FACTORS CONTRIBUTING TO GOOD E-GOVERNANCE: AN ANALYTICAL STUDY ON SULTANATE OF OMAN

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ABSTRACT

A government which can communicate effectively with its people and render timely services needed by them will become a popular government. Governments with excellent Information Communication Technology can provide the required information as well as the services to its citizens and the other stakeholders with minimum cost and maximum speed. The structured e – governance services focus not only on the citizens but other stakeholders in the system inside and outside the country. Higher level of user satisfaction encourages them to use the e – governance services repetitively and in turn induce others also to use the same. In this paper, major factors contributing to good e – governance were studied with respect to Sultanate of Oman. Ten services were analyzed using various statistical measures to identify the order and magnitude of its influence.

Keywords: E – Governance, Factors on E – Governance, Good E – Governance, User Satisfaction on E – Governance Services

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1. Introduction

1.1. General Introduction

A government which can communicate effectively with its people and render timely services needed by them will become a popular government. In the past, a communication gap existed between the government and its citizens obviously due to lack of an effective mechanism for communication. In many places, citizens view their governments as bloated, wasteful, and unresponsive to their most pressing needs (The Working Group on E-Government in the Developing World, 2002). Over the years, this gap narrowed due to the advent of Information Communication Technology (ICT) which has a positive impact on the activities of governments and led to the emergence of E-governance. E-government is part of a bigger movement toward public sector reform, which is driven by technology and information systems (Carrizales, 2008). The concepts of E-government and E-governance have been considered as synonymous by many researchers. "E-government's focus is on constituencies and stakeholders outside the organization, whether it is the government or public sector at the city, county, state, national, or international levels. On the other hand, E-governance focuses on administration and management within an organization, whether it is public or private, large or small." (Palvia and Sharma, 2007) However, we might prefer to think of it as 'i-governance' – integrated governance – since it integrates both the processing and the communication technologies; and since it integrates people, processes, information, and technology in the service of achieving governance objectives (Heeks, 2001).

Governments with excellent Information Communication Technology can provide required information as well as services to their citizens and other stakeholders with less cost and more speed. This has resulted in close rapport between the government and its citizens, businesses and other agencies besides saving on valuable resources which could be otherwise devoted to basic and more urgent needs of the people. The potential for E-government in developing countries, however, remains largely unexploited, even though ICT is believed to offer considerable potentials for the sustainable development of E-government (Ndou, 2004). The success of an e-government initiative depends on a large number of factors. All the e-governance initiatives are not successful. As governments move beyond relatively simple informational websites, they are and will continue to encounter more complex challenges

(Marche & McNiven,2003).While there is much hype about success stories, the bitter truth that presents itself is that the majority of e-government projects in developing countries fail (Dada, 2006).

Developing countries like Oman will benefit immensely if it can guard against chances of failure of e-governance programs. While issues such as lack of legal frameworks, strategy, project plans, usability issues and information quality are identified in the published literature as impeding e-government progress in Oman, the factors such as web accessibility and integration of various government agencies also pose a major challenge for e-government implementation in Oman (Al-Busaidy and Weerakkody, 2008). Against this background a primary survey has been undertaken among the common citizens in Oman to determine the opinions of respondents on factors contributing to good e-governance.

Over the years,the government of Oman has taken many steps in streamlining the e-governance initiatives across the country. Since the e-governance initiatives are meant for the society at large, it will be of much significance to know the view of citizens of Oman in this regard. Thus, in this paper, we have discussed the major factors that contribute to develop a good e – governance. The ultimate aim of the e – governance is to provide services to the citizens. Hence, the factors required to attain good e – governance through public satisfaction have been identified with respect to Sultanate of Oman. The factors were ranked and levels of impacts were studied as high, medium and low.

1.2. Premises

Though various definitions were given for e – governance, we considered the following definitions of e - governance for this research purpose. UNESCO has defined e – governance as "The use of ICT by different actors of the society with the aim to improve their access to information and to build their capacities".Sultanate of Oman has defined e-governance as "the development, deployment and enforcement of the policies, laws and regulations necessary to support the functioning of a Knowledge Society as well as of e-Government".

