

# Reengineering E-government Projects: Gender Digital Divide Perspective – The Case of Jordan

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**Abstract:** There is a clear focus in the recent e-government researches on the need to address Gender Digital Divide (GDD) as a factor affecting e-government project development in both developed and developing countries. This research asserts the lack in information related to GDD in Jordan and explains how to collect such information. Also, to evaluate e-government project in Jordan in relation to its sensitivity to GDD and how can e-government project in Jordan manage and deal with Jordanian women's feedback and needs. Finally, introduces recommendations for better utilization of existing resources and infrastructure in Jordan.

**Keywords:** E-Government, Gender Digital Divide (GDD), GDD Indicators (GDDI), Digital Equity, Gender Based Analysis (GBA), Jordan.

## I. INTRODUCTION

The digital divide is being considered as one of the major ethical issues of the information age as it reinforces existing inequalities in society especially the gender equity. This Research will be one of the first researches that focus on GDD in e-government projects in the Middle East focusing on the case of Jordan.

Jordan witnessed many initiatives related to women empowerment especially in rural areas, where improving women's literacy and e-government accessibility can reflect positively on their lives. It is important to raise the awareness of both governments and citizens for the importance of digital equity, which refers to equal rights, participation, opportunities, access to and control of resources [1].

This research will review the literature related to gender equity in e-government projects, gather information about GDD, and investigate methodologies related to gender based analysis (GBA) that some courtiers use to ensure digital equity and how these methodologies affect reengineering and development of e-government projects. Finally, conclusions are presented with future work.

### A. Research Objectives and Contribution

This is the first research in the Middle East that aims to initialize a framework for continuous monitoring and evaluation of GDD and its relation to e-government projects. The digital divide is considered by many authors as one of the major ethical issues of the information age as it reinforces existing inequalities in society [2]. Also, this research raise the awareness of policy makers in Jordan about what tools can be used to effectively plan for future e-government initiatives and how such tools can be used and adapted to Jordan's case. Because it's crucial to best utilize e-government services, where poor citizens' utilization of e-government initiatives is evidenced, and the adoption of such tool would positively contribute to enhancing

government's understanding of the factors that influence citizens' utilization of e-government systems [3].

This research anticipates helping Jordanian women in rural areas to utilize e-government services to improve their lives and to participate effectively in selecting and customizing needed services for a better. This research has three main questions:

*Q1: How GDD can be discovered and evaluated?*

*Q2: To what extent the data related to GDD analysis in Jordan is available?*

*Q3: To what extent the e-government project in Jordan is sensitive to GDD?*

## II. LITERATURE REVIEW

### A. E-government and E-governance.

E-government is defined as "a process of reform in the way governments work, shares information and delivers services to external and internal clients" [4]. Also, "e-government harnesses information technologies (such as wide area networks, the Internet and mobile computing) to transform relations with citizens, businesses and other arms of government" [1]. Utilizing human resources in e-government projects means no marginalization of any group like women, older people, or special needs group. Dealing and responding to each group is one of the main challenges for e-government projects [5], as one of main objectives of e-government is to think about how to utilize ICT to address inefficiencies in back-office processes, to enhance efficiency, effectiveness, and citizens' participation in policy making [6]. This requires thinking and caring about their needs and feedback. A careful balance is required between services and citizens needs and feedback related to these services. Figure 1 is a depiction of the idea.

### B. GDD Related Work

The digital divide refers to the distinction between the information haves and have-nots; the gap between the computer literate and the computer illiterate. More specifically, it can be argued that two major divides exist: access divide and skills divide [7]. Access divide is the lack of access to the Internet, and skills divide is related to the lack of training and computer literacy [8]. Hilbert defines digital divide as distinctions can be made with regard to the group of users (countries or population segments), the kind of technology under consideration (mobile or fixed; voice or data; communication or computing), and the stage of adoption [9]. Gender digital equality is not related only to unequal access to computers but rather the unequal ways that computers are used [10].

