

OMAN E-READINESS: A PARADIGM SHIFT FOR BUSINESSES

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***Abstract:** In the current era of globalization, information and communication technology (ICT) is one of the main pillars in the development of any nation. It offers ample opportunities for the modernisation of public administration work, thereby facilitating business. The e-Oman project initiated by the government of Oman to implement e-Government in Oman has worked wonders for the businesses and individuals by making them more competitive and transparent. The country's Digital-Oman vision plan encompasses e-Government as well as digital society issues. It aims to create an effective government-community-citizen infrastructure which is likely to provide better public services to people and make Oman a more attractive destination for foreign investment. For the successful transformation of government into e-Government services e-readiness is an imperative factor to appraise. This research attempts to unravel the, e-Oman initiative and perform an e-readiness assessment using the e-readiness framework coming up with an e-readiness index for GCC countries with a focus on Oman. The result shows that Oman is ranked high among GCC countries and this is a testimony of the robustness of its e-Oman initiatives.*

***Key Words:** e-readiness, e-government, G-Cloud, ICT.*

1. INTRODUCTION

Developing countries are always keen on the enhancement of its resources and services. The general criterion for the required development remains as to how much the 'acquired resources' does the country possess. Acquired resources constitute the technical know-how that nations develop and master over the years of research and knowledge churning. Information and Communications Technology (ICT), in today's global scenario, is facilitating rapid and effective communication as well as efficient storage, retrieval and processing of data, to benefit all stakeholders be it individuals, groups, businesses, or governments. With increased computerization and ever growing internet access the benefits of ICT has penetrated to the lowest echelons of the society even in the least developed countries. This has immense potential to transform a nation in a short time into an efficient and a well governed nation. Benefits of ICT are now an

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open secret, government and organizations are desperate to adopt it in the form of what is now very well known as 'e-initiatives'.

2. LITERATURE REVIEW

E-readiness can be defined as 'the aptitude of an economy to use information and communication technologies to migrate traditional business into the new economy'. [4]. The result is magical as the local businesses become global and business transactions begin to be conducted on a real time basis, 24x7, fully customized as per the consumer needs and delivered around the world online. ICT facilitates business to deliver value to consumer by reducing production cycle and costs, and achieve high level of product/service customization. The e-readiness term has a significant value in e-government implementation process. Various researches have tried to define the e-readiness and have focused on the 'value creation' aspect of the e-readiness definition [17]. As per the Computer Systems Policy Project (CSPP) report [6] 'an e-ready community has a high speed access in a competitive market; with constant access and application of ICT in schools, government offices, business, healthcare facilities and homes'.

As McConnell International [14] points out that 'an e-ready country has extensive usage of computers in schools, business, government, and homes with an affordable reliable access in a competitive market'. According to World Information Technology and Services Alliance (WITSA) an e-ready country requires consumer trust in e-commerce security and privacy, better security technology; more trained workers and lower training costs, less restrictive public policy; new business practices adapted for the information age and a low cost of e-commerce technology.

It has been pointed out that e-readiness reaches its optimal level when an economy is able to create new business opportunities which otherwise would have not come into being and are crucial for the fast development and rapid transformation of the country's economy [12].

As the world increasingly is becoming a knowledge based economy, the importance of human capital is increasing, as a venture which can innovate and have solid knowledge base can only survive in the present competitive world [6]. E-readiness leads to the concept of e-government as it is the policy makers who hold the key to catapult the economy to new levels of competitiveness. E-government can be defined as 'online government services, that is, any interaction one might have with any government body or agency, using the Internet or the World Wide Web'.

Basically e-government represents the 'use of Modern Information Technology (MIT) and Telecommunications Technology (TT) to exchange information and process across computer networks, especially on the Internet'[13][1]. E-government represents a fundamental change in the whole public sector structure, values, culture and the ways of conducting business by utilizing the potential of ICT as a tool in the government agency. The e-readiness term has significant value in e-government implementation process. E-readiness is the ability to use ICT to develop one's economy and to foster

