.27	1.23	65.4	A	10
S21	There is an encouraging incentive for using the innovative public e-services	3.43	1.39	68.6	A	9
S22	I can share my experience with others while using innovative public e-services	3.79	1.34	75.8	G	5
S23	The innovative public e-services provide services at any time	4.03	1.30	80.6	VG	1
S24	The innovative public e-services can be reached from anywhere.	3.97	1.37	79.4	G	2
S25	The information needed for using the innovative public e-services are accessible	3.88	1.30	77.6	G	3
S26	The innovative public e-services lead me to the place of errors, if any, during a transaction	3.52	1.31	70.4	G	7
S27	The innovative public e-services allow me to update my records online	3.82	1.28	76.4	G	4

S28	The innovative public e-services can be completed incrementally at different times	3.64	1.31	72.8	G	6
Factor average- opportunity		3.67	1.31	73.6	Good	
S29	Generally, I am completely satisfied with the innovative public e-services	3.86	1.22	77.2	G	3
S30	I can use the services provided by the innovative public e-services easily	3.95	1.22	79.0	G	2
S31	I am satisfied with the speed of updating and developing data and information on the innovative public e-services	3.78	1.27	75.6	G	4
S32	I advise my friends to use the innovative public e-services continuously	4.02	1.31	80.4	VG	1
S33	I am satisfied with the speed of innovative public e-services information loading	3.71	1.28	74.2	G	5
Factor average – motivate users to use innovative public e-services		3.86	1.26	77.2	Good	

The Pearson's test was used to measure the correlation between the four factors (*benefit cost, risk, and opportunity*) and *motivate users to use innovative public e-services*. Table 2 presents the results of the testing. The Pearson's correlation coefficients have not revealed negative or very low correlations between factors examined. Furthermore, all of them were statistically significant at the level 0.01.7. In other words: there is a strong correlation between the *benefits, cost, opportunity, and motivate users to use innovative public e-services* with values 0.833, 0.784 and 0.842 respectively, while the correlation between *risk and motivate users to use innovative public e-services* is weak with a value of 0.295.

Table-2. The Pearson correlation

No	Factor		Correlation Coefficients	Sig.
1	Benefits	Motivate users to use innovative public e-services	0.833	0.000**
2	Cost		0.784	0.000**
3	Risk		0.295	0.000**
4	Opportunity		0.842	0.000**

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

The hypothesis H1 was tested by using simple linear regression. As shown in Table 3. The results showed that the factor of determination r square=.693, between the *motivate users to use innovative public e-services* and *benefit*. This indicates a high effect of benefit on *motivate users to use innovative public e-services*, and there is a statistically significant effect of *benefit* on *motivate users to use innovative public e-services*. This results' are supported by a study held by Osman et al. (2011).

The factor of determination r square=.615 between the *motivate users to use innovative public e-services* and *cost*. This indicates a moderate effect of *cost* on *motivate users to use innovative public e-services* and there is a statistically significant effect of *cost* on *motivate users to use innovative public e-services*. These results assure that the *cost* is very important to increase the users' satisfaction. According to Al-Saraireh and Alnabhan (2014) the *cost* is important and has a relationship with user satisfaction.

The factor of determination r square=.087 between the *motivate users to use innovative public e-services* and *risk*, this indicates a weak effect of *risk* on *motivate users to use innovative public e-services*, and there is a statistically significant effect of *risk* on *motivate users to use innovative public e-services*. This result assures that the *risk* is important to improve the user satisfaction, which is supported by the study held by Alomar and Woods (2009) that the safety, trust, and security are considered as important factors that explain users' satisfaction of innovative public e-services.

The factor of determination r square=.709 between *motivate users to use innovative public e-services* and *opportunity*, there is a statistically significant effect of *opportunity* on *motivate users to use innovative public e-services*. This indicates that *opportunity* is very important to the users, which is supported by the study held by Osman et al. (2011).

Table-3. Simple linear regression for the hypothesis H1

Factor	Sum of squares	Mean square	r	r square	F	Sig.	Regression equation
Benefit	582.344	582.344	.833	.693	1520.490	.000	motivate users to use innovative public e-services=.540+.889 (benefit)
	257.757	.383					
Cost	516.743	516.743	.784	.615	1075.492	.000	motivate users to use innovative public e-services=.502+.885(cost)
	323.357	.480					
Risk	73.086	73.086	.295	.087	64.127	.000	motivate users to use innovative public e-services=2.573+.411(risk)
	767.015	1.140					
Opportunity	73.086	73.086	.295	.087	64.127	.000	motivate users to use innovative public e-services=0.315+0.965 (opportunity)
	767.015	1.140					

Independent samples T-test and One-Way ANOVA used to test hypothesis H2. Table 4 shows that there are no statistically significant differences between males and females in *benefit*, and *cost*. However, *risk* and *opportunity* have statistically significant differences between female and male responses. The females have a higher demand for *risk* and *opportunity* than males, maybe because females need more *opportunity* to use the innovative public e-services anywhere for more privacy. On the other hand, they believe it is important to keep their information safe and secure. In addition, e-services are used more widely by males than by females. The study of Venkatesh and Davis (2000) recommended the importance of testing gender differences when analyzing technological use, including that of e-government web services.