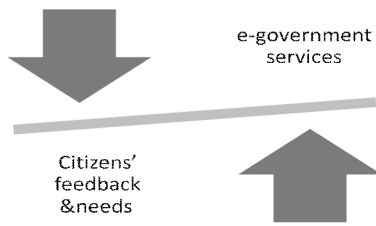


Figure 1: E-governance Balance of Services  
(proposed by the authors)

The main reasons for digital divide are low income, lack of education, gender, and age [11]. From the above definitions of digital divide, GDD can be seen as the gap between women and men in access qualitatively and quantitatively to available ICT tools, resources and services because of one or more of different limitations related to economical, social, political, educational and cultural reasons. To deal with such challenge it's very important to gather information about the problem and what can be done to support women toward an equal access with men to different e-government services.

#### 1) Gender digital equality (GDE) in e-government projects

The issue of gender equity is not a supplement to development but central to development. Issues of women empowerment, inclusive democratic participation and governance, equal citizenship, and gender mainstreaming of public policies including those of ICT policies and programs are all equally important [12]. Also, as the digital divide is one of most talked about phenomena when the topic of the relationships between information technology and society is raised and ethics metaphysics and epistemology this shows how computers and reality are related [13]. Rababah and Abu-Shanab emphasize that the premise of e-government effectiveness is not about the tool, but about people who will use the tool and the reasons they are using it for. If women believe in e-government as a tool and know how to use e-government services, they will improve their quality of life and will lead them to needed water, food, and health; this will be a blueprint in e-government's history [14].

#### 2) E-government Strategies for GDD

When we talk about GDD, it's very important to look into how GDD can be defined from access criteria perspective. One of the most common classifications of GDD is what was reported by Van Dijk [16] as the types of barriers to access:

- i. Lack of mental access; refers to a lack of elementary digital experience.
- ii. Lack of material access; means a lack of possession of computers and network connections.
- iii. Lack of skill access; is a lack of digital skills.
- iv. Lack of usage access; signifies the lack of meaningful usage opportunities.

Such access is necessary but not a sufficient condition to closing the GDD. The issues of ICT literacy and skills are central to include and encourage women to

fully participate in, benefit from, and contribute to the information society. It is important that we place in perspective the entire range of ICTs, from basic telephony, radio and television, to cell phones and the country-related issues of telephony, mass media, computers and Internet [16]. Governments should develop indicators for GDD within their own context [11]. In all research related to e-government, e-governance, and GDD, there is a consensus on the need for: integrated gender and ICT policy, new methods of women's involvement through ICT, strategies to address lack of access to the Internet and e-government, strategies to address lack of awareness of the benefits of the Internet and e-government, strategies to address limited interest in and motivation to use the Internet, strategies to address limited computer and Internet skills e-government and e-governance, and strategies to address accessibility and usability issues related to the Internet and e-government [11].

The above discussion pinpoints the importance of having global accessible information related to GDD to share experiences on how such a challenge is managed and controlled with different countries' context.

#### 3) International Gender's Equality Resources

There are many international organizations working on gender's equality in all concepts related to our life. still there is a lack in information available internationally about GDD. It's very important to utilize existing information in international resources in order to have clear view of different countries related to women empowerment, learn from different countries stories and experiences in handling women's feedback and needs, and work on researches related to recommendations and ideas to overcome such issue.

One of the good resources is The Royal Tropical Institute (KIT) in Amsterdam; an independent centre of knowledge and expertise in the areas of international and intercultural cooperation, operating at the interface between theory and practice and between policy and implementation. KIT contributes to sustainable development, poverty alleviation and cultural preservation and exchange. It operates internationally through development projects, scientific research and training, and provides consultancy and information services. One of KIT's women's empowerment publications is "Women's and ICTs for Development: A global sourcebook" [17].

