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**An Evaluation
Framework for Saudi
E-Government**

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Abstract

E-government supports the integration of technology into the social structure to transform administrative

procedures to achieve a more effective form of government. Technological advances and the miniaturization of Information and

Communication

Technologies provide tools to enhance the diffusion of information and services to form part of an intellectual society serving citizens,

customers, and professionals. Global e-government evaluation reports, such as the Brown University global e-government report, ranked

the Saudi e-government at 72 in 2005, 98 in 2006, and 89 in 2007, while Saudi e-government jumped in the UN global ranking from 70 in 2008 to 58 in 2010. The

purpose of this research was to assess the current state of the Saudi e-government by evaluating its ministries' web sites using a citizen-centered e-

government approach. An interactive services e-government framework circumvents the limitations of existing evaluation frameworks examined in

the literature while simultaneously building on their strengths. This study's framework quantitatively assesses stages of the Saudi ministry e-government web

site and its problems. It was found that 8 (41%) of 21 ministries did not implement the main features of an e-government web site. In

addition, 10 ministries (45.4%) were completely or partially in the first stage (web presence); 3 ministries (13.6%) were in the second stage (one-way

interaction); and 6 ministries had no online service at all. These findings clearly demonstrate that the evaluated ministries were

not citizen-centered e-government web sites and lacked transactional services, resulting in citizen dissatisfaction and frustration.

Keywords: E-government
Framework; Web site
evaluation; Saudi e-
government; Yesser.

Introduction

All over the world, the
impressive power of
information and
communication technology

(ICT) and its technological advancements have influenced nearly every aspect of people's lives. It has transformed the way people learn, communicate,

and conduct business with the private sector as well as governments. ICT tools such as the Internet act as access methods to connect people. Although it took 75

years for the telephone to reach 50 million users after its invention, it took the World Wide Web only 4 years to reach the same

number of users (United Nations 2005).

Advances in ICTs are undoubtedly making cities increasingly knowledge-

based because city
development changes
according to activities in
the knowledge sector that
require different conditions
and environments than

commodity-based
manufacturing activities
(Baum, Yigitcanlar,
Mahizhnan, & Andiappan
2008). Many in the urban
development field view the

transformation of a city
into a knowledge city as
both a possible solution to
the sustainability
challenges of the modern
city and a recipe for

citizens' prosperity (Dvir 2005).

Governments are a dynamic mixture of goals, structures, and functions, and e-

government initiatives are complex change efforts intended to use new and emerging technologies to support a transformation in the operation and

effectiveness of
government (Riad et al.
2010). E-government is the
continuous optimization of
service delivery,
constituency participation,

and governance by transforming internal and external relationships through technology (Riad et al. 2010).

In 1990, the governments of the United States, Britain, Canada, and other Western countries led the world by putting their governments online (Lee, Tan, & Trimi

2005). In 2005, 179 (93.7%) of 191 member states were online (United Nations 2005). The Internet provides governments with the necessary tools to

enhance their diffusion of information and services. Thus, a new face of government can be seen through electronic web sites, which form “the

virtual state” or “the virtual government” (Fountain 2001). Certainly, the world is moving toward e-citizens, e-societies, and e-governments. Putting

citizens online, not in line,
is currently a reality and a
necessity for governments
that will improve the lives
of the people (Al-Kibsi,
Boer, Mourshed, & Rea

2001). The city of Tampere, Finland made a local effort to generate a citizen-centred knowledge society. Inkinen (2008) concluded that ICTs offer solutions to

overcome many problems related to the distribution of information. Major challenge for future design of end user services is the creation of relevant

contents. Technological development and enhancements require recognition of the social conditions underlying the access, skill, and motivation

of citizens to use the provided services beneficially. These issues are related to all of society, whose scope of change is much longer than that of

technological development.
The successful and
purposeful development of
digital governance is thus a
question of integrating
technology into a social

structure (Inkinen 2008).
Technological advances in
the miniaturization and
portability of ICTs suggest
that in the future, e-
government will form part

of an intelligence
environment in which
technology will surround
people and serve them as
citizens, customers, and

professionals (Pankowska
2008).

