Public Awareness and Attitude about Smart Services: A Study in United Arab Emirates

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Abstract

The adoption and efficiency of mobile smart services are still in the early stages worldwide. This is especially true for governmental services requiring relatively complex business process and interactive decision making. In addition, social and cultural reasons may both support and hinder their adoption, e.g. the human factors in the business process which may be missed when the service and the communication are automated. In this paper, an exploratory survey is conducted to examine the users' perception of the smart services offered by the government among the citizens in the United Arab Emirates (UAE). The main conclusion is that smart services should be viewed and designed as a part a wider socio-technical system which includes a complex network of inter-relations between the service and its business, social and cultural context. This is mainly to ensure consistency and compatibility amongst the various ways to get the same services achieved still without hindering the distinct features of accessing services via smart technology.

Keywords: E-governance, Smart Services, User Study

1.0 Introduction

During the last decade, extensive initiatives have been taken by various countries for the development of e-governance. However, there are numerous challenges to successfully implement the e-sevirces models especially because of the lack of knowledge about internet usage among the citizens. During the last decade about three trillion US dollars were invested in the e-government programs around the world [1]. Nevertheless, the failure rate of these projects was significantly higher, especially in the developing countries. For example, in case of Turkey and Egypt, the percentage of citizens using online services is 14% and 2 % respectively [2]. Also, the e-governance success rate is not much satisfactory among the developed countries with significantly higher level of literacy rate as compared to under developed countries. It is essential to investigate the problems or challenges among

both the service provider (governing bodies) and end users (citizens) for the improvement of e-governance model.

Previously, many studies have been conducted in different countries to identify the key problems concerning the lower percentage of citizens in using online services to interact with the authorities. For example, [3] concluded that organisational, cultural and managerial problems need to be addressed for better implementation of e-services in Italy. In [4] a study about the citizens' attitude towards using e-services in the UK is reported. The conclusion is that the percentage of e-services users can be increased by appointing technical support at local councils to train or assist the citizens about use of e-services. A study conducted in Jordan argues that in order to increase the interest of their citizens in using e-services, the government needs to improve the accountability and transparency to build the trust of their citizens in e-services [5]. In a study about building a centred e-governance system among the citizens of Taiwan, it was identified that the contributions from the technical experts in IT and the political leadership can play a significant role [6].

The situation in the United Arab Emirates is no different from other countries in the world. The UAE government took initiative towards e-government system since 2001 and is intended to motivate their citizens to use e-services by using smart technologies such as smart phones and tablets [7]. This will also provide easy access to these e-services available 24/7 and 365 days from theoretically everywhere in the UAE. Moreover, the UAE government announced that they have a problem with the smart services usability across the country, and this fact has been confirmed by the United Nations e-government survey as the world ranking of UAE e-government has declined 4 positions in the last year [8]. The current study is the part of the initiative taken to understand obstacles and area of improvement towards a wider adoption of smart services. It is to identify the citizens' attitude about using smart services. These results are helpful in creating optimized design model for successful implementation and building public trust on these services. A main conclusion is that the development of smart services should view them as a socio-technical system and be done in tandem to the other alternatives of achieving the requirements of the users to ensure compatibility.

2.0 Research design and methodology

This part explains the major aspects about the users' survey, in terms of how it is designed, how the questions are selected and what areas to be addressed, as well as how the participants involved in the data collection process are selected in a way to assure equal opportunities.

2.1 Research questions

The current study is investigating the questions in the area of electronic government application in Emirates, and in particular it is concerned with e-government practices in terms of challenges of applications, and the smart services provided to the citizens to replace the traditional offline channels.

The exploratory survey is meant to serve the research question through data collection from users, nevertheless the survey is not intended to give an in depth analysis of the various reasons, and sources of success and failures, but rather to identify the key areas of weaknesses and strengths in the e-government applications, for the following three reasons:

- When surveyed, users are generally able to state their requirements and feedback, but would not easily be able or willing to elaborate on the reasons especially for a software-intensive system where the lack of terminology might be a problem-facing majority of participants with various academic and cultural backgrounds.

- The domain of smart services is relatively recent and in particular the first initiative in UAE was in 2012 [9]. For that reason, even if users would be able to give their perception and own experiences, it would still not be possible to give much success and/or failure stories given that, all smart services are still recent and a common understanding is still being developed over time.

