



Factors Affecting the Adoption and Usage of eGovernment Services in Libya

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Keywords

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eReadiness
Intention to use
Citizen satisfaction
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Abstract.

This paper addresses issues facing eGovernment in Libya in particular. Based on defined set of criteria, eGovernment can be completely identified. For enormous period in developing countries, eGovernment has been introduced. However, in many countries, including Libya, eGovernment services continue to face numerous challenges in their implementation and widespread adoption. From previous research, eGovernment implementation was noted as major challenge for Libyan authorities, given potential issues posed by their residents. However, literature review and discussion show essential factors that influence people's intention to implement eGovernment services in Libya. It has been distributing 164 questionnaires for Libyan government citizens. As result, determination and classification of these factors have been carried out through exploratory study to investigate significance of these factors. This research has therefore established factors that decide whether citizen is adopting eGovernment services and thereby help governments gain access to adoptions they need or other factors that need to be established.

1. Introduction

Electronic government (eGovernment) uses ICT to make public service transitions more available, efficient and responsible (see Field et al. [26] and Karunasena and Deng [34]). This has developed new ways that governments communicate, like citizens and businesses, with their stakeholders. As a result, several governments worldwide have undertaken different eGovernment initiatives to build their community services, engage the private sector and enhance workflows between governmental organizations (see Al-Mamari et al. [6] and Karunasena and Deng [34]). In 2003, the Libyan government officially launched its eGovernment program to improve its public services (see Al-Mamari et

al. [6]). Unfortunately, people are unaware that there is a gap between Libya and government services (see Belanche et al. [17]). One of the government's key objectives is getting the community closer to the government, raising awareness of the services provided and how they could get benefit from the open approach of the eGovernment system enables government officials to reach more people simultaneously since all communications are made electronically and messages can be received.

Using electronic methods in government, the existing manual service delivery model can also be turned into an internet model. However, despite the positive signs of the program of eGovernment, it is technically introduced with a range of unresolved problems and concerns that must be resolved at the national level before its adoption (see Wong et al. [54] and Yonazi [56] and Hujran [30]).

2. Literature Review

2.1. eGovernment in Libya

Today, about a fifth of Libyans are internet users. One thing is that the World Bank's usage data indicates that the distribution of usage ratios varies between the most developed and most developing countries (see Bank World [15]). Only 2 percent of the population used the Internet in 2000, while 19 percent used the Internet in 2015. Another thing is that the number of Internet users worldwide increased by 131Thus, a higher level of internet service adoption in Libya, including increased eGovernment adoption, can be expected in the future.

Therefore, it is needed time to evaluate the factors influencing this adoption in Libya. Initial implementation and acceptance work will likely advise the program developers and help the government focus on appropriate adoption areas. The political results forecast to go beyond the current research spectrum, but the effect of the uncertain situation in Libya can not be ignored. In Libya, the government began paying attention to technology in 2002. The project was formed into five separate parts by decision. The first phase was the introductory period in which the government began to use technology rather than manual work used in the traditional public sector system. The second phase was based on public facilitation, where the necessary forms which can be completed online and submitted online can be accessed. The citizen will interact directly with the authorities in the third phase. The web-based site still has a search engine for people's convenience. The fourth stage was focused on the effective and safe transactions in which they could pay their taxes or duties against the services online. The last phase was the fully functional workable website, which communicates with the public and guarantees that they will access the government's best services in no time (see Ahmed et al. [3]).

Several steps have been taken to encourage the creation of innovative web-based services for people. Until 2005, Libya could not create its citizens' websites (see Mansaf et al [37]). After 2005, the government launched and made operational the citizen's web portal. This requires rules, legislation, and good governance policies. In the initial process, the resources consisted of information only, rather than actions. By 2012, the Government of Libya could not fully exploit its ability to provide services through online channels like electronic business laws and even government digital signs. In 2014, Libya

was ranked 121 in 193 countries without a website in the world. As far as citizen acceptance is concerned, 179 out of 193 countries in the world were ranked. In the current scenario, Libyan Ministers have online access and are trying to solve citizens' problems by approximately 70% proposed that the Government of Libya would properly improve the current status of its electronic government services.

These factors include lack of technical assistance, cultural, social and other issues. Therefore, it is argued that Libya is behind developing countries and should introduce its electronic services in the education sector. As far as its economy and infrastructure are concerned, Libya is one of the lowest in the Arab countries. The researcher provided a six-story framework for developing the eGovernment initiative or services in that country. A comparative study suggests that Libya and other Arab countries have similar characteristics except for oil and the high standard of living (see Saadi and Almahjoub [45]). SWOT analysis was the report's methodology, revealing many vulnerabilities in the country's information technologies system and lack of awareness about the citizen's technology.

The people concentrate on the success of the electronic government initiative, but the government focuses on technology. Research also indicates that people should have adequate knowledge of the technology to assist in implementing the electronic government initiative. The previous studies on Libya focused on initiating the electronic government but must focus on the public to considerably accept electronic services. The earlier studies relied on the electronic government's technical characteristics rather than behaviour (see Gohary et al. [28]). The Libyan government is suggested to focus on people rather than on technology in general. In 2018, the UNDESA survey ranked Libya as 12 in Arab countries and the 140th worldwide in its eGovernment Growth Index.

Libya has reduced its ranking to 22 since 2016 and ranked Libya as 16 in the Arab States and 183 globally in 2018, as shown in Figure 1 in the eParticipation index. Here, also, we can see that Libya is ranked worldwide on the Arab edge. Figure 2 displays the e-participation index for the 17 countries in the Arab world.