1.3. Current Situation

Sultanate of Oman has shown significantly good development in constructing and developing e – government strategies. The country has scored 64th position of e – government

implementation readiness out of 192 countries surveyed by United Nations in 2012. It has scored 0.5944 readiness index which is 21.75% higher than the overall world's readiness average, and 7.19% higher than the Western Asia Average Readiness Index. The government has developed various strategies, laws and policies to implement successful e – governance. The e – portals have been developed with various facilities to reach the people easily. The government has identified a number of factors to achieve successful e - governance.

1.4. Research Problem

To conduct this study, the following research questions were set.

1) What are the major factors that contribute to good e – governance?
2) How do people rank the importance of the factors that are required to attain a good e – governance?

2. Literature Review

Various studies were conducted with respect to different perspectives of e-governance such as implementation (MadonShirin, 2004), awareness (Choudrie and Dwivedi, 2005), appraisal (Stanforth, 2010), potentials (Pathak et al, 2008), (Schuppan, 2009) and trends (Matthias &Gaelle, 2003). Kalsi et al (2009) identified major factors leading to good governance and priority of citizens on the use of various governmental services. The factors identified were good facilities for job oriented education, development of social infrastructure, good Law and Order, new job opportunities in private and public sector, efficient and effective functioning of government and its staff, Good atmosphere for doing business etc. Carrizales (2008) studied the e-government practices in small municipalities with focus on four major functions of e-government viz., E-organization, E-Services, E-Partnering and E-Democracy. The study suggested that municipalities should evolve advanced practices in e-organization and e-services.

Pathak et al. (2008) identified that e-governance is positively related to enhanced government-citizen relationship and reduction in the incidence of corruption. Schuppan (2009) pointed out that implementation of e-government pilot projects should focus on developing pertinent managerial competence rather than mere implementation of IT systems.Marche and McNiven (2003) developed a two-dimensional model for investigating the impact of using internet technologies by national governments for providing information and services to their

citizens. Hicks (2001) pointed out that a good e-governance encompasses three major spheres, viz., e-administration leading to development of government processes, e-citizens and e-services for establishing rapport by government with its citizens and e-society for accelerated interaction between government and the society. All the three domains are integrated with connectivity offered by ICT. On behalf of UNESCO, National Informatics Centre of government of India prepared a Toolkit for developing countries (2005) focusing on concepts behind E-government and strengthening the understanding of all those involved in planning and implementation of E-government projects. It addressed all issues in the conceptual and implementation stages of the e-government programs.

Al-Adawi (2005) studiedthe recognition of e-government as a primary vehicle for interaction with the government and the factors which influence the level of usage by the citizens. Agrawal (2007)identified the users' perception and the attributes governing quality of e-governance online-services. Al-Khouri (2008) examined the practices followed by the organizations in GCC countries with respect to maturity on e-government services. He found that e-government G2C initiatives are progressing on a slow pace in these countries mainly due to the absence of a bona-fide agency to authorize the identities of online users.Bavarsad (2013) studied the effect of technology acceptance factors on users' satisfaction of e-government Services in Iran. The findings showed a significant positive relation on factors like ease of use, trust, content and appearance of information on their level of satisfaction. Al Fawaz et al. (2008) suggested that though same technology is used globally, environment factors influence the degrees of success of e-government initiatives.

Al Shihi (2006) investigated the non-technical and country-specific barriers which hindered the advancement and diffusion of e-government initiatives in Oman. The study revealed that the factors like absence of IT knowledge of users and lack of marketing efforts have adversely affected the citizen's intention to adopt technology oriented initiatives. Al-Busaidy&Weerakkody (2009) studied the perception of government employees on major factors contributing to the development and accomplishment of e-governance initiatives in Oman. The study pointed out that level of confidence of citizens on e-government services is influenced by factors like accessibility, efficiency and availability. Moreover, citizen's confidence on the use of e-government services is highly affected by factors such as security and privacy. Al-Abri (2009) studied the influence of risk concerns to online information privacy (e-privacy) among users of

e-government services in Oman. He pointed out that level of awareness of e-privacy have significant impact on their risk concerns. Al-Mamari et al. (2012) studied the factors that motivate implementing e-government projects in Oman. A group of motivating factors like Service Quality improvement motives, Value-added processes and Information Quality, Institutional Motives and Country-Specific Motives have been identified by the study.