- The reasons for successes and failures are knowledge, which is distributed across different stakeholders, and users are only one part of the involved parties. For instance, users would be able to state reasons like the lack of confidence in dealing with the online requests as seriously as in person, but unsurprisingly they would not be able to state or to give opinion on which departments are responsible for any of the challenges that they might be facing at different stages.

For the above reasons, this survey gives an initial understanding of the areas that should be further explored from the users' perspective.

2.2 The Survey Questions

The survey questions are designed around seven central main areas of investigations. Furthermore, a textbook to add further explanation supports the survey questions, and comments are also used mainly in justifying common answers or a specific answers a user give. As a result, the survey design enables both descriptive and content analysis of the collected data. As a matter of fact, the qualitative analysis is relatively significant to clarify and give justifications to the numbers [10].

For example, the high percentage of users using smart services in general, which was a result of the descriptive analysis, this fact did not necessarily mean they are using all the available services but rather few of them only, and this is for different reasons depends on users behaviour. This fact became comprehensible by looking at the comments added by the users, and will be explained and analysed through the study later in terms of reasons. The survey questions are as follows,

- Are you UAE Citizen/Resident?

- Which device or technology do you use to access the Internet?

- Do you use Federal Government online services?

- Which device do you prefer to access Federal Government online services?

- How do you rate the usefulness of the Federal Government Online Services?

- Please list the Federal Government Online services that you have notably used.

- In your opinion, what are the reasons, which would make the interests in the Federal Government Online Services limited?

2.3 Sampling

It is vital to make sure that the collected data is relevant to the research, realistic and the sample is adequate and representative.

A total of a hundred respondents was asked to participate The respondents were selected in purpose from two different cities only, Dubai and Sharjah, in order to have equal participations from two major Emirati cities, and not to limit the answers to one location, in order to assure that the survey avoid any possibility of unseen reasons enhancing or hindering the e-government solution in any specific location over the rest of the country. Additionally, straightforward random sampling was done for the sample selection. This sampling method is conducted to assure that each member of a population has an equal opportunity to become part of the sample [11].

2.4 Data Collection Tool

The survey is established as a paper-based to be filled up by the participants. The researcher approached participants' citizens in a diversity of organizations in Dubai and Al Sharjah. Additionally, the survey was planned to be paper based in purpose, as web based surveys are not always efficient in all industries, [12]. However, those who met the inclusion criteria as being citizens or residents of the two governorates were offered the option to either fill in the survey by themselves, or to be asked the questions verbally so that the researcher can write their answers down in a paper sheet. This information would be used later for the data analysis together with the form answers by the participants themselves.

3.0 Results and discussion

3.1 Descriptive Analysis

Q.1 Are you UAE Citizen/Resident?

In terms of demographics, the majority of respondents are indeed UAE citizens, and in particular 86% are Emirati nationals, while the other 14% are foreign residents in the country for different purposes.

Q.2 Which types of devices do you use to access the Internet?

The majority of respondents indicated that they access the Internet via Smart Phones on the go, representing 87% of the participant sample. This was followed by users preferring to use desktop computers with 74%, while laptops users are represented by 70%, and a further 44% is the percentage for users using tablet PCs to access the e-government services, and the least percentage is for kiosks with only 22%. Therefore, smart phones are the most used device by users to access the government's portal for various reasons such as the ease of use, and the ability to use it everywhere and anytime.

Q.3 Do you use Federal Government Online Services?

This question is essential to establish a link between Internet users and smart services users. Nevertheless, 85% of the respondents indicated that they are internet users and they already used the Federal Government smart services before to accomplish at least one of the services available online through the official portal as shown in figure 3. On the other hand, 11% of the sample declared that they did not use any of the smart services before, however they are still Internet users, and they are familiar with the needed technology, as a result they should have no problem with the needed knowledge required to access the e-government services.

Nevertheless, it is essential to mention the fact that e-government services usage naturally varies from one country/culture to another. In the case of Emirates it is expected to witness much larger discrepancies than usual, in view of the fact that the cultural background of the Emirates smart services users dramatically varies. Nevertheless, even in closely similar nations still the usage might relatively vary depends on many different factors on either personal or nation level as argued by [13].

Nonetheless, the majority of the participants declared that they prefer online services available to other methods of getting government services done. Therefore, this result is significant to the promotion of online services, as it indicate a keen interest of the respondents to accomplish their services online, since they already established preference towards the electronic portal, and they find it useful and more beneficial than other channels.

Q.4 Which one of these methods do you prefer to receive Federal Government Services?

