

E-Government and Citizen Satisfaction in Iran: Empirical Study on ICT Offices

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Abstract: Improving the quality of public services is the main approach planned to be obtained through electronic services offered by e-government. This paper examines the factors influencing citizen's satisfaction of e-government services. Current study is a descriptive survey and the data were collected using questionnaire. The citizens who are the clients of Mashhad communication service centers, considered as the population. Samples were calculated by Morgan table and, totally, the opinions of 402 people were evaluated. The sampling method was multi-phase cluster. The aim of this paper is to evaluate e-government performance in delivering electronic services through the ICT offices in Mashhad, the second biggest city in Iran. According to findings of this survey although the satisfactory level of the clients from delivery, variety and accessibility of services is more than average but customers are not satisfied with ICT offices' staff. Finally suggestions for successful implementation of electronic services offered by e-government, towards improving citizen's satisfaction, are elaborated.

Key words: E-Government • G2C • Customer orientation • Public satisfaction

INTRODUCTION

Considering the necessity of utilizing the new electronics, information and communication technologies, the movement toward implementation of e-government in Iran has recently received the attention of the authorities and policy makers. E- government is a momentous opportunity for developing countries like Iran to improve and simplify their government's operations, provide breakthrough performance and reduce their existing gaps with developed countries. The explosion of digital connectivity, the significant improvements in communication and information technologies and the enforced global competition are revolutionizing the way business is performed and the way organizations compete. Recently the public sector has come to recognize the potential importance of ICT and e-business models as a means of improving the quality and responsiveness of the services they provide to their citizens, expanding the reach and accessibility of their services and public infrastructure and allowing citizens to experience a faster and more transparent form of access to government services.

As with e-commerce, E- Government represents the introduction of a great wave of technological innovation as well as government reinvention. It represents a tremendous impetus to move forward in the 21st century with higher quality, cost effective government services and a better relationship between citizens and government [1]. Many government agencies in developed countries have taken progressive steps toward the web and ICT use, adding coherence to all local activities on the Internet, widening local access and skills, opening up interactive services for local debates and increasing the participation of citizens on promotion and management of the territory [2].

Tapscott and Caston [3] argue that ICT causes a "paradigm shift" introducing "the age of network intelligence", reinventing businesses, governments and individuals. Paradigm shifts prevail in the public sector too. Considering the importance of delivering public sector services electronically and improving the quality of customer services, ICT offices were established in Iran. This paper attempts to evaluate ICT offices from customers' point of view in Mashhad, second biggest city in Iran.

Literature Review

Theoretical Framework: Customer orientation plays a major role in electronic government literature since 1990. Canadian local governments have undergone several dynamic changes during the course of the 1990s. As agents of the provincial governments, municipalities have been forced to endure greater demand for social services despite receiving fewer transfer payments and inheriting greater responsibilities through provincial downloading. In response, municipalities have attempted to maintain the quality of public services by applying business-like principles to government [4], adopting market mechanisms [5] and utilizing alternative service delivery [6]. These strategies have been championed by proponents of the "New Right" [7], public choice [8] and the new public management [4] all of whom advocate reduced government intervention into the workings of the market economy. Electronic government is attested to have the potential to shape public administrations to be more customer oriented. In order to be customer oriented, municipalities need knowledge about customer needs. [9]. Findings indicate that government Web site use is positively associated with e-government satisfaction and Web site satisfaction and that e-government satisfaction is positively associated with trust in government. [10]. Osborn and Gaebler identified several strategies for altering government into an efficient business enterprise. In *Reinventing Government*, Osborne and Gaebler [11] persuade the public and its political representatives to support the complete overhaul of the public sector. The authors describe the inherent flaws in government and offer possible "solutions" for its improvement. In short, they posit that a "civilized society cannot function effectively without effective government" (p. xviii). Presumably, the term effective belongs to a government with certain characteristics. They explain that effective government is competitive because it allows public sector managers to "shop around" for the most effective and efficient service producers by pitting commercial, not-for-profit and public suppliers against one another. Also, effective government is customer-driven because it gives its customers more choice and forces itself to be more accountable to its citizens. They support customer oriented systems for enhancing the efficiency, innovation and empowering citizens. Like the paradigm of information technology based on organizations in the business world e-government paradigm shift public managers concerns. These new paradigms thrust the shift toward e-

