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Development and initial Validation of a Scale to Measure the Quality of E-government System

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Abstract— In recent years, many citizens are demanding more and better services through the Internet. Therefore, government organizations should ensure the quality of their services to the e-government level, do their tasks properly and deliver the services as expected by the people. The purpose of this paper is to develop a valid and reliable scale to measure the quality of e-government system. This study attempts to identify, develop and validate the key dimensions of IS model in the context of e-government. The dimensions and the items of the proposed scale have a high acceptable reliability. The aim in developing of the proposed scale is to improve the overall performance and enhance the effectiveness of any e-government system.

Keywords— Scale, e-government, e-government system, system quality, service quality, information quality.

I. INTRODUCTION

'Electronic Government' (or in short 'e-government ') essentially refers to 'The utilization of Information Technology (IT), Information and Communication Technologies (ICTs), and other web-based telecommunication technologies to improve the efficiency and effectiveness of services delivered to the public sector.' [16]. E-government is the use of information and communication technologies (ICTs) to promote to have more efficient and effective government, facilitate more accessible government services, allow greater public access to information, and make government more accountable to citizens [40]. E-government might involve delivering services through the Internet, telephone, community centers (self-service or facilitated by others), wireless devices or other communication systems [30]. The primary delivery models or the interaction domains of e-government are: Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Government (G2G), Government-to-Employees (G2E)[31].

Government-to-Citizen (G2C) in brief involves such activities in which the government provides one-stop, on-line access to information and services to citizens. G2C applications enable citizens to question government agencies and receive answers; file income taxes; pay taxes; renew driver's licenses; pay traffic tickets; change address; and make appointments for vehicle emission inspections and driving tests. In addition, government may disseminate information on the web; provide downloadable forms online; conduct training; help citizens find employment; provide tourism and recreation information; render advice about health and safety issues; allow transfer of benefits like food coupons and the list continues[30]. We can look to E-government as a collection of information systems integrated or work alone to facilitate certain services to citizens through websites, common service centers, Kiosks or mobiles. Among the major issues of information systems the task of management is measuring and improving information systems (IS) effectiveness. In that, the concept of IS success is widely accepted throughout IS research as the principle criterion for evaluating information systems [29]. While information systems (IS) success model have received much attention among researchers, much research has not been done to assess the success of e-government systems. Whether traditional IS success models can be extended to assess e-government systems success also needs to be investigated [44]. Therefore, this work is an attempt to bridge this gap.

This work is divided into five sections: the first section presents an introduction to e-government, the interaction domains of e-government and information systems (IS). The second section presents the literature survey pertaining to assessment models, success and difficulties of DeLone & McLean IS Success Model, IS constructs and their dimensions. The third section presents the research methodology which deals with constructs of IS and generation of scale items. The fourth section deals with the result and discussion. The final section is about the conclusion.

II. LITERATURE SURVEY

Some of the assessment studies that have been introduced are, Technology Acceptance Model (TAM), DeLone and McLean's IS success model, E-government Assessment Framework (EAF), the e-government Economics Project (eGEP), and such others. Although there are many new technological developments, the dependent variable—IS success—and its underlying dimensionalities are still the same. Samar [37] in her research proposed that even though new business models are emerging, the fundamental role of IT has not changed, and thus the methodology for measuring the success of information systems (IS) should not change. The DeLone & McLean IS Success Model is an existing

success-measurement framework that has found wide application since its publication in 1992 [9]. The model is accepted to be the basic model for IS success evaluation within available IS literature; and secondly the DeLone and McLean's IS success model is a process based model, hence it is feasible for adoption to any change in the IS field [29]. In the D&M IS Success Model, "systems quality" measures technical success; "information quality" measures semantic success; and "service quality" measures use, "user satisfaction and net benefit" measure effectiveness success[8]. The difficulty of applying the D&M IS success model in order to define and operationalise IS success in specific research contexts has been overcome by Seddon's model [29], by means of proposing a two-dimensional matrix for classifying IS effectiveness measures based on the type of system studied and on the stakeholder in whose interest the IS is Being evaluated. In that Seddon et al.'s [29] context matrix is a good reference for selection of success measures based on context for a research Endeavour when selecting IS success dimensions and measures depending on the objectives and the context of the empirical investigation to be done. Selection of success dimensions and measures should be contingent on the objectives and context of the empirical investigation; but, where possible, tested and proven measures should be used[8]. As it is clear from above, the three constructs which are system quality, service quality and information quality are technical, semantic and service constructs which impact user satisfaction, system use, usage intension, and net system benefit (effectiveness success) which can lead to the success of e-government quality. Therefore we will concentrate here on system quality, service quality and information quality in order to investigate them in deep and find the most related dimensions and variables for these constructs and validate them in the context of e-government.