This question aims to address the preferred channel for customers to deal with the government, since there are other channels where users can interact with the government and get their transactions done.

The majority of respondents, 58%, choose the Internet as the preferred channel; moreover, they access the online channel by using their personal computers rather than smart phones. On the other hand, 55% of the respondents indicated that they would use available smart phone applications to access Federal Government Services directly instead of using their personal desktop or laptop computers at home.

Nevertheless, 42% of the participants still prefer the face-to-face contact to obtain Federal Government Services by visiting the different government offices in various cities. While 36% desire the Telephone to acquire government services by calling and talking directly to a government representative. Last but not least, 11.34% preferred to use an Agent to access Federal Government Services, and eliminate any direct interaction, which naturally incurred extra cost. In fact, these results confirm the conclusion drawn from Question 3 with regard to the keen interest of the population of UAE to use smart service and online services in general, and explains that still other channels attract different user groups, and the variation between the different channels is not really big, which indicate none of the channels is neither widely popular, nor unpopular.

Q.5 How do you rate the usefulness of the Federal Government Online Services?

It is important to know how citizens perceive the new channel of government services. The majority of respondents with 86% felt that the Federal Government Services accessed online are useful to them and perceive it as a good turning point in the relation between the government and the citizens. On the other hand, 13% of participants were unsure whether they would use this new model in general or not, thus indicating a limited benefit to them and uncertainty of its usefulness in general. However, none of the participants declined completely the model. Therefore, the results again shows that the potential of a wide adoption of this model is quite soaring and the majority of the people find it useful in a way or another.

Q6. Please list the Federal Government Online services that you have notably used?

In fact this question aims to differentiate between the frequency of used services in order to extract useful information for online and offline user behaviour.

The online service of the Emirates National Identity Authority topped the list, as it is used by 65% of the participants. Additionally, the online services provided by the ministry of interior came to the second place with 60% of the participants naming at least one online service. Moreover, FEWA came in the third position with 54%, while the ministry of health online services is actually at the fourth rank with 51%. Nevertheless, the Ministry of Labour is placed at the fifth place with 32% of participants using its services, followed by the ministry of Education at sixth position with 21%, and the last position is for the Sheikh Zayed Housing Programme online services with almost 10% of the users accessing it.

However, although the results are indicating variety in the service providers from different ministries and different type of services, but it still did not mean a wide coverage of all the services provided by the involved authorities, since the analysis of the comments collected from the participants explained that, only a limited number of services are being highly used in comparison to all available services from the engaged authorities.

Q.7 In your opinion, what are the reasons, which would make the interests in the Federal Government Online Services limited?

This question is vital to investigate the users' perception of the services.

The 71% of respondents thought that the lack of enthusiasm for online services is due to lack of understanding of how to use the services by the general public, and understanding the benefit of this paradigm in general, since its new concept to most of the citizens. Additionally, the lack of clarity and simplicity in the design and interfaces of the online services portal, as well as explanation on how they should be used came in the second place with 45%. Third reason is the lack of understanding of the flow of the services, and involved procedures of accomplishing a service, regardless of the interfaces and design, came third with 40%. Moreover, the lack of trust and safety feeling came fourth with 21% of participants felt that the online services are not safe for their money, as well as for their personal data that they used to accomplish in online services. On the other hand, 6% felt that they needed much time before start using the services in order to learn and reach to the stage where they can use the online services with no restriction and with confident. Another group of participants representing 9% indicated that the fees involved to be paid including the telecommunication company subscription fee, especially when downloading forms, and the bank involved fees when paying online, etc. is an obstacle for them to use the online services. Nevertheless, 71% of participants think that communication challenges are behind the lack of interest in online services in general.

3.2 Qualitative Analysis

3.2.1 General observation on users comments

In this section, the comments given by the survey participants are analysed. This qualitative component is meant to clarify the participants' options and give more insights on citizens' perception of the current status of smart services in the UAE. However, the comments are analysed to extract mainly the major sources and the reasons for current problems and obstacles services and customers face, in order to achieve higher levels of users satisfaction. Additionally, users' comments are naturally serving in the direction of suggestions and feedback on enhancing the service, since a general trend in the collected answers, combined with relatively high number of users who prefer online service, indicated the following:

- A keen interest to use the service in general, when needed, and a general perception among participants showed the smart services as a useful tool to deal with government in different aspects.