Country	Group	Rank 2016	Rank 2018	EGDI 2018	Rank Change
 United Arab Emirates	VHEGDI	29	21	0.8295	+8
 Kuwait	HEGDI	40	41	0.7388	-1
 Qatar	HEGDI	48	51	0.7132	-3
 Saudi Arabia	HEGDI	44	52	0.7119	-8
 Oman	HEGDI	66	63	0.6846	+3
 Tunisia	HEGDI	72	80	0.6254	-8
 Jordan	HEGDI	91	98	0.5575	-7
 Lebanon	HEGDI	73	99	0.5530	-26
 Morocco	HEGDI	85	110	0.5214	-25
 Egypt	MEGDI	108	114	0.4880	-6
 Algeria	MEGDI	150	130	0.4227	+20
 Libya	MEGDI	118	140	0.3833	-22
 Syrian Arab Republic	MEGDI	137	152	0.3459	-15
 Iraq	MEGDI	141	155	0.3376	-14
 Sudan	LEGDI	161	180	0.2394	-19
 Mauritania	LEGDI	184	183	0.2314	+1
 Yemen	LEGDI	174	186	0.2154	-12

Figure 1: eGovernment development index in Arab countries (Un [49]).


















Country	Group	Rank 2016	Rank 2018	EPART 2018	Rank Change
 United Arab Emirates	VHEGDI	32	17	0.9438	+15
 Oman	VHEGDI	76	43	0.8315	+33
 Tunisia	VHEGDI	43	53	0.7978	-10
 Morocco	VHEGDI	17	56	0.7753	-39
 Qatar	HEGDI	55	67	0.7135	-12
 Saudi Arabia	HEGDI	39	67	0.7135	-28
 Kuwait	HEGDI	55	72	0.6910	-17
 Egypt	HEGDI	107	109	0.5393	-2
 Jordan	MEGDI	98	117	0.4831	-19
 Lebanon	MEGDI	91	122	0.4438	-31
 Syrian Arab Republic	MEGDI	98	137	0.3652	-39
 Iraq	MEGDI	104	140	0.3371	-36
 Algeria	LEGDI	167	165	0.2022	+2
 Mauritania	LEGDI	184	170	0.1798	+14
 Sudan	LEGDI	138	179	0.1404	-41
 Libya	LEGDI	170	183	0.1236	-13
 Yemen	LEGDI	164	185	0.1180	-21

Figure 2: eParticipation Index in Arab countries (Un [49]).

3. Methods to Validate This Study

This study has been validated using the triangulation method for established factors that applied to people. In scientific studies, triangulation is used to improve precision. The triangulation process, a more comprehensive view of the studied object by taking different opinions (see Runeson and Höst [44]). Two key components were used to test the variables suggested using triangulation methods. First, it was an appropriate literature review. The second method do is to distribute questionnaires to Libyan residents. In order to gather the details, a web-based survey was conducted. A wide diversity of people from many cultures were given the self-administered questionnaire to test the hypotheses.

A questionnaire was used in this analysis to test the research model. Modifications were made to the survey in light of other markets were made to account for eGovernment development in Libya. A Likert scale (interval scale) with a five-point was used to assess responses on scale from 1 (strongly agreed) to 5 (strongly disagree) in the study questionnaire. Not many people in Libya are conversant in English, so the popular mother tongue of the country was used instead. The English questionnaire was first translated into Arabic, and then from the original into English. The survey was composed of 54 questions, excluding inquiries about age and gender.

3.1. Theoretical model

Due to the very nature of information systems (linkage between people and technology), research on the acceptance of technology has been studied following the theories of individual and social human behaviour that emerge from the disciplines of Psychology and Sociology (see Al-wazir and Zheng [8]). In terms of eGovernment adoption, the literature addresses three streams: one dealing to use eGovernment, the other dealing with eGovernment readiness and citizen satisfaction. The first stream addresses factors that affect intention to use eGovernment services, including TAM, DOI, culture, privacy, and security. The second stream addresses factors that affect eGovernment adoption in eGovernment readiness, including awareness, website design, ICT skills, infrastructure, organization factors, trust, quality of services. The third-stream addresses factors that

affect citizen satisfaction, including user’s expectation, system availability/reliability, personalization. Some of the literature suggests that there is a low level of citizen adoption of eGovernment services in developing countries; however, other researchers suggest that it is a common problem in both developed and developing countries (see Hujran [30] and Meftah et al. [38] and Thi et al. [47]).

A new model will be proposed based on previously discussed by adapting and incorporating the critical factors mentioned by other authors — the emergence of the new model - a higher level.

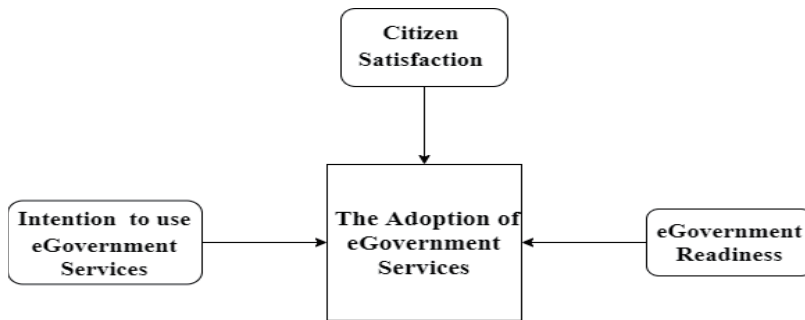


Figure 3: The proposed model for the adoption of eGovernment services.

