ABSTRACT:
Understanding the citizens’ needs by e-government decision makers offers great opportunities to make communication more effective and efficient, to infer and predict citizens’ behaviour and to even influence behaviour. The decision makers need to know more about citizens’ attitude, skills, and willingness to use e-government online services. The aim of this paper is to investigate the user profile of e-government in Yemen. We built a tool to collect the data online from internet users [7]. The results will help the decision makers to understand the users’ needs and plan to improve the online services for e-government to its users.

KEYWORDS: e-government, user profile, potential users, Yemen, awareness

I. INTRODUCTION
Citizen’s satisfaction is one of the most important objectives of any e-government strategy. The government should seek and understand all the requirements of the citizens so that the government can offer them creative and easy access to its services. Government’s function is not only to offer e-services to the public, but also to make sure that these services are of high quality and satisfy the users. In order to do that, the decision makers need information about the citizens whom they are serving. This information acts as the nerve center for the organization, receiving the latest, most concrete, most up-to-date information and redistributing it to those who need to know more information about users. The required information about the citizens can be captured and used in user profiling.

User profiling in the context of e-government gives to the governmental organizations tremendous possibilities for their e-government strategies [2]. In e-government domain, user profiling or audience analysis is figuring out who uses -or should use- your website, what information and services they need, which tasks they must complete, what are their abilities to use internet and what are their attitudes to access government information and services online.

Any government agency should have the goal of building the right e-services for the people who need it, not for stakeholders who may have other objectives.

To achieve the goal of providing excellent web services, one must gather as much information as he can about citizens or users and what they do, and should be able to share this effectively with decision makers. With the information gained from audience or user analysis, it is easy to develop a good and usable service.

User profiling has also additional objectives: it gives those organizations offering electronic services the possibility to gain insight into the behaviour of individual users and influence them at the same time [2]. If organizations have sufficient information about their customers or citizens and are able to use it in framing convenient strategies, then they stand a better chance of organizational success.

Capturing the profile of potential users of e-government services is important to understand the needs of the target audience to help tailor online services for specific user groups. To build a user profile, the information needed can be obtained explicitly, that is provided directly by the user, or implicitly, through the observation of the user’s actions [4].

The aim of this work is to investigate and analyse the user profile of e-government in Yemen. The paper is divided into five sections. Section 1 is an introduction to e-government and user profile, followed by Section 2 where the methodology is presented. In Section 3, the results are illustrated. In Section 4, the results are discussed. Finally, in Section 5 the conclusion is drawn.

II. METHODOLOGY
Approaches [3][1][5] were adopted to develop and test a questionnaire to extract the data from the target respondents.
Table 1 Dimensions of the tool.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Attributes to be captured</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Access</td>
<td>● Access and availability of Computer and internet.</td>
<td>Item No. 1</td>
</tr>
<tr>
<td>2. Web behaviour</td>
<td>● Internet usage (time).</td>
<td>Item No. 2</td>
</tr>
<tr>
<td></td>
<td>● Experience or skills.</td>
<td>Item No. 3</td>
</tr>
<tr>
<td></td>
<td>● Purpose of using internet.</td>
<td>Item No. 4</td>
</tr>
<tr>
<td>3. Awareness</td>
<td>● Awareness of e-government.</td>
<td>Item No. 5</td>
</tr>
<tr>
<td></td>
<td>● Source of awareness.</td>
<td>Item No. 6</td>
</tr>
<tr>
<td>4. Attitude towards e-government</td>
<td>● Willingness to interact with government online or using common service center.</td>
<td>Item No. 7</td>
</tr>
<tr>
<td></td>
<td>● User expectations.</td>
<td>Item No. 8</td>
</tr>
<tr>
<td>5. Demand of e-government services and information</td>
<td>● Type of services and information required.</td>
<td>Item No. 9</td>
</tr>
<tr>
<td></td>
<td>● Type of interaction.</td>
<td>Item No. 10</td>
</tr>
<tr>
<td>6. Barriers of using government websites</td>
<td>● Perceived and real problems in accomplishing their goals, special needs that affect users.</td>
<td>Item No. 11</td>
</tr>
<tr>
<td>7. Demographics</td>
<td>● Age</td>
<td>Item No. 12</td>
</tr>
<tr>
<td></td>
<td>● Gender</td>
<td>Item No. 13</td>
</tr>
<tr>
<td></td>
<td>● Occupation</td>
<td>Item No. 14</td>
</tr>
<tr>
<td></td>
<td>● Education</td>
<td>Item No. 15</td>
</tr>
<tr>
<td></td>
<td>● Income</td>
<td>Item No. 16</td>
</tr>
</tbody>
</table>

