

The Development of Electronic Commerce Services (G2C) by the Government of Yemen: Investigating Barriers and Suggesting Solutions

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Abstract

The purpose of this paper is studying the status of the electronic commerce services implemented by the public sector in Yemen, analyzing the barriers to implementation, and making suggestions to overcome these obstacles. Since 2000, Yemen's consecutive governments recognized the importance of E-Government; however, so far there is no noticeable improvement in all e-government areas including G2G, G2B, and G2C. Here, this research will focus on G2C area. It includes an introduction of IT sector and examination of one of the G2C service (eRial) created by General Post Office under the Ministry of Telecommunication and Information Technology (MTIT).

Keywords : E-Government, G2C, Yemen, eRial.

1. Introduction

E-government implementation is a very complex process in which governments have to re-engineer their whole governance process. As a result, several governments around the world are hesitant and find it difficult to adopt e-government. These governments have made strategies to develop their e-government model that is appropriate for each country's political, economic, and cultural environment. These

changes have to take into consideration variations in the legislative rules, transparency, and participation of citizens. Because of these changes, e-government implementation finds resistance, especially in non-democratic countries and in countries where corruption is widespread. For example, e-government enables citizens to participate in governance; so, non-democratic countries resist the implementation of e-government in their countries. Furthermore, corrupted governments do not want to implement such way of governance because it requires transparency of the business processes.

The pressure from fast-growing Internet technologies and applications, from citizens, and from private sectors make governments re-engineer their operations to meet these pressures and satisfy their citizens. As a result, governments have been adopting e-government, which has been the best government process reengineering (GPR) [1]. Governments around the world have started e-government strategies to renew the public sector to promote the rapid step of technological change [2].

The meaning of e-government can differ among people, among several definitions of e-government; it is defined as the electronic interaction between the government, the public and the employees [3].

It is, also, defined as the public sector's use of the governments operated or owned most innovative information and communication technologies to deliver improved services. These services aimed to serve and empower all people in all sectors: public, private, and citizens, and strength transparency, accountability, and service delivery. [4;5].

Although, there are many activities involved in e-government, there are three distinct sectors; Government-to-Government (G2G), Government-to-Business (G2B), and Government-to-Citizen (G2C).

The development of Government to Citizens (G2C) services in Yemen so far is very slow; this is because of the relatively high rate of computer illiteracy among Yemeni people in compare with most of the developing countries.

Many studies investigated the importance of information technology literacy for adopting any e-service using Information Communication Technology. Several researchers [6,7,8] agree that implementing Information Communication Technology (ICT) will contribute to efficiency gains and cost reductions [9].

Several governments are working towards improving their effectiveness and improving consistency by using information communication technology (ICT) and implementing e-government. E-government implementation reduces cost and layers of organizational processes by streamlining and re-engineering operating procedures [10]. Services online are much cheaper for governments than the manual work. For example, it costs the US Inland Revenue Service only \$.40 to process a form electronically while it costs \$1.60 to process a paper tax form manually [11]. Another study found that general internet self-efficiency (GISE) and web-specific self-efficiency (WSE) have a strong effect on individual behavior [12].

The international adoption of e-services, in general, is still slow even in developing countries. For instance, in a survey of randomly selected adults (1,023) made by

the council for excellence in government in the year 2003 found that only third of e-government internet users conduct an online transaction. The rest two-third is accessing government websites looking up for information [12].

The remainder of this paper is organized as follows. Section 2 describes the development of IT in Yemen. Section 3 reviews previous studies of e-Commerce in the World. Section 4 describes the existing policies of enhancing the relationship between government and citizens. Section 6 concludes the papers.

2. Related work

IT development in Yemen did not start until the end of 1994. That was because of the instability of the political situation in Yemen from 1990 (the Unification of Yemen) till the end of civil war in 1994. To understand the IT development in Yemen, we should look first at the existing infrastructure in Yemen (fig. 1).

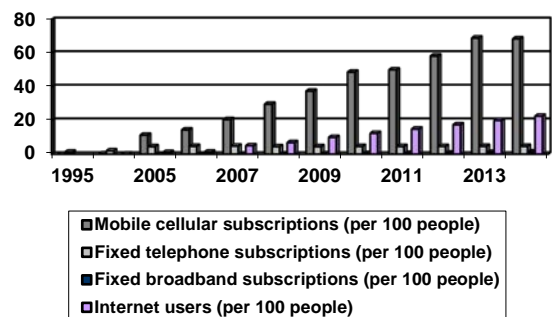


Fig (1) Telecommunication subscriptions in Yemen

Although the government of Yemen had more than one initiative in the past to implement e-government and to move its manual processes to automated processes, the Republic of Yemen is still lagging in term of using information technology.

