

Measuring E-Readiness Assessment in Saudi Organisations Preliminary Results From A Survey Study

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Abstract: *Information and communication technologies (ICT) hold the promise of accelerating growth and improving the quality of life of many people around the world, particularly in the developing countries. Since the Internet became available for commercial use in the early 1990s, virtually all countries of the world, even the least developed, have had some form of Internet access. [Talero & Gaudette, 1996]*

Extensive studies have been conducted by commercial organisations in order to assess the e-readiness of developed countries but only limited work has been done to assess the progress towards e-readiness in developing countries. This is especially so in the Arab nations, although such studies are arguably more important given the currently low levels of development in these countries.

This paper presents the finding of the interviews and concentrates on the results of those interviews within the both public and private organisations in the Kingdom of Saudi Arabia.

Keywords: E-Readiness Assessment, developing countries, e-commerce, global economy, digital divide, ICT, e-government.

1. Introduction

Information and communication technologies (ICT) have been a key engine for the performance and growth of economies since the early 1970's, becoming perhaps the main technological enablers of economic globalization. More recently, these technologies were accepted as effective tools to help advance human development.

Developing countries are also making significant contributions; many have begun to take steps to improve their national information infrastructures, and to create an environment conducive to ICT growth. [de Villiers & Xinhuan, 2001] In order to gauge progress and to proactively address stumbling blocks, it is important that countries conduct periodic assessments of their performance in areas that are critical for participation in the information economy. [Computer System Policy Project (CSPP), 2000]

Technological development is one of the most important characteristics of our age and every new development changes our lives to some extent. However, one particular development, the Internet, has the potential to create massive discontinuities in both local and global societies. [Luna-Reyes & Maxwell, 2003] Deriving benefit from the Internet depends upon widespread access to, and utilization of that information, via the communication networks. This problem of equitable information distribution has been called *the information gap* [Berry, 2000]. One potential change, according to many experts and analysts, is the narrowing, if not the complete closing, of the technological and socio-economic gaps that have existed for centuries between the developed and the developing countries.

Developing countries have realized that if they fail to provide an adequate infrastructure and knowledge base, then they risk falling behind both economically and socially in the emerging

networked world. In this context, e-readiness assessment methods and tools can help in the formulation of national action plans for both developed and developing countries.

There are many factors which contribute to the e-readiness of a nation but it is important to determine through data based investigations the factors which actually contribute to the e-readiness progress of a nation, particularly in the developing countries. Although there are e-readiness assessment methods which have been used to assess some Arab countries, they have concentrated on different goals and their results are not made public. For example, the Kingdom of Saudi Arabia has been assessed by six e-readiness methods such as McConnell International Ltd. (MI), M-N & CIDCM, the Mosaic Group (MG), the Centre for International Development at Harvard University (CID), but they all focused on different aims and had different results from their assessments.

There is a need to develop a comprehensive e-readiness assessment method for use in developing countries. Therefore, research should be carried out to investigate the issues that impact on e-readiness assessment and the steps needed for improvement. The author focuses on Saudi Arabia as an example of a developing country with the aim of developing a new framework for assessing its e-readiness.

This study has been conducted in order to identify and examine processes employed in Saudi private and public organisations and any factors that hinder such organisations in assessing their e-readiness assessments effectively. Thirty ICT Managers were interviewed in order to ascertain their views on e-readiness assessment issues and the factors which affect the measurement of e-readiness in the kingdom of Saudi Arabia.

This paper investigates the crucial factors for constructing a new framework which can be applied to nations in a similar stage of development and will address the factors that are most important in order to evaluate and improve e-readiness.