government paradigm, which emphasizes coordinated network building, external collaboration and customer services [12]. Titah and Barki [13] suggest that apart from organizational factors, individual beliefs of citizens significantly influence adoption of e-government services. Moon and Norris [14] provides a simple definition that e-government is perceived as "means of delivering government information and service". According to the World Bank "E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet and mobile computing) that have the ability to transform relations with citizens, businesses and other arms of government" (The World Bank Definition). E-government is the most frequently cited term in comparison to e-governance, online government, one-stop government and digital government [15]. Yildiz [16] mentions that e-government refers to the use of ICTs by public administration to create a networked structure for; interconnectivity, service delivery, efficiency, effectiveness, transparency and accountability. In this research the service delivery was evaluated as a criterion of e-government performance in delivering electronic services through the ICT offices in Mashhad.

Practical Framework: Since 2000, with the rapid development of e-government, evaluation of e-government system is increasingly becoming a popular branch of study such as: World Markets Research Center and Brown University [1], the United Nations Economic and Social Affairs (DPEPA / UNDESA) and the United States Public Administration Association (USPAA) [2], the European Commission [3], Accenture Corporation [4]. In China, Beijing Time CCW Research Co., Ltd. [5], CCID Consulting Co., Ltd. [6], Peking University, Center for Economic Research Network [7].

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- [7] <http://eg1.cn/bank/ht/show.asp?id=884>

Table 1: research areas and findings related to e-government

Author	Research area/ Findings related to e-government
Ca rolyn Linc, David J. Atkin, [17]	Adoption of e-government in three Latin American countries: Argentina, Brazil and Mexico
Juan Gabriel Cegarra Navarro, Frank W. Dewhurst. [18]	"Factors affecting the use of e government in the telecommunications industry of Spain "
Yi-ShunWang and Yi -Wen Liao. [19]	"Assessing e Government systems success: A validation of the De Lone and McLean model of information systems success"
Christopher G. Reddick and Howard A. Frank. [20]	" The perceived impacts of e-government on U.S. cities: A survey of Florida and Texas City managers "
Valentina Dardha) Ndou. [21]	" E-Government For Developing Countries: Opportunities and Challenges"
Yi-Shun Wang. [22]	" The adoption of electronic tax filing systems: an empirical Study"
Akman <i>et al.</i> [23]	Gender difference is huge in Turkey in relation to e-government adoption (Turkey)
Andersen and Henriksen [15]	Benefits of digitalization of core egovernment activities from end-users perspective (Denmark)
Barnes and Vidgen [24]	Significant differences in perception regarding; usability, design, information, trust and empathy (The UK)
Carter and Belanger [25]	PEOU, compatibility and trustworthiness are significant indicators for adoption (USA)
Choudrie <i>et al.</i> [26]	Lack of accessibility and usability affect e-government adoption The UK)

There are number of empirical studies undertaken in different countries to study e-government. Table 1, shows some research areas and findings related to e-government.

Theoretical Background: Customer satisfaction represents a modern approach for quality in enterprises and organizations and serves the development of a truly customer-focused management and culture [27] G. Mihelis and others 2001). As we mentioned earlier electronic government is attested to have the potential to shape public administrations to be more customers oriented. In order to be customer oriented, municipalities need knowledge about customer needs. Also according to Osborn and Gaebler in Reinventing Government there are several strategies for altering government into an efficient business enterprise. Therefore by measuring customer satisfaction we will have an immediate, meaningful and objective feedback about clients' preferences and expectations. In this way, e-government's performance will be evaluated in relation to a set of satisfaction dimensions that indicate the strong and the weak points of ICT offices. The fundamental assumption reflected in Figure1 drives most customer satisfaction programs. The relationship between service and product quality and overall customer satisfaction has been demonstrated. According to Allen companies with higher customer satisfaction ratings tend to be more successful [28]. The definition of service quality according to Tam is the differential of customer expectations and their perceive of services [29].