The table also shows that *education* have no statistically significant differences in the study sample responses for all the factors, Maybe this is so because the innovative public e-services is suitable and easy for all users regardless of their educational level.

Table-4. Testing effect of gender and education benefit, cost, risk, and opportunity

Demographic information	Factor	Type	Number	Means	SD	T value	df	Sig.
Gender	Benefit	Male	457	3.7338	1.084	-.034	674	0.973
		Female	219	3.7367	.963	-.035		
	Cost	Male	457	3.7971	1.035	-.109	674	0.913
		Female	219	3.8060	.888	-.115		
	Risk	Male	457	3.0670	.820	-3.647	674	0.000
		Female	219	3.3055	.736	-3.789		
Opportunity	Male	457	3.6256	1.002	-2.036	674	0.042	
	Female	219	3.7885	.906	-2.109			
Education	Benefit	High school or less	185	3.717	.977	-.268	674	0.789
		University	491	3.741	1.072	-.280		
	Cost	High school or less	184	3.749	.935	-.816	674	0.415
		University	491	3.819	1.009	-.845		
	Risk	High school or less	184	3.195	.860	1.025	674	0.306
		University	491	3.124	.778	.979		
	Opportunity	High school or less	184	3.672	1.001	-.097	674	0.923
		University	491	3.680	.965	-.095		

One Way ANOVA used to test the effect of *age* and *job type*. Table 5 shows that the *age* and *job type* have no statistically significant effect on all the factors. Maybe this is so because the innovative public e-service is suitable and easy for all users regardless of their age categories and job type.

Table-5. Testing effect of age and job type on benefit, cost, risk, and opportunity

Demographic information	Factor	Sources of variance	Sum of squares	df.	Means squares	F	Sig.
Age	Benefit	Between Groups	.558	3	.186	.169	.917
		Within Groups	738.645	672	1.099		
		Total	739.203	675			
	Cost	Between Groups	1.740	3	.580	.591	.621
		Within Groups	658.464	671	.981		
		Total	660.204	674			
	Risk	Between Groups	4.587	3	1.529	2.393	.067
		Within Groups	428.776	671	.639		
		Total	433.363	674			
Opportunity	Between Groups	.909	3	.303	.318	.812	
	Within Groups	639.361	671	.953			
	Total	640.270	674				
Job Type	Benefit	Between Groups	7.140	6	1.190	1.088	.368
		Within Groups	732.063	669	1.094		
		Total	739.203	675			
	Cost	Between Groups	9.808	6	1.635	1.679	.123
		Within Groups	650.396	668	.974		
		Total	660.204	674			
	Risk	Between	4.447	6	.741	1.154	.329

		Groups					
		Within Groups	428.916	668	.642		
		Total	433.363	674			
	Opportunity	Between Groups	2.576	6	.429	.450	.845
		Within Groups	637.694	668	.955		
		Total	640.270	674			

To test hypothesis H3, independent samples T-test and One-Way ANOVA used on this test. Table 6 shows the results of T-test, the gender and education have no statistically significant differences, because the sig values are greater than 0.05 for both tests for gender and education.

Table-6. Testing effect of gender and education on motivate users to use innovative public e-services

Demographic information	Factor	Type	Number	Mean s	SD	T value	df	Sig.
Gender	Motivate users to use innovative public e-services	Male	457	3.8473	1.148	-.554	674	0.580
		Female	219	3.8982	1.048	-.572		
Education	Motivate users to use innovative public e-services	High school or less	184	3.823	1.105	-.567	674	0.571
		University	491	3.878	1.121	-.570		

Table 7 shows the results of One-Way ANOVA, the age and job type have no statistically significant differences, because the sig values are greater than 0.05 for both tests for age and job type.

Table-7. Testing effect of age and job type on motivate users to use innovative public e-services

Demographic information	Factor	Sources of variance	Sum of squares	df.	Means squares	F	Sig.
Age	Motivate users to use innovative public e-services	Between Groups	.973	3	.324	.259	.855
		Within Groups	839.128	671	1.251		
		Total	840.101	674			
Job Type	Motivate users to use innovative public e-services	Between Groups	12.271	6	2.045	1.650	.131
		Within Groups	827.830	668	1.239		
		Total	840.101	674			

5. Discussion and Conclusion

The innovative public e-services aims to provide users with various services electronically to facilitate the use of them as; secure, easy, rapid, and accurate.

To evaluate users' motivation to use innovative public e-services, data was collected from 676 respondents. The results showed that most of the users prefer to complete their transactions by using innovative public e-services. The benefits, cost, and opportunity from using innovative public e-services have good level of acceptance. The users agree that innovative public e-services reduce bribery. The users are satisfied about achieving their services from anywhere and anytime.

The results also showed that gender has no statistically significant differences except with risk and opportunity, because the female gender needs more opportunity and privacy to use the innovative public e-services. For Education, there is no statistically significant difference on all the factors because the factors are not depends on the education levels. Age and job type have no statistically significant differences on all factors, which means that differences in age and job type have no effect on motivate users to use innovative public e-services.

The paper recommended that the innovative public e-services need continuous update specially the security of the services to improve the users confidence toward using innovative public e-services.

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