2. E-Readiness Assessment and the Limitations of Existing E-Readiness assessment Methods:

There are various definitions of e-readiness and different tools of assessment are used depending on their goals and results [Al-Solbi & Mayhew, 2003; Info.Dev, 2001]. It is important to clarify the definition of e-readiness assessment before proceeding with any assessment. E-Readiness has been defined in different ways, e.g. e-readiness refers to a country's ability to take advantage of the Internet as an engine of economic growth and human development, [Global Internet Policy Initiative (GIPI), 1998]. The objectives, goals and related factors to an assessment should all be carefully identified.

Many governmental and international organizations have created tools which either measure e-readiness or come in the form of self-assessment tools for countries to use themselves. [Bui 2003] The assessment methods and tools use widely varying definitions of e-readiness but they have all been developed to measure the e-readiness of a nation. Each tool has different objectives, data, and gives different results, so there are no assessment tools that are exactly alike. [Brideg.Org 2001, Al-Solbi & Mayhew 2003]

Very few studies have been conducted to identify the empirical factors that most contribute to an e-readiness assessment for developing countries, especially Arab countries. Each country has its own unique set of e-readiness factors. National policies regarding information infrastructure and e-commerce development have often been strikingly similar, but each nation should identify its own e-readiness factors. [Corrocher & Ordanini, 2002]

The problem becomes slightly more straightforward if the application area is narrowed down for use purely in developing countries. It may be possible to reduce the range of categories that are

assessed. What is clear is that the tool needs to be aimed at improvement rather than purely at assessment. In addition, it needs to be able to be applied correctly by people within the country, rather than relying solely on outside experts. In this way the expertise can be built up more quickly and hence the country's e-readiness can be enhanced.

There remains much work to be done in order to establish the requirements of such an e-readiness tool for use specifically in developing countries. However, if important aspects are left unaddressed, the results cannot be expected to provide improvements in those omitted areas. [Al-Solbi & Mayhew 2003]

The discussion above leads to these two questions:

- What are ranges of factors that influence e-readiness?
- How can the new tool meet the developing countries' needs and improve their e-readiness?

3. Study of Framework:

A special framework is being developed for use in this study. The framework has been specifically designed to meet the needs of developing countries, particularly Arab nations, which have not been well covered in previous e-readiness assessment studies. Where such studies have been done. The results have not always have published [e.g. McConnell International LLC (MI)].

The framework developed for this research naturally owes much to existing e-readiness tools. A number of critical factors and variables are used as a basis in the majority of these tools. These factors include ICT infrastructure, access to skilled workforce, knowledgeable people, culture and content, e-governance and policy, e-economy, competitiveness, e-health and cost of living.

4. Research Objectives and Approach:

The overall objective of this paper is to investigate how e-readiness assessment is carried out within both private and public organisations in the Kingdom of Saudi Arabia. It will also aim to identify the motivations and benefits of conducting an e-readiness assessment and will identify the main factors that may inhibit e-readiness from succeeding as expected.

Qualitative research undertaken in this paper by interviews is a very useful tool to explore issues that cannot be achieved by using the questionnaire methodology. The main benefit of the interview methodology that has been used in this research is to explore the opinions of the ICT managers/chief executives about issues that have not been fully covered in the questionnaire methodology. It also helps the researcher to understand directly from those specialists the current situation and future perspective of the ICT field in Saudi Arabia.

30 interviews were arranged to ensure that the organisations which took part covered all five regions of Saudi Arabia, north (Al-Jawouf), south (Abha), East (Daharan and Dammam), West (Jeddah) and central (Riyadh).

In each region representative public and private organisations were selected; one large, one medium and one small organisation from the public sector and the same from the private sector. The people interviewed consisted of ICT managers, chief executives, project managers and consultants.

The researcher interviewed thirty individuals in order to identify e-readiness assessment issues and questions. Each interviewee was briefed on the information concerning the goals of the study and the purpose of conducting the interviews.