A global monitoring and evaluation organization for the ICT's role in solving women's poverty, especially in rural areas, all over the world is the "World Summit in Information Society" (WSIS); a global organization focusing on ICT's role in development, building e-strategy, building action plan, and how to follow up on ICT relation and development. WSIS started in 1993, and its 2011 forum will build a vision for 2015 facilitated by more than 10 international organizations like; ITU, UNESCO, UNCTAD, and UNDP [17].

Despite the progress that has been made, six out of ten of world's poorest people are still women or girls; less than 16% of the world's parliamentarians are women; two thirds of all children shut outside the school gates are girls; and both in times of armed conflict and behind

closed doors at home, women are still systematically subjected to violence. That is why UNDP integrates gender's equality and women's empowerment in its four main areas of work: poverty reduction, democratic governance, crisis prevention and recovery, and environment and sustainable development [18]. As a conclusion, it's helpful and crucial to utilize global resources related to ICT's role in development and empowerment for marginalized groups such as women, and adapt such resources to the context of any country in the area of women's empowerment.

#### 4) Evaluation Mechanisms for GDD

To build an action plan for women's empowerment through ICT it's very important to collect information about digital divide. Engendering knowledge networks would help build up awareness among the women communities and their representative leaders, and encourage their informed and active participation in areas which influence them [19]. ICT in convergence with other forms of communication have the potential to reach those women who hitherto have not been reached by any other media, thus widening the operation of democracy. there is no one tool for digital divide evaluation, since the context of country/region affects what and how to evaluate [11]; main factors that affect what and how to evaluate women's digital divide is; social, political, economical, and cultural [14]. But a relative justification based on previous research and an analysis to the country context is needed when we think of building evaluation tools for women's digital divide [18]. In this research we suggest a model for GDD evaluation that integrates factors from previous research customized to the case of Jordan and as shown in Fig. 2.

#### C. Gender-Based Analysis (GBA) Methodology.

The UNDP report indicates Lack of gender analysis [11]. Many telecommunication regulatory agencies all over the world have given insufficient attention to women's needs assessment/women's analysis, resulting in regulatory structures based on the assumption that men and women have equal access and similar needs. Many regulatory agencies have focused on universal access and rural communication services, but few have looked at the basic issues of availability, accessibility and affordability from a developing country women's perspective.

Alshawi focused on the importance of e-strategies that use gender analysis in policy design which contribute to the goal of gender's equality [3]. The experience of women's organizations and civil society groups in many developing countries furnishes a number of useful approaches. These include building online communities and networks; expanding women's access to global and local markets; developing women's ICT capabilities to further empowerment goals; deploying ICT for human development in health, nutrition and education; and promoting advocacy, mobilization and solidarity-building.

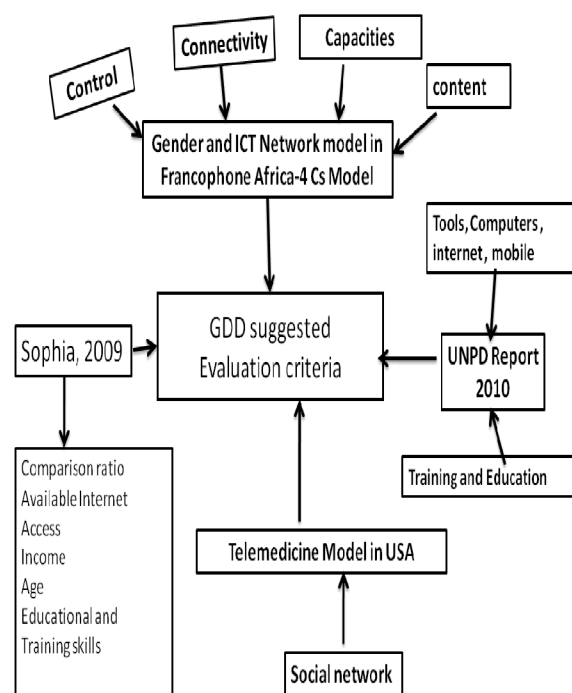


Figure 2: Suggested Model to Evaluate GDD in Jordan (proposed by the authors)