The approaches can be divided into two stages. Stage one, proposing the important dimensions. Stage two is to generate items for each dimension. Table 1 shows the dimensions of proposed tool along with the attributes that should be captured. The data were collected from Internet users in Yemen using questionnaire tool developed by the authors for this purpose. The questionnaire was hosted in Gizmo online survey tool. An invitation was sent to the respondents through email, Facebook along with Link to the survey. The data were collected over a period of three months. The total valid respondents were 750. The collected data were tested, validated and analysed using SPSS version 22.

III. RESULTS

It should be remembered that this data set is based on sample, but not on the entire population. As a consequence, all results are subject to sampling tolerances, which means that not all differences are statistically significant. However, the sub-group differences mentioned in this work are all statistically significant at 95% confidence level.

1. Demographics Data analysis of respondents:

As we see in Table 2, the demographic data showed that there is a balance in the sample. It contains both, male and female, all the age groups, different types of education levels, different occupations, and all the different types of income levels.

Table 2 Demographics Profile.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Value</th>
<th>Frq</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>586</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>164</td>
<td>22</td>
</tr>
<tr>
<td>Age</td>
<td>Less than 20 Years</td>
<td>42</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>21-30 Years</td>
<td>357</td>
<td>47.6</td>
</tr>
<tr>
<td></td>
<td>31-40 Years</td>
<td>286</td>
<td>38.1</td>
</tr>
<tr>
<td></td>
<td>41-50 Years</td>
<td>55</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>More than 50 Years</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Education Level</td>
<td>Educated without degree</td>
<td>20</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>Secondary School or Equivalent</td>
<td>187</td>
<td>24.9</td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>273</td>
<td>36.4</td>
</tr>
<tr>
<td></td>
<td>Master</td>
<td>174</td>
<td>23.2</td>
</tr>
<tr>
<td></td>
<td>Ph.D</td>
<td>88</td>
<td>11.7</td>
</tr>
<tr>
<td>Occupation</td>
<td>Student</td>
<td>188</td>
<td>25.1</td>
</tr>
<tr>
<td></td>
<td>Government Employee</td>
<td>312</td>
<td>41.6</td>
</tr>
<tr>
<td></td>
<td>Non-Government Employee</td>
<td>200</td>
<td>26.7</td>
</tr>
<tr>
<td></td>
<td>Job-less/ House wife/ Retiree</td>
<td>40</td>
<td>5.3</td>
</tr>
<tr>
<td>Income</td>
<td>Less than 30,000 RY</td>
<td>103</td>
<td>13.7</td>
</tr>
<tr>
<td></td>
<td>31,000-60,000 RY</td>
<td>189</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>61,000-90,000 RY</td>
<td>166</td>
<td>22.1</td>
</tr>
<tr>
<td></td>
<td>More than 91,000 RY</td>
<td>228</td>
<td>30.4</td>
</tr>
</tbody>
</table>

Gender

Only 164 female respondents participated in this survey. They account for only 22% of the total respondents as shown in Table 2. There were 586 male respondents (78%) in this survey. Independent sample t-Test in gender were used to find the significant difference.