Each interview lasted from fifty minutes to one hour and, with the permission of the interviewees, most were audio taped. Tapes were transcribed and analysed in order to identify e-readiness issues specified as critical by each individual. The 12 interview questions were designed as open questions and related to various aspects of e-readiness assessment. Among the issues covered were the reason for conducting an e-readiness level, ways of improving e-readiness, the influence of Saudi culture on the adoption of ICT systems, e-commerce and its obstacles, evaluation of the ICT systems, the decision making process, ICT governmental policies, the digital divide, the contribution of the Saudi R&D centres towards ICT field, competitiveness, e-health and the ICT future in Saudi Arabia.

This study is part of an ongoing research project being undertaken at the University of East Anglia in the UK.

5. Interviews Analysis:

The questions' interview posed many issues related to the ICT field. It means that the conducted interviews tackled many themes related to ICT. In order to analyse the collected data, each theme was analysed individually and then a general conclusion was reached that will be summarised at the end of this paper. It has pointed out that the common procedure, which is usually used in the analysis of the qualitative data, is the identification of key themes, concepts or categories. [Ritchie & Lewis 2003] It has been noticed that the views of the interviewees depend on their background and their experiences in the ICT field.

6. Results and Dissections:

6.1 Level of e-readiness in Saudi Organisations:

Most of interviewees indicated that the country is not ready for ICT infrastructures. They related this to the fact that no Code of Practice exists in the country. For example, the public sector does not have an ICT Code of Practice, while the private sector depends on the US Code of Practice. Another point that has been emphasised by the interviews is that society is not fully ready for the adoption of an ICT infrastructure. They also indicated that no national ICT strategic plan exists.

It was noticeable that the level of ICT utilization differs from one organisation to another. The interviewees' problems and their visions were found to differ slightly. For example, the ICT manager of the King Fahad library (350 employees) indicated that they use ICT in (93%) of their financial and administrative work.

Some of the interviewees from the private sector organisations indicated that in order to improve ICT infrastructure, a national ICT strategy should be put in place for all cities of the Kingdom. Standards and regulations should also be published and distributed to all concerned with ICT.

6.2 Improving e-readiness in Saudi Organisation:

They interviewees indicated that in order to improve e-readiness in Saudi Arabia, the following points should be considered:

- A national ICT plan should be put in place.
- Improve the standards and regulations related to the ICT infrastructure.
- Improve public awareness of the importance of the ICT in our daily lives.
- Increase ICT teaching and learning courses.

The majority of the interviewees who work in private organisations have stressed that the most difficult problem which affects e-commerce in the Kingdom of Saudi Arabia is that citizens' home addresses are not well planned by the councils of various cities.

6.3 Influence of Saudi culture on the adoption of ICT systems:

They related this to the fact that Saudi society is a conservative society and that the misuse of the Internet technology could change their inherited cultural and religious values. But many of them have said that it is a positive factor to interact with other cultures. However, the main point which has been indicated by the interviewees is that the language is the main obstacle in this regard.

In addition, the Internet should be utilised in an appropriate way to serve society rather than being used for other purposes. The Director of Networks Department in King Faisal Academy in Riyadh suggested that in order to promote the appropriate use of the Internet among young people, Internet materials should be introduced in secondary schools and Internet teachers should promote ethical values and foster Saudi family values.

6.4 E-Commerce and its obstacles:

(99%) of the interviewees commented that e-commerce is a new technology that has been introduced into Saudi society in recent years. Saudi citizens usually buy their goods and pay the retailers direct. In e-commerce, the customer needs to pay for the item he/she buys on the Internet, and Internet security issue concerns many Saudis.

There is also a problem that the customer needs to fill in a form giving his/her personal details. Saudi citizens do not favour this process.

(94%) of the interviewees said that the most important obstacle to e-commerce is the problem of the lack of individual house addresses. Without these, the postman or delivery agent cannot deliver an item that has been purchased through the Internet. This point is the main concern of private sector organisations because this problem has a direct impact on their e-commerce businesses. (93%) of the interviewees commented that language is also a major concern. The majority of the websites use English and this makes it difficult for the public to understand them.