The implemented methodology is based on the principles of multi-criteria analysis and preference disaggregation modeling called MUSA model (Multi-criteria Satisfaction Analysis). This model used by G Mihelise in 2001 to present an original customer satisfaction survey conducted in the Greek private bank sector. The main objective of the MUSA model is the aggregation of individual judgments into a collective value function assuming that client's global satisfaction depends on a set of criteria or variables representing service characteristic dimensions (Fig. 2).

The preference disaggregation methodology is an ordinal regression based approach [30-32] in the field of multicriteria analysis used for the assessment of a set of marginal satisfaction functions in such a way that the global satisfaction criterion becomes as consistent as possible with customer's judgments. According to the model, each customer is asked to express his/her judgments, namely his/her global satisfaction and his/her satisfaction with regard to the set of discrete criteria (see Siskos *et al.* [33] and Grigoroudis *et al.* [34] for further details).

Customer Satisfaction Survey: Based on MUSA model customer's opinion about total satisfaction of services (offered by ICT offices) and each criterion has been assessed. The assessment of a consistent group of criteria representing customers' satisfaction dimensions is one of most important stages of the implemented methodology; this assessment was achieved through an

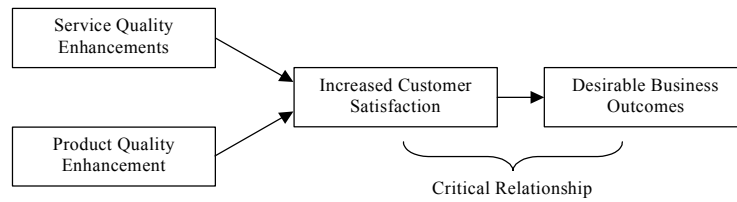


Fig. 1: Fundamental assumption driving customer satisfaction measurement, [29].

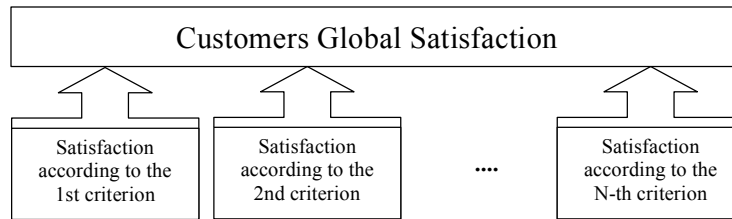


Fig. 2: Aggregation of customer's preference. [27]

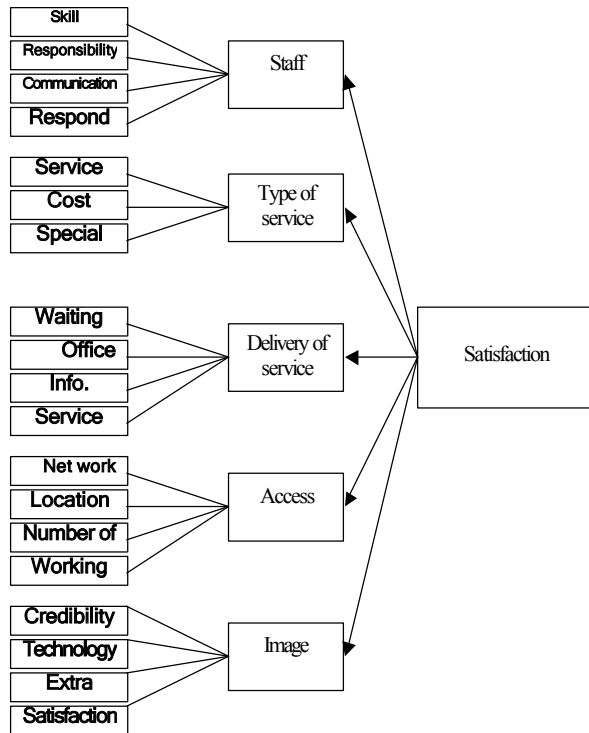


Fig. 3: Hierarchical structure of customer's satisfaction dimensions justified for ICT offices based on MUSA model Multicriteria Satisfaction Analysis).