Table 3 shows that there is a significant difference among male and female in the mentioned variables. The males were better than females in the skills to find information on internet and they spend more time on internet than females. They also have more access to computer and internet than females. The males were more aware of the e-government and they use the internet to get the government information, learning and shopping more than the females. This result is on expected lines due to gender bias, technology aversion among the women; as well as the fact that man generally interact more with government for any kind of
services. In the remaining factors there is no significant difference between male and females.

Table 3 t-test for Gender

<table>
<thead>
<tr>
<th>Variables</th>
<th>t</th>
<th>Df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having PC</td>
<td>-2.726</td>
<td>738</td>
<td>.007</td>
</tr>
<tr>
<td>Internet Connection</td>
<td>-5.019</td>
<td>738</td>
<td>.000</td>
</tr>
<tr>
<td>Internet Usage</td>
<td>-7.874</td>
<td>738</td>
<td>.000</td>
</tr>
<tr>
<td>Ability</td>
<td>-5.177</td>
<td>738</td>
<td>.000</td>
</tr>
<tr>
<td>Use for Browsing Purpose</td>
<td>-6.873</td>
<td>738</td>
<td>.000</td>
</tr>
<tr>
<td>Use for searching government Information</td>
<td>-4.277</td>
<td>738</td>
<td>.000</td>
</tr>
<tr>
<td>Use for online learning</td>
<td>-3.060</td>
<td>738</td>
<td>.002</td>
</tr>
<tr>
<td>Use for Shopping</td>
<td>-4.279</td>
<td>738</td>
<td>.000</td>
</tr>
<tr>
<td>Awareness</td>
<td>-8.379</td>
<td>727</td>
<td>.000</td>
</tr>
</tbody>
</table>

Age
The distribution of age groups is given in Table 2. Most of the respondents belong to young generation (between 21-40 years). Three hundred fifty seven respondents were in the age group 21-30 years. This group accounts for 47.6% of the total respondents. Two eighty-six respondents were in the age group 31-40 years comprising 38.1% of the total respondents. Fifty-five of the respondents were from the age group 41-50 years forming 7.3% of the total respondents. The age group less than 20 years had 42 respondents (5.6% of the total respondents).

We used one-way ANOVA test to find the significant difference of all the variables among the age groups. Table 4 shows the variables that have significant differences among age groups.

Table 4 Significant difference between age groups using one-way ANOVA test

<table>
<thead>
<tr>
<th>Factors</th>
<th>df</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having PC</td>
<td>5</td>
<td>17.416</td>
<td>0.00</td>
</tr>
<tr>
<td>Internet Connection</td>
<td>5</td>
<td>12.229</td>
<td>0.00</td>
</tr>
<tr>
<td>Internet Usage</td>
<td>5</td>
<td>4.571</td>
<td>0.000</td>
</tr>
<tr>
<td>Ability</td>
<td>5</td>
<td>3.813</td>
<td>0.002</td>
</tr>
<tr>
<td>Use for Browsing Purpose</td>
<td>5</td>
<td>3.936</td>
<td>0.002</td>
</tr>
<tr>
<td>Use for entertainments</td>
<td>5</td>
<td>3.234</td>
<td>0.007</td>
</tr>
<tr>
<td>Use for searching non-government info</td>
<td>5</td>
<td>2.937</td>
<td>0.012</td>
</tr>
<tr>
<td>Awareness</td>
<td>4</td>
<td>11.498</td>
<td>0.000</td>
</tr>
</tbody>
</table>

One-way ANOVA test can find the significant difference between variables only. To illustrate the significant difference among the age groups we used Post Hoc Tests along with one-way ANOVA test to find the dominant group in each variable. The table results of Post Hoc test cannot be displayed here, they are available upon request to authors.

Education Level
In terms of the educational background, 36.4% or 273 of the respondents hold a Bachelor’s degree. Almost twenty five percent of the respondents were from Secondary School or Equivalent. Masters degree holders were 174 or 23.2% of the respondents. Eighty-eight were PhD holders and they form 11.7 of the respondents. Only 2.7% or 20 of the respondents were educated without a degree. Table 5 showed the variables that have significant difference among education levels.

