

## **E-Governance: An Endless ES to the Same End a Field Survey in the University Community in Bahrain**

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**Abstract:** This study aims to improve understanding and effective application of e-government. The study provides concise review of the conceptual background of e-government and its practical experience in selected Arab countries. A field survey on e-government applications has been conducted in a sample of respondents in Bahrain university community. Major findings of this study are: (1) Vast majority of respondents (88%) use internet at both home and workplace. (2) Most respondents (54%) have learned to use internet by personal practice and experience while (34%) of them have gotten IT education or training. (3) Most respondents (96%) use internet for Email and other personal purposes. (4) Respondents mostly use Google, Yahoo, and MSN search engines in order. (5) Respondents gave significant importance for seven barriers to internet usage including networking, technical, time, financial, personal, control and security problems in order. (6) Respondents suggested some measures to improve internet usage including faster and reliable internet services, better technical solutions, cost reduction, training and education, improved internet security and less government control. The study recommended more research, conferences and exchange of practical experiences at all international, regional and local levels. It also recommends step-wise applications of e-government, top leadership commitment, sufficient funding, improved IT education and citizenry involvement.

**Key words:** Applications, Arab countries, e-government, digital service delivery, e-services, technological transformation

### **INTRODUCTION**

There is no commonly agreeable view or meaning of e-government. It means different things for different people. E-government scope includes specific forms of services, using government kiosk to receive job information, accessing website, creating electronic data base, using information technology especially the internet for service delivery and 24/7 continuous exchange of information between people, government and business organizations.

E-Government simply refers to the use of technology to better provide individuals and businesses with government services and information. This can be done by establishing common standards across government bodies, delivering services more effectively and efficiently, and providing ways for government agencies to work together easily and effectively. E-government is a major step forward in communications that has been accepted internationally. It is very crucial government mechanism to help minimize the time of the public and business community spend on transactions with government. Nowadays, information and services are accessible online and available around the clock in our homes and work places. E-government entails leveraging

information technology in implementing new processes to fundamentally improve government services. The objectives of e-government might vary from country to another but are likely to involve effective customer service, cost reduction, global positioning, Civic Engagement (e-democracy), and national development.

The interest for public e-services is rapidly growing. Governments are developing and launching e-services in many public organizations. These endeavors are partially governed by international and national programs. The expectations for the 24/7 government and its accompanying e-services seem to be high among different stakeholder groups. Direct impact of e-government includes cost effectiveness in public operations, procurement, tax collection and better and continuous contacts with citizens. Indirect impact includes greater transparency, responsiveness, accountability in public decisions and democracy.

**Basic objectives of the study:** This study aims to give concise yet comprehensive view of the concept, motives, obstacles and practical applications of electronic government. This includes a brief literature review and some research results, survey of some practical experiences from selected countries as well as a field

survey of a sample of respondents in Bahrain universities community regarding e-government applications.

**Emergence of e-government:** The rise of the information society has led to major changes in citizen expectations and organizational structures, cultures and working processes. In the last decades, governments are trying to adopt information society tools and working practices to remain responsive to citizen needs. The impact of e-government at the broadest level is simply better government by enabling better policy outcomes, higher quality services and greater engagement with citizens. Public management and organizations should be judged against these established criteria for success.

The transition to e-government is an opportunity for countries to show their capacity to adapt to new realities and overcome barriers to change. Reluctant to respond to e-government reforms may impinge overall socio-economic development.

E-government has evolved over four waves namely (Mahmood, 2009):

- Promoting accessibility and connectivity focusing on infrastructure development.
- Provide services online while maintaining some existing services in the traditional form.
- Transform the enterprise by automating existing processes and transforming the business (process and organization).
- Move beyond the re-engineering of existing services to radically new ways of realizing policy objectives enabled by ICT.

E-government transformation is one of the biggest challenges within the IT-related sector in terms of scale and complexity. It requires structural, strategic and operational adaptations to cope with these challenges in the new computing age. Great attention should be given to increasing quality of service, consistency of policies, interoperability, information sharing, productivity, efficiency (Cheng-Yi, 2007).