On June 2005 the government of Yemen organized a workshop under the title “E-government between reality and expected goals in the Republic of Yemen”. The National Information Center of the Republic of Yemen presented a research paper in that workshop and later submitted that study to

the Republic of Yemen’s Presidential Office and the Shura Council.

The following are some of the findings of that research. Tables 2 and 3 compare the Republic of Yemen to the rest of the countries worldwide. They indicate that Yemen is still behind when it comes to using computers and the Internet, telephone usage, and e-government readiness.

Table 1: *Computers for Every 100 People and Internet Usage per 100 People for the World and for Some Countries Including the Republic of Yemen*

Country/Group	PC Percentage (%) per 100 people	Internet usage per 100 people
The World	7.74	15.47
Arab World	2.04	5.57
U.S.A	65.89	55.14
Canada	48.7	51.28
Malaysia	14.68	31.97
Egypt	1.66	2.82
Yemen	0.79	0.51

Note: “E-Government between Reality and Expected Goals in the Republic of Yemen,” by Yemen National Information Center, 2005. Sana’a, Yemen, p.10.

Table 2: *E-government Readiness for Some Countries Including the Republic of Yemen*

Country	Web Measurement	Communications	Human Resources	General Indicator	International
U.S.A	1.00	.0770	.0970	0913	1
Canada	0.873	0.668	0.970	0.837	7
Malaysia	0.490	0.302	0.830	0.541	42
Egypt	0.100	0.066	0.630	0.265	136
Yemen	0.054	0.040	0.490	0.195	154

Note: “E-Government between Reality and Expected Goals in the Republic of Yemen,” by Yemen National Information Center, 2005. Sana’a, Yemen, p. 15.

Implementing e-Government consists of two stages; one is information dissemination stage (cataloging) and the second is transaction stage [2]. Yemen e-Government is still in the first stage. At the beginning of the year 2000, few government agencies tried to build their websites and develop their IT infrastructure. Even though those agencies made small progress (their websites have the very basic design with few amount of information), their efforts were appreciated, though, recognizing the lack of financial resources, and IT experts.

In Yemen, identifying national strategy policy was a part of the job of the Ministry of Planning and International Cooperation (MPIC). That policy plan did not have a detailed IT strategy and framework. It consists of very broad general guidelines. For instance, in Yemen strategy report, MPIC identified the main directions and objectives of the strategic vision in the Field of Science and Technology (restructuring and an improved framework) as:

- Provide the appropriate legislative and legal framework for it.
- Direct the education and training system.
- Transform it to a national system for innovation (the foundation for the real development of the Yemeni economy).

MPIC drew the perspectives of transforming the fundamentals of Yemen's science and technology base to a national system for innovation as:

- Formulation of a National Strategy for Science and Technology.
- Education and Training.
- Scientific Research and Development.
- Technology Transfer and Absorption.

- Scientific and Technological Services.

On the other hand, Ministry of Telecommunication and Information Technology (MTIT) created a five--year strategy plan. From 2001 till 2005, the main Objectives of the plan of MTIT till 2025 [13]:

- Improving the software industry.
- Improving Services.
- Participating in improving the government’s performance economically.
- Regulating of the ICT.
- Improve Security.
- Developing and re-organizing the Postal sector to strengthen its performance as an economic and investment unit.

Even though those broad ideas are well defined, they still lack many factors needed to move those general ideas from papers to reality. Moreover, it takes tremendous efforts for all the tasks of every government agency involved in these goals to be identified. In reality, it was noticed that each ministry is trying to do its IT plan without any cooperation with other ministries or agency. As an example of that, most government agencies tried to have Information Unit (IU) after 2000. A survey made by National Information Center (NIC) showed the reasons of building these IU (figure 2). As seen in the graph, implementing agency regulations is the most important reasons for implementing the IUs; while implementing law shows the lowest reason.

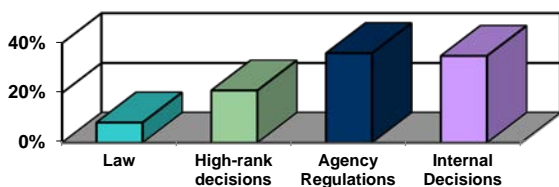


Fig. (2) Reasons for building IU

Agencies investigated by that survey identify those obstacles for not cooperating with other agencies’ IUs:

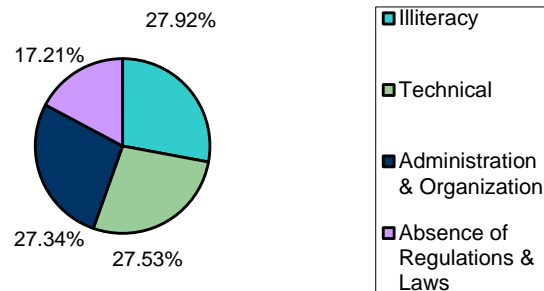


Fig. (3) obstacles of not cooperation with other IUs

As it seen from the fig (3), all those obstacles are very important especially the IT illiteracy (including the unawareness of the benefits of IT collaborations between agencies) and the absence of integrated network between agencies (technical). This leads to the loss of many resources and failing of many IT projects. Moreover, in the future, the integration of all agencies’ networks might not be possible because of the use of different systems. Therefore, there have to be a clear understanding of which ministry or agency responsible for planning and coordinating any IT project. In Yemen, there are two main agencies which can do the work; MTIT and NIC. These two agencies made good progress so far considering the lack of needed power-in-hand over other agencies regarding the implementation of any IT project.

e-Rial service as an example of G2C e-commerce in Yemen:

On September 01, 2001, Yemen Post Office (MTT) started an e-commerce service called e-Rial to provide online money transfer and online billing for electricity, water, and Telephone bills. That project was made at the cost of MTIT with an amount of 244,000 US dollar. To use this service, the user needs to buy a prepaid card (easy to find in cities) and open electronic e-

Rial account at the electronic website portal (www.post.ye). This website now has more services including tracking EMS items online, buying Yemeni stamps, and pay for Yemen mobile bill in Arabic and English languages. Despite the simplicity of that service, and the efforts made to build a simple and user-friendly website for the service, the number of users did not increase as anticipated. This is due to the short period of offering these services in Yemen, and the lack of adequate studies about this e-service or other online-service so far in Yemeni society. The studies usually look at the marketing perspective, not social and policy perspective. In a study about “marketing e-Rial in Yemen,” Professor Ba-Alwy (2003) [14] conducted a small survey of 400 individual analyzing the reasons for not using this service. The study was conducted in Sana’a, the capital of Yemen, and it shows following reasons: 70% of the study samples did not hear about the service, 81% did not have the enough knowledge of how to use this electronic service, on the other side it shows that only 5.7% did use the e-Rial service. Depending on his observations, Ba-Alwy (2003) provided the following conclusion; first, the unawareness of the important use of this service in public, and the lack of knowledge of the existence of e-Rial service are the most two important reasons that contributed to not using the e-Rial service widely. Second it shows that most people (including undergraduate students) do not know how to use the Internet efficiently.

3. E-COMMERCE IN YEMEN AND THE WORLD

To accelerate the use of e-commerce services in Yemen, there should be some initiatives to understand the mentality of Yemenis and get over the culture and customs barriers and ease the mistrust relationship between government and citizens.

To study the acceptance of e-service adoption, Beynon-Davies [15] improved the “Theory Planned Behavior Model” used for studying the adoption and usage of IT in general to a new model down blow:

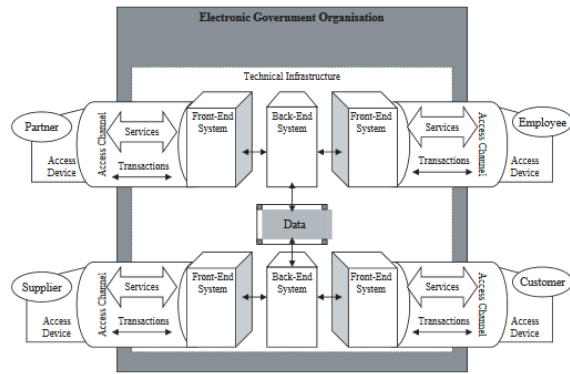


Fig.(4). Theory Planned Behavior Model [12]

E-service (G2C) has many advantages over traditional service. One advantage is the reduction of product research [9]. Another advantage is the saving of operation and the reduction of transaction cost [12] and [16]. Improving the transparency between government and citizens is the third most important gain [13] and [17].

At the same time, there are many barriers toward the adoption of the e-service. The complexity of the service is the most important barrier; the knowledge is the second important barrier. Human like to do their activities using their ways. They usually resist changes which they think it will make their life complicated [12]. A study made by Rand Europe (2003) in Europe Union countries showed that users preferred the way of interaction with government depend on the type of services [18]. The least personal data required by using online service (such as library search), the highest percentage of using that online service (see figure blow). That means people have a great concern about their privacy as well.