Though various studies were conducted with respect to e – governance structures and implementation policies, this paper identifies the major factors that influence the citizens to use the e – governance services. This paper fills the gaps in identifying the factors that assist to develop a good e – governance.

3. RESEARCH METHODS

3.1. Questionnaire Development Method:

The study was conducted to identify the factors that contribute to good e-governance. Various studies were analyzed to select these factors. As the study was conducted with respect to Sultanate of Oman, the official website for e – governance of Oman, e – Oman was referred to choose those factors. The following 10 factors were identified based on this research focus. They are:

Factor 1: Setting up a unified e-Government architecture

Factor 2: Availing broadband communications

Factor 3: Creating an ICT infrastructure

Factor 4: Simplifying and streamlining all government processes

Factor 5: Enabling customer-centric e - Government services

Factor 6: Enabling easy access to timely and relevant public information

Factor 7: Developing plans for training and development of human resources in IT

Factor 8: Empowering consumers through awareness and training campaigns

Factor 9: ICT education and training programs for various segments of society

Factor 10: Creating formal and informal communication channels

Based on the above identifications, a questionnaire was developed with 7 demographic questions, one method of access to e – governance services and 10 factors. The respondents were asked to state their agreement on the above 10 factors that contribute to a good e - governance. The responses were measured with 5 point Likert scale 5 – Strongly Agree to 1 - Strongly Disagree. The questionnaire was initially prepared in English and translated into Arabic. The

Arabic version questionnaires were distributed to 200 respondents. But only 155 respondents gave their opinions. Among them, 5 responses were rejected due to improper filling. Thus 150 responses were considered for the study. The questionnaire was distributed to various people who were using any one of the e- governance services through the government e – portals. Quota sampling was used to collect the responses.

3.2. Analyses and Results

Various statistical analyses were conducted to find the best factors that help to develop a successful e – governance. Descriptive data analysis, mean value analysis and one sample t – test were conducted for interpretation of the data collected. The factors were ranked using highest mean value to lowest mean value. Impact levels were measured based on the mid value of the means. Cornbach Alpha reliability analysis was conducted and the instrument reliability was found as 0.8093.

3.3. Demographic Analysis

60% of the respondents were male and 40% respondents were female. The age profile was: 28% below 30 years, 34% were between 31 and 40, 30% were between 41 and 50, 26% were above 50 years. 24 respondents were secondary level educated, 65 were diploma level, 58 respondents were bachelor level and 3 were master level educated. Table 1 shows the occupation level of the respondents.

Table 1: Occupation level of the respondents

Nature of Job	No of Respondents
Ministry	35
Own Business	33
Company Job	57
Bank Job	15
Others	10

52.67% of the respondents were single and 47.33% were married. Fig 1 shows the place where the respondents live in. Salary scales of the respondents were: 66 respondents were earning less than OMR 500, 76 respondents were between OMR 501 and OMR 1000, 5

respondents were earning between OMR 1001 and 1500, 3 respondents were earning above OMR 1500 (OMR 1 = 2.67 USD).