E-government is a very controversial concept that can be applied in so many different ways, meanings, scope, levels, and forms. Therefore, we may identify an (ENDLESS LIST) of Es or what I may call an (e-family) such as:

**E-services:** The electronic delivery of government information, programs, and services

**E-democracy:** The use of electronic communications to increase citizen participation in the public decision-making process

**E-commerce:** The electronic exchange of money for goods and services such as citizens paying taxes and

utility bills, renewing vehicle registrations, and paying for recreation programs, or government buying supplies and auctioning surplus equipment

**E-management:** The use of information technology to improve public management performance, records and files, and improving the flow and integration of information

**E-learning:** The use of information technology and electronic methods of education

**E-banking:** The use of electronic means of financial transactions and access to and exchange of banking information and services

**E-library:** Electronic access to and exchange of sources of knowledge information

**E-citizen:** Citizenry information and service exchange and interactions with government and business organizations in many different ways, forms, channels, times, areas and purposes.

**E-society:** Individual and personal relationships and multi-purpose interactions beyond boundaries, among public agencies, private sector and civil community in general.

**E-administration:** Automation and computerization of administrative work systems, processes, tasks, interactions and exchange of information.

**E-computing:** Telecommuting, e-commuting, e-work, telework, working at home (WAH), or working from home (WFH) refers to work arrangement in which employees enjoy flexibility in working location and hours. In other words, the daily commute to a central place of work is replaced by telecommunication links. Web commuters utilize mobile telecommunications technology to work from coffee shops or any other locations. Telework is a broader term, referring to substituting telecommunications for any form of work-related travel, thereby eliminating the distance restrictions of telecommuting. All telecommuters are teleworkers but not all teleworkers are telecommuters.

E-government interactions may take at least sixteen possible directions as shown in Table 1.

**Definition of e-government:** E-government or e-Governance is commonly used in the same meaning. E-government is sometimes defined as electronic delivery of government services while e-Governance is sometimes defined as electronic service delivery, plus consultation of citizens and e-democracy. Most governments have realized that to be effective they must use Information and

Table 1: Directions of e-government interactions

Services providers	Services recipients			
	Citizen	Government	Business	Employee
Citizen	C2C	C2G	C2B	C2E
Government	G2C	G2G	G2B	G2E
Business	B2C	B2G	B2B	B2E
Employee	E2C	E2G	E2B	E2E

Communications Technology (ICT) to exchange information and services with citizens, businesses, and other government bodies (Riley, 2007).

E-government denotes the strategic, co-ordinate use of Information and Communication Technologies (ICT) in public administration and political decision-making. Expected benefits of e-government transformation include greater efficiency of the public services, political participation and transparency of government actions. Fulfilling these expectations require sound institutional base and good technical and infrastructural facilities.

OECD Defines E-government as the use of information and communication technologies, and particularly the Internet, as a tool to achieve better government. It is more about government than about “e” (OECD, 2003a).

**The governance working group of the international institute of administrative sciences:** 1996, stipulates that governance is a broader than government. It involves interaction between formal institutions and civil society institutions. The application of “governance” schemes depends on the social, economic and political context, and decision making structures and processes. Dealing with public issues implies interaction between governmental and non-governmental actors.

Key objectives of e-government initiatives are promoting good governance by:

- Creating a more responsive and efficient government through cutting red-tape and decreasing the negative effects of bureaucracy in public agencies
- Reducing the level of corruption and therefore reducing the costs of government transactions and the costs of doing business both between the public and private sector and on the intra-government level
- Promoting a more participatory and transparent government model, increasing the levels of trust, satisfaction and interaction of citizens with the government; and, ensuring a public sector that supports overall development of society (<http://www.dsg.ae>).