To the best of the researchers' knowledge, there are studies that have been carried out service, system or information quality separately but there was hardly any comprehensive study that assessed overall quality of these constructs in the context of e-government system from the citizens' prospective. So in this paper it is necessary to identify and examine the important dimensions under each construct to improve the ability of e-government to serve the citizens in a better way.

Nevertheless, different quality dimensions have been proposed and there is no consensus on the component dimensions [45]. Theorists are still grappling with the question of which constructs best measure IS success [33].Users also prefer different success measures, depending on the type of system being evaluated [8][17]. So we should keep in mind that the multidimensional and interdependent nature of IS success which requires careful attention to the definition and measurement of each aspect of this dependent variable[8]. As well as e-government systems success which is also a complex concept, and its measurement is expected to be multi-dimensional in nature [44]. A very large number of parameters and variables will have to be considered and assessed in order to decide the overall rating of an e-governance project; this would involve considerable resources to be invested. [34].

III. RESEARCH METHODOLOGY

A two-stage approach to develop a valid e-government quality dimensions and variables was followed. In the first stage, a content analysis was employed to identify the possible dimensions of e-government quality based on a literature review, focus group and expert's perceptions, opinions brain storming. In stage two, the dimensions' items were generated and tested to assess and refine the scale. The dimensions and items were generated from the literature as illustrated in Table **1**.

Table 1 some of the studies in the literature used for generating dimensions and items

Construct	Literature
System Quality	[4][24][28]
Service Quality	[12][35][37]
Information Quality	[13][19][28][20][27][43][42][39][36][7][46][25][20][10][22]

The scale was developed based on the guidelines of Churchill [2]; A. Parasuraman, Zeithaml, and Berry [32]; Anderson & Gerbing [5] and from a comprehensive qualitative research study that worked on the constructs, dimensions and their variables. Also SERVQUAL model has demonstrated a strong acceptance in measuring service quality [26], so the author followed the SERVQUAL model' steps with some modifications for building the scale.

The following steps were followed to build the scale:

Step 1: Identifications or generating of e-government systems' dimensions and their descriptions.

Step 2: Conducting many group discussions to eliminate the similarity, or rephrasing or rewording the dimensions names.

Step 3: Extraction of perceptions and expectation data from the experts in IT, commerce and management fields using Delphi Method [70] (face validity and constructs validity).

Step 4: Scale purification or (scale verification) process' steps in dimensions level:

1- Computation of Aiken's index Value of each dimension.
2- Deleting the dimensions with low Aiken's index Value.
3- Reassignment of the constructs and their related dimensions.

Step 5: Generating pool of items, which are representing the final dimensions.

Step 6: Extraction of perceptions and expectation data from the experts in IT, commerce and management fields using Delphi Method [38] (Face validity and constructs validity).

Step 7: Scale purification process' steps in items level:

1- Computation of Aiken's index Value of each item with its dimension.

2- Deleting the items with low correlations and their removal increased coefficient alpha.
3- Reassignment of the dimensions and their related items.

Step 8: Evaluation of the scale reliability and validity.
Step 9: Testing the stability of the scale using Test-re test.

The dimensions were screened for face validity with the help of experts from IT, commerce, linguistic and management fields to refine and eliminate the similarity or rephrasing the dimensions Using Delphi method.

***Face validity**:* Face validity is the extent to which a test is subjectively viewed as covering the concept it purports to measure. It refers to the transparency or relevance of a test as they appear to test participants[15][11].

Content validity: To assess content validity, researchers need to first define what they want to measure and discuss what is included in the definition and what is not included[1]. To ensure the content validity of the scales, the items selected must represent the concept about which generalizations are to be made [44]. The generally accepted quantitative index for content is the Aiken`s V index. The Aiken's V index with 0.80 indicates the good content validity of the measure. The steps of Aiken`s V index for content validity are as follows[4].