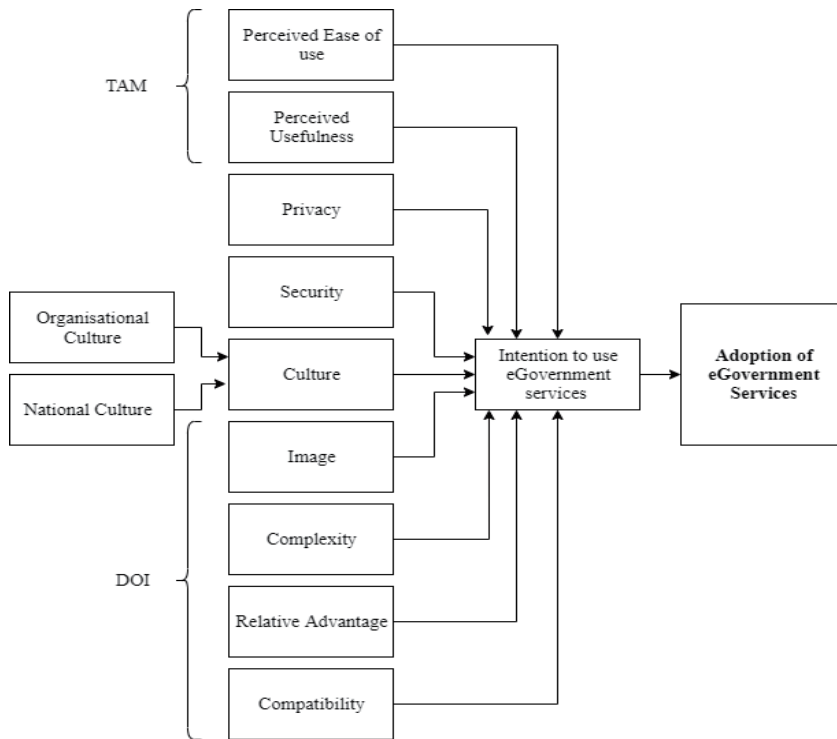


Figure 4: The initial intentions to Use eGovernment services model.

3.1.1. Intention to use eGovernment services

This section is a breakdown of the attributes of the Intention to use eGovernment services' block. The facts are cultural influences, perceived usefulness and perceived ease, security, privacy, and they are presented in Figure 4:

3.1.1.1. Cultural influences

Culture affects people's decisions to use eGovernment facilities, including cultural pressures, cultural consciousness and national culture (see Akkaya et al. [4]). Culture has been described as "the beliefs, convictions, norms and behavioural habits of a community — national culture society, organizational culture workers, special occupations" (see Ali et al. [11]).

Akkaya et al. [4] claim many scientists recognize that cultural characteristics are essential for developing and using online services. As ailments, we have national culture and organizational culture.

H1a: *National culture will positively and directly affect the Intentions to Use eGovernment.*

H1b: *organizational culture will positively and directly affect the Intentions to Use eGovernment..*

3.1.1.2. Perceived usefulness and perceived ease of use (TAM)

As it is well-known that eGovernment and eCommerce are nearly similar and use online services, AL Athmay et al. [14] stated that consideration for such elements as ease of navigation, usability, and functionality is the main component of an online marketing strategy: the website. So, well-designed websites are essential to serving the market and efficiency effectively. The combination of these components directly influences customer interactions and therefore facilitates the adoption of services. Furthermore, researchers have proposed that creating a website for the eGovernment will enable people to use the services and give them a good impression of raising the repeated usage of citizens (see Rodrigues et al. [43]).

H2a: *Perceived ease of use will positively and directly affect the Intentions to Use eGovernment.*

H2a: *Perceived usefulness will positively and directly affect the Intentions to Use eGovernment.*

3.1.1.3. Security

Security is characterized as the security of information or the network from uncontrolled intrusions or outflows. A lack of safety has a significant impact on eGovernment services identified for most studies. Transaction Security is a crucial issue in online activities (see Rodrigues et al. [43]). Simultaneously, the protection of information is

characterized as a subjective likelihood whereby customers believe they do not see, store and exploit their personal information in a way that is consistent with their reliable expectations when transiting or holding inappropriate parties. The perceived risk refers to subjective customer assessment of the future impacts of wrong decisions (see Chen and Chang [23]).

H3: *Security will positively and directly affect the Intentions to Use eGovernment.*

3.1.1.4. Privacy

It is known that the privacy of informational people influences electronic services (see Yildiz and Saylam [55]). The public is vulnerable to the protection of their data, which affects implementing and continuing the eGovernment (see Akkaya et al. [4]).

H4: *Privacy will positively and directly affect the Intentions to Use eGovernment.*

3.1.1.5. Diffusion of innovation theory (DOI)

Several types of research on innovation diffusion and adoption have been based both at the person and organizational level on information technology and service innovation (see Khurshid et al. [35] and Wang and Lo [51] and Wong et al. [54] and Zuiderwijk et al. [57]). An analysis of open data usability, relative benefit, accessibility, and observability factors at the personal level are the significant factors affecting the city's intention to use available data platforms. In contrast, citizens do not have the security factor in their mind (see Weerakkody et al. [53]).

H5: *DOI will positively and directly affect the Intentions to Use eGovernment.*

3.1.2. eGovernment readiness

The government readiness block attributes include eReadiness, awareness, website design, ICT skills, technical infrastructure, organization factors, trust, and quality of service. They are defined in Figure 5.

3.1.2.1. Quality of service

Quality of service in online services has been suggested to play a significant role (see Rehman et al. [42]). To encourage people to adopt eGovernment services, the quality of service is measured by four elements, including reliability, availability, delivery speed, and quality of information. Due to information reliance and availability, the government must provide high-quality services and quality information to ensure delivery speed. The quality of service elements are listed: reliability, availability, speed of delivery, information quality.

H6: *Quality of Service will positively and directly affect eGovernment Readiness.*

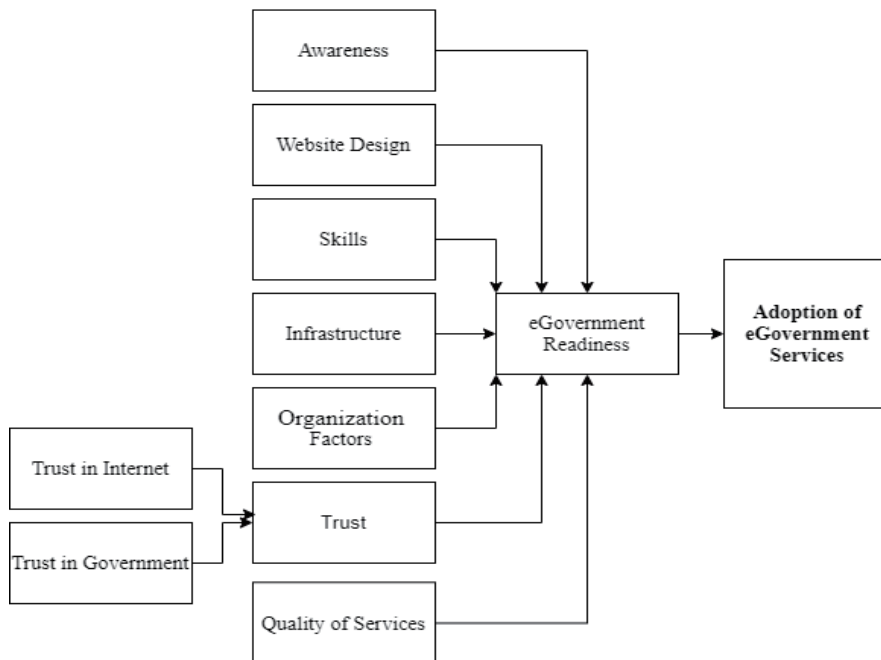


Figure 5: The initial eGovernment readiness model.