Table 5 The significant difference between Education Level using one-way ANOVA test

<table>
<thead>
<tr>
<th>Factors</th>
<th>df</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having PC</td>
<td>5</td>
<td>12.924</td>
<td>.000</td>
</tr>
<tr>
<td>Internet Connection</td>
<td>5</td>
<td>30.165</td>
<td>.000</td>
</tr>
<tr>
<td>Internet Usage</td>
<td>5</td>
<td>7.824</td>
<td>.000</td>
</tr>
<tr>
<td>Ability</td>
<td>5</td>
<td>4.913</td>
<td>.000</td>
</tr>
<tr>
<td>Awareness</td>
<td>5</td>
<td>19.814</td>
<td>.000</td>
</tr>
</tbody>
</table>

Occupation
There were 312 respondents who were government employees comprising 41.6% of the total respondents. Two hundred or 26.7% of respondents were non-government employees. There were 188 students (25.1% of the respondents). Among the respondents 40 were Job-less/ House wife/ Retiree accounting for 5.3% of the total respondents. Table 6 shows the variables that have significant difference among occupation groups using one-way ANOVA test.

Table 6 The significant difference between Occupations using one-way ANOVA test

<table>
<thead>
<tr>
<th>Factors</th>
<th>df</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having PC</td>
<td>4</td>
<td>11.368</td>
<td>.000</td>
</tr>
<tr>
<td>Internet Connection</td>
<td>4</td>
<td>10.849</td>
<td>.000</td>
</tr>
<tr>
<td>Internet Usage</td>
<td>4</td>
<td>4.020</td>
<td>.003</td>
</tr>
<tr>
<td>Ability</td>
<td>4</td>
<td>5.716</td>
<td>.000</td>
</tr>
<tr>
<td>Awareness</td>
<td>4</td>
<td>6.746</td>
<td>.000</td>
</tr>
</tbody>
</table>

Income:
The survey covered 228 respondents who earn more than 91,000 Rial (RY Yemen Currency). This group forms 30.4% of the total respondents. Hundred and eighty-nine respondents, earn between 31,000-60,000 RY on a monthly basis. This group accounts for 25.2% of the total respondents. Hundred and sixty-six respondents earn between 61,000-90,000 RY. They form 22.1% of the total respondents. One hundred and three respondents earn Less than 30,000 RY on a monthly basis. This group accounts to 13.7% of the total respondents. Around 8% did not reveal their incomes.
Table 7 shows the variables that have significant difference among income groups using one-way ANOVA test.

Table 7 The significant difference between Household Income Levels using one-way ANOVA test

<table>
<thead>
<tr>
<th>Factor</th>
<th>df</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having PC</td>
<td>4</td>
<td>5.210</td>
<td>.000</td>
</tr>
<tr>
<td>Internet Connection</td>
<td>4</td>
<td>11.771</td>
<td>.000</td>
</tr>
<tr>
<td>Internet Usage</td>
<td>4</td>
<td>2.892</td>
<td>.022</td>
</tr>
<tr>
<td>Awareness</td>
<td>4</td>
<td>25.041</td>
<td>.000</td>
</tr>
</tbody>
</table>

2. Access and availability of Computer and internet:

Table 8 shows the result of access to computer and internet. Around eighty-seven percent of the respondents have computer either at home or at office. Around (69.5%) of the respondents have internet connections either at home or at office. Although the target population was the internet users, we can find that some of the respondents (30.5%) do not have internet connection at home or at office. It means that they access the internet at internet browsing centre or using friend’s internet connection. The level of access to internet is not enough as expected. These results will give the decision makers an idea how to improve the level of access. In this case, the decision makers have to plan a policy like providing low cost computers and internet access or provide community centres where citizens can access the internet free of charge.