- *n* experts rate the degree to which the item taps an objective on 1 to *c* on Likert-scale, where *c* is the maximum score in grading scale (The author used 1-5 Likert-scale).
- Let *lo* = the lowest possible validity rating (usually, this is 1 on the Likert-scale)
- Let *r* = the rating by an expert
- Let $s = r - lo$
- Let *S* = the sum of *s* for the *n* raters

Aiken's V is then V = S / [n*(c-1)]

- The range will be from 0 to 1.0

A score of 1.0 is interpreted as all ratters giving the item the highest possible rating.

Delphi method: Delphi method [70] was used to initially assess sample items in order to provide input for developing a conceptual model of e-government service quality. The Delphi Method is based on a structured process for collecting and distilling knowledge from a group of experts by means of a series of questionnaires interspersed with controlled opinion feedback [3]. The objective of most Delphi applications is the reliable and creative exploration of ideas or the production of suitable information for decision making. According to Helmer [14], Delphi represents a useful communication device among a group of experts and thus facilitates the formation of a group judgment.

Stage one, selecting of e-government quality dimensions

The aim of this stage was first a comprehensive revision of the quality dimensions in the primary research studies and identifies overall key dimensions of the three constructs. Second, conducting many group discussions to eliminate the similarity, or rephrasing the dimensions. Third was a Collection of perceptions and expectation data from the experts. In terms of participants, 10 experts from information systems domain and 10 management and business professionals were asked to further select and validate the conceptual scale.

Stage two, selecting the variables of the dimensions

The author repeated the same steps of selecting the dimensions to reach the final agreement about the selected variables.

A pre-test: A pre-test of the scale was conducted to assess the content validity of the measurement scales. Content validity can be evaluated by a group of judges, sometimes experts, who read or look at a measuring technique and decide whether in their opinion it measures what its name suggests [18]. After the review by ten academics and ten professionals, who are specialized in e-governance, management, linguistics, and e-commerce, some items were reworded, added or deleted based on their feedback.

Test retest: Test–retest reliability is desirable in measures of constructs that are not expected to change over time [41]. Test-retest reliability is a statistical technique used to estimate components of measurement error by repeating the measurement process on the same subjects, under conditions as similar as possible, and comparing the observations[23].

IV. RESULTS AND DISCUSSIONS

First Stage, dimensions selections:

At this Stage, the author started with creating the dimensions under the three main constructs System Quality, Service Quality and Information Quality. A pool of dimensions was created from the literature. More than 142 main quality dimensions under three constructs have been generated. That was the initial dimensions pool of the scale. For the System Quality 18 dimensions were found, Service Quality 40 dimensions and Information Quality 84 dimensions. The dimensions were passed through many rounds of validation like face validity, content validity using Aikn's Index. The 142 dimensions were initially screened using face validity. Only 48 dimensions passed the face validity. Panels of twenty subject experts were given the scale for content validity where 48 dimensions were screened. After applying Aiken's index, the dimensions out of the focus were removed and a final list of 24 dimensions remained in the list. The results of

the validity are shown in Table 2. Face validity and Content validity were assessed by a panel of subject experts. The purpose was to depict those dimensions with a high degree of agreement among experts.

Table 2 Face and Content validity for developing scale dimensions

Description	System Quality	Service Quality	Information Quality	Total No. of dimensions	%
No. of dimensions screened at face validity	18	40	84	142	100.0
No. of dimensions removed by face validity	5	25	64	94	66.2
No. of dimensions passed face validity	13	15	20	48	33.8
No. of dimensions not satisfied Aiken's Index	4	7	13	24	16.9
No. of dimensions satisfied Aiken's Index (Content/Expert Validity)	9	8	7	24	16.9

The subject experts consisted of 20 experts from the fields like, Computer Science, Management, Commerce, English, and Linguistic. The results of final dimensions with Aikn's Index value are illustrated in Table 3 along with the definition of each dimension with respect to e-governance context.

Table 3 Final Dimensions with Aikn's Index value

a. System Quality

Dimensions	Definitions	Aikn's Index
Accessibility	The degree to which the system and the information it contains can be accessed with relatively low effort.	0.853
Flexibility	The system is flexible enough to meet needs or demands.	0.809
Functionality	The required functions are available in the system.	0.809
Integration	The degree to which a system facilitates the combination of information from various sources.	0.824
Response time	The degree to which a system offers quick (or timely) responses to requests for information or action.	0.868
Usefulness	The degree to which citizen believes that using the e-government to perform transactions with the government would enhance the outcome of the transactions.	0.838
Usability	The degree to which citizen believes that using the e-government to perform transactions with the government would be free of effort.	0.843
Reliability	The degree to which a system is accurate and dependable over time.	0.838
Security	The degree to which a system is secure and private.	0.853