3.1.2.2. Organization factors

Bresnahan and Yin [21] stated: “Today, a new wave of ICTs is moving into the workplace, both replacing and complementing existing technologies”. The essential organizational factors derived from previous studies might affect successful ICT implementation. So, to measure organization, we have three elements: self-efficacy, resistance to change, legacy systems.

H7: *Organization factors will positively and directly affect eGovernment Readiness.*

3.1.2.3. ICT skills

Computer literacy, educational level, genre, and age are the skills element here. In the sense of ICT literacy, what is described as “whatever the individual needs, whereby the information or knowledge possession of the information is information literacy, can use (and know about) computers? The level of education, age, and sex among citizens is affecting computer and information literacy (see Al-Sobhi et al. [7]), which prevents citizens from adopting eGovernment services (see Alnuaimi et al. [12]). Studies, on the other hand, have suggested that an individual’s level of education and age will affect the purpose of eGovernment services either positively or negatively (see Rehman et al. [42] and Alomari et al. [13]).

H8: *ICT Skills will positively and directly affect eGovernment Readiness.*

3.1.2.4. Awareness

Awareness leads to how a person understands other people's behaviours and provides their behaviours with meaning. Increasing citizens' consciousness of technology is considered necessary (see Al-Majali and Mat [5]). Several studies demonstrated the lack of understanding of the eGovernment initiative and its limits to acceptability (see Field et al. [26] and Zuiderwijk et al. [57]). The government should raise awareness of citizens to encourage citizens to adopt eGovernment's services. Earlier empirical outcomes have shown that knowledge of eGovernment intention is a significant factor (see Abdelghaffar and Magdy [1] and Melone [39]).

H9: *Awareness will positively and directly affect eGovernment Readiness.*

3.1.2.5. Technical infrastructure

Technical infrastructure could be defined as 'Local area network' (LAN), WAN network corporate cooperation reach, computer workstation and server technical parameters, environment operating system selection and database platform' (see Kamiński [32]). AlAwadhi and Morris [9] also indicate that technological infrastructure is necessary for people to implement eGovernment services. The majority were concerned with technical issues.

H10: *Technical infrastructure will positively and directly affect eGovernment Readiness.*

3.1.2.6. Website design

Understandably, users would not like to work with websites that are difficult to use. If, for example, the design on the government website is unclear, citizens would hesitate before using eGovernment services (see Lallmahomed et al. [36]). Also, this can lead to shifting resistance. Furthermore, the eGovernment authorities may receive valuable input on their departments and interfere as required with a group of early adopters using the service. The website's architecture and the quality of information often affect eGovernment services (see Abu-Shanab [2]).

H11: *Website design will positively and directly affect eGovernment Readiness.*

3.1.2.7. Trust

The implementation of eGovernment is intensely concerned with a high degree of trust, which is determined as a complex concept that represents a party's willingness to be vulnerable to others' actions hoping that the latter will take special steps. Shouran et al. [46] show that the internet and technology's trust is crucial to the wide-spread acceptance of eGovernment. Several studies have systematically explored trust in eServices, particularly in eGovernment, as a significant determinant (see Belanche et al. [16] and Gefen et al. [27] and Chen et al. [22]). Concerning the citizen with a shortage of trustworthy or relevant knowledge about the eService and the government, the first confidence in an unknown trustee is needed (see Bélanger and Carter [18]). It is typically based on the Government's trust, and we have two elements of trust in the internet and trust in government.

H12a: *Trust in the internet will positively and directly affect eGovernment Readiness.*

H12b: *Trust in the government will positively and directly affect eGovernment Readiness.*

3.1.3. Citizen's satisfaction

Citizen's satisfaction is one of IS success's measurement variables; it is the most used dependent variable and surrogate measure of information system effectiveness (see Bouaissa and Chalal [20]). This concept was inspired by the field of psychology and proposed for the first time in IS by (see Kalyoncu et al. [31]) in Their Behavioural Theory of the firm. They assume that the IS that meets its users' needs will enhance the satisfaction of its users and if the IS does not produce the desired information, users will be dissatisfied and will look elsewhere. According to (see Melone [39]), This test is widely used because of the ease of use, the ex-post assessment, the lack of tools for device control for the study implementation, and the direct evaluation system's impact's usage behaviours. Bouaissa and Chalal [20] also give three reasons for its widespread use. Satisfaction: has a high level of legitimacy, the quality of a program that users claim they like challenging to ignore. Usefulness: For the satisfaction call as a success measure, most other metrics are so poor; they can easily be obtained either conceptually or empirically. Bouaissa and Chalal [20] See two literature reasons for paying attention to this measure. Many agree that psychological expectations are related to actions with expectations. User satisfaction is the measure of user beliefs as to how a program meets its requirements and expectations. In a given situation, satisfaction is the sum of feelings or actions to various factors affecting the situation. As shown in Figure 6, the essential elements are citizen's expectations, system availability/reliability, personalization.