Table 8 Access to computer and internet

<table>
<thead>
<tr>
<th>Factor</th>
<th>Respondents Frq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having Computer at home or office</td>
<td>652</td>
<td>86.9</td>
</tr>
<tr>
<td>Having Internet at home or office</td>
<td>521</td>
<td>69.5</td>
</tr>
</tbody>
</table>

3. Web behaviour

3.1. Internet Usage

Table 9 shows the average time of internet usage among the respondents. It shows that 59.5% of the respondents access the internet daily. The remaining access the internet either weekly (12.1%) or monthly (28.4%).

Table 9 Internet Usage

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly</td>
<td>213</td>
<td>28.4</td>
</tr>
<tr>
<td>Weekly</td>
<td>91</td>
<td>12.1</td>
</tr>
<tr>
<td>Daily</td>
<td>446</td>
<td>59.5</td>
</tr>
</tbody>
</table>

3.2. Skills to use the internet

Table 10 shows that 40.5% of respondents claimed that they were very much able to find the needed information and services on internet, 30% of respondents were quite able, but 29.5% of respondents find it difficult to find government information on internet. Therefore, this group (29.5%) needs improvement in skills to use internet.

Table 10 Skills to find information in internet

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not bad</td>
<td>221</td>
<td>29.5</td>
</tr>
<tr>
<td>Good</td>
<td>225</td>
<td>30.0</td>
</tr>
<tr>
<td>Excellent</td>
<td>304</td>
<td>40.5</td>
</tr>
</tbody>
</table>

3.3. Purpose of using the internet

The respondents use the internet for different purposes like e-mail, chat, searching for government or non-government information, shopping or payment through internet.

Table 11 Purpose of using the internet

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail/Entertainments(chat, music, game)</td>
<td>297</td>
<td>39.6</td>
</tr>
<tr>
<td>Searching for governmental information</td>
<td>197</td>
<td>26.3</td>
</tr>
<tr>
<td>Searching for non-governmental information</td>
<td>561</td>
<td>74.8</td>
</tr>
<tr>
<td>Make purchases or payments</td>
<td>115</td>
<td>15.3</td>
</tr>
<tr>
<td>Use for learning</td>
<td>272</td>
<td>36.3</td>
</tr>
</tbody>
</table>

*Options are multiple choices

Table 11 illustrates the different purposes of using the internet. The research finding shows that 74.8% of the people access the internet usually in order to look for non-government information, 39.6% to send e-mail or chat, 26.3% look for government information, 36.3% for online learning and finally 15.3% to shop online.

4. Awareness of e-government and source of awareness

The internet users are considered as potential users for e-government. It was expected that the internet users are more aware of e-government than non-internet users. Table 12 shows the awareness of e-government among the internet users. The level of awareness is very low among the internet users. The study shows that 37.7% of the respondents were not aware. Around 43.2% of the respondents were aware and do not use any e-government services. Only 19.1% of the respondents were not only aware but also use at least one of the facilities offered by e-government.

Table 12 Awareness of e-government

<table>
<thead>
<tr>
<th>Value</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I'm not aware</td>
<td>37.7</td>
</tr>
<tr>
<td>I'm aware but I don’t use it</td>
<td>43.2</td>
</tr>
<tr>
<td>I'm aware and I use it</td>
<td>19.1</td>
</tr>
</tbody>
</table>

Sources of awareness
With regard to the sources of awareness, for the respondents who were aware of e-government (whether use it or not), the sources of their awareness are 23.2% through course of study, 20.3% through television, 19.3% newspaper, 16.7% Word of mouth, and 14% government. Moreover, the awareness comes through Studying Course more than through other sources. It indicates that government organization should spend enough effort to spread the awareness among citizens using different channels.