- Majority of participants attempted to use the smart services before for at least once to use the offered services, which is in line with the fact that high percentage of participants who access the internet and most of their online activities are done on their smart phone

- Difficulties in using the services, despite the above two observations, a need for major enhancements on both technical, and organization level is needed in order to address the fact that, users find it difficult to interact with the online portal, and get through the procedures in a smooth way. The use of smart service was limited to only a handful of most popular services while the rest is highly under-used.

3.2.2 Comments received by participants

By analysing the participants' comments, it was noticeable that the different participants mentioned 127 different reasons and comments. Nevertheless, after eliminating redundancies and combining similar answers with common context, the collected comments were grouped into the following eight main categories:
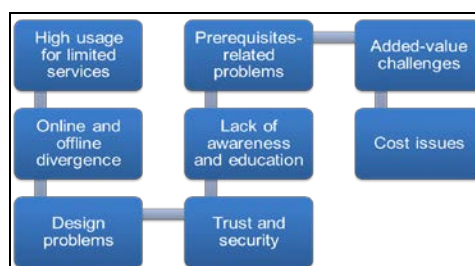

Figure 1 main participants comments

High usage, but only for limited services

The participants' comments indicated that only a few number of services are being practically utilized by users, and a big number of other services failed in reaching an acceptable level of popularity among users. Nevertheless, the used services share the common characteristics of the simplicity and popularity by nature, hence obstacles of learning and education are much minimized in these services. On the other hand, the popularity of more advanced and complex smart services is still low among users, and therefore users tend to utilize them less.

Divergence between in person and online

Naturally, the online channels should be offered in accordance to the service cycle in offline method. However, participants indicated that the use of online services does not imitate the completion of services in person. They added that one of the major reasons why this divergence is seen as negative is the fact that facilities offered in person could be much better, and the overall benefit to the users is relatively higher since a negotiation with staff is indeed possible. For example, when a citizen visits service office, an explanation of a certain fine is actually possible, and it is better explained in person than just receiving a brief message on a smart phone with the total amount to be paid.

Design problems

Service design plays an important role in the smart service introduction, and also development over time, as well as the users perception of the smart services. The collected comments from the participants declared that we have the below four different issues within the design aspect: **Service nature**, not all services are genuinely implementable as smart services such as the cases when a large amount of data is required to be filled in; **In person**, as a matter of fact, some of the available online services still require an in person attendance at certain stage during the different procedures, and this compromise the entire communicated idea about the smart services; **Flexibility,** another problem is the lack of flexibility and fault tolerance in the smart services design. For instance, one of the users indicated the inability to edit the data once the form is submitted; **Mobile version**, the use of smart services via mobile phone necessitate that the design should be simple and easy to navigate. However, some services are complex by nature and it remains a challenge on how to produce a mobile friendly version of the service.

Trust and security

It seems from the received comments, that participants have already witnessed some cases where submitted online requests were lost especially in the early stages of operating the smart services. However, this was mainly due to bugs in the system or human errors at the staff side, and that was due to the newness of the services by that time. While this could be expected and tolerated when adopting a new technology, but it seems that users would need even more assurance that these mistakes will not come to pass again and affect their usage of the services. Nevertheless, such assurances will requires a change of the users perception, which

would require time and will build up gradually in alignment with a good implementation of the smart services.

Additionally, it seems to be a considerable amount of doubts about the implications of using smart services. People tend to distrust mobile phones and Internet in general when it comes to providing their data, since they don't have the option to control the level of privacy they can tolerate, which if implemented could encourage more usage of the e-government service [14]. Moreover, participants indicated that this is due to the relatively lower security measure, which can be implemented in mobile phones. For example, one user mentioned that people usually install apps which request access to almost all the stored data on the phone, and this discourage the use of mobile phones for accomplishing sensitive tasks requiring for example the user identity data and financial information.

Lack of awareness and education

It seems that smart services need a careful attention to the change management practice involved. Obviously, a large sector of the population especially those who are sceptical of the implications due to lack of awareness on the way these services work, are in need for excellent management practices in order to establish a good acceptance to the smart services offered by the government. Unsurprisingly, such awareness may not entirely eliminate the resistance to change as the newness of the technology would lead people to wait till others use it successfully for a considerable period of time, however a good change management shall at least reduce the resistance and help the public to create acceptance quicker, and as a result a faster integration with new channels shall be created. On the other hand, the diverse backgrounds of smart services users make the change management practice more and more essential and irreplaceable [15]. However, users comments reflected a very strong concern by users about the needed knowledge, since majority of them indicated that they don't or they believe that they don't have the needed knowledge, and they also claim that the government is not doing efforts to educate the people. As a result, this lack of knowledge turns to be an obstacle by users towards the smart services.