A very important point emphasised by (89%) of the interviewees was the inadequacy of information on the websites. The interviewees in the public organisations (government organisations) related this to security concerns. However, they indicated that security can be improved by using protection tools e.g. firewall to protect their websites.

6.5 Evaluation of the ICT systems:

(98%) of the interviewees agreed that there are evaluation programmes in place to evaluate both ICT systems and employees. However, these programmes are not fully implemented. This means that in some organisations, the evaluation is just to prepare a report and no follow up action is taken. But the majority of the interviewees indicated that in future, they would take this issue seriously. This will help them to improve the efficiency of their ICT systems and reduce the gap with the developed world.

6.6 Decision-making process related to ICT systems:

The interviewees' views about this question differ between private and public sector organisations. In the private sector, it was found that decisions are taken within the company management. However, the ICT manager has to prepare a persuasive and national report to the director/chief executive stating his requirements, for example, for upgrading of hardware/software systems, etc.

In the public organisations, ICT decisions are not taken within organisation requesting the upgrades new servers etc. An ICT report has to be prepared and submitted to a higher authority to get agreement and financial support. The interviewees indicated that generally, the higher authorities support initiatives that are related to the development of ICT systems. However, most of them agreed that there is no coherent national ICT strategy to be used by both public and private organisations.

6.7 ICT Government policies:

This was a very important question since it showed the government policy toward the ICT field. Both private and public sector organisations said that there are some individual initiatives towards promoting the ICT sector in Saudi Arabia. They also indicated that the government has spent money in the ICT field; they argue however, that the country needs a comprehensive ICT policy to deal with laws, regulations and the procedures to regulate the use of ICT systems. Because the country is very large, and because there is a rapid revolution in ICT systems, time will be required to establish a national ICT policy.

Security makes some organisations reluctant to advertise on a website especially where it is not in the national Internet to have information about themselves widely known. Both organisations such as banks are concerned about Internet fraud. More skilled people and new technology are required to guarantee the security of their information.

The interviewees suggested that the government should promote an awareness of ICT policy to increase public awareness of the benefits of ICT systems in daily lives. They also insisted that clear regulations are required to control the use of ICT systems to protect everyone.

6.8 How to bridge the gap between the Kingdom of Saudi Arabia and the developed ICT world:

All the interviewees indicated that in order to bridge the gap between Saudi Arabia and the developed ICT world, the following points should be considered: Increasing computer literacy in schools and community centres. Young students in secondary schools should be encouraged to learn computer sciences.

The academics suggested that computer courses at university level should be increased to include practical issues such as e-commerce, e-business, etc.

6.9 Contribution of the Saudi R&D centres toward the ICT field:

Some of the interviewees suggested that Saudi Researchers make a very limited contribution towards developments in the ICT field. For example, the Director of Technical Education in Gunfitha has indicated that there were no projects with clear objectives and also added that the researchers have no clear vision on how to develop the ICT field. The interviewees also said that the majority of the research carried out was theoretical and had limited practical applications.

An important point was made by the Director of the Royal Jubail and Uanbu Organisation. He said most researchers do research for scientific promotion rather than thinking of the usefulness of what they are studying.

They suggested that cooperation with international research centres/universities could promote the ICT field in Saudi Arabia. They also pointed out that the private sector usually thinks about the profits rather than spending enough money to support ICT research programmes.

The Dean of the Pharmacy College (King Khalid University, Abha) said that this subject needs a lot of discussion. He pointed out that the government had started to encourage scientific research and enough money had been allocation for this purpose. However, there was a big gap between the private and the public organisations in the field of ICT research.

6.10 E-Health issues:

The Dean of the Pharmacy College (King Khalid University, Abha) said that there are already some e-health applications in Saudi Arabia. These include:

- A medical e-journal for the staff/students.
- Creating a database of medical centres throughout the world and a database of medicines and the companies who supply them.