The Main Satisfaction Criteria Justified for ICT Offices Are:

- Staff of the ICT office: This criterion includes all the characteristics concerning personnel (skills and knowledge, responsibility, communication and collaboration with customers, respond speed, etc.).
- Type of services: This criterion refers mainly to the offered service (service variety, cost and special services; e.g. postal services, communication services, etc.)
- Delivery of Service: This criterion refers to the service offered to the customers; it includes the appearance of the office, the waiting time, the accuracy of service delivery and the information provided (informing customers in an understandable way, explaining the service and other relevant factors, informing for new services, etc.).
- Access: Network expansion of the offices, location, number of staff and working hours are included in this criterion.
- Image of the ICT office: Credibility (reputation comparing to other ICT offices), technological excellence, as well as extra facilities and overall satisfaction.

interactive procedure between the analyst and ICT office's managers and academic scholars. Also the reliability of the set of criteria/sub-criteria has been tested in a small indicative set of customers. The hierarchical structure of customers' satisfaction dimensions used by Mihelis has been justified for ICT offices and presented in Fig. 3 and it indicates the set of criteria and sub-criteria used in this survey.

The Hypotheses of the Research:

- The customers of ICT offices are satisfied with the staff.
- The customers of ICT offices are satisfied with types of services.
- The customers of ICT offices are satisfied with the delivery of services.

- The customers of ICT offices are satisfied with the accessibility of these offices.
- The customers of ICT offices have a positive perspective (image) of these offices.

Methodology of Research

Assessment of Research Methodology: Some empirical studies on e-government have considered quantitative analysis [35, 36] and suggest that smaller sample size is considered as a major limitation in the research [25, 37]. Some studies have considered case studies based on qualitative analysis [26, 38]. Some case studies consider comparison between two or more e-government initiatives for citizen [26, 38] and some considered non-comparative approach to highlight the success of individual e-government initiatives [39-41].

The Criteria of this Research Are:

- Focus on government-to-citizen electronic services adoption;
- Primary data collection techniques directly from citizens;
- Case study approach;
- Quantitative analysis;
- Theory guided research leading to empirical results;

Validity and Reliability: Current study is a descriptive survey and the data were collected using questionnaire made by researcher based on adjusted MUSA model. Each questions evaluated one criterion of the motioned model. For evaluation of the questionnaire validity, the questions were given to expert scholars and faculty staffs' in information technology and were requested to express their comments about the relationship to research goals and hypothesis. After receiving comments, again the questions were revised and necessary reform was carried out.

For assessing questionnaire reliability, the method of Cronbach's alpha coefficient was used. In the first, 30 bodies were randomly selected and questionnaire was distributed among them. After collecting the questionnaire, its reliability was calculated based on method of Cronbach's alpha coefficient by SPSS software. This value was in the first hypothesis 95%, in the second hypothesis 82%, in the third hypothesis 79%, in the fourth hypothesis 81% and in the last hypothesis 94% and finally in the total questionnaire was 89%, considering all

these values are greater than 70% so the questionnaire reliability was accepted. Also the reliability value for the questionnaire calculated based on Cronbach's alpha was 0.908. The citizens who are the clients of Mashhad communication service centers, considered as the population. Samples were calculated by Morgan table. According to the data of this table, when the population is indefinite, the least sample volume is 384. In this research, totally, the opinions of 402 people were evaluated. The sampling method was multi-phase cluster; i.e. in the first level, some offices were selected from different areas of Mashhad and in the next phase some customers were selected in any office through random sampling method.