According to Abanumy,
Mayhew, and Al-Badi
(2003), e-government can

be classified into four categories: government to citizens (G2C), government to business (G2B), government to government (G2G), and government to

employees (G2E). This research focuses on citizen-centred e-government websites by evaluating Saudi e-ministries. An e-government framework

was developed for this research to assess e-government web sites by comparing existing evaluation frameworks described in the literature.

In recognition of the importance of implementing citizen-centred e-government and to fill a gap in the literature on Saudi e-government, this

research examines the current situation of Saudi ministries' web sites.

E-government

E-government includes government activities that take place over electronic communications among all

levels of government,
citizens, and businesses to
deliver products and
services; placing and
receiving orders; providing
and obtaining information;

and completing financial transactions (Riad et al. 2010). E-government is not merely an automation of government services and a dissemination of public

information online but is a radical transformation of government, technology, and administrative processes that has the potential to change the way

that services and information are presented to citizens (Information Society Commission 2003).

There are numerous definitions describing e-government concepts. They all primarily concentrate on two important axes: the use of ICT by governments as a

new way of delivering services and information and citizen-centred e-government. For example, the United Nations defines e-government as

government utilization of
the Internet and the web to
deliver information and
services to citizens
(Abanumy & Mayhew
2005). Curtin, Sommer, and

Vis-Sommer (2003) defined it as the government's usage of any and all forms of ICT to enhance the delivery of public information and services,

engagement of citizens, and public participation. If a web definition for e-government services is necessary, it can be understood as the

information and services provided to the public on government web sites (Wang, Bretschneider, & Gant 2005).

The current thinking on e-government focuses on great quality and efficiency in public services by being more knowledge-based, user-centric, distributed,

and networked
(Pankowska, 2008). The
vision of e-government in
the European Union in the
next decade places e-
government at the core of

public management
modernization and reform,
where technology is used
as a strategic tool to
modernize structures,
processes, the regulatory

framework, human
resources, and the culture
of public administrations to
provide better government
and ultimately increase

public value (Pankowska 2008).

E-government is more about government than about “e”. For example,

Benkert (2007) stated that e-government is 80% “government” and 20% “e”. The technical part is the easiest component of e-government; therefore,

governments must reengineer their internal structure and reorganize their administration (Mehra 2005). A major challenge for governments

involves how they see, manage, and respect citizens and effectively serve them equally.

Consequently, many see e-government as a necessary

reform tool that eliminates
corruption, develops
democracy, saves time,
increases efficiency,
enhances ICT
infrastructure, and

improves the quality and quantity of services. In this context, information is not a secret but rather a public right and asset. Citizens demand and expect quick

diffusion of valuable information 24 hours a day, 7 days a week, through a high-speed Internet connection, which reduces costs for both the

government and citizens
and builds trust between
them (Kaaya 2003; Lee,
Tan, & Trimi 2005; Wang,
Bretschneider, & Gant
2005). A knowledge city's

creativity and appeal are reflected in the effectiveness and quality of its web site development, which meets citizens' needs and expectations

(Ergazakis, Metaxiotis, & Psarras 2006).

The development of e-government evaluation frameworks began around

2000 (Hu, Xiao, Pang, & Xie 2005). The four frameworks most cited in the literature from official organizations, consultants, and universities are as

follows (Hu, Xiao, Pang, & Xie 2005; Peters, Janssen, & Engers 2004):

- 1) United Nations (2002):
applied worldwide

- 2) Accenture (2000):
applied to 22 developed
countries

- 3) Brown University
(2001): applied
worldwide

4) Capgemini Europe
(2002): applied to
European countries

Researches such as the e-
Europe benchmarking

project, the UN research of benchmarking government, the Brown University study, and the Accenture study of e-government benchmarking have ranked

countries for e-government implementation (Sharma 2004). However, these studies are media hype and proclamations such as “Country X is ranked

behind in e-government” or
“Country Y leads in
international e-government
race”. They do not account
for many important
measures of e-government

implementations that are significant in the full scope of an e-government framework (Sharma 2004).