The White Paper of the European Commission recommends a set of principles of good public governance which should serve to support a more democratic management of public issues. Those principles are reported as “principles of good governance” to be applied

to “all levels of government-global, European, national, regional and local” and described as follows:

- Openness, that is, the clarity of language as well as the access to the working of the public institutions.
- Participation, from conception to implementation, is assumed to ensure the quality and relevance of policies.
- Accountability, which concerns the allocation of responsibility at all the different institutional levels.
- Effectiveness, which refers to the delivery of timely policies on the basis of clear objectives and needs and to a principle of coherence between ideas, actions and objectives. Every action has to be concretely applicable and effective in reaching the prescribed objectives.

.. Coherence is about applying a consistent approach to policies and actions (Maurizio and Marcelo, 2005). OECD’s principles of public governance (OECD, 2003b, c):

- adherence to the rule of law
- the primacy of the collective interest over sectoral or private interests
- respect for the rights of individuals
- equity
- transparency
- democratic accountability

**Paradigm shifts in the public sector:** The new era of the Internet, digital economy, and large-scale utilization of information technology in the private sector are driving the public sector to rethink hierarchical, bureaucratic organizational models. Customers, citizens and businesses are exposed to daily innovative applications of digital information technology and electronic models of exchange implemented by the private sector. They expect the same from governmental organizations. A shift in public sector paradigm should take place in the light of such new transformations. A paradigm shift includes citizen empowerment participation, customer focus knowledge management, flexibility, network and organization, vertical/horizontal integration, and innovative entrepreneurship, organization learning (Ndou, 2004).

As shown in Table 2, the government traditional structure has gone through strategic changes affecting the

Table 2: Paradigm shifts in public service delivery

Paradigm shifts in public service delivery		
Aspects	Bureaucratic paradigm	E-government paradigm
Orientation	Production cost-efficiency	User satisfaction, control and flexibility
Process organization	Functional rationality, departmentalization, Vertical hierarchy of control.	Horizontal hierarchy, network organization, information sharing.
Management principle	Management by rule and mandate	Flexible management, interdepartmental team work with central coordination
Leadership style	Command and control	Facilitation and coordination, Innovative entrepreneurship
Internal communication	Top down, Hierarchical	Multidirectional network with central coordination, direct communication.
External communication	Centralized, formal, limited channels	Formal and informal direct and fast feedback, multiple channels
Mode of service delivery	Documentary mode and interpersonal interaction	Electronic exchange, non face to face interaction
Principles of service delivery	Standardization, impartiality, equity	User customization, personalization

Ho (2002)

concept, process and behavior of government organizations. The application of e-government philosophy, strategies, projects and technical systems of service delivery have made governments more responsive and effective. Anyway, strategic shifts in this direction vary among the different governments around the world. Many efforts are needed to realize and enjoy the benefits of such transformations in the public sector.

**Inter-organizational relations of e-government:**

Fragmentation and isolated development are main problems that hinder successful e-government implementation. Government organizations cannot function as isolated islands. Oppositely, they depend on each other in many different ways and working together as interconnected parts of a unified system or network. Inter-organizational aspects are essential in managing public sector in general and e-service development in particular. Common or mutual concerns and problems necessitate joint efforts and solutions (Persson *et al.*, 2006; Axelsson and Melin, 2008). The following considerations should be taken into account to assure effective inter-organizational relations, efforts and coordination:

- Continuity: It refers to the relative stability that tends to characterize supplier and customer relationships.
- Complexity: It refers to the number, type and contact channels for those from each organization who are involved in relations between customer and supplier including symmetrical relations in terms of resources and initiatives on each side.
- Formality: Inter-organizational relationships often reflect a low level of formality since formal contracts may be ineffective in dealing with uncertainty, conflicts or crises in relationships.
- Technical interrelations refer to Inter-organizational IT system ownership, dependencies and coordination.
- Administrative interrelations refer to administrative disintegrated process with many contacts and deliveries between public organizations and

complicated patterns of communication and cooperation and sequential interdependencies between activities in the different organizations. Administrative interrelations also include gap between participants in different hierarchical levels within and between organizations.

- Economic and financial interrelations refer to funding volume and processes, budgetary allocations, compensations schemes and priorities.