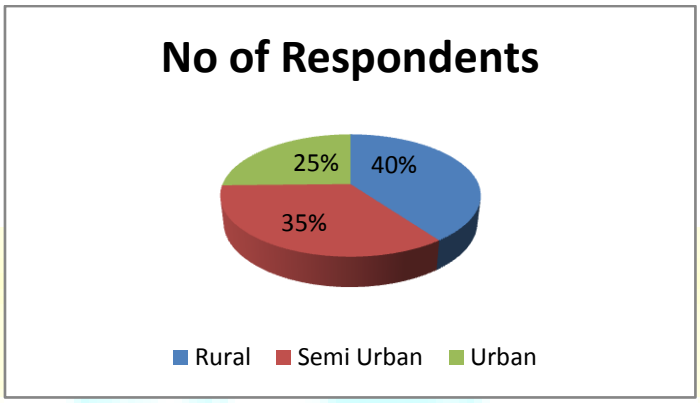

Fig 1: Area of the responses

The respondents were asked about the way they use the e – governance services. 32 respondents were accessing through public internet café, 101 respondents were accessing e – governance services through personal laptop with internet and 17 responses were accessing through PC with internet.

4. FACTORS LEADING TO GOOD E – GOVERNANCE

4.1. Descriptive Analysis on Factors

The factors were analyzed with various descriptive measures such as mean, sample standard deviation, skewness, kurtosis and coefficient of variation. The mean values were calculated to find the highest to lowest factors that were considered as worthy contributors for the good e – governance. Sample standard deviations were calculated to find the deviations of the responses with respect to the calculated mean. Skewness was calculated to find the maximum respondents view regarding the factors. Coefficient of variation was calculated to find the volatility in the data set. Table 2 shows the descriptive statistical analysis on the factors.

Table 2: Descriptive Statistical Analysis on Factors

Factors	Mean	Sample SD	SE in Mean	Skewness	Kurtosis	CV
Setting up a unified e-Government architecture	4.26	0.92	0.08	-1.48	2.24	21.66%
Availing broadband communications	4.31	0.90	0.07	-1.42	1.86	21.00%
Creating an ICT infrastructure	4.45	0.74	0.06	-1.46	2.73	16.57%
Simplifying and streamlining all	4.26	0.93	0.08	-1.20	1.03	21.83%

government processes						
Enabling customer-centric e - Government services	4.01	0.91	0.07	-0.83	0.56	22.68%
Enabling easy access to timely and relevant public information	3.99	1.04	0.09	-0.98	0.68	26.15%
Developing plans for training and development of human resources in IT	3.85	1.10	0.09	-0.88	0.25	28.43%
Empowering consumers through awareness and training campaigns	3.45	1.23	0.10	-0.47	-0.73	35.66%
ICT education and training programs for various segments of society	3.89	1.09	0.09	-0.78	-0.10	28.10%
Creating formal and informal communication channels	3.80	1.05	0.09	-0.72	0.03	27.61%

From the above analysis, it was clear that all the mean values were above 2.5 which is the mid value of the 5 point Likert scale. The least mean value was 3.45. The values of sample standard deviation were comparatively less. The sample standard deviation shows that the data were consistent. The SE's of Mean were also very small values. All skewness values were negative. This showed that the maximum responses fall on higher value sides, i.e. maximum responses were either agreed or strongly agreed on the factors that are important to achieve successful e – governance.

4.2. One Sample t – Test

One sample t – test was been conducted to measure the respondents agreements on the factors that help to achieve successful e – governance. The study was conducted at $p < 0.001$ level. The one sample t –test that had been conducted at test value 0 showed that all the factors selected for the study were basic requirement of good e – governance with all p values < 0.001. Table 3 shows the one sample t – test scores. Thus all the factors have positive impact on forming good e – governance.

Table 3: One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
F1	56.544	149	.000	4.26	4.11	4.41
F2	58.316	149	.000	4.31	4.16	4.45
F3	73.895	149	.000	4.45	4.33	4.57

F4	56.103	149	.000	4.26	4.11	4.41
F5	54.011	149	.000	4.01	3.86	4.15
F6	46.830	149	.000	3.99	3.82	4.15
F7	43.085	149	.000	3.85	3.68	4.03
F8	34.346	149	.000	3.45	3.25	3.64
F9	43.591	149	.000	3.89	3.72	4.07
F10	44.361	149	.000	3.80	3.63	3.97

4.3. Mean Value Analysis and Ranking

The factors were arranged from highest to lowest based on the mean values and ranked. The individual mean values of the factors were added to find the overall mean value ($\overline{F}$). The individual mean values above $\overline{F}$ were considered as the high impact factors for the good e – governance structure. Table 4 shows the ranking and importance levels of the factors.