RESULTS AND DISCUSSION

Based on theoretical framework of this paper we evaluated service delivery as a criterion of e-government performance. Using MUSA model customer's opinion about total satisfaction of services (offered by ICT offices) and each criterion has been assessed.

First Hypothesis: The customers of ICT offices are satisfied with the staff.

Findings indicate that the most average belongs to, the second criterion, satisfactory of the responsibility of the staff, with 2.94 and the least average belongs to the fourth question, speed of respond, with 2.67. The average of answers varies from 2.67 to 2.94. According to the findings of Table 6.1, observed "t" is less than the critical measure of the table in the error level, so the satisfactory level of the clients from the staff, is less than average.

Second Hypothesis: The customers of ICT offices are satisfied with types of services.

Based on the findings, the most average belongs to, satisfactory of the service variety, with 3.19 and the least average belongs to, the satisfactory from delivery of services, with 2.84. The average of answers varies from 2.84 to 3.19. According to the findings of Table 6.2, observed "t" is more than the critical measure of the table in the error level, so the satisfactory level of the clients from the services, is more than average.

Third Hypothesis: The customers of ICT offices are satisfied with the delivery of services.

Table 6.1. Result of first hypothesis test.

	Population	Average	Std.	“t” measure	d.f.	Sig.
First Hypothesis	402	2.82	0.914	-3.77	401	0.000

Table 6.2. Result of second hypothesis test

	Population	Average	Std.	“t” measure	d.f.	Sig.
Second Hypothesis	402	3.16	0.790	4.101	401	0.000

Table 6.3. Result of third hypothesis test

	Population	Average	Std.	“t” measure	d.f.	Sig.
Third Hypothesis	402	3.09	0.872	2.28	401	0.000

Table 6.4. Result of forth hypothesis test

	Population	Average	Std.	“t” measure	d.f.	Sig.
Forth Hypothesis	402	3.12	1.208	51.84	401	0.000

Table 6.5. Result of fifth hypothesis test

	Population	Average	Std.	“t” measure	d.f.	Sig.
Fifth Hypothesis	402	3.24	0.906	71.85	401	0.000

The most average belongs to second criterion of this hypothesis, satisfactory of the informing service, with 3.20 and the least average belongs to the third criterion, the satisfactory of appearance of the offices, with 2.99. The average of answers varies from 2.99 to 3.20. According to the findings of Table 6.3, observed “t” is more than the critical measure of the table in the error level, so the satisfactory level of the clients from the delivery of service is more than average.

Fourth Hypothesis: The customers of ICT offices are satisfied with the accessibility of these offices.

Findings indicate that the most average belongs to forth criterion of this hypothesis, satisfactory of the working hours of the offices, with 3.14 and the least average belongs to the second criterion, the satisfactory of location of the offices, with 2.99. The average of answers varies from 2.99 to 3.14. According to the findings of Table 6.4, observed “t” is more than the critical measure of the table in the error level, so the satisfactory level of the clients from the accessibility is more than average.

Fifth Hypothesis: The customers of ICT offices have a positive perspective (image) of these offices.

The most average belongs to first criterion of this hypothesis, satisfactory of the services in these offices in compare with post offices, with 3.43 and the least average belongs to the fourth criterion, total satisfactory of the offices, with 3.03. The average of answers varies from 3.03 to 3.43. According to the findings of Table 6.5, observed “t” is more than the critical measure of the table in the error level, so the satisfactory level of the clients from the perspective dimension (image) is more than average.