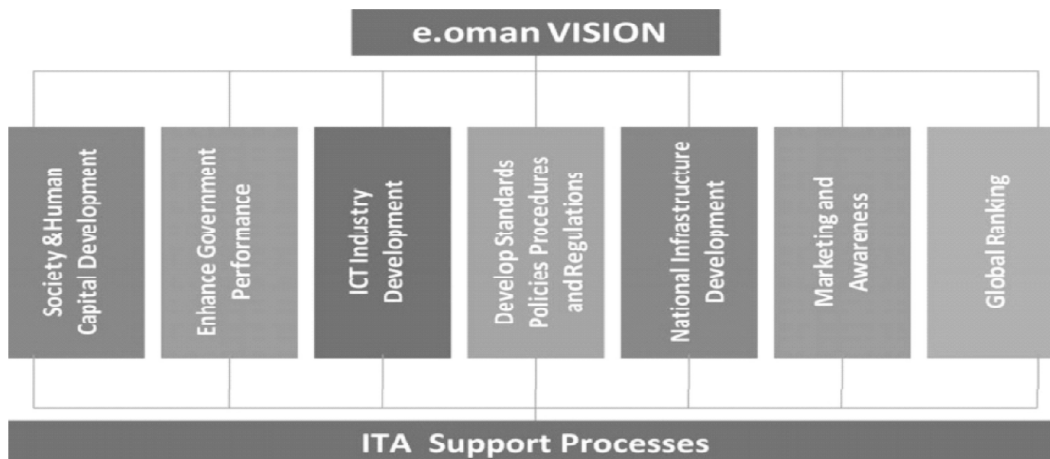
one's welfare. Moreover, it is a measure of the quality of countries ICT infrastructure and ability of its consumers to use ICT to their benefit [2].

The Organization for Economic Co-operation and Development (OECD) defines e-government as 'the use of information and communication technologies, and particularly the Internet, as a tool to achieve better government' [15]. E-government offers services to those within its authority to transact electronically with the government. These services differ according to users' needs, and this diversity has given rise to the development of different types of e-government. The relationship of government with the recipients of its electronic services can be characterized as: Government to Citizen (G2C), Government to Business (G2B); Government to Employees (G2E); or, Government to Government (G2G). However, many governments are still in the early stages of implementation and adoption of e-government services [5].

3. AN OVERVIEW OF E-OMAN INITIATIVES

3.1. IT Task force in Oman

Oman government had envisioned creating an Oman digital society and therefore in 1998 setup a National Information Technology Committee (NITC) entrusted with the task of initiating the e-government project and development of the ICT sector of Oman. This was followed by the launching of the National IT strategy in 2002[18].



E-Oman vision (source: ITA)

E-Readiness is the study of measurement of available infrastructure and usefulness of ICT in the society. The annual IT survey report of 2013 reports that 92% of the population is using mobile phones and the trend of using smart phones is almost the same as the usage of mobile phones. A large majority of households owns at least one

computer. In the national average 74% of the people use the computer. Further, the report includes that 80% of households in Oman people have internet access [9].

3.2. Information Technology Authority (ITA)

In continuation with the e-Oman strategy wherein the goals was to provide easy, reliable and quick online access to all government services and to build the country ICT capacity, the government established an authority named Information Technology Authority in 2006 with the objective to plan, implement, develop and monitor the ICT sector. ITA's basic task is to work towards transforming Oman into a knowledge economy and to ensure that the gains trickle down to the lowest strata of the society as this will lead to societal gains and eventually to global competitiveness of the country. ITA has been entrusted to implement the IT infrastructure project, implementation and monitoring the e-government practice by ensuring efficient and timely online services and development of the entire ICT sector of Oman [3].

3.3. Digital Oman Strategy

The digital Oman strategy envisages providing its citizens quality government services efficiently and rapidly through the e-Oman initiative, thus empowering citizens and creating employment opportunities for its people. The strategic goal is to establish the Digital Oman Society and facilitate e-government services to all the social sectors with a clear definition of policies for a healthy environment to encourage IT industry in Oman and export of IT enabled services thus strengthening the IT sector in the country. Moreover, making sustained endeavor to develop the communication sector of the country in accordance with international standards and restructuring the Omani telecom sector thus enabling the active participation of private sector and foster free competition in the ICT sector [8].

The digital Oman strategy is an offshoot of the overall future economic vision "Oman 2020" and the government recognizing the importance to be e-ready has further strengthened and incorporated it into the policy document of Oman vision 2040 as well, with the aim to create an effective government-community-citizen infrastructure that provides better public services to the people of Oman. Oman was placed at 112th position in the united nation's e-government readiness report of 2005 which went up to the 84th position by 2008 on their e-government readiness index of 0.4691. The rise reflects the pace and eagerness of Oman to develop world class ICT infrastructure, offer electronic services and build capacity to harness the power of technology. Oman is holding 1st rank among Arab countries as per the Global Cyber Security Index (GCI) report of 2015, and is ranked 3rd amongst 194 countries in term of its readiness for cyber security commitments and infrastructure [11].

3.4. Communities of Interest

For the purpose of implementation of the Digital Oman Strategy, Governments' business applications will be grouped into Communities of Interest (COI). COI seek

to best meet the needs of citizens and businesses in as hared and secured manner in the form of One-Stop-Shop initiative.

The One-Stop-Shop initiative for commercial registration of businesses involves the Commerce & Industry community comprising Ministry of Commerce and Industry (M_oCI), Muscat Municipality, Ministry of Regional Municipalities, Environment and Water Resources, Oman Chamber of Commerce and Industry (OCCI), Ministry of Manpower (MOM) and the Royal Oman Police (ROP). All these entities integrate their system to offer the commercial registration service to the new business through a single-window in a streamlined manner.