Public administrations can take advantage of these foundations and strategies to address gender's equality and accelerate progress towards achieving the millennium development goals. GBA assess the differential impact on women and men by considering their different life situations - their different socio-economic realities - and is a required step in the development and implementation of proposed and existing policies, programs and legislation. Çilan asserts that GBA leads to informed policy-making and good governance [20]. There is an obvious women's skills gap in IT and applied science/technology. Fewer women report possessing these skills, but at least in relation to IT they are no less convinced of their usefulness than are men. The women's gap is wider for older and less educated women, and even more so for those living in Southern Europe. By illustrating the GDD in Spain and Southern European countries, we are able to explain additional differences found for Internet use and the ability to use scientific or technological tools and equipments. Figure 3 summarizes the main phases of GBA [21] that can be used to analyze any gender based issue.

Paterson (2010) expresses in her research the need for feedback system for GDD even for policies and decisions made in enhancing e-government services based on gender analysis tools used in Canada since The Canadian models of women's mainstreaming are "expert-bureaucratic" as opposed to "participatory-democratic" [22]. So it's very important that women who will use and need e-government services to participate in every phase of GBA to enhance e-government utilization for women in rural areas.

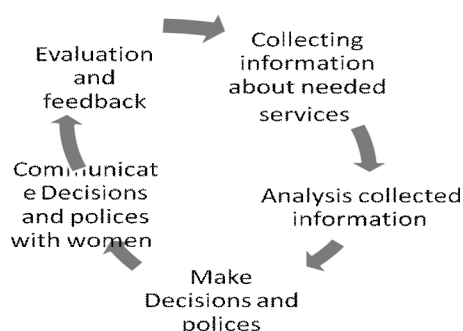


Figure 3: GBA Main Phases  
(proposed by the authors)

#### D. The Importance of GBA in E-government

Paterson defines “mainstreaming” as an important concept in feminist politics because it integrates a gendered perspective into all policy and decision-making [22]. However, while most scholars agree that women's mainstreaming has the potential to transform social relations, to date it has been limited and delivered marginal benefits for few women. In the Canadian context, scholars have pointed to several contextual and conceptual issues that limit the transformative potential of gender-based analysis. While such studies have contributed to our understanding of the impact of women's mainstreaming, the author suggests that we must also explore the creative or productive dimensions of mainstreaming. Policy makers in e-government project can use ICT tools in each phase of GBA to have proactive approach in planning of their services that can fit women needs in all areas without any marginalization.

There is an agreement that GDD exists all over the world and it's clear more in developing countries and rural areas in developed ones. Important questions are raised: *How can e-government serve women in rural areas with a lack in infrastructure? How could e-government serve women with no ICT literacy? How could e-government be gender sensitive?*

All the previous questions are challenges to e-government projects since there is no single answer for each question since they depend on the country's context. It is important to learn from success stories in this area, the following are examples:

- India: ICT's kiosk and mobile story telling.
- Greece: Tax system.
- Ethiopia: Radio project for women in their farms.
- Singapore: ICT education project.
- Canada: GBA analysis for women in rural areas.

### III. RESEARCH'S QUESTIONS AND HYPOTHESES

This research focuses on monitoring and evaluating GDD impact on e-government role in citizens' empowerment, and how could the result of evaluation affect e-government reengineering process. These two issues will be handled through these questions:

Q1: How GDD could be discovered and evaluated?

Q2: Is the data related to GDDA in Jordan available?

Q3: To what extent the e-government project in Jordan is sensitive to GDD?

H1: Available data related to GDD in Jordan is not enough.

H2: There is a GDD in Jordan.

H3: The degree of sensitivity of the e-government project in Jordan to the GDD is low.

### IV. RESEARCH METHODOLOGY

Data available on the Jordanian Department of Statistics is an efficient tool for gathering information about GDD. This research will utilize the model in Figure 4, to study and analyze existing data from global and local resources. A GBA's check list will be implemented with a group of expert from e-government project in Jordan to measure the extent e-government project is sensitive to women's issues. Also to ensure a participative approach, a list of open questions will be used with targeted women.