**Literature review and recent research on e-government:**

The interest for public e-services is rapidly growing. Governments are developing and launching e-services in many public organizations. These endeavors are partially governed by international and national programs. The expectations for the 24/7 government and its accompanying e-services seem to be high among different stakeholder groups.

There is a great need for research on many aspects of e-services to satisfy growing aspirations to implement large-scale e-government projects. Research efforts should include conceptual and empirical knowledge development. Research can contribute to direct e-service development, implementation and evaluation.

E-government research suffers from definitional vagueness of the e-government concept, oversimplification of the e-government development processes within complex political and institutional environments, and various methodological limitations on the e-government concept.

A call for better examining and explaining the e-government concept, processes and participation patterns in e-government projects within complex political environments.

The production of more grounded, empirical studies on e-government that would create new theoretical arguments and provide new concepts and categories so as to enhance our understanding of e-government policy processes and actors. Tying the subject of e-government strongly to mainstream public administration research (Yildiz, 2007).

Research on E-government has become a recognized research domain and many policies and strategies are formulated for e-government implementations. The eGovRTD2020, a European Commission co-funded project, investigated the future research on e-government driven by changing circumstances and the evolution of technology. This project consists of an analysis of the state of play, a scenario-building, a gap analysis and a road mapping activity. A large number of e-government research themes have been identified. It was found that a road mapping methodology should match the unique characteristics of e-government. Findings of the project have indicated the need for multidisciplinary research on e-government (Wimmer *et al.*, 2008).

E-government researchers have addressed the technical and management aspects and the challenges associated with the implementation of e-government programs, and recommended solutions without proven or conclusive formula to establish e-government architecture. Recent studies evaluating current practices emphasized that the implementation of e-government programs is generally associated with serious challenges (in varying degrees) such as lack of insufficient infrastructure, public awareness, suitable organizational culture, and required resources for e-governments transformation (Al-Khouri and Bal, 2006).

**The middle East and North Africa e-government research initiative:** In order to study e-government development and its impact on reform and modernization of public administrations in the Arab region, DSG established the Middle East and North Africa e-Government Research Initiative.

The initiative's objectives, themes and intended outcomes are primarily driven from feedback from a network of e-government directors in 16 Arab countries through a series of forums hosted in DSG between September 2005 and March 2007. The importance of this research initiative for the MENA countries emerges from the following reasons (<http://www.dsg.ae>):

- International non-governmental organizations are increasingly recognizing e-government as an imperative approach for supporting good governance and the development of public administrations on the local, national, regional and international levels
- The Arab region is poor in academic research in the area of public administration in general
- Arab countries can potentially benefit from the provision of better public services by utilizing ICT, improving effectiveness and efficiency of government operations, decreasing costs and levels of corruption in public administration and promoting citizens' participation in policy and decision making.

The Dubai School of Government has partnered with leading academic institutions, nongovernmental

organizations and private sector corporations. The initiative is open for partnerships with institutions that can support in pursuing its regional objectives. The current partners in the MENA e-government Research Initiative are:

- John F. Kennedy School of Government at Harvard University
- Lee Kuan Yew School of Public Policy at the National University of Singapore
- Organization for Economic Co-operation and Development (OECD)
- United Nations Department of Economic and Social Affairs (UNDESA)
- UNDP's program of Information and Communication Technologies for Development in the Arab Region (ICTDAR)
- Microsoft Corporation
- Cisco Systems

Studies on implementation e-government projects such as the e-Europe benchmarking project, the UN study of benchmarking government, the Brown University Study and the Accenture study of e-government benchmarking have ranked countries for e-government implementation. According to Sharma, many of these benchmarking studies are media hype usually branding "Country X lags behind in e-government" or "Country Y takes lead in international e-government race". These studies do not account for many important measures of e-government implementations that are significant in the full scope of an e-government framework. Sharma suggested an e-government framework that could provide guidelines for comprehensive measures to assess e-participation and e-democracy in e-government implementation (Sharma, 2004).