Prerequisites-related problems

There are essential requirements that need to be available for the users, in order to be able to employ the smart services in the planned and desired way. Two main areas need to be considered: the internet coverage and the internet speed. These factors can be a major problem in using smart services as not all areas have enough coverage or speed which makes them less usable and disadvantages some categories of potential users.

Added-value

Goods or services added value is something welcomed by most of the users, survey participants indicated that they appreciate the additional information and sometimes the offers they receive when they attend in person to the government authority offices. Users confirmed that the useful information include not only the information obtained from the staff while getting the service done, but also the

other attendants while waiting for their turn and having a group dialogue. As a result, this raise the questions of whether a need to make the smart services more social by allowing social networking facilities or not, which will consequently increase the information sharing not only between the government and citizens but between citizens themselves, which is something need to be strategically decided. Nevertheless, by finalizing each service transaction by a forum for discussions and sharing experiences amongst users, since this practice shall lead to a better imitation and probably enrichment of users' experiences in general.

On the other hand, the online portal could also be more interesting for users and the experience could be relatively better as some users mentioned. Participants argued that the online access to information ease and speed could be exploited. For instance, the added value could take different formats. Additionally, smart service rating option could be introduced as a value added service. Moreover, being able to search for how peer citizens from the same geographical area have rated the services a user is about to use, could also be seen as a very good value added services to users. In fact, such added services shall give a room for a collective rating and a feeling of community involvements. Nevertheless, some current commercial apps already have such rating feature to share the experience, but government services seems to have the fear of trivializing the services if augmented by such techniques, since the government might prefer to position their online portal in a different place than other applications already available in the online market. Furthermore, from the participants' answers one would speculate a room for such enhancement and further studies will still be needed to estimate its effectiveness, and impact on the government strategic plans.

However, Value added services in the e-government could take many different formats, and the benefit could vary from country to another and culture to another, nevertheless, it is also argued that, one stop government portal is a successful added value, sine it assure that user will deal with only one website or representative entity even if the needed service involves many different government authorities in nature collaborating together [16].

Cost

The costs associated with the online services are not negligible as mentioned by many users. In fact, the incurred online costs additionally include the telecommunication company fee in order to connect the user to the Internet from any of the client devices, and also the bank charges when the user is using the account in paying online. Although in practice this might be still cheaper in comparison to the involved costs of traditional in-person attendance, i.e. fuel or transportation and the time needed, but still these costs are unconsciously detached from the service in opposite to those in the case of online services. In other words, the offline costs might be more expensive but naturally indirect, while the online costs might be less and cheaper but still direct in nature, which may logically develop the feeling to the users that they are paying more for the same service online in comparison to offline channels. Nevertheless, users referred to the additional costs by mentioning two different aspects, which are both relevant to monetary issues, but they are different in nature: The cost associated with the

online services in terms of Internet connection, and bank charges for the online transactions; Payment security, and they referred to their concerns about how secure is to provide their bank details online.

4.0 Conclusions

In summary, in this paper we introduced the user survey mechanism and results as a tool to collect information from the present e-government users. Additionally, the researcher took into consideration the need to have diversity in both gender, and age when selecting participants for the one to one survey interview. Furthermore, not only diverse participants were selected, but also diverse cities, as the researcher has chosen the two major cities as targeted locations for data collection in order to reach users that are dealing with different governments offices in offline medium, when they are comparing it to the online portal. And the researcher identified the links between the survey questions, and the questions of the research. After the information was collected, the researcher introduced descriptive and qualitative analysis for the data, in order to have solid outcome and to be able to link the results to the research. Which leaded the researcher to identify eight major challenges as listed below, which were mentioned by the majority of the participants, as hinders to the usage of the e-government services in emirates: High usage for limited services, Online and offline divergence, Design problems, Trust and security, Lack of awareness and education, Prerequisites-related problems, Added-value challenges, Cost issues.

Nevertheless, it was noticed that users have different behaviour and different preferences when it comes to interact with the government through the available channels. Additionally, users mentioned many important comments when they were given the chance to write comments about the services, and unsurprisingly the majority of users mentioned almost the same comments about their perception of the smart government solutions offered to the public. At least but not last, the survey was very helpful and gives a deep insight of the current situation of the smart services in the United Arabs of Emirates.

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