b. Service Quality

Dimensions	Definitions	Aikn's Index
Assurance	The degree to which a service is assured, trusted and reliable.	0.838
Awareness	The degree to which a service should be well known to the citizen.	0.824
Regularity	Refers to the conformance and compliance to the rules, laws, standards and specifications.	0.824
Tangible	Tangible in e-government context is determined by the appearance of the web interface, its functionality and the type of services provided.	0.809
Transaction	The degree to which a service should provide a full transaction or process with consistency and durability for smooth execution, integrity and good result assurance.	0.824
Dependability	The degree to which a service is able to perform the promised service in a dependable and accurate manner.	0.809
Responsiveness	The degree to which employees' concerned is willing and ready to provide service. It involves timeliness of service.	0.838
Personalization	The degree to which website or application gives personal attention or can be customized for specific needs, and communicate or can be customized for the users directly with the language they understand.	0.809

c. Information Quality

Dimensions	Definitions	Aikn's Index
Accuracy	The degree to which information is sufficiently accurate.	0.824
Relevance	The degree to which information corresponds to the need and is applicable for the task at hand.	0.809
Believability	The degree to which information is trustworthy and from a credible source.	0.809
Useful	The extent to which information is beneficial, helpful and provides advantages from its use.	0.809
Understandability	The context of the concepts and relationships is clear.	0.824

Up to date	The extent to which information is current and up to date.	0.809
Completeness	The extent to which information is completed and sufficient.	0.853

Seconds Stage variables selections:

The variables of e-government quality dimensions were identified and a conceptual scale has been developed. The results of Face and Content validity of selected items (variables) are shown in Table **4**. The scale items were developed following Churchill [6] guidelines for measurement development. The variables on the scale were rated using Likert scale with 5-points which ranged from strongly agree to strongly disagree. After scrutiny by the subject experts over 177 variables across the three constructs of the scale, the statements that were found to be irrelevant were deleted.

Table **5**, Table 6 and Table 7 show the Aikn's index values for scale's items for the three constructs along with items description.

Table 4 Face and Content validity results of selecting the scale's items (variables)

Description	System Quality	Service Quality	Information Quality	Total No. of variables	Percentage
No. of variables screened at face validity	72	68	37	177	100.0
No. of variables removed by face validity	31	32	12	75	42.4
No. of variables passed face validity	41	36	25	102	57.6
No. of variables not satisfied Aiken's Index	22	20	12	54	30.5
No. of variables satisfied Aiken's Index (Content/Expert Validity)	19	16	13	48	27.1

Table 5 The value of Aikn's index for scale's items (System Quality)

Dimensions	Item's code	Items/Variables	Aikn's Index
Accessibility	**SysACC1**	E-governance system is available all the time.	0.825
	SysACC2	Individuals with different abilities can access E-governance system.	0.8375
Flexibility	**SysFLX1**	E-governance system is flexible enough to meet citizens' needs or demands.	0.875
Functionality	**SysFNC1**	E-governance system always works correctly.	0.8125
	SysFNC2	The required functions are available in E-governance system.	0.825
Integration	**SysINT1**	E-governance system facilitates the combination of information from various sources.	0.8125
	SysINT2	E-governance system provides information in different formats.	0.8125
Response time	**SysRSP1**	E-governance system offers quick responses that enablescitizens to accomplish tasks more quickly.	0.8
Usefulness	**SysUSF1**	E-governance system improves the performance of the citizens' transactions or process.	0.8
	SysUSF2	E-governance system enables citizens to interact with the government anytime.	0.8
	SysUSF3	E-governance system enables citizens to interact with the government anywhere.	0.825
	SysUSF4	Using E-governance system can reduce the cost or expense.	0.8375
Usability	**SysUSB1**	E-governance system is easy to learn for anyone.	0.825
	SysUSB2	E-governance system is easy to use for anyone.	0.8125
Reliability	**SysRLB1**	E-governance system is dependable over time.	0.8125
	SysRLB2	E-governance system performs right at the first time.	0.825
	SysRLB3	The government will not misuse the personal information.	0.8125
Security	**SysSEC1**	E-governance system is safe and secure.	0.8
	SysSEC2	Only necessary personal data are provided for authentication on e-governance system.	0.8125

Table 6 The value of Aikn's index for scale's items (Service Quality)