A research workshop took in place in Borås, Sweden on 31 October 2006. It was labeled "International Workshop on E-Services in Public Administration" (WESPA). The workshop discussed a number of topics on e-services such as e-service concept, policies, inter-organizational aspects, public-private partnership, knowledge management, e-democracy, challenges and opportunities, implementation and evaluation of e-services projects. (Goldkuhl and Axelsson, 2007). Development cooperation can use e-government as a means of supporting partner countries in devising and implementing political and administrative reforms and in improving market-oriented frameworks. Beyond the immediate benefits of the new technologies, e-government should be taken as an instrument to promote good governance and to strengthen reform-oriented actors in politics and civil society (Haldenwang, 2004).

**Criteria for successful implementation of e-government:** There are many significant guiding principles for e-government including:

**Clear vision of current and future possibilities:**

Analyzing problems and opportunities. This includes:

- Ability to articulate and demonstrate the benefits of E-government to build support for their projects.
- Top political leadership support and commitment to e-government strategy, vision and transformation projects.
- Top management willingness and readiness For implementing e-government plans and projects.
- Integration of e-government efforts into broader Service delivery goals and processes, public
- Management reform and information society strategic transformations.

**Political will, leadership and commitment:** A general misunderstanding or misconception is that e-governance is about technology. In fact, we can visualize e-government from two interrelated and complementary angles namely techno-centric and governance-centric perspectives. Techno-centric e-government is associated with technocrats and technology vendors, and is the dominant model to-day. Governance-centric e-government is in the back yard of the whole issue. Most of current practices of e-government emphasize technology while rarely governance is given the attention it deserves. Balance between governance and technology is needed since technology is the enabling tool of e-governance. Imperative (OECD, 2003a) rightly asserts that e-government is about government rather than “e”.

**Inter-agency collaboration including:** Common frameworks for e-government plans and projects are necessary to ensure interoperability, maximize implementation efficiency and avoid duplication.

- Government agencies should have shared customer base
- Continuous review and evaluation of barriers to e-government implementation.
- Availability of shared infrastructure to provide a framework for individual agency initiatives.
- Availability of incentives to encourage collaboration, seamless service delivery and innovation.
- Encouragement of share good practice and common solutions

**Financing:** Availability of sufficient financial resources and mobilization of domestic and international support.

**Customer focus including:**

- E-government efforts should start from clear understanding of customer needs and be geared to satisfy these needs.

- E-government policies should improve customer’s access to online services.
- Customers should have variety of interactive (ONLINE) options to communicate with government as opposed to off line interactions.
- Availability of information quality policy and feedback mechanisms to enhance citizen participation in service improvements.

**Citizen engagement:** Citizen-centric e-government emphasizes citizen needs for effective and efficient public service and active participation in decision-making processes. Citizen involvement requires information communications, transparency and government responsiveness to public changing aspirations.

**Privacy:** Keeping personal and institutional information securely accessible for legitimate persons only.

**Responsibility and accountability:** There are several considerations that should be taken into account for responsible and accountable e-government including the following:

- Clear arrangements to ensure the responsibility for shared e-government projects and initiatives including private sector partnerships.
- Clear framework to monitor and evaluate the demand, costs, benefits and impact of e-government.
- Clear mechanisms to protect individual information privacy and rights. Privacy protection should allow for information sharing between agencies while preventing abuse.

Continuous Monitoring and evaluation mechanisms to assure effective and systematic implementation of e-government projects, plans and strategies at all levels and sectors.

Special sector-specific guiding principles should be identified to cope with special conditions and requirements of the different sectors.

Creating suitable environment and conditions that facilitate e-government projects implementation and progress including the following (Mahmood, 2009):

- Adequate funds should be made available.
- Building suitable infrastructure and standards.
- Organizational flexibility and adaptability.
- Management and employees support and readiness.
- Inter-organizational coordination.

**Practical experience and applications of e-government: Selected examples from Arab countries:** The potential for e-government in developing countries

is growing in varying degrees according to their human, organizational, technological, financial and other variables. Information Communications Technology offers considerable potential for the sustainable development of e-government. Nevertheless, e-government initiatives have flourished in some developing countries such as Brazil, India and Chile (Ndou, 2004).