E-Government in Saudi Arabia

Today, new global standards of governance are emerging, and citizens

of developing countries are demanding better performance and more accountability from their governments while becoming increasingly

aware of the costs of poor management and corruption (Nair 2009). The 2011 riots and uprisings in the Middle East are a testament to how far their

citizens may go to demand accountability from their governments. An example of a developing country is the Kingdom of Saudi Arabia, where the majority

of citizen services are provided by government offices with the same office hours as educational institutions and private companies. Citizens

frequently need to be excused from work and must wait in long lines for hours or even days to finish their paperwork. This dilemma is even more

difficult for a woman
because she needs her legal
guardian or a hired agent
with her to enter a
government office. E-
government promises to

eliminate diminished productivity, frustration, and wasted effort, time, and money. With several clicks, citizens can perform their tasks whenever and

wherever they want at their convenience 24 hours a day, 365 days a year.

Therefore, in this unique Saudi culture, e-government is a necessity,

not a luxury. Further, given that most of the Saudi population has little experience with the Internet, it is more important to design citizen-

centred web sites that
promote higher acceptance
and create more positive
attitudes toward e-
government.

In 2001, the Saudi government established the Telecommunication Commission. In 2003, the Ministry of Communication and Information

Technology was created (Al-Sabti 2007). It was necessary to specify standards and implement guidelines for e-government projects

through the development of the e-government program “Yesser” in 2003 (Abanumy & Mayhew 2005). The program was officially launched in 2005 (Al-

Suwail 2007). Yesser is an Arabic word that means “to make it easy”.

Consequently, Yesser will provide services and information easily to all

Saudis and residents. It serves as an enabler and facilitator for transforming the public sector into the information society, whereas government

agencies are responsible for the actual execution of their own web sites (Al-Sabti 2007). In 2007, the beta version first phase of

the national e-government portal was launched.

According to the National e-Government Strategy and Action Plan (Yesser 2006),

the Saudi government made the following vision statement: “By the end of 2010, everyone in the Kingdom will be able to enjoy—from anywhere and

at any time—world-class government services offered in a seamless, user-friendly and secure way by utilizing a variety of electronic means”. The

vision has 10 specific objectives that can be achieved through the implementation of the aforementioned initiative and are addressed with

three themes: providing better services, increasing efficiency and effectiveness, and contributing to the country's prosperity.

The National e-Government Strategy and Action Plan (Yesser 2006) also describes the e-government model to be followed during the initiative as the

“integrator” model. In this model, the goal of providing better government services to the user is achieved by putting the user at the centre of all services and

thinking of government as a service provider for a customer.

To implement such a model, services that may

involve more than one
government agency are
integrated across the
agencies involved,
providing users with a one-
stop shopping experience

when using the services in question. As a result, they no longer have to contact all agencies involved, one after the other, to confirm their identity and enter the

same data several times.
The plan suggests that
because the integrator
model incorporates
services across various
government agencies, its

complexity is high;
therefore, implementing it
requires both the ability to
change internally within
one agency as well as in
coordination with other

government agencies and
the willingness to
standardize, integrate, and
share data.

According to the action plan document, the projects to be implemented under the first National e-Government Strategy and Action Plan (Yesser 2006)

are structured along the components of the e-government initiative, which has five components:

1) A vision and objectives component to guide the initiative.

2) An e-services component to put into place world-

class user-centric
government services
aimed at redesigning, e-
enabling, and
implementing improved
government services.

3) A national application component to provide major cross-departmental applications as a catalyst for increasing efficiency

and effectiveness
comprising three major
government-wide
applications: e-
procurement to
implement a

government-wide
electronic purchasing
platform; government
databases to make
available data already
stored in several

government databases;
and government
correspondence to
implement a
government-wide system
for the electronic

exchange of messages
and documents.

4) An infrastructure
component to build a
strong and reliable

infrastructure for
enabling e-services and
national applications
containing several
different projects,
including an e-

government network to
implement a network
infrastructure and
establish standards for
data exchange; an
integration infrastructure

to implement an integration bus, shared services (user authentication, user authorization, payment gateway), and a user

interaction toolkit; an e-government portal to offer a single point of access to e-services and information about them; an intranet portal to offer

a single point of access to
internal government
services and information;
e-services shared data to
facilitate data sharing
between government

agencies; and an interoperability framework to define common standards and protocols for data exchange.

5) An organization component both to provide appropriate governance and funding model and to address

change management
issues.

The Saudi e-government
budget was close to \$3
billion for a five-year plan

created in 2006 (Yesser 2006). By the end of 2010, the vision of the Saudi e-government was to have created 150 top-priority services available to all

citizens and residents 24 hours a day, 7 days a week, with a 75% usage level and an 80% user satisfaction rating (Al-Suwail 2007).