H13: *User's Expectation will positively and directly affect the user's satisfaction to adopt eGovernment services.*

H14: *Personalization will positively and directly affect user's satisfaction to adopt eGovernment services.*

H15: *System availability will positively and directly affect user's satisfaction to adopt eGovernment services.*

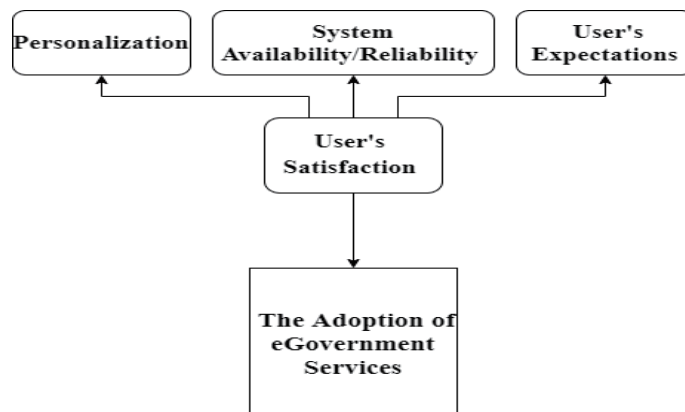


Figure 6: The initial citizen satisfaction model.

4. Finding of the Research

The theories of multivariate normality, independence of means, and multivariate independence of variances were checked first. None of these assumptions were broken. One big problem was that multi collinearity did not appear to be an issue, as shown by analysis of the main effect models with variances (VIF range from 1.012 to 2.310). Willingness to adapt was found to be

highly associated with the intensity of signal, while outlier powerful findings were linked to Studentized residuals and the Cook's D-statistic. Outliers were found to be unrelated to the model's performance. It is usual for measuring errors to be checked to a minimum degree if the measuring characteristics can be calculated to increase the confidence of the accuracy of its work (see Field et al. [26]). Reliability that affects miles here is the degree to which accurate methodological approaches can have daily consequences (see Thornhill et al. [48]). The reliability value has also been addressed extensively by researchers (see Field et al. [26]) who have said that Cronbach's alpha has a reasonable reliability value of 0.7 to 0.8.

Fifty-four closely answered questions were posted on the internet using Google format, gathering 164 respondents in the citizen questionnaire to answer 1 (strongly disagreed) to 5 (strongly agreed). The tests have been checked using AMOS and the findings are shown in Table 1.

Table 1: The reliability results.

Cronbach Alpha	Conclusion
0.86	Reliable

4.1. The Reliability of the Results

Using Cronbach's alpha, a reliability evaluation was performed on the outcome of the questionnaires. The values of alpha of Cronbach were acceptable; the questionnaire of the citizen (=0.86) indicated that the reliability coefficient for the results of the questionnaires was considered adequate.

4.2. Part1. Demographic information

On the first page of the questionnaire, the survey's purpose is explained. Briefly, confidentiality is guaranteed and the survey demands that respondents freely participate. The first structured component of the questionnaire is the demographic details of the respondent. Respondents were requested to provide demographic information on four features: gender, age and highest levels of education, as shown in Table 2.

Table 2: Characteristics of participants.

Characteristic	Number
Female	41
Male	123
18~29	48
30~39	77
40~49	39
50~59	0
60 and above	0
Below High School	0
High School	35
Bachelor	83
Higher degree	46

Among the 164 respondents, an overwhelming majority of the respondents were male, with a quarter being female. Many of the respondents had aged in the range of 18 to 29; 29.2% of the respondents were under 30; 46.9% ranged from 30 to 39; 23.7% were aged 40 to 49 and no one from 50 to 59, may we can conduct that the citizen in this age could not use internet or computer to distribute in this study.

A large portion, 50.6% of the respondents, had a Bachelor's degree; and 28% had a Master's degree and above, while 21.4% had high school studies. Further, there are no respondents below high school.

4.3. Part2. Computer knowledge and internet experience

This part requests information relevant to respondents' knowledge about computers and the internet, as shown in Table 3.

Table 3: Computer knowledge and internet experience.

	Very good	good	Moderate	Poor	Very poor
How do you describe your general computer knowledge?	41	81	32	10	0
How would you describe your Internet knowledge?	38	79	28	19	0
How long have you been using eGovernment services?					
	Never	Less than a year	1-2 years	More than two years	
	8	14	72	65	

The experience of the Internet among participants is very close to their computer experience. More than half of the respondents were familiar with advanced internet use. Also, a significant number of participants were government workers.

4.4. Part3. Questionnaires for citizens

In this part, we divided it into three parts eGovernment reediness, intention to use eGovernment services and citizen satisfaction.

4.5. Evaluation of the goodness of fit model criteria for egovernment readiness model

Where AVE's square root computation is used, absolute values of correlations are compared to discriminant validity The rule of thumb is that the square root of AVE will always be greater than the sum of all of the other elements, which is why you always want to use AVE in every model using the root rule of the build refers to (See Munyoka and Maharaj [40]). As shown in Table 4, the square roots (exuberant values) were more accurate than all other variables. As seen in Table 6, the CFA's convergent and discriminant validity contributed to the acceptability of the questionnaire's scales.

Table 4: Discriminant validity for eGovernment readiness.

	Infrastructure	awareness	ICT Skills	Trust/G	Trust/I	Organization factors	Quality/S	Website/D
Infrastructure	0.597							
awareness	0.174	0.775						
Skills	0.100	0.495	0.623					
Trust in government	0.002	0.015	0.027	0.529				
Trust in the internet	0.190	0.468	0.545	0.025	0.503			
Organization factors	0.085	0.195	0.275	0.012	0.258	0.655		
Quality/S	0.139	0.396	0.427	0.001	0.431	0.182	0.720	
Website/D	0.177	0.502	0.565	0.024	0.363	0.255	0.407	0.508

Tests using Probability, CFI, TLI, and RMSEA, whose results are expected to fall within the desired range of values, can be used to evaluate the eGovernment Readiness model's feasibility. However, NFI and Chi-Square are still accepted marginally, as in Table 5.

Table 5: The goodness of fit index for the eGovernment readiness model.

The goodness of Fit Indeks	Criteria	Result analysis	Model Evaluation
TLI	≥ 0.90	0.980	Good Fit
NFI	≥ 0.90	0.745	Marginal Fit
CFI	≥ 0.90	0.984	Good Fit
RMSEA	≤ 0.70	0.017	Good Fit
Chi-Square	< 124.6	234.291	Marginal Fit
Probability	> 0.05	0.305	Good Fit

From these results, we also obtained the results from processing the following data:

From Table 6, it can be said that there are some not significant correlations of p-value > 0.05 , such as Infrastructure, Awareness, Quality service and trust in the internet, trust in government. Meanwhile, for the organizational factors, ICT skills and website design is significant.