<table>
<thead>
<tr>
<th>Source of awareness</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>14.0</td>
</tr>
<tr>
<td>Word of mouth</td>
<td>16.7</td>
</tr>
<tr>
<td>News</td>
<td>19.3</td>
</tr>
<tr>
<td>TV</td>
<td>20.3</td>
</tr>
<tr>
<td>Studying Course</td>
<td>23.2</td>
</tr>
</tbody>
</table>

*Options are multiple choices

### 5. Attitude toward e-government
#### 5.1 The willingness to use and adopt e-government online services:
The great majority of the sample 70.4% believes that the Internet can make government more available. Therefore, they want to interact with government online. Fifty-two percent prefer to use common service centre. On the other hand, 23.2% believe that they prefer to see someone in person.

<table>
<thead>
<tr>
<th>Method of interaction with government</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face to face interaction</td>
<td>23.2</td>
</tr>
<tr>
<td>Using One-Stop (common service centre)</td>
<td>52%</td>
</tr>
<tr>
<td>Online interaction using website</td>
<td>70.4</td>
</tr>
</tbody>
</table>

*Options are multiple choices

### 5.2 The level of interaction with e-government.
In Yemen only a few e-government projects were implemented, and the citizens are also aware of it. It is assumed that this important point would affect the perception of respondents towards e-government. This assumption is supported by the result in Table that shows 63.2% of the respondents like to have full interaction with government online. On the other hand 56.7% of the respondents prefer to download forms or applications; inquiry or complaint. Around 21.2% of respondents would only like to search for government information.

<table>
<thead>
<tr>
<th>Levels</th>
<th>Type of interaction</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Search</td>
<td>21.2</td>
</tr>
</tbody>
</table>

### 5.3 Discovering the gap between interests in e-government (intentions to use) and actual use of e-government:
Those who are aware and use e-government (20.3% out of 22.8%) like to interact with government online. We can also find that 30.5% out of 38.6% (that are aware but do not use it) want to use e-government. Even though those who are not aware, they want to use e-government due to their experience using the internet (35.7% out of 38.6%). Moreover, result in **Error! Reference source not found.** shows that there is demand for common service centres to interact with government.

### 6. Demand for e-government services and information

Table 16 illustrates several services that are likely to be used and which of them the citizens are ready to accept. It gives a clear idea about what citizens need the most. The government can take up this information and then start with those services that have greater demand by citizens.

<table>
<thead>
<tr>
<th>Online Services Residents Most Likely to Use</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-learning</td>
<td>86.1</td>
</tr>
<tr>
<td>Online enrollment in Schools and Universities</td>
<td>81.6</td>
</tr>
<tr>
<td>Payment of bills and fines</td>
<td>81.1</td>
</tr>
<tr>
<td>Health information and services.</td>
<td>80.0</td>
</tr>
<tr>
<td>Telecommunications and postal services</td>
<td>79.9</td>
</tr>
<tr>
<td>Search for jobs and apply for job</td>
<td>79.5</td>
</tr>
<tr>
<td>Booking and cancel tickets (bus - Airline)</td>
<td>77.3</td>
</tr>
<tr>
<td>Register Citizen (birth , death , marriage)</td>
<td>74.4</td>
</tr>
<tr>
<td>Find information to communicate with the local council and public services (such a telephone number - E-mail)</td>
<td>72.1</td>
</tr>
<tr>
<td>Apply for passport, visa, driving license ...etc.</td>
<td>71.6</td>
</tr>
<tr>
<td>Renewal of various licenses and permits</td>
<td>70.4</td>
</tr>
<tr>
<td>Payment of taxes online</td>
<td>61.3</td>
</tr>
<tr>
<td>Business information and services</td>
<td>60.5</td>
</tr>
<tr>
<td>Service</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Legal services and information</td>
<td>59.1</td>
</tr>
<tr>
<td>Agricultural services and information</td>
<td>45.7</td>
</tr>
</tbody>
</table>

*Options are multiple choices*
government information or services on internet. That may be due to the problems that government websites have, like poor design, information out of date, or even the high cost of gaining access to internet. In these cases the government should look into these problems seriously. The ability among the respondents to access information or services through internet is quite good. Some of the citizens could see the benefits of accessing e-government services. In a small number of cases citizens may be already looking at the ways of actively promoting and increasing the usage of such services. The government agencies should provide support and guide people in finding information they need, encouraging them to do this on-line rather than having to access the services of various departments face-to-face or over the phone.