### V. DATA ANALYSIS AND CONCLUSION

#### A. Global And Local Data Analysis

One of the global indices related to development is the Human Development Index (HDI), where Gender Inequality Index is an element [20]. Another important global index related to our research is E-Government index [21].

Table 1 Global index – Jordan

Criteria	Rank	Index Name
HDI – 2010	82	HDI
Gender Inequality Index- 2008	76	GII
E-government development- Jordan 2010	51	e-government development

Jordan is ranked as high in human development index group, and came fourth among Arab countries in e-government development behind Bahrain, United Arab Emirates, and Kuwait. This indicates a good potential to create more e-government services that meet human needs especially marginalized women in rural areas. Three factors affect e-government development and they are [21]:

- Utilization of e-government to manage and control financial crises.
- Innovative approaches to support gender equality.
- Support health care services in rural areas.

Information available about women and ICT in Jordan and through the DOS website is not updated since 2008, and even old data does not have the required details and indicators to include gender perspective [22]. Gender perspective indicators available before 2008 are for areas like: education, economy, higher education, law, social, agriculture, health, and politics. There is no specific indicators that link women with ICT! There is only data related to use of ICT with cooperation with MOICT through a survey that covered 3340 families in different areas in Jordan, and the response rate was

91%, that means 33030 families have filled a full information report through interviews, the following tables list some results:

Table 2: ICT at Home (% Jordan – 2009)

Indicator	Female	Male	Gap
Computer users	44.1	55.9	- 11.1
Internet use	39.1	60.9	-20.1
Use email	10.2	22.8	-11.6
Frequent of use/ month	7.3*	14^	
Non user because they don't know how to use	50.5	53.5	3
Non user because of lack of training	3.8	3.5	-0.3
Non user because of low income	26.9	24.1	- 1.1

\*for 7 times

^for 16 times

Also ICT at Home – Jordan – 2009 results are:

- 1- 96.5% of families have 1 mobile phone.
- 2- 54% have computers at their home.
- 3- 18% have Internet access.
- 4- Major cities have higher ranks compared to urban and rural areas.
- 5- Males have higher rank compared to females.

Table 3: Reasons for non ICT users Jordan - 2008

Reason	City	Urban and Rural
Low income	61.3	74.4
Lack of ICT literacy	25.3	24.9
No need for ICT services	61.3	74.4
Others	5.1	7.3

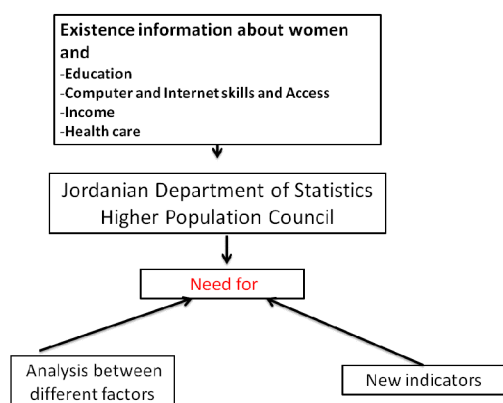


Figure 4: Development for local available data  
(proposed by the authors)

For e-government services only 15.6% use it, 23% know about it, and 43.2% have interest to use it. It's clear that there is no specific methodology to gather and analyze data related to GDD and since there is some cooperation between MOICT and Jordan DOS it's would be better if data gathering and analysis have a real and updated data related to GDD.