4.6. Evaluation of the goodness of fit model criteria for intentions to use eGovernment

The primary discriminant has been checked for its extracted variance (AVE). In the evaluation of the CFA model, Table 7 was used. The tables were created using AMOS's papers. If there is a consistent bias in the responses, then the measured variance will be negative, with squared multiple correlations of -0.5 or higher (the coefficients bolded in

Table 6: Regression weights eGovernment readiness model.

			Estimate	S.E.	C.R.	P	Label
TECI2	←	Infrastructure	3.779	2.389	1.582	.114	
TECI1	←	Infrastructure	1.000				
AWA2	←	Awareness	.229	.141	1.623	.105	
AWA1	←	Awareness	1.000				
ICTS2	←	ICT skills	1.000				
ICTS1	←	ICTSkills	.991	.160	6.179	***	
WD3	←	WebsiteDesign	1.016	.150	6.779	***	
WD2	←	WebsiteDesign	1.251	.177	7.083	***	
WD1	←	WebsiteDesign	1.000				
QS4	←	QualityofService	1.000				
QS3	←	QualityofService	-.456	1.094	-.417	.676	
QS2	←	QualityofService	6.585	5.233	1.258	.208	
QS1	←	QualityofService	3.625	2.940	1.233	.218	
TIN3	←	TrustinInternet	1.000				
TIN2	←	TrustinInternet	-2.067	1.706	-1.212	.226	
TIN1	←	TrustinInternet	-2.625	2.045	-1.283	.199	
TIG2	←	Trustinthegovernment	11.489	92.028	.125	.901	
TIG1	←	Trustinthegovernment	1.000				
LSU2	←	OrganizationFactors	1.000				
LSU1	←	OrganizationFactors	.783	.137	5.719	***	
RTC2	←	OrganizationFactors	.219	.153	1.430	.153	
RTC1	←	OrganizationFactors	.871	.145	5.995	***	
SE2	←	OrganizationFactors	.863	.138	6.273	***	
SE1	←	OrganizationFactors	1.077	.161	6.699	***	

Table 7 will be smaller than the coefficients). Another example, under privacy, the SMC value is emphasized using bold text such as “0.504” The remaining association between privacy and other variables is not exceed 0.504.

Table 7: Discriminant validity for Intentions to Use eGovernment.

	DOI	TAM	privacy	security	Organizational culture	National culture
DOI	0.544					
TAM	0.135	0.677				
Privacy	0.100	0.264	0.504			
Security	0.118	0.264	0.341	0.618		
Organizational culture	0.131	0.328	0.238	0.282	0.575	
National culture	0.104	0.276	0.217	0.292	0.251	0.603

As there are more than 0.5 values for all SMC values, and the relation between the principal column variable and the other variables in the table does not exceed the SMC for the major variable, the popular method bias is therefore not present. It can therefore

be inferred that the responses did not show traditional process bias.

Tests using CFI and RMSEA, whose results are expected to fall within the desired range of values, can be used to evaluate SEM Intentions' feasibility to Use eGovernment. However, TLI, NFI and Chi-Square, Probability is still accepted marginally, as in Table 8.

Table 8: The goodness of fit index for the intentions to use eGovernment.

The goodness of Fit Indeks	Criteria	Result analysis	Model Evaluation
TLI	≥ 0.90	0.884	Marginal Fit
NFI	≥ 0.90	0.768	Marginal Fit
CFI	≥ 0.90	0.901	Good Fit
RMSEA	≤ 0.70	0.058	Good Fit
Chi-Square	< 124.6	366.955	Marginal Fit
Probability	> 0.05	0.000	Marginal Fit

From these results, we also obtained the results from processing the following data:

Table 9: Regression weights intentions to use eGovernment.

	Estimate	S.E.	C.R.	P	Label
DOIR1 ← DOI	.789	.205	3.840	***	
DOIR2 ← DOI	1.000				
DOIC1 ← DOI	1.528	.303	5.049	***	
DOIC2 ← DOI	1.750	.353	4.964	***	
DOII1 ← DOI	1.791	.353	5.072	***	
DOII2 ← DOI	1.740	.352	4.950	***	
DOICC1 ← DOI	1.623	.328	4.940	***	
DOICC2 ← DOI	1.949	.368	5.303	***	
TAME1 ← TAM	1.000				
TAME2 ← TAM	1.335	.207	6.441	***	
TAMP1 ← TAM	1.066	.188	5.684	***	
TAMP2 ← TAM	.788	.162	4.875	***	
PRI1 ← Privacy	1.000				
PRI2 ← Privacy	.743	.096	7.722	***	
SEC1 ← Security	1.000				
SEC2 ← Security	1.001	.150	6.691	***	
SEC3 ← Security	1.182	.171	6.894	***	
ORC1 ← Organizational_culture	1.000				
ORC2 ← Organizational_culture	.791	.100	7.882	***	
ORC3 ← Organizational_culture	.727	.097	7.479	***	
NAC1 ← National_culture	1.000				
NAC2 ← National_culture	.876	.122	7.186	***	
NAC3 ← National_culture	.816	.117	6.952	***	
NAC4 ← National_culture	.699	.113	6.195	***	

Furthermore, a hypothesis test is conducted, which refers to the value of the critical ratio (CR) and the significant level of probability (p) on the regression weight, where the importance of $c.r. \geq 1.96$ and significant $\leq \alpha = 0.05$ as a condition for the hypothesis to be accepted. From the table above, it can be concluded that the p-value is < 0.05 , so all hypotheses are accepted. This means there is a significant correlation between DOI, TAM, privacy, security, organizational culture, and national culture.

4.7. Evaluation of the goodness of fit model criteria for citizen satisfaction model

Average Extracted Variance (AVE) must exceed 0.5 (as in the current analysis, AVE values range between 0.501 and 0.663), and standard loads must exceed 0.50. The results of this study are achieved. As for the validity of discrimination, the correlations between variables should be lower than the AVE. From Table 10, the AVE values can be inferred that they are above correlations. In short, the reliability and validity of the construction are demonstrated and the structural/path model is ready to be tested.