It is suggested that awareness level among internet users needs to be raised and e-government could be promoted through posters in different places, TV campaigns, mobiles, newspapers, etc. However, the promotional tools need to be cleared about what types of services are available.

Further it is also suggested that the available services need to be very relevant to large groups of users if the effort is to encourage use of e-government services, like finding information on childcare or registering the child at school. There also should be a reason for users to access services on-line, e.g. it is faster than contacting each service in person or by phone, or they might be able to access help with accessing these services in a less daunting environment. However, most citizens think that user promotion and increasing the usage of such services. In a small number of cases citizens may be already looking at the ways of actively promoting and increasing the usage of such services. The government agencies should provide support and guide people in finding information they need, encouraging them to do this on-line rather than having to access the services of various departments face-to-face or over the phone.

The findings of the study suggest that government need to think more strategically with respect to the use of ICT among the citizens to achieve the best results in an attempt to eliminate bad aspects of digital divide [6]. Even if more awareness was created and training was provided there would still be a need for providing support to help people navigate their ways through information and to use websites effectively. It is suggested to have advice sessions on particular

### Table 17 Crosstab of method of interaction and e-government

<table>
<thead>
<tr>
<th>Awareness</th>
<th>I'm not aware</th>
<th>I'm aware but I don't use it</th>
<th>I'm aware and I use it</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face to face interaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No % of Total</td>
<td>3.9%</td>
<td>9.0%</td>
<td>4.2%</td>
<td>17.0%</td>
</tr>
<tr>
<td>Yes % of Total</td>
<td>34.7%</td>
<td>29.6%</td>
<td>18.6%</td>
<td>83.0%</td>
</tr>
<tr>
<td>Total</td>
<td>38.6%</td>
<td>38.6%</td>
<td>22.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Online interaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No % of Total</td>
<td>2.9%</td>
<td>8.0%</td>
<td>2.6%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Yes % of Total</td>
<td>35.7%</td>
<td>30.5%</td>
<td>20.3%</td>
<td>86.5%</td>
</tr>
<tr>
<td>Total</td>
<td>38.6%</td>
<td>38.6%</td>
<td>22.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Common service canter interaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No % of Total</td>
<td>12.2%</td>
<td>15.4%</td>
<td>7.4%</td>
<td>35.0%</td>
</tr>
<tr>
<td>Yes % of Total</td>
<td>26.4%</td>
<td>23.2%</td>
<td>15.4%</td>
<td>65.0%</td>
</tr>
<tr>
<td>Total</td>
<td>38.6%</td>
<td>38.6%</td>
<td>22.8%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

7. The barriers of using e-government services from the citizens’ point of view.

When it was tried to know, as to why internet users did not use the e-government to communicate with the government, then different types of answers were received although most of the respondents share almost the same type of answers.

Table 18 The barriers of e-government from the citizens’ point of view

<table>
<thead>
<tr>
<th>Reason</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of awareness</td>
<td>86.7</td>
</tr>
<tr>
<td>No security or privacy through the internet</td>
<td>81.6</td>
</tr>
<tr>
<td>Poor infrastructure / Connectivity.</td>
<td>73.3</td>
</tr>
<tr>
<td>Internal risk (like employee resistant to change)</td>
<td>72.9</td>
</tr>
</tbody>
</table>

Majority of the respondents (86.7%) think that the lack of awareness is the most important barrier of implementing e-government. 81.6% of the respondents do not feel secured when they contact government websites. The answers included poor infrastructure and connectivity (73.3%). The answers included also internal risks like employee resistance to change (72.9%).

IV. DISCUSSIONS

The study showed that most of the respondents have a computer at home or at work, but few of them have an internet connection. Using public online services requires access to the Internet. If there is no access to computer and internet, then citizens cannot make use of e-government services. To increase the access rate to internet, government should establish public places for citizens where they can browse the internet. This will result in motivating citizens to use government services online.