Sustainable development requires many urgent adaptations in the new era of revolutionary changes in science and technology, information and knowledge. Developing countries must pursue a more active role in the formulation of national policies and strategies that promote the information economy and digital transformations. Different applications of e-government are considered an effective tool in this direction. However, these countries vary in their opportunities and obstacles towards this end. Some countries are faced by many administrative, technical, political, financial, social and economic limitations. E-government transformations are contingent upon country multidimensional readiness for change in this direction. E-readiness assessment includes analysis and evaluation of the status quo of the country resources including telecommunications networks, information technology, financial and human resources, legal-regulatory system, and service infrastructure. Other significant measures must be taken to facilitate the application of e-government transformations including (Ndou, 2004):

- Promoting public awareness of opportunities and constraints and pros and cons of e-government in the light of country e-readiness assessment.
- Careful selection of e-government projects: Gradual, step-wise, feasible, agile, and steady and selective pilot e-government projects. Agility and flexibility assure the success.
- Encouragement of inter-governmental and private sector collaboration and coordination at all national and international levels. Team effort is needed to cope with expected challenges and opportunities. It is also needed to seek support by private organizations, major donors, research institutions and universities.
- Human capital investment and development: Human resources education, training and development are the keys for successful e-government transformations.
- Inter-governmental integration and cooperation especially with regards to information technology applications in e-services, information exchange and security, accessibility, and effectiveness and efficiency of overall public management.
- Creation of effective and efficient national knowledge management system to ensure

information flow, access, storage, exchange and security. Such a system is necessary for effective, easy, rational, fast and reliable decision-making process.

The E-government Program of the Kingdom of Bahrain was launched by the deputy Prime Minister, H.E. Sheikh Mohammed bin Mubarak al-Khalifa on 23rd May 2007. The program scheduled to run over 3 years. It aims to effective delivery of government services to citizens, residents, businesses and visitors (government customers). Strategic target of the program is to make Bahrain the leader in EGovernment in the GCC and at least 5th best in Asia by 2010. The program attempts to improve the lives of nation's citizens by doing much more than simple implementing technology. Implementation of e-government aspirations requires collective teamwork among stakeholders and shared responsibilities and activities by multifunctional and multidisciplinary teams across the country, along with the strong leadership support. Government and concerned stakeholders should admit and address all legislative, regulatory, financial, technical and social obstacles. A common frameworks, infrastructure, vision and coordinated efforts should enhance the effective implementation of e-government projects. These projects subject to continuous monitoring and evaluating. An E-government Agency (EGA) has been established to ensure smooth execution of the program objectives within a defined framework. It will also provide support for issue escalation and a forum for knowledge sharing between various projects and stakeholders. Successful implementation of the program require common awareness of the program benefits, expectations and problems among stakeholder at national, regional and international levels. Therefore, the EGA has planned a marketing and public relations campaign. (<http://www.ega.gov.bh>).

The Government of Saudi Arabia gives high significance to the application of e-government concept and transformations. Accordingly, a Royal Decree dated (7/9/2003) included a directive to the Ministry of Communications and Information Technology (MCIT) to formulate a plan for providing government services and transactions electronically. Transformation to an information society cannot be achieved without comprehensive collaboration and concerted efforts to realize the set objectives. Therefore, the Ministry of Communications and Information Technology (MCIT) established the e-Government Program in conjunction with the Ministry of Finance and the Communication and Information Technology Commission (CITC). (YESSER) a Saudi Arabian E-government program which aims to reform public management by making easy, effective and efficient access to government services. It utilizes information technology to better serve the community

including government to government (G2G), government to business (G2B) and government to customers (G2C) services and communications (<http://www.yesser.gov.sa>).