Table 4: Ranking, Importance Level of the factors

F	Factors	Mean	CV	t – Value	Rank	Importance
F3	Creating an ICT infrastructure	4.45	16.57%	73.895	1	High
F2	Availing broadband communications	4.31	21.00%	58.316	2	High
F1	Setting up a unified e-Government architecture	4.26	21.66%	56.544	3	High
F4	Simplifying and streamlining all government processes	4.26	21.83%	56.103	4	High
F5	Enabling customer-centric e - Government services	4.01	22.68%	54.011	5	Medium
F6	Enabling easy access to timely and relevant public information	3.99	26.15%	46.83	6	Low
F9	ICT education and training programs for various segments of society	3.89	28.10%	43.591	7	Low
F7	Developing plans for training and development of human resources in IT	3.85	28.43%	43.085	8	Low
F10	Creating formal and informal communication channels	3.8	27.61%	44.361	9	Low
F8	Empowering consumers through awareness and training campaigns	3.45	35.66%	34.346	10	Low
	Average	4.027	0.24969	51.1082		

From the above table, it is evident that the factors have three different importance levels on good e – governance. The overall mean value was $\overline{F}$ = 4.027. The mean values above this were considered as high importance factors and mean values below $\overline{F}$ were considered as low importance factors. The average of CV and t – values were also calculated to check for consistency. The factor "F3: Creating an ICT infrastructure" had scored highest rank with high importance. F2: Availing broadband connection had scored 2nd rank with high importance. Though F1 & F4 have same mean values, F1 had been ranked at position 3 based on the lesser coefficient of variation and higher t – value. F4 has scored 4th position with high importance.

F5: Enabling customer centric e – government services had scored lower mean value than the overall average $\overline{F}$. But when compared with other averages such as CV and t – values, it has lower CV and higher t – value. Thus it had been considered as medium importance variable. The factors F6, F9, F7, F10, F8 were scored mean values lower than $\overline{F}$. Thus they had been ranked based on the mean values with low importance. As all the mean values were higher than the mid value of 5 point Likert scale and all the factors have significant impact on good e – governance formation, none can be omitted from the study.

4.4. Discussion on Factor's Analysis

Various factors contribute to good e - governance. The major issue in initiating a successful e – governance requires proper ICT infrastructure. As per the definitions of e – government, ICT has to be used effectively to promote government services. Thus, ICT infrastructures need to be developed with full potentials. Broadband connection is required to have uninterrupted connectivity. Highly configured broadband connection should be provided to all the citizens in order to implement effective e – government strategies. As the government has to provide various types of services to the public in all cases such as G2G, G2B and G2C, the government has to develop the strategies in such a way that it should suit to all. This requires unified e – government architecture. The government has to set up a unified e – government structure. Sultanate of Oman has developed such architecture.

The traditional government processes consist of many methods. As pen and paper are used in traditional process, the strategies shall be developed easily. But e – governance services require more knowledge about the technology on the part of users. So the current processes have to be simplified. As information security plays a vital role in this era, the government processes have to be channelized to fit into the national and information security. As Palvia and Sharma said, the government processes have to be tailored to suit both G2B and B2G. The government processes have to be streamlined accordingly.

The government services need to be enabled as customer – centric. The government information should reach the citizens correctly. The government entities should avoid data redundancy. The government's policies, rules and other data have to be provided to public on time. The e – portals should provide timely and relevant information. The information should be easily accessible. The proper information security policies have to be created and incorporated. To utilize the full potentials of the e –governance services, the public need to be trained to use ICT. The government needs to develop and conduct various training programs based on the computer literacy of the public. It needs to develop plans to train the various segments of the society. The curriculum at lower level shall be updated to provide minimum human resource training on ICT. But, most of the countries in the world have incorporated such strategies to introduce ICT education to all the public.