Since there is shortage in data related to GDD in Jordan, and a deficiency in analyzing existing data about this issue. New indicators can be added as criteria to evaluate and monitor GDD in Jordan, our adapted model contains five components:

- 1- Control: with 6 adapted indicators [23]:
  - ICT services available in your area are adequate for the citizens' needs in terms of quality.
  - ICT services available in your area are adequate for the citizens' needs in terms of frequency of access and use.
  - There are centers in your area for the ICT support for women more than men.
  - Available support based on your request to deal with problems related to ICT.
  - Mobility to other places to have more and better ICT services.
  - E-government services usage need less cost and effort compared to other e-services.
- 2- Content: 4 adapted indicators [23]:
  - The content of e-government services is gender sensitive.
  - There is enough local websites and e-services in Arabic language.
  - You can participate in building content for local ICT services to meet your needs.
  - Continuous development in ICT services content as a response to citizens' feedback and needs.
- 3- Capacity: 4 adapted indicators [23]:
  - Preference in the number of women as trainees in ICT compared to men in your area.
  - Preference in the number of women as trainers in ICT compared to men in your area.
  - Continuous governmental free training and education related to ICT literacy.
  - Continues paid training and education related to ICT literacy.
- 4- Connectivity: 8 adapted indicators [23]:
  - Availability for computers all the time.
  - Availability for Internet all the time.
  - Availability for mobile phones all the time.
  - Availability for ICT at your home.
  - Availability for ICT at your work.
  - Availability for ICT at public centers in your area.
  - You use ICT because of personal reasons.
  - You use ICT because of work related reasons.
  - You use ICT because of governmental reasons.
- 5- Social network: 2 adapted indicators [24]:
  - Information is shared, disseminated and accessed through the use of e-communication in your area.
  - There is a role of social networks in shaping access to and use of ICT.

All previous indicators need to be implemented and compared between men and women, cities and urban areas, and other demographic factors.

#### B. GBA Check List For A Guided Interview Questions

In this part we adapt a structured interview related to GBA and conducted this interview with 73 different people; 5 from Jordan's e-government project, 2 as women in policy making positions (in the present

Jordanian parliament), 10 women in different areas (considered expert in women affairs), and 56 women in different areas, with different ages, and educational levels (covered views of non-experts evaluators) [11].

Part 2 Canadian GBA + Stephanie critical feedback

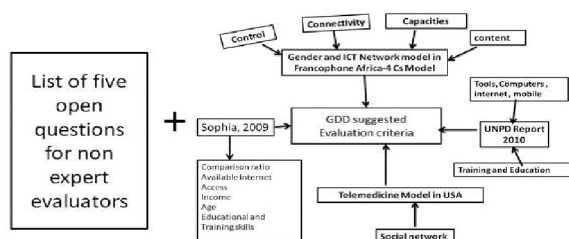


Figure 5: GBA Adaption Based on Stephanie Feedback (proposed by the authors)

Interview adapted questions are:

Q1: what is your evaluation of the main characteristics of e-government project (content, training, tools, methods, building capacities, connectivity) in Jordan as a gender sensitive project?

Q2: Do you expect more characteristics to be added to enhance the role of such project in your life? If yes, like what.

Q3: What is the most appropriate method to give feedback on some issues related to gender?

Q4: How you think women in Jordan could participate in information analysis about women's equity in e-government project?

Q5: How would you like the aspects of the policy, program, or legislation supporting women's equality be highlighted and communicated to you?

Q6: Do you think it is enough to consult organizations or key women in the area of gender and e-government? If not how can e- government enhance women role in such issue?

For questions related to suggestions to integrate GBA model with e-government project to enhance its role in women empowerment (1, 2, & 6), Table 5 list the results.

Table 5: GBA interview result (Indicators questions)

Question	Yes	No	Do not know
Q1	0%	98%	2%
Q2	90%	5%	5%
Q6	80%	10%	10%

next is suggestions related to different phases of GBA: For suggestions related to different phases of GBA (questions 3, 4 & 5), the following briefing is acquired: Phase1: Collecting information about women's needs and feedback related to e-government services: e-government group suggests in addition to online channel and fixed phone interaction with e-government project to use mobile phone to collect needed information about services. Also, awareness for e-government project can be raised utilizing All Jordan Youth Commission (AJYC) volunteers to collect needed information in rural areas.

Phase2: GBA-Analysis for collected information: Women in policy making positions suggest having list for more needed services and prioritizing these needs according to the following factors:

1-Number of women in rural areas that will benefit from such services, through voting system on mobile phone or by online forum.