Dimensions	Item's code	Items/Variables	Aikn's Index
Assurance	**SrvASS1**	E-governance service is assured.	0.8125
	SrvASS2	E-governance service is reliable.	0.8

Awareness	**SrvAWR1**	Spread awareness about e-governance service among the citizens through many channels.	0.8375
Regularity	**SrvRGU1**	E-governance service conforms to the rules and laws.	0.8125
	SrvRGU2	E-governance service is in compliance to the standards.	0.8
Tangible	**SrvTNG1**	E-governance service is designed to suit the online use.	0.8
	SrvTNG2	E-governance service is well presented for all citizens.	0.825
Transaction	**SrvTRN1**	E-governance introduces a full transaction or process.	0.8125
	SrvTRN2	The result of the transaction or process is satisfactory.	0.8
	SrvTRN3	The transaction or process is executed smoothly.	0.8125
Dependability	**SrvDPN1**	E-governance is able to perform or execute the promised service in a dependable way.	0.8
	SrvDPN2	E-governance service is accurate.	0.8125
Responsiveness	**SrvRSP1**	In e-governance, there is no delay in responding to citizens.	0.8125
	SrvRSP2	E-governance shows sincere interest in resolving any problems.	0.8375
Personalization	**SrvPRS1**	In e-governance, the service is presented to the citizens directly in a clear and simple language.	0.8125
	SrvPRS2	E-governance service gives citizen personal attention.	0.8125

Table 7 The value of Aikn's index for scale's items (Information Quality)

Dimensions	Item's code	Items/Variables	Aikn's Index
Accuracy	**InfACC1**	The information is correct and free of errors.	0.825
	InfACC2	The information in e-governance system is sufficiently accurate.	0.8125
	InfACC3	The information in e-governance system is reliable.	0.8125
Relevance	**InfRLV1**	The information displayed in this system is relevant	0.8125
	InfRLV2	The information is applicable for the context of use or task.	0.8375
Believability	**InfBLV1**	The information is trustworthy.	0.8375
	InfBLV2	The information is from a credible source.	0.825
Useful	**InfUSF1**	The information is useful and meets the need for the task at hand	0.8125
	InfUSF2	Information is beneficial, helpful and provides advantages from its use.	0.825
Understandability	**InfUND1**	The information is in appropriate language, symbols, and units and definitions are clear.	0.8125
	InfUND2	E-governance provides information that is easy to understand.	0.8125
Up to date	**InfUBD1**	Using e-governance system enables the access to the newest information.	0.825
Completeness	**InfCMP1**	The information is complete and sufficient for the task at hand	0.8375

Test retest

To assess stability of the scale we used test-retest. Test-retest reliability was assessed using the intra-class correlation coefficient (ICC) and percentage agreement comparing scores from two measurements. The scale was forwarded online through Survey Gizmo website to 30 online users who have used e-government online services. The participants were requested to answer, review and criticize the scale. A total of 17 respondents replied with useful suggestions. Based on their feedback, the scale was further revised and finalized. Then after one week, the scale was sent again to the same 17 respondents for retest to measure the stability of the scale. Only 15 respondents sent the reply. The results in Table 8 illustrate that all items showed excellent test-retest reliability as indicated by ICCs > 0.80. The intra-class correlation is good and positive for all the items. Hence the developed scale for measuring e-governance quality is more reliable and accurate.

Table 8 Paired Samples Statistics for Test-retest results

No.	Item's code	Test (a)		Re-Test (b)		T	*p*.value Sig. (2-tailed)	intra-class correlation coefficient (ICC)
		Mean	SD	Mean	SD			
1	**SysACC1**	3.385	1.387	3.692	1.377	-1.171	0.264	0.889
2	**SysACC2**	3.538	1.127	3.692	1.109	-0.693	0.502	0.877
3	**SysFLX1**	3.923	0.641	4.077	0.494	-1.477	0.165	0.899
4	**SysFNC1**	3.923	1.115	3.692	1.032	1.389	0.190	0.930
5	**SysFNC2**	3.846	0.899	4.000	0.707	-0.805	0.436	0.815