CONCLUSION

Based on MUSA model customer's opinion about total satisfaction of services (offered by ICT offices) and each criterion has been assessed. Among main satisfaction criteria type, delivery methods, accessibility and image of services significant level of obtained tests were equal to zero. Also observed “t” is more than the critical measure of the table in the error level, so the satisfactory level of the citizens from these set of criterion is more than average. However, the satisfaction level of staff was week (Fig. 4). E-Government change is not just technology change but organizational change. It particularly demands a greater customer oriented focus from government agencies [42]. The Iranian movement towards e-government is designed to obtain by

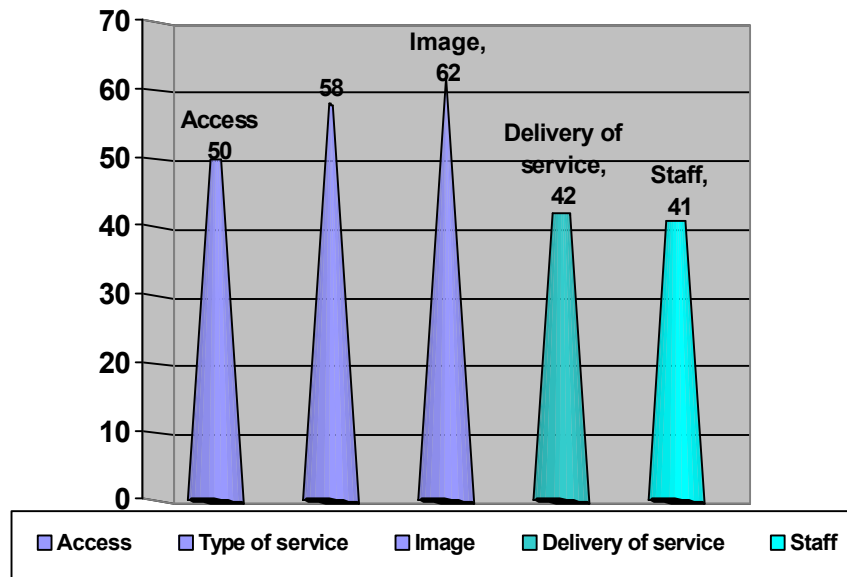


Fig. 4: Citizens' satisfaction level of electronic services offered by e-government through ICT offices

developing the government electronic services to citizens which is the major subsystem and engine of the G-to-C system. The approach is considered viable, as it will minimize the complexities associated with the movement towards an e-government. Moving toward the set objectives needs careful planning in order to use the existing capabilities and cause the least possible troubles and complexities. This movement shall be transformed to a national culture within the government organization and the society by educating the people and through promotional campaigns. The goal of improving service quality was found in all the E-Government policy statements examined in a recent international study [43]. Customer-orientation is one of the most important ways in which governments have attempted to improve the quality of the services they provide to businesses and people.

Based on our literature review, E-Government is a broad concept, encompassing service delivery and transforming government and democratic opportunities. E-Government initiatives have the potential to deliver better services.

However, problems of access and use diminish this potential [44]. E-Government may be able to facilitate greater citizen-participation in government [9] or to mitigate general political apathy [45]. Scholars from different disciplines argue that there are many social groups that cannot enjoy the benefits of electronic services or participatory activities, or that cannot meaningfully obtain value from them [46-49] Also

according to findings of this research although the satisfactory level of the clients from delivery, variety and accessibility of services is more than average but findings of this survey indicate that the customers are not satisfied with the ICT offices' staff.

Suggestions:

- Invest in human development – the success of e-initiatives depends largely on human skills and capabilities. Accordingly, education and training initiatives must be considered as priority actions. Staff need to be trained to handle new processes and activities; and they need to feel part of the organization by engaging in the decision making process. Some basic training needs necessary to be provided to staff, in general, in order for them to be able to use new facilities for accessing electronic information and services.
- Show sensitivity to local realities by assessing and evaluating different alternatives, ways and solutions for digital government development including mobile telephones, kiosks and multi-channel access to services. Find viable solutions to ensure the effective participation of the community in the information economy.
- We also suggest that ICT offices move towards automating their services and facilities for customers to be able to use automated services personally.

- At the beginning of ICT offices establishment there were more services tend to be deliver by these offices but at the moment, regarding to some limitations, they are not eligible to deliver some particular services such as air mail services. To avoid any customer dissatisfaction, informing customers about the exact services that are available at the moment, is also suggested.

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