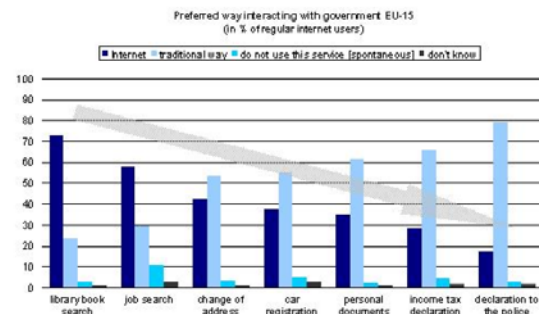


Figure S3: Degree of preference for online services for different services. Source: SIBIS, GPS 2002; weighted by EU15 population. Base: citizens who used the Internet in the last four weeks; N=4965

4. G2C Recommendations and suggestions for Yemen:

As explained earlier, e-services in Yemen is still in the primary stage. At the same time, promoting this type of services by the government (G2C) is limited and weak. In this section, recommendation policies to push up and increase the usage of e-commerce services in Yemen will be introduced. First off, one of the major missing elements in e-Government is the appropriate legislations and regulations which should be considered and introduced properly. Second, Leadership commitment toward disseminating Internet and e-Government should be reinforced. Yemen Portal (www.yemen.gov.ye) which is the gate to Yemen e-Government services should be rebuilt to reflect all needed information and links to all government agencies' websites. Third, it is important to build a strong communication channel among agencies and between agencies and citizens which will increase trust relationship between government and citizens. Fourth, through well-prepared tanning the IT knowledge and awareness of the importance of e-Government among leaders in most agencies should increase, which in general leads to enhance the quality of government websites contents and the improvement of the websites in general. Fifth, IT experts should be prepared to take control in e-government agencies to take care of different tasks related to their online services and websites. This should include updating information, providing access to different services like e-Rial in an easy and enjoyable way. Also providing more services based on the needs of the customers.

Furthermore, without improving the education system by using IT (free or low-cost access to Internet, online training, etc.), the acceptance of using G2C among public will be very slow. Yemen Government (represented by Ministry of Higher Education (MHE) and Ministry of Education (ME)) first has to make new educational system legislations and rules which will spread out the usage of Internet in schools with the help of private sector.

In fact, Under MTIT with the support of Yemen's President, a generalized computer literacy project started in 2002 which was a good start. That project focused mainly on facilitating and spreading the use of computers among government employees by providing them economical computers with one first payment and easy monthly installments. It consists of three stages (see figure 5). The success of the project showed that another reason for the low usage of e-services, which is the low-income problem in Yemen. Despite all efforts done and could be done in the future (making legislations, appropriate cooperation between agencies, and increase citizens' trust in agencies) to disseminate the use of computer and Internet (which leads to the increased use of e-services), Yemen has to improve its economy and the education system to increase income of people and the IT knowledge among citizens. Special care has to be moved toward rural areas (more than 70% of the population) and toward people with the lowest incomes.

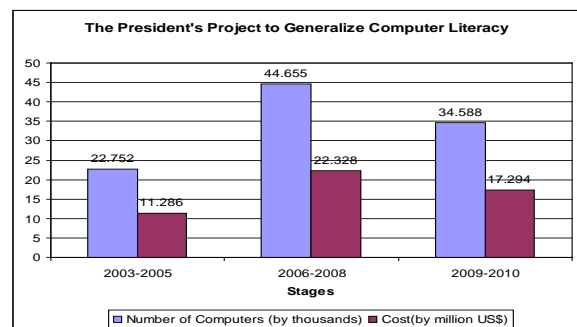


Fig. (5) President's project to generalize computers

Source: “Telecommunication and Information Technology in Yemen” Book, Pages 41-42, MTIT, Republic of Yemen [19]

In the end, the following are recommendations for overcoming the barriers:

- Strengthening the trust between the government sector and citizens by appropriate legislations and regulations.
- Giving incentives to use the e-commerce service instead of regular service (by for example reducing tax).

- Promote using e-commerce services by using all known marketing strategies. One study found that one of the important three key recommendations for promoting e-government is marketing electronic government services [10]. Some strategies could be:
 - a. Advertisements in all possible types of media including public owned media and private owned media.
 - b. Brochures, and lectures and seminars.
 - c. Promotion Offers.

5. Conclusion and Recommendations

In summary, e-services in Yemen is still in the primary stage, the information dissemination. Some of the reasons that contributed to this status are: The economy of the country, the high illiteracy especially in rural areas, the mistrust between government agencies and citizens in using e-services, and the unavailability of appropriate legislations and policies.

Keeping in mind all those barriers and looking at how Internet usage spread in Yemen over the last five years. In case some of those barriers were solved there is a large expectation that IT knowledge will spread out over every house (in urban areas) in the next five years. That will lead to the increased usage of e-commerce services. However, in rural areas, a lot of work in spreading education (increasing literacy) and in improving people life need to be done before expecting any reasonable use of computer and Internet – which lead to the spread of e-services' usage.

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