Understanding the individuals' concern about using the Internet also is essential. Where people are comfortable using computers and how they interact with Internet-based services it may help decision makers regarding possible places for supplying e-government services. Still some of the respondents access the internet monthly. It may be to check email, entertainment or for some other reasons. Few of the respondents search for government information or services on internet.
days where a member of the staff would help users in finding and using e-government sites. This could be done on a generic basis or by theme in some centres where there is access to the e-government services and provide training which could be a practical link with these types of advices.

Saving time, money and increasing flexibility are some of the most important features in e-government service adoption. In assessing the attitudes toward e-government services, people were asked some more general questions about their ideas of computer and internet-based delivery of government services. Most of the respondents considered the Internet as potentially very useful and having government services on it would be useful. They also showed some concern for the quality of services they would receive on the Internet. The study recorded higher attitude towards using e-government services online.

To encourage the citizens to adopt and use the government services online, government agencies should increase the capabilities of their delivery mechanisms to address the ICT capability and information gaps identified in this work. The study showed a great demand among respondents to use e-government services and information. Users of e-government should know that security/privacy is an important aspect in further development of e-government, while they should be encouraged to use e-government services more frequently by making the accessing procedures faster compared to the conventional ones. Government departments should make the required information available by properly organizing different types of services or information that people are seeking most, should identify the priority of government services used by the public and make them available online, implement the paper work elimination and make up to date information available online and build a good privacy practice in the web.

The study investigated whether people would use government services if these services are introduced through the Internet? The government’ departments provide numerous online services to citizens; some services are likelier than others to be early candidate for being provided via the Internet. Also government should create public e-mail addresses for citizens to contact agencies. Government should use the web to improve procurements, foster the use of digital signatures by agencies and public, and develop strategy for internet use to enable agencies to become more open, efficient and responsive.

The study recommends that government should use the best practices to adopt e-government. It also needs to reorient its delivery mechanisms to address the ICT capability and information gaps identified in this study. Along with the quality, improvement brought by information technology revolution and internet and speeding up the delivery of services to citizens round the clock, puts the governments in a race to execute and apply this vital project, which help the government to extend services to its citizens through a single window. Governments’ departments also promise to extend best services and achieve best results while attempting to eliminate all aspects of corruption.

This work offers essential contribution to different stakeholders including the government agencies who require adopting e-government to improve the relationship with citizens. That is, from the results of this research the government agencies could have better understanding in a simpler and detailed manner, about the problems of low adoption. This could allow the formulation of a strategy that promotes awareness and diffusion. From the results of the study, it is clear that there is a demand to use the government services online at the same time several other key problems faced by citizens regarding e-government adoption and use were identified. These can be grouped into two categories: technology related and awareness related.

In terms of technology, the most important concern was fear of technology. Citizens frequently encountered operational problems with their ICT especially when they deal with financial issues like money transactions, so they depend on others to do the job to avoid the risk. This dependency on consultants and professionals was often cited as a major problem. The other issues like the governments’ websites are not usable because they are not user friendly, out of date and of poor design should be considered seriously by government agencies. It is very important to build a good website to make it usable by everyone.

Turning to awareness issues, the study suggests that most of the citizens (internet users) are not aware of the e-government services and sometimes they get these services somehow through counters, but without knowing that they may be available online and he/she can do it himself; here the government can play a major role to disseminate the information about its services and how they can be used.

V. CONCLUSION

The aim of this work was to show a comprehensive investigation of user profile in Yemen, awareness of e-government, demand and impact of e-government on the public. The study also sought to assess users’ interest in the services offered, the obstacles and problems that prevent them from using these services, and the extent of general satisfaction derived from e-government services. The result showed that there is an emerging need for improving the governmental strategies, policies, applications, and websites to promote the use of e-government services online. The
study recorded a great attitude and demand toward using e-government services online.

REFERENCES