E-readiness in Saudi Arabia

The United Nations (UN)
Telecommunication
Infrastructure Index of

Saudi Arabia scores for 2003, 2004, 2005, and 2008 were as low as 0.119, 0.139, 0.145, and 0.2110, respectively. In 2000, only 200,000 Saudis of a

population of 24,069,943 were using the Internet, but by 2007, the figure had increased to 2,540,000 users. That represented 10.6% of the Internet

population penetration, whereas the usage growth was high—approximately 1,170.0%. In 2011, Internet usage is at more than 90% in the United States and the

Scandinavian countries and nearly 70% for neighbouring United Arab Emirates and Israel. Thus, Saudis should be optimistic about the promise of

technology use in the country because by 2011, Internet usage growth reached 11,400,000, or 46% of the current estimated population of

26,131,703 (Internet World Stats, 2011).

In global e-government evaluation reports, the Saudi E-government

performance is ranked poorly. For example, the UN global e-government reports for 2003, 2004, and 2005 ranked Saudi Arabia 105th, 90th, and 89th,

respectively, out of 191 total countries (Lanvin 2007) while dropping from 70 in 2008 to 58 in 2010 (UN 2010). Using different criteria, a Brown University

global e-government report showed that Saudi Arabia was ranked 30th in 2004 with a score of 30.7, 72nd in 2005 with a score of 27.4, 98th in 2006 with a

score of 27.9, and 89th in 2007 with a score of 30.9 (West 2004, 2005, 2006, 2007). From 2003 to 2005, a regional e-government comparison showed that

the Saudi ranking was low compared to other Arab countries, such as Bahrain, the United Arab Emirates, and Jordan (Murphy 2007).

E-Government Evaluation Frameworks

An evaluation framework for e-government must classify the site content and

focus on the important and critical factors that influence the success of e-government. Based on e-government definitions, the critical component of e-

governance is online services (Holzer & Kim 2005). Hence, providing online services to citizens is the true start of e-government. Nevertheless,

in this context, unrelated services and internal services of the agencies (G2E) are excluded.

Another important factor to be considered is the web

site-driven interaction
between the user and the
government, such as that
used by the Accenture
framework and the
European framework.

Some e-government agencies may take a few features from different e-government phases; therefore, they cannot be ranked correctly in any of

the UN phases because they did not complete a single phase. It is also not useful to put two sophisticated major functions together in one phase. For example, the

transaction was a phase that contained online forms and e-payments at the same time. Both required advanced technologies and were considered two major

developmental steps that e-governments seldom reach simultaneously.

Moreover, the Accenture model assigns a large

weight (70% of the overall maturity of e-government) to service maturity, which is the product of service breadth (number of online services) or service depth

(level of completeness).
The problem with this framework is that it only focuses on 22 countries, omitting numerous countries around the world

(Holzer & Kim 2005).

Similarly, the study performed by Capgemini on behalf of the European Commission was limited to

European Union nations
(Holzer & Kim 2005).

According to Brown
University (West 2007),
methodology for ranking

countries was 72% based on web site features and 28% on online services, where each of the 18 web site features was given four points, only one point was

credited for each online service. By assigning too little weight to online services, researchers using this framework underestimated that such

services are at the heart of e-government. It was unreasonable to equate a government web site offering 28 services with another web site offering

hundreds of services
because the maximum
number of points that could
be awarded was 28.

Another limitation of the Brown methodology was that the researchers decreased their measurement criteria over the years. In 2001, 2002,

2003, 2004, 2005, and 2006, the measures were 24, 25, 20, 19, 19, and 18, respectively (Holzer & Kim 2005; West 2006).
Consequently, there were

inconsistencies in Brown University's annual rankings. For example, Korea fluctuated in the rankings as follows: 45th in 2001, 2nd in 2002, 87th in

2003, 32nd in 2004, and 86th in 2005. The significant variations in the rankings can be attributed to the limited number of measures and not using

native speakers of the languages in which the evaluated web sites were written.