Yesser strategic objectives are:

- Raising the public sector's productivity and efficiency
- Providing better and more easy-to-use services for individual and business customers
- Increasing return on investment (ROI)
- Providing the required information in a timely and highly accurate fashion

Jordan e-Government Program is a National Program initiated by his Majesty King Abdullah II. Aims to enhance the performance of government in terms of service provision, efficiency, accuracy, time and cost effectiveness, transparency, high level of customer satisfaction, cross-governmental integration, and overall improvement in public management image, style and attitude. The e-government program will support government transformation, using ICT tools to achieve the ultimate national goals. The Ministry of Information and Communications Technology (MOICT) was assigned to take the lead in implementing the e-government program, facilitating and providing support whenever needed to government entities. For this purpose, MOICT has established a Program Management Office (PMO) and hired subject matter experts in areas of project management, change management, technical management and support services, risk management, quality management and other competencies. The role of e-government program is to plan, facilitate, manage and supervise the implementation of Business Process Re-engineering (BPR), human performance development (including knowledge transfer and training), best practices, latest technologies and creating knowledge-based community (<http://www.jordan.gov.jo>).

Qatar ICT authority first annual report (ICT Qatar which was founded in 2005) highlighted number of priority policy areas, including telecoms liberalization, online government, e-learning, e-health, and small- to medium-sized enterprises (SMEs). Qatar's e-government program reached a landmark in 2008 with the launch of Hukoomi - the new one-stop shop portal for Qatar government entities. A government priority is to increase utilization of ICT by SMEs. In 2008 ictQatar launched several new program targeted at SMEs (with a small enterprise defined as 1-9 employees and medium as 10-99). The e-Business Pilot project is an 18 month program to help a selected group of SMEs by maximizing ICT use. According to ictQatar, a total of 21 e-business initiatives will be implemented by 2012. The government is implementing a major IT initiative in the healthcare area, namely the development of an integrated national health information platform. The new platform, launched in

Table 3: Characteristics of research sample

Characteristics	No.	%	
Job Title	Academic	80	16
	Administrative	160	32
	Student	260	52
Gender	Male	225	45
	Female	275	55
Education	B.Sc or Less	360	72
	Masters	80	16
	Doctorate	60	12
Age	25 Years or Less	280	56
	26-35	70	14
	36-45	65	13
	46- Above	85	17

Table 4: Respondents knowledge to use internet

Places where respondents learn how to use the internet	No.	%
IT education	160	32
IT training course	70	14
Personal practice	270	54
At home	440	88
At work	440	88
Internet café	60	12

2007, enables medical records and information to be accessed at the point of care. Qatar was one of the regional movers in the UN's most recent e-readiness survey. Qatar moved up four places to 32nd, due to government initiatives and expanding broadband penetration. The country performed even better in the e-government rankings, moving from 62nd to 53rd. In 2008 the government has launched a new e-services portal and is rolling out new initiatives in various areas (Market Research Report, 2009).

## FINDINGS OF FIELD SURVEY

**Sample:** A specially designed questionnaire has been randomly distributed to 600 individuals in Bahrain universities. The questionnaire has been refereed and evaluated by a number of colleagues and respondents before final distribution to the sample. 500 properly completed copies of the questionnaire have been returned. Table 3 shows characteristics of the sample.

Table 4 shows that vast majority of respondents (88%) use internet at both home and work for different purposes and services while only (12%) of them use internet Cafe to access internet .

Table 4 shows the source of education and training on internet knowledge and usage. Most respondents (54%) learned how to use the internet by personal practice and experience. Only (14%) of respondents have gotten IT training course and (32%) of them had IT education.

Table 5 shows respondent's types and purposes of usage of internet. Very high percentage of respondents (over 90%) use internet for the following purposes in order:

- Email (98%)
- General personal purposes (96%)
- Visit work intranet (96%)
- Visit different websites for variety of purposes (94%)

Second in importance, relatively high percentage of respondents (54-74%) are using internet for the following purposes in order:

- Visit e-jobs: Searching job opportunities sites (76%)
- Use the Internet as part of the job (74%)
- Use E-Learning tools (54%)

Respondents gave varying degrees of importance to other types and purposes of internet usage (5-38%) as follows in order:

- Visit e-library (38%)
- Visit chat rooms (36%)
- Visit e-government services (32%)
- Visit e-banking (26%)
- Have my own web page at workplace (24%)
- Have my own personal web page (7%)
- Visit e-shops (5%)
- Use mobile-computing services/m-government (5%)

Finally, high percentage of respondents (64%) are spending most of their weekly time (home & work) on internet with mean score of (3.2) on Likert Five Degree Scale .