6	**SysINT1**	4.385	0.506	4.462	0.519	-1.000	0.337	0.934
7	**SysINT2**	4.154	0.555	4.231	0.599	-0.562	0.584	0.814
8	**SysRSP1**	4.462	0.519	4.385	0.506	1.000	0.337	0.934
9	**SysUSF1**	4.231	0.439	4.231	0.599	0.000	1.000	0.822
10	**SysUSF2**	4.692	0.630	4.538	0.660	1.477	0.165	0.923
11	**SysUSF3**	4.462	0.967	4.385	0.961	1.000	0.337	0.982
12	**SysUSF4**	4.769	0.439	4.462	0.776	1.309	0.140	0.858
13	**SysUSB1**	3.462	1.127	3.692	1.109	-1.389	0.190	0.936
14	**SysUSB2**	4.000	0.707	3.769	0.832	1.389	0.190	0.852
15	**SysRLB1**	4.000	0.913	4.000	0.816	0.000	1.000	0.896
16	**SysRLB2**	3.385	0.961	3.692	0.855	-1.477	0.165	0.829
17	**SysRLB3**	3.692	0.855	3.923	0.954	-1.897	0.082	0.948
18	**SysSEC1**	3.615	1.193	3.846	0.987	-1.389	0.190	0.933
19	**SysSEC2**	3.846	0.689	3.846	0.555	0.000	1.000	0.901
20	**SrvASS1**	4.077	0.760	4.077	0.641	0.000	1.000	0.831
21	**SrvASS2**	3.923	0.760	4.077	0.641	-1.477	0.165	0.936
22	**SrvAWR1**	4.615	0.650	4.615	0.506	0.000	1.000	0.884
23	**SrvRGU1**	4.308	0.751	4.077	0.760	1.897	0.082	0.923
24	**SrvRGU2**	4.077	0.760	4.077	0.641	0.000	1.000	0.923
25	**SrvTNG1**	4.231	0.599	4.308	0.480	-1.000	0.337	0.942
26	**SrvTNG2**	3.615	0.768	3.769	0.599	-1.477	0.165	0.933
27	**SrvTRN1**	3.769	1.013	4.000	0.913	-1.000	0.337	0.809
28	**SrvTRN2**	4.000	1.000	4.154	0.689	-0.805	0.436	0.840
29	**SrvTRN3**	4.077	0.760	4.000	0.707	0.433	0.673	0.804
30	**SrvDPN1**	3.846	0.801	4.000	0.577	-1.000	0.337	0.844
31	**SrvDPN2**	3.923	0.862	4.077	0.760	-1.477	0.165	0.953
32	**SrvRSP1**	3.923	0.862	4.000	0.913	-0.433	0.673	0.875
33	**SrvRSP2**	4.231	0.599	4.154	0.555	1.000	0.337	0.949
34	**SrvPRS1**	4.154	0.899	4.154	0.899	0.000	1.000	0.904
35	**SrvPRS2**	3.769	0.832	3.769	0.725	0.000	1.000	0.868
36	**InfACC1**	3.769	0.927	3.923	0.954	-1.477	0.165	0.965
37	**InfACC2**	3.692	0.855	3.769	0.599	-0.562	0.584	0.895
38	**InfACC3**	4.077	0.954	4.077	0.862	0.000	1.000	0.956
39	**InfRLV1**	4.000	0.816	4.154	0.801	-0.805	0.436	0.815
40	**InfRLV2**	3.923	0.760	4.000	0.707	-1.000	0.337	0.969
41	**InfBLV1**	4.077	0.760	4.077	0.760	0.000	1.000	0.935
42	**InfBLV2**	3.923	0.954	4.231	0.832	-1.477	0.165	0.822
43	**InfUSF1**	4.000	0.816	4.077	0.641	-0.433	0.673	0.804
44	**InfUSF2**	4.308	0.630	4.308	0.630	0.000	1.000	0.902
45	**InfUND1**	4.077	0.760	4.000	0.816	0.562	0.584	0.910
46	**InfUND2**	3.769	0.725	4.077	0.760	-1.309	0.240	0.903
47	**InfUBD1**	4.077	0.760	4.077	0.760	-1.897	0.082	0.909
48	**InfCMP1**	3.615	0.870	3.615	0.870	0.000	1.000	0.809

V. CONCLUSIONS

The aim of this paper was to develop and validate a scale to assess the quality of e-government system. The scale was statistically validated and standardized using the validation measures such as face validity, content validity and test retest. The scale provides a basic skeleton for the assessment of G2C e-government system quality. The dimensions and the items of the proposed scale have a high acceptable validity. The proposed scale required to be validated using factor analysis to seek more insight to the reliability and validity of the scale.

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