Research Methodology

To assess the status of a country's or city's e-government project, the first step is to evaluate the

e-government web sites by analysing the main features of the site based on the definition of e-government and the requirements of Yesser. An interactive

services e-government
framework for assessing e-
government web sites was
developed for this research
based on the types of
services, basic web

features, and the Accenture and European frameworks. The framework developed quantitatively assessed the stages of each Saudi

ministry web site and their resulting problems.

To determine the number of ministries, data from Yesser was used. Although

there are 22 ministries in Saudi Arabia, only 21 ministries had web sites during the research period. Careful inspection and analysis of the 21 ministry

web sites was conducted twice by following all the internal and external links provided on the web site.

To compare the web sites, the framework developed for this research included five stages:

- **Stage 1: Web presence.**
Each element that contains static information in the native language and any number

of contact information
receives a score of 1.

- **Stage 2: One-way**
interaction. Each element
that contains offline

services, such as offline forms and information services, receives a score of 2.

- **Stage 3: Two-way** interaction. Each online service, such as online forms, receives a score of 3. The number of online forms or online services

is considered because this stage is the true start of e-government.

- **Stage 4: Transaction.**
Each transactional

element receives a score of 4 for each transaction, such as e-payment services.

- Stage 5: Integration. Each element receives a score of 5 for each integration service, such as those processed through a one-stop government portal.

Further, the following important features are added to the interactive services e-government framework according to

specific criteria and justifications:

- 1) The search feature was added and was worth 3

points for the following reasons:

a. It is considered a two-way interaction;

*b. Nielsen and Tahir
(2002) considered
search as an essential
recommendation in
designing web pages*

and assigned it a 3-point rating; and

c. Yasser's guidelines, approved by the Saudi Ministry of

Communications and Information Technology (MCIT 2006), required the presence of a powerful search function in the site as

*minimum recommended
web site content.*

d. *The search receives 0
points if no functioning
search exists.*

2) The site map receives 2 points because it is one-way interaction. In addition, Nielsen and Tahir (2002) considered it to be a strong

recommendation for web pages and assigned it a 2-point rating.

- 3) The native language of the site deserves 1 point

because it is the mother tongue comprehended by all citizens.

- 4) Average load time was assigned a score of 0

because this aspect was more dependent upon the speed of the processor and the type of connectivity than a

function of a ministry
web site.

- 5) Five or more broken
links resulted in a
deduction of 1 point

from the overall ministry score. The WebXACT program, a free online service, counted these broken links.

Saudi Ministries' Web Site Evaluation

In light of the interactive
services e-government
framework developed for

this research, the different ministries' web site content was counted and analysed. Some measures of the framework were checked for their existence, absence,

or efficiency whereas other features were counted as occurrences. Therefore, each ministry was evaluated for the following (Zahran 2008):

- 1) The number of online and offline forms.
- 2) The number of contacts.

3) The number of online and offline services and whether related or unrelated to the purpose of the web site.

- 4) The number of the related information services provided.
- 5) The availability of a site map and the search

function and whether it works effectively.

6) The main language of the web site.

- 7) The average load time.
- 8) The number of broken links as a deduction from the total score.

In analysing ministry web site content, 8 of the 21 sites were disregarded due to lack of services to citizens, English-only web sites, too many broken

links, or a web address that did not end with gov.sa.

Thus, from the initial selection of 21 ministry web sites, only 13 were examined; 41% of the web

sites were excluded from further evaluation.

Based upon the interactive services e-government framework and the e-

ministries content data, the researchers determined the e-government stage that was reached by each of the 13 ministry web sites along with its overall score. A

ministry reached and completely covered a certain e-government stage only if it fulfilled all of the required features. On average, the majority of the

13 ministry web sites covered only stage 1 and had a limited range of stage 2 and 3 features, as shown in Table 1.

Table 1: Evaluation of the Remaining E-Government Saudi Ministry Web Sites

Please see Table 1 in full PDF version

Combining all of the information from the 21 e-ministries, the current situation of the e-government in Saudi Arabia based on this framework's

five stages is as follows
(Table 2):

- 1 ministry did not have a web site.

- 8 ministries did not implement a true e-government web site, which means that either the site did not end with .gov, was in English only

or was too erroneously programmed.

- 10 ministries were completely or partially in stage 1.

- 3 ministries were in stage 2.
- There were no ministry web sites that qualified for stage 3, 4, or 5.