Table 10: Discriminant validity for citizen satisfaction.

	System Availability	Personalization	User Expectation
System Availability	0.526		
Personalization	0.398	0.663	
User Expectation	0.374	0.477	0.501

Tests using Chi-square, CFI, TLI, and RMSEA, whose results are expected to fall within the desired range of values, can be used to evaluate the Citizen Satisfaction model's feasibility. However, NFI and Probability are still accepted marginally, as in Table 11.

Table 11: The goodness of fit index for the citizen satisfaction model.

The goodness of Fit Indeks	Criteria	Result analysis	Model Evaluation
TLI	≥ 0.90	0.913	Good Fit
NFI	≥ 0.90	0.886	Marginal Fit
CFI	≥ 0.90	0.947	Good Fit
RMSEA	≤ 0.70	0.066	Good Fit
Chi-Square	< 124.6	28.825	Good Fit
Probability	> 0.05	0.036	Marginal Fit

From these results, we also obtained the results from processing the following data:

Table 12: Regression weights citizen satisfaction model.

			Estimate	S.E.	C.R.	P	Label
SAR1	←	AvailabilityReliability	1.000				
SAR2	←	AvailabilityReliability	1.269	.322	3.940	***	
PER1	←	Personalization	1.000				
PER2	←	Personalization	1.318	.232	5.672	***	
USE1	←	CitizenExpectations	1.000				
USE2	←	CitizenExpectations	.928	.163	5.687	***	
USE3	←	CitizenExpectations	.540	.131	4.137	***	
SAR3	←	AvailabilityReliability	1.736	.411	4.219	***	

From Table 12, we can conclude that $p\text{-value} < 0.05$, so all hypothesis were accepted and this means there is a significant correlation between Availability Reliability, Personalization and Citizen Expectations.

5. Discussion

5.1. Intention to use eGovernment services

The results of this analysis showed that these two H1a, H1b hypotheses are empirically supported. The intention to use eGovernment facilities had a positive effect on national culture and organizational culture. These findings are consistent with (see Al-Majali and Mat [5] and Alnuaimi et al. [12]) which had demonstrated a strong position in the adoption of eGovernment services by the citizens in terms of culture. They speculated that the introduction of eGovernment services will possibly affect the distance of power and the avoidance of confusion from five cultural aspects. We believe that eGovernment is more likely to be adopted as an innovation in Libya with a low power distance. In line with this argument.

The findings of H2a and H2b fit earlier TAM and eGovernment research (see Belanche et al. [16] and Saadi and Almahjoub [45]) but have never been used in Libya before. The perceived ease of use is the most important factor for the adoption of eGovernment services by TAM (H2b) (directly). It looks like the Perceived usefulness of their use is the main reason for people to embrace eGovernment services like other technology-driven services. A model of eGovernment will enhance user efficiency and productivity. Users are highly influenced by the degree to which the eGovernment system is considered to be useful. The consumer develops optimistic attitudes and strong intentions towards the system as the eGovernment system become useful.

For security and privacy, H3 and H4 are supported. These results are consistent with (see Verma et al. [50], Karunasena and Deng [33] and Wong et al. [54], and have also concluded that security and privacy relate positively to the intention of eGovernment adoption. Security is the process of ensuring that the device information is not intercepted or altered by other parties (see Karunasena and Deng [34] and Runeson and

Höst [44]). It requires the continuity, precision and confidence of data over the life cycle. The proposal for future efforts is to identify the difference between eGovernment's actual level of security and users' security levels, as this affects the behaviour of individuals and can influence decision-making. The intention of users to use eGovernment services in Libya can be strengthened by enhancing their relative risk even without affecting security levels.

In summary of DOI, H5 was supported and this finding is consisted of (see Mansaf et al. [37] and Kamiński [32] and Zuiderwijk et al. [57]). The governments should be aware of the benefits of using online services to access information and transactions instead of using conventional methods. Additional benefits like lower rates for obtaining a license or quicker returns from filing state taxes should be offered to freelancers. This would increase the perceived benefit of eGovernment initiatives. Also, according to the result related to image, it indicated that when citizens believe that using eGovernment services will enhance their social image, their perception of the intentions to use eGovernment services will be increased. From this, it can be concluded that eGovernment services should be prepared to uplift the image of its users in their own eyes and others.

5.2. eGovernment readiness

Quality of Service construct had no significant positive influence on eReadiness; thus, H6 was not supported. This finding contradicts earlier studies that state that suggested user adoption of eGovernment is essential for good service quality (see Saadi and Almahjoub [45]). According to the findings, the more user-friendly the Service is, the faster it gets adopted. One big reason people aren't excited about online services is the complexity of usage. Providing a difficult-to-use website contributes to the public's mistrust of using the services. We can also draw this conclusion from research done by (see Abdelghaffar and Magdy [1] and Ahmed et al. [3] and Al-wazir and Zheng [8] and AL Athmay et al. [14]).

This study also showed that organizational factors are among the most critical factors in eReadiness, so H7 was supported. These findings are in line with (see Chen and Chang [23]). When it comes to adopting eGovernment services, high self-efficacy increases the probability of successfully implementing ICT. The citizens are conscious of the importance of training programs to enhance their skills. Organizational factors of Libyan citizens are an essential factor for the government to consider since, per this research finding, organizational factors directly influence citizens to adopt and use eGovernment services.

Since ICT skills positively impacted eReadiness the participants at the eGovernment Summit emphasized the importance and being well in both the internet and technology for interacting with eServices. For citizens of Libya, interacting with the government using the internet necessitates unique skills, including internet navigation. It was discovered by (see Al-wazir and Zheng [8] and Runeson and Höst [44]) that the findings from this report stress the importance of Libyan people having the required Internet and computer skills for eGovernment usage. The low levels of PC ownership and access negatively affect PC application of technology in Libya, which was seen in the previous

discussion to be an obstacle to increasing the ICT capabilities of Libyans and those who lack those skills.