2-Priority of this service (1<sup>st</sup> Civil status documents, 2<sup>nd</sup> Healthcare, 3<sup>rd</sup> Education and training, and 4<sup>th</sup> other services).

3-Cost to run such services for e-government project.

4-Cost and effort for women in rural areas to use such service.

Build an equation to rank services based on previous four factors then has feedback from strategies division in e-government project on top ranked services in the developed services then to have decision of what services can be introduced for women to empower them.

Phase3: GBA- communicates decisions with women: all groups through interviews agreed on using all available tools to communicate the list, like TV, radio, and online methods.

Phase4: GBA- evaluation and feedback: Feedback from user for services is very important and has awareness of how to collect such feedback is very important by using various ICT tools. Also, an expert from e-government project considers the frequent requests of user for a service is a good evaluation factors.

In conclusion, e-government initiatives can be used as a tool to enhance all GBA's phases. Also, previous analysis and results from interviews can support our findings with respect to research hypotheses. Table 6 lists our conclusions.

Table 6: Summary of research hypotheses results

Hypothesis	decision
H1	Accepted
H2	Partially Accepted
H3	Accepted

## VI. RESEARCH LIMITATIONS AND FUTURE WORK

To build further on this research more integration and communication between the departments in MOICT and women's empowerment committees through: workshops related to raise awareness of e-government services and how to utilize in e-government project integration in women life especially in rural areas, and to build strategy for continuous improvement of e-government services for women. Enhancing the capacity for knowledge economy, it is not the only the e-government initiative to raise the bar, it is the responsibility of many parties like: Ministry of education, Ministry of higher education, and Civil Society Organizations and NGOs (related to Women). Schools can be a suitable arm for any initiative related to gender gap bridging both during work hours and afternoons. Also, women training on use and interaction with e-government services can be done with existing infrastructure in schools and knowledge stations in all areas in Jordan.



E-government services can play a key role in providing basic needs such as civil status documents especially for widows and divorced women in rural areas because of social limitations on travel; to have access for governmental services using ICT kiosk in every village or schools; and e-government can provide information related to health care needed for women for example how to do breast cancer screening through mobile text messages through the cooperation between mobile company, e-government project and Ministry of Health. Research limitations are related to comprehensiveness of data collected and the need for further research to develop and implement a valid tool related to GDD in Jordan and in a more structured way in order to generalize result and build on it further. Such step provides more information to decision and policy makers on how Jordanian women will utilize e-government services. Therefore, it helps policymakers to get a sense of women's needs and expectations.