Table 2: Status of the Saudi Ministry Web Sites

**Please see Table 2 in full
PDF version**

Saudi ministry web sites are still in the early stages of e-government, primarily stage 1, with a low rate of progress. In addition to the above findings, there were

no online forms available in any web site, and most ministries had problems with regard to search, site map, information services, and online services.

These findings clearly demonstrate a serious problem for Saudi e-government web site development. The results of this study also confirm

Abanumy and Mayhew's (2005) conclusion that the UN model could not be applied correctly to Saudi e-government web sites because they covered

varied elements from
different e-government
stages.

Conclusion

E-government is the gateway for the public to access information and services. E-government

web sites should promote citizens' trust in their government. With the increasing growth of Internet penetration and usage in Saudi Arabia, e-

government is quickly gaining solid ground. Unfortunately, the Saudi e-government project faces many problems. From 2003 to 2010, out of 191

countries, the UN ranked the Saudi e-government 105th, 90th, 89th, 70th, and 58th in 2010. Brown University ranked the Saudi e-government 30th in 2004,

72nd in 2005, 98th in 2006,
and 89th in 2007.

An evaluation framework
for e-government must
classify the site content and

focus on the important and critical factors that influence the success of e-government, yet the UN, Accenture, Brown University, and the

Capgemini Europe
framework all have
limitations. An interactive
services e-government
framework for assessing
citizen-centred e-

government web sites was developed for this research based on online presence, the types of services, basic web features, and the Accenture and European

frameworks. The framework developed quantitatively assessed the stages each Saudi ministry web site and their resulting problems.

This research on the Saudi e-government focused on Saudi ministry web sites because they provide the most services citizens need and because most

government agencies belong to one of the ministries. This research's e-government framework evaluated the current Saudi ministry e-government

status through their web sites.

Based on the results of this research, Saudi ministry web sites are still in the

early stages of e-government, primarily stage 1. Nine ministries (41%) did not implement a true e-government web site; one had no site at all,

ten (45.4%) were completely or partially in the first stage, and three (13.6%) were in the second stage. The second stage was the most advanced stage

reached by any single ministry. Important web elements were missing or not working efficiently, such as search, site map, and contact links. Errors

were also frequently encountered, such as a network or server error, broken links, pages under construction, non-active links, empty white pages,

and pages that could not be found. These errors led to user frustration and dissatisfaction and reduced the credibility of the site's services.

The vision and expectation of the Saudi e-government program and the Ministry of Communications and Information Technology is that government web sites

provide 150 services with a 75% usage level and an 80% user satisfaction by 2010. As a result, ministries and the Yesser program must make major

improvements to reach this goal. However, Saudi citizens have begun to sense and enjoy a shift in their daily lives toward using modern technologies

and taking advantage of up-to-date information on the World Wide Web. In fact, the Saudi government possesses assets that can put it on the right track

within the e-society and make its mark in the knowledge age. Reaching the expectations of the Saudi e-government seems challenging based on the

current slow growth of e-government services.

Nevertheless, it is manageable through extensive work of ministries with close

supervision from the
Ministry of
Communications and
Information Technology. E-
government must pursue
its mission and continue its

efforts because the success of any e-government depends considerably upon the extent to which the web site content is usable,

useful, service-oriented,
relevant, and current.

References

Abanumy, A. & Mayhew, P.
(2005). "Information
Provision Assessment and
Difficulties @ ministries

web site.gov.sa," [Online],
paper presented at the
eGovernment workshop '05
(eGOV05) Brunel
University, September 13,
2005, West London, UK,

[Retrieved December 19,
2007],
[http://uxisweb1.brunel.ac.
uk/iseingsites/egov/eGOV
05/Source%20Files/Paper
s/CameraReady-21-P.pdf](http://uxisweb1.brunel.ac.uk/iseingsites/egov/eGOV05/Source%20Files/Papers/CameraReady-21-P.pdf).

Abanumy, A., Mayhew, P. & Al-Badi, A. (2003). 'An Exploratory Study of E-Government in Two GCC Countries,' Paper presented at the 2003 International

Business Information
Management Conference,
Cairo, Egypt, 16-
18/12/2003, 2003.