Table 6 shown that respondents are using the three well-known search engines (Google, Yahoo, MSN) in high but varying degrees of significance in the following order:

- Google (96%)
- Yahoo (92%)
- MSN (90%)

In Table 7 respondents gave significant importance for these barriers as follows in order:

- Network problems (88%)
- Technical problems (84%)
- Time problems (78%)
- Financial problems (74%)
- Personal problems (72%)
- Control problems (66%)
- Security problems (58%)

In the light of the above mentioned barriers to internet usage, vast majority of respondents (82-96%) have suggested the following ways to improve internet usage among citizenry, in order (Table 8):

Table 5: Respondents usage of the internet

Usage	Meanscore	%
Weekly time spent on the internet	3.20	64
Use the internet for personal purposes	4.80	96
Use the internet as part of my job	3.70	74
Use the email	4.90	98
Visit different websites	4.70	94
Visit chat rooms	1.80	36
Visit e-banking	1.30	26
Visit e-government Services	1.60	32
Visit e-library	1.90	38
Use e-learning tools	2.70	54
Visit e-jobs : Searching job Opportunities sites	3.80	76
Visit e-shops	0.25	5
Have my own personal web page	0.35	7
Have my own web page at workplace	1.20	24
Visit my work intranet	4.80	96
Use mobile-computing services (M-government)	0.25	5

Table 6: Shows the major barriers to internet usage.

Search engine used	Mean score	%
MSN search engine	4.5	90
Yahoo search engine	4.6	92
Google search engine	4.8	96

Table 7: Search engine used by respondents

Major barriers to internet usage	Mean score	%
Technical	4.2	84
Financial	3.7	74
personal	3.6	72
Network	4.4	88
Control	3.3	66
Time	3.9	78
Security	2.9	58

Table 8: Major suggestions to improve internet usage

%	Mean score	Major suggestions to improve internet usage
94	4.7	Better internet technological solutions
90	4.5	Cost reduction of internet services
88	4.4	Personal training (Language, IT, etc.)
82	4.1	Less government internet control
86	4.3	More time to use the internet
84	4.2	More information internet security
96	4.8	Faster and reliable internet services

- Faster and reliable internet services (96%)
- Better internet technological solutions (94%)
- Cost reduction of internet services (90%)
- Personal training (Language, IT, etc.)(88%)
- More time to use the internet (86%)
- More information internet security (84%)
- Less government internet control (82%)

## CONCLUSION AND RECOMMENDATION

In the light of comprehensive literature review, practical applications and experience as well as the findings of the field survey on e-government, the study has come up with the following major results.

Major findings of this study are:

- Vast majority of respondents (88%) use internet at both home and workplace.

- Most respondents (54%) have learned to use internet by personal practice and experience while (34%) of them have gotten IT education or training.
- Most respondents (96%) use internet for Email and other personal purposes.
- Respondents mostly use Google, Yahoo, and MSN search engines in order.
- Respondents gave significant importance for seven barriers to internet usage including networking, technical, time, financial, personal, control and security problems in order.
- Respondents suggested some measures to improve internet usage including faster and reliable internet services, better technical solutions, cost reduction, training and education, improved internet security and less government control.

Major recommendations of the study are:

- Emphasis should be given to more research, conferences and exchange of practical experiences at all international, regional and local levels and private and government sectors.
- Strategic step-wise and sectorial applications of e-government along with continuous evaluation
- Top leadership commitment and support for e-government plans and projects.
- Sufficient funding and cost reduction and effectiveness.
- Improved overall IT education through schooling and training
- Citizenry involvement and serious engagement in national e- Government efforts.

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