- Video-conferencing to connect the medical college with hospitals (e.g. Najran hospital, Biesha hospital) to transmit semi-live pictures from the operation theatres in the hospitals to the students of the medical college.

The Director of Technical Education in Gunfoutha however, said that the e-health is not well established in Saudi Arabia. He related the reasons to the non-availability of an e-health infrastructure. He indicated that at the present time, they are working together with other health organisations on a project called ‘e-Doctor’.

An ICT engineer in Dammam, the General Manager of SAAB, suggested that the private health sector is better equipped with e-health technologies compared with the public health sector.

6.11 Competitiveness in the Kingdom of Saudi Arabia:

The majority of the interviewees indicated that there is a competitive market in Saudi Arabia. For example, a computer engineer in Abha private hospital has indicated that because there are so many ICT retailers and ICT service providers in the Saudi market; this creates fierce competition among national and foreign companies to win the market. The interviewees believe that the introduction of Internet regulations and a Code of Practice of e-commerce will definitely encourage competitiveness in the Saudi ICT market.

6.12 Future of the ICT in the Kingdom of Saudi Arabia:

All the views of the interviewees about the future of the ICT in the Kingdom of Saudi Arabia can be summarised as follows: There will be a huge development in the ICT field in the global market. As a result of this development, Saudi Arabia will also develop itself to face the new challenges.

However, they pointed out that the development of ICT in Saudi Arabia depends on the availability of a clear national ICT strategy, public awareness of the ICT benefits, skilled ICT personnel, financial support for the ICT field, and an increase in competition.

7. Conclusions and Recommendations:

The general conclusions from the above interviews are shown below:

- ICT systems in Saudi Arabia are at an early stage of development, and to improve e-readiness in the Kingdom, the interviewees indicated that the public should be aware of the benefits to ICT to be gained from the adoption of advanced technologies.
- The interviewees said that there are many obstacles that hamper the utilisation of the ICT field in Saudi Arabia. There is no comprehensive national strategic ICT plan for the Kingdom. There are some individual initiatives to promote the ICT sector, but these do not satisfy the Kingdom’s requirements in this important field.
- There are no clear regulations, legislation, rules and procedures on how to protect the rights of both organisations and their customers especially in the e-commerce field. There are also no clear rules on how to use the Internet appropriately.
- There is a gap between Saudi Arabia and the developed ICT world. The surveyed opinions indicated that in order to reduce the gap, the government should create a clear ICT plan and allocate enough budget, increase public IT awareness, encourage foreign ICT investments, increase training courses and promote ICT education in both schools and universities.
- The private sector organisations were found to be more advanced in ICT utilisation than the public organisations. Coordination between both types of organisations could help in promoting the ICT systems in the Kingdom.

- Concerns about website security were found to be the most important obstacles that prevented organisations using e-commerce, e-banking, etc online. The availability of skilled personnel and advanced technologies that can prevent the hackers from breaking in to their ICT systems could encourage organisations to go online.
- The surveyed sample shows that there are already a few applications in the field of e-health. However, this sector needs a clear IT health plan and adequate budget to promote its development.
- The interviewees believe that government policies are not encouraging the utilisation of ICT in business activities enough. The majority of the organisations need a clear national ICT plan, rules and regulations to cover the ICT sector.
- As far as the decision-making process is concerned, the Board of Management in private organisations takes ICT decisions with advice from the ICT manager, while in public organisations; the decision-making process depends on higher authorities.
- The ICT evaluation technique is applied in some organisations but on a limited scale. This could be related to the non-availability of qualified personnel to do the job properly.

Finally, the researcher believes that the interview exercise was an excellent tool to explore themes and ideas that were not fully covered by the questionnaire methodology. The face-to-face meetings have given the researcher the opportunity to collect live information about e-readiness issues in the Kingdom of Saudi Arabia, to investigate important obstacles that face the ICT field and to explore the future of the ICT in the Kingdom.

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