The study showed that in Libya the awareness of eReadiness had no major positive effects; his finding does not support H9. Al-Mamari et al. [6] and Shouran et al. [46] both demonstrate that eGovernment service awareness is one of the important impediments. The awareness is argued that the adoption of eGovernment services would ultimately lead to the implementation of this system in order to educate the citizens about such services, their advantages and their system credibility. So the new eGovernment service, in which people have only become aware of their values, would enable citizens to improve their attitude to using the system. ICT Infrastructure construct had no significant positive influence on eReadiness. Thus H10 was not supported. This result is similar to the findings highlighted by (see Khurshid et al. [35]) and does not consist of (see Alharbi et al. [10] and Karunasena and Deng [34]). In those nations, it is also difficult to fulfil eGovernment implementation requirements. eGovernment, however, has not delivered on commitments of better and more efficient public services in many developing countries and governments continue to struggle with inefficient business processes due to lack of proper use of ICT.

The findings showed that the website design-construct had a significant influence on eReadiness. This finding was supported H11. Libya's government agencies should ensure that their websites are open to multiple users. The Libyan government should also ensure that its websites have a clear and attractive display. The links to the sites should also be updated, as they should not lead to removed or diverted pages and ensure that people communicate easily with the government on the internet.

The results revealed that the internet construct's trust did not have a significant influence on eReadiness to adopt eGovernment services. Thus, H12a was rejected. This is consistent with previous findings by (see Nthala and Flechais [41] and Alomari et al. [13]). This finding could be because there is not much experience with the respondents to shape trust in the Internet. This finding may change over time as user's experience various situations and scenarios related to Trust in the Internet. The above argument is supported by the results presented by (see AlAwadhi and Morris [9]). The participants in their sample who had prior experience with systems similar to the eGovernment system - Internet banking and eCommerce were more confident in using the Internet as a mediator for eGovernment.

Also, the results showed that the government construct's trust did not have a significant influence on eReadiness to adopt eGovernment services, so H12b was rejected. These results are backed by another study that uses the Web trust model and the DOI and TAM theories to study citizen adoption of eGovernment services and that the adoption of eGovernment services by trust in the government was not affected directly (see Yildiz and Saylam [55]). Previous results do not, however, correspond to the results of this study (see Weerakkody et al. [52]) and Wong et al. [54]). If the information given is reliable and correct, citizens prefer to rely on the service provider. Small trust in government services implies reliable outcomes and measurable outputs in an information format characterized by insufficient, accurate and acceptable material to the needs of people.

5.3. User's satisfaction

The statistical results have shown that H13 is strongly supported for this hypothesis. Nothing has been done to measure the expectancy of the consumer through the expectations of people about the continuity of usage (i.e. satisfaction and anticipation of eGovernment services being used further). Because citizens with positive expectations will be engaged in eGovernment services more often than not, and this may improve eGovernment practice and the relationship between public and government, almost all developed and developing governments, both in the short and long terms, have touched briefly on the topic, such as (see Deng [24] and Verma et al. [50] and Nthala and Flechais [41]).

Personalization has major positive effects on user satisfaction; H14 was supported in this result. Personalization thus contributes significantly to understanding the variation in user satisfaction. The overall results of this study show that custom government services can encourage customer satisfaction by providing users with the opportunity to order services and making good recommendations as to what kind of items a user may want. The results are based on theoretical recommendations from previous research, which directly impact personalization on user satisfaction (see Dewa and Zlotnikova [25] and Rehman et al. [42]).

Analysis of correlation showed that the system availability was found to influence user's satisfaction significantly. The statistical findings have shown that this H15 was supported. The results are in line with findings of (see Karunasena and Deng [33] and Rodrigues et al. [43]) in evaluating some online systems (setting voluntary). Such results revealed that System Availability positively relates to user satisfaction. Thus, increasing System Availability will result in increased user satisfaction, and this was proved by (see Guerry et al. [29]) as well, who stated that higher System Availability would contribute to higher computer usage.

Besides, because one of the writers is a citizen of Libya and has witnessed the provision of services in Libya, he found that the distribution of services due to the postal infrastructure is problematic. Libyan people don't have a specific address, such as the house number or an exact name on the street, or a safe postal address normally at their doorstep or box. Although there are postal boxes available for rent for residents, not many Libyans do have one that makes it difficult for them to communicate with the government. Consequently, in Libya, the mail service system must be established and strengthened to be certified contact. The critical link between the government and citizens should be identified as the postal address. As ICTs increasingly grow and digital communication improves significantly, many governments are worried about implementing citizens' eGovernment services. This paper looks at how people can be motivated to use eGovernment services and eGovernment implementation and growth problems.

6. Conclusion

This study will explore how people can be motivated and encouraged to embrace eGovernment services and face eGovernment adoption and growth challenges.

First of all, it is necessary to know how eGovernment to be described. As there is no universal concept, eGovernment can be defined based on a set of current requirements. For a long time, eGovernment in developed countries has been developed and introduced while still undergrowth in most developing countries. It offers other advantages to states, businesses, and customers who are covered by eGovernment services. Several researchers have identified and addressed the obstacles to eGovernment implementation and adoption. For the governments that want to introduce and grow eGovernment, adoption is a crucial issue. Governments may, however, consider process aspects that affect and promote people in the adoption of eGovernment services. However, challenges and obstacles can be overcome by considering various eGovernment services strategies and offering the correct model for most similar countries, including the developing countries. Furthermore, this research's central question is: what are the factors affecting the adoption and growth of eGovernment for a citizen to adopt? This question was resolved through debate and inquiry.

This study shows that the determinant elements, including DOI, TAM, culture, security, privacy, availability/reliability of the system, personalization, preferences of users, design of websites, ICT skills, and organization factors are significant to tackle a new model that fits Libya's Government's requirements and can affect the adoption of eGovernment services by Libyan citizens. And four factors are not significant, including Infrastructure, awareness, quality of services and trust.

Appendix A

The Questionnaires

https://1drv.ms/w/s!AnYI4aZ2rQDXhji_Os339cjm7Y1M?e=AHbj5j

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