## REFERENCES

- [1] Rathgeber, E., 2006, *Engendering E-Government in Developing Countries*, Women's Studies, University of Ottawa/ Carleton University, <http://www.egovmonitor.com>
- [2] Foteinou, Georgia, "e-Exclusion and the Women's Digital Divide ", SIGCAS Computers and Society, Volume 40, No. 2, June 2010, ACM.pp224-232
- [3] Alshawi, S, and Alalwany, H., 2009, "E-Government Evaluation: Citizen's Perspective in Developing Countries", *Information Technology for Development*, Vol. 15 (3) 193–208 (2009)
- [4] Yildiz, M., 2007, "E-Government research: Reviewing the literature, limitations, and ways forward," *Government Information Quarterly*, Vol. 24, pp. 646-665.
- [5] Pilling, Doria, and Boeltzig, Heike, "Moving Toward E-Government – Effective Strategies for Increasing Access and Use of the Internet Among Non- Internet Users in the U.S. and U.K., The Proceedings of the 8th Annual International Digital Government Research Conference, 2007, EBSCO
- [6] Shahin, Jamal, and Finger. Matthias, 2009, "The Operationalisation of e-Governance", ICEGOV2008, December 1-4, 2008, Cairo, Egypt, Copyright 2008 ACM pp24-30.
- [7] Bélanger, France, and Carter, Lemuria, "The Impact Of The Digital Divide On E-Government Use ", *communications of the ACM* | 2009 | vol. 52 | no. 4
- [8] Huyer, S. and Sikoska, T., 2003, "Overcoming women's digital divide: understanding ICT and their potential for the empowerment of women," *Instraw Research paper series*, No. 1, P 17-57.
- [9] Hilbert, Martin, "When is Cheap, Cheap Enough to Bridge the Digital Divide? Modeling Income Related Structural Challenges of Technology Diffusion in Latin America" ,*World Development* Vol. 38, No. 5, pp. 756–770, 2010, Science Direct.
- [10] Warschauer, M. "Dissecting the 'digital divide': a case study in Egypt", *Information Society*,19(4), 297–305. 2003, ACM.
- [11] United Nations -E-Government-Survey 2010
- Leveraging e-government-at a time of financial and economic crisis  
[http://www.unpan.org/egovkb/global\\_reports](http://www.unpan.org/egovkb/global_reports)
- [12] Subramanian. Malathi , " Theory and Practice of E-Governance In India A Women's Perspective ", ICEGOV2007, December 10-13, 2007, Macao.ACM.
- [13] Kumar. U, Yadav. Nikhil, Helmy.A., "Gender-based Feature Analysis in Campus-wide WLANs", *Mobile Computing and Communications Review*, Volume 12, Number 1, page 40-42, 2009, ACM.
- [14] AL-Rababah. Boran A, and. Abu-Shanab, Emad A, *E-Government And Women's Digital Divide: The Case Of Jordan*, *International Journal of Electronic Business Management*, Vol. 8, No. 1 (2010) pp 1-7.
- [15] Van Dijk, J., Hacker, K.,. The digital divide as a complex, dynamic phenomenon. *The Information Society* 19 (4), 315–326. 2003.
- [16] Van Dijk, J., 2006. *The Network Society. Social Aspects of New Media*, second ed. SAGE, London.
- [17] The Royal Tropical Institute (KIT), 2005, "Women's and ICTs for Development A global sourcebook"(2005);  
[http://www.kit.nl/net/KIT\\_Publicaties\\_output](http://www.kit.nl/net/KIT_Publicaties_output)
- [18] World summit in information society" WSIS";  
<http://www.itu.int/wsis/implementation/2011/forum>
- [19] Soud Almahamid, Arthur C. Mcadams, Taher Al Kalaldeh, & Mo'taz Al-Sa'eed, *The Relationship Between Perceived Usefulness, Perceived Ease Of Use, Perceived Information Quality, And Intention To Use E-Government*, 2010 *Jatit Journal Of Theoretical And Applied Information Technology*.
- [20] Çılan, Çiğdem, Bolat, Acar, and Coşkun, Erman, "Analyzing digital divide within and between member and candidate countries o f European Union ", *Government Information Quarterly* 26 (2009) page 98–105, Science Direct.
- [21] Gender-Based Analysis, Indian and Northern affaires "Canada", 2008, <http://www.ainc-inac.gc.ca>
- [22] Paterson, Stephanie, "What's the problem with gender-based analysis? Women's mainstreaming policy and practice in Canada", *Canadian Public Administration / Administration Publique Du Canada* Volume 53, No. 3 (September/Septembre 2010), Pp. 395–416, Science Direct.
- [23] 4cs model; INSTWA, 2003, Summary of the Online Discussion on ICTs, Women's and E-Government Workshop May 2007, Cardoso, Maputo, <http://www.epolafrica.org>
- [24] Kvasny, Lynette, Cobb Payton. Fay, and Mbarika. Victor, " Information Technology Education and Employment for Women in Kenya", SIGMIS-CPR'06, April 13–15, 2006, Claremont, California, USA. Copyright 2006 ACM.
- [25] Human Development Index,  
<http://hdr.undp.org/en/statistics/gii/>, 8 dec 2010
- [26] Jordanian Department of Statistics  
<http://www.dos.gov.jo>