Al-Kibsi, G, de Boer, K,
Mourshed, M. & Rea, N.
(2001). "Putting Citizens
on-Line, Not in
Line," *McKinsey Quarterly*,
2, 64–73.

Al-Sabti, K. (2007). 'The Saudi Government in the Information Society,' Proceedings of the national e-transactions conference, Al-Riyadh, Saudi Arabia.

Al-Suwail, M. (2007) 'E-government Program', Proceedings of the national e-transactions conference, Al-Riyadh, Saudi Arabia.

Baum, S., Yigitcanlar, T.,
Mahizhnan, A. &
Andiappan, N. (2008). "E-
Government in the
Knowledge Society: The
Case of Singapore," in T.

Yigitcanlar, K. Velibeyoglu,
and S. Baum (ed.). Creative
urban regions: Harnessing
urban technologies to
support knowledge city

initiatives, Hershey, PA: *IGI Global*.

Benkert, C. (2007). 'E-government: A Way to Transform Traditional

Government,' Proceedings
of the national e-
transactions conference
2007, Al-Riyadh, Saudi
Arabia.

Bermudez, J. R. R. (2007).
"E-government City
Models: Cases from
European Cities," [Online],
Barcelona City Council,
Chief Information Office

with the Collaboration of
EUROCITIES, [Retrieved
November 14, 2009],
<http://www.epractice.eu/files/media/media1724.pdf>.

Curtin, G. G., Sommer, M. H.
& Vis-Sommer, V. (2003).
The World of E-
government, Binghamton,
NY: *The Haworth Press*.

Dvir, R. (2005). "Knowledge City Seen as a Collage of Human Knowledge Moments," in: F. K. Carillo (ed.). Knowledge cities: Approaches, experiences,

and perspectives, Oxford,
UK: Butterworth-
Heinemann.

Ergazakis, K., Metaxiotis, K.
& Psarras, J. (2006). 'An

Emerging Pattern of
Successful Knowledge
Cities' Main Features,' in F.
K. Carillo (ed.). Knowledge
cities: Approaches,
experiences, and

perspectives, Oxford, UK:
Butterworth-Heinemann.

Fountain, J. (2001).
'Building the Virtual State,'

Washington, DC: *The
Brookings Institution Press.*

Holzer, M. & Kim, S. (2005).
“Digital Governance in
Municipalities Worldwide,”

[Online], United Nations
Public Administration
Network, [Retrieved June
11, 2007],
[http://unpan1.un.org/intra
doc/groups/public/docum](http://unpan1.un.org/intra
doc/groups/public/docum)

ents/ASPA/UNPAN022839.
pdf.

Information Society
Commission. (2003). 'E-
government: More than an

Automation of Government Services,' [Online], [Retrieved July 20, 2007], <http://www.isc.ie/downloads/egovernment.pdf>.

Inkinen, T. (2008).
'Challenges to Digital
Governance in a City,' in T.
Yigitcanlar, K. Velibeyoglu,
and S. Baum (eds.).
Perspectives on e-inclusion

in Tampere, Finland,
Hershey, PA: *IGI Global*.
Internet World Stats.
(2009). [Online], [Retrieved
September, 2010],

<http://www.internetworldstats.com/>.

Internet World Stats.
(2011). [Online], [Retrieved
September, August, 2011],

<http://www.internetworldstats.com/stats5.htm>.

Kaaya, J. (2003).

“Implementing E-Government Services in

East Africa: Assessing
Status through Content
Analysis of Government
WebSites," *Electronic
Journal of e-Government*, 2
(1). 39–54.

Lanvin, B. (2007). 'E-government and Administrative Reform,' Proceedings of the national e-transactions conference

2007, Al-Riyadh, Saudi Arabia.

Lee, S., Tan, X. & Trimi, S. (2005). "Current practices of Leading E-Government

Countries," *Communications of the ACM*, 48 (10). 99–104.

MCIT, (2006). Guidelines for Design and

Management of Public
Sector WebSites. [Online],
[Retrieved July 21, 2007],
[http://www.yesser.gov.sa/
documents/Guidelines_for_](http://www.yesser.gov.sa/documents/Guidelines_for_)

Government_Web
sites_en.pdf.

Mehra, S. (2005). A
Framework for Assessing
E-Government Activities via

WebSites Analysis,
University of Leeds,
[Online], [Retrieved July 21,
2007],

<http://www.comp.leeds.ac.uk/mscproj/reports/0405/mehra.pdf>.