Government policies and strategies have to be distributed to the citizens in proper channels. The government has to create formal communication channels such as television ads, pamphlets, handouts etc. The government shall conduct workshops and seminars in this regard. The updates shall be sent to the public through SMS and emails. Apart from these, the government shall inform the public through informal communication channels to reach the public. The public need to be trained and empowered to use the e – services. Awareness needs to be created among the public to use the e – portals in an effective way.

5. CONCLUSION AND IMPLICATIONS

The successful e – governance shall be developed, adopted and implemented by proper analysis and international benchmarks. Figure 2 shows the findings based on rankings.Sultanate of Oman has developed clear strategies, laws and regulations in order to implement such a good

e – governance. The successful e – governance provides all sorts of facilities to the public. The structured e – governance services focus not only on their citizens but other stakeholders in the system inside and outside the country. Sultanate of Oman provides such facilities to all the people through proper links and services. The official e – portals of the government have necessary and sufficient links and services in order to provide good e – governance service.

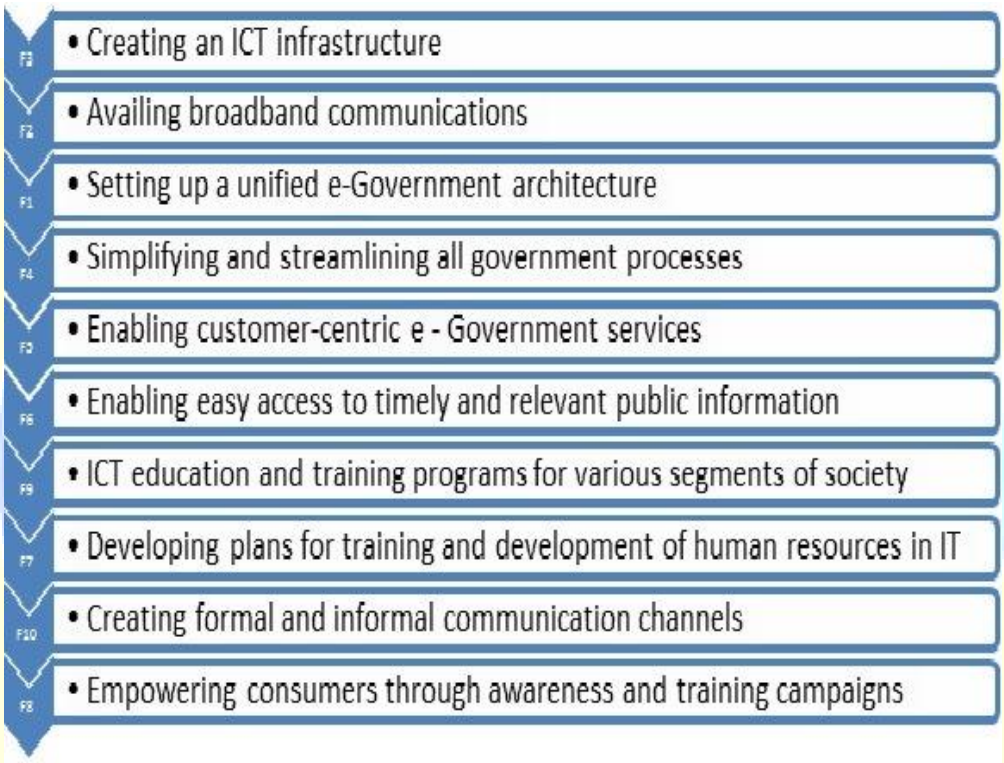

Fig 2: Factors Influence in Good E – Governance

Limitations

The study has been conducted with a certain set of factors that are considered as common factors. The results may vary if more factors are included. Also, if more number of urban respondents is included, there are some possibilities to get some different rankings.

Future Scope

The research may also be developed with respect to factors influencing the users and users' satisfaction on e – governance strategies, implementation and adaptation. The study may be further extended to Middle East countries by including various other factors.

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