Murphy, T. (2007). 'E-transactions in the KSA

Progress and Issues,'
Proceedings of the national
e-transactions conference,
Al-Riyadh, Saudi Arabia.

Nair, P. (2009). "An IT
Technical Framework for E-
Government: Based on Case
Study in Indian Context,"
Electronic Government, an

International Journal, 6 (4).
391–405.

Nielsen, J. & Tahir, M.
(2002). 'Homepage
Usability: 50 Web Sites

Deconstructed,'
Indianapolis, IN: *New Riders
Publishing.*

Pankowska, M. (2008).
“National Frameworks’

Survey on Standardization
of E-Government
Documents and Processes
for Interoperability,”
*Journal of Theoretical and
Applied Electronic*

Commerce Research, 3 (3).
64–82.

Peters, R. M., Janssen, M. &
Engers, T. M. V. (2004).
“Measuring E-government

Impact: Existing Practices
and Shortcomings,”
Proceedings of the 6th
international conference on
Electronic commerce,

October 25-27, 2004, Delft,
The Netherlands.

Riad, A., El-Bakry, M. & El-
Adl, G. (2010). "A Novel DSS
Framework for E-

Government,” *International Journal of Computer Science Issues*, 7 (6). 33–37.

Sharma, S. (2011).

“Assessing E-Government

Implementations,"
*Electronic Government, an
International Journal*, 1 (2).
198–212.

United Nations (2003). "UN
global E-Government
Survey 2003," [Online],
United Nations Division for
Public Administration and
Development Management,

[Retrieved July 20, 2007],
[http://unpan1.un.org/intra
doc/groups/public/docum
ents/un/unpan016066.pdf](http://unpan1.un.org/intra
doc/groups/public/docum
ents/un/unpan016066.pdf).

United Nations (2004).
"Global E-Government
Readiness Report 2004:
towards Access for
Opportunity," [Online],
United Nations Division for

Public Administration and
Development Management,
[Retrieved July 20, 2007],
[http://unpan1.un.org/intra
doc/groups/public/docum
ents/un/unpan019207.pdf](http://unpan1.un.org/intra
doc/groups/public/docum
ents/un/unpan019207.pdf).

United Nations (2005).
Global E-Government
Readiness Report 2005
from E-Government to E-
Inclusion. [Online], United
Nations Division for Public

Administration and
Development Management,
[Retrieved July 20, 2007],
[http://ec.europa.eu/idabc/
servlets/Doc?id=23829](http://ec.europa.eu/idabc/servlets/Doc?id=23829).

United Nations (2010).
World E-Government
Rankings, [Online],
[Retrieved March 10,
2007],
<http://unpan1.un.org/intra>

doc/groups/public/docum
ents/un-

dpadm/unpan038848.pdf.

Wang, L., Bretschneider, S.
& Gant, J. (2005).

“Evaluating Web-based E-

Government Services with
a Citizen-Centric
Approach,” Proceedings of
the 38th annual Hawaii
international conference on

system science, Hawaii:
IEEE.

West, D. . (2004). "Global E-
government 2004," Brown
University, [Online],

[Retrieved June 10, 2007],
<http://www.insidepolitics.org/egovt04int.html>.

West, D. (2005). "Global E-government 2005," Brown

University, [Online],
[Retrieved June 10, 2007],
<http://www.insidepolitics.org/egovt05int.pdf>.

West, D. (2006). "Global E-government 2006," Brown University, [Online], [Retrieved June 10, 2007], <http://www.insidepolitics.org/egovt06int.pdf>.

West, D. (2007). "Global E-government 2007," Brown University. [Online], [Retrieved August 13, 2008],

<http://www.insidepolitics.org/egovt07int.pdf>.

Yesser. (2006). 'The National E-Government Strategy and Action Plan,'

The Saudi Ministry of
Communications and
Information Technology,
[Online], [Retrieved June
10, 2007],
<http://www.yesser.gov.sa/>

english/documents/National_E-Gov_Action_Plan_(F).pdf.

Zahran, D. (2008) 'A Usability Evaluation

Framework for Saudi E-Government WebSites,”
Master’s thesis, King
Abdulaziz University.