3.5. Technology Park at Knowledge Oasis Muscat (KOM)

With the aim to provide support for business incubation the government had setup a technology park in the capital city of Muscat named "knowledge Oasis" wherein the knowledge mine (TKM) IT based incubator has been setup to support incubation in the field of information technology for new startups, researchers and students. A National Digital Forensic Lab is also established at KOM by ITA to facilitate interpretation and analysis of electronic data to help detect cybercrimes and to provide courts of law with the accurate evidences [10].

3.6. National Statistics Online

In order to provide socio-economic statistical data in a user friendly and graphical interface form the national centre for statistics and information (NCSI) has been setup. The objective is to provide real-time access to all aspects of socio economic data to researchers, economists and social scientist which will increase availability, easy access, and transparency of sharing of information for better planning and awareness.

3.7. National PC Initiative

With the intention to get the Omani citizens learn and develop basic computing skills and start using internet the national PC initiative was started, wherein the basic aim was to increase the penetration of the PC and increasing computing skills and internet usage. Computer savvy citizens thus will be able to use and appreciate e-Oman services and thus it will contribute immensely in capacity building leading to ICT sector development at a rapid pace. The Program will support capacity building of locally sourced capability to deliver services like hardware, software and training, etc.

3.8. E-Oman Awareness

E-Oman Awareness activities aim to bring about success in all e-Government initiatives by preparing businesses and people to participate fully within the digital society. The activities also aim toward building ICT capacity within the nation by organizing seminars, conferences and road shows throughout the country on a regular basis.

4. TRANSFORMING BUSINESSES INTO E-BUSINESSES: THE PARADIGM SHIFT

Oman's e-Governance initiative aims to build a Knowledge-based Economy in Oman by developing world-class e-Government services that will facilitate more streamlined interaction between the corporate sector, the Government and citizens. E-Oman offers a more convenient, cost effective and citizen oriented corporate services that will change the way the business is done in Oman. The government of Oman had taken several steps in order to transform the business environment in the country into more business friendly, and facilitate and streamline compliance of law. Some of the important steps taken are discussed below:

4.1. E-Government Services Portal (Omanuna)

With a view to providing e-government services the government launched the Omanuna portal which acts as a hub for all government services either through the portal or by linking to other important websites. The basic aim is to provide citizens with a 'single point facilitation' of all government services in a standardized, transparent, secure and rapid manner. Using web and mobile apps these services can be accessed anytime anywhere, [7].

4.2. National e-Payment Gateway (ePG)

Ensuring that e-government services become popular also entails that there is a provision for online payment facilities which are easy, secure and reliable. Thus, the National e-Payment Gateway (ePG) was established which supports multiple acquiring banks and provides an e-payment solution to both public and private sector in the country [7].

4.3. G-Cloud

Cloud computing is believed to be the most futuristic service wherein users can avail any kind of communication and information services over the internet on a pay-as-you-go basis. An initiative of the government named G-Cloud facilitates the Omani citizens as well the corporate to avail of this services using Software as a service (SaaS)—applications, as it provides rapid and easy accessible service on the go to all stakeholders [7].

4.4. One-Stop Shop (OSS)

Easy facilitation in registration of companies and doing minimum paper work is the key to attracting business and investment in any country. Most country are attracting corporate to start their operations and establish companies by offering single point of access for all legal formalities in registering and starting operations. The Ministry of Commerce and Industry (MoCI) of Oman facilitate a single point commercial registration for all new companies via a shared database for the e-government services [7].

4.5. E-Tendering

In order to establish a centralized procurement management system and process the ITA had established a e-tendering service in association with the government tender board. The basic objective is to provide real time information about tenders and create an efficient, transparent and accurate government procurement process which will lead to considerable cost savings.

4.6. E-Legislation and E-transactions Law

Oman’s Digital Society initiatives require substantial legal protection for the various entities in the use of ICT for official and personal communications and transactions. The e-Legislation Law addresses key issues such as: e-Law, intellectual property, taxation and data protection, legal recognition for electronic signatures, admissibility and evidential value of data messages, electronic payment validity, jurisdictional matters, time and place of dispatch of data messages, retention of data messages, enforcement of ‘electronic’ contracts, acknowledgement of receipt of messages, and protection for privacy and security.

The Law of Electronic Transactions aims to legalize the use of electronic transactions. It is designed to ensure that a transaction is not invalid simply because it took place by means of electronic form of communication.

5. THE E-READINESS: THE GLOBAL REPORT

As per the ‘Measuring the information Society Report’ of International Telecommunications Union (ITU) the overall ranking of Oman was 68 with an IDI¹ of 4.41 in 2010, which increased to 6.33 pushing Oman’s rank to 54 in 2015. Also, the Oman access sub-index IDI improved from 5.39 to 7.24 out of 10 and went up from 68 to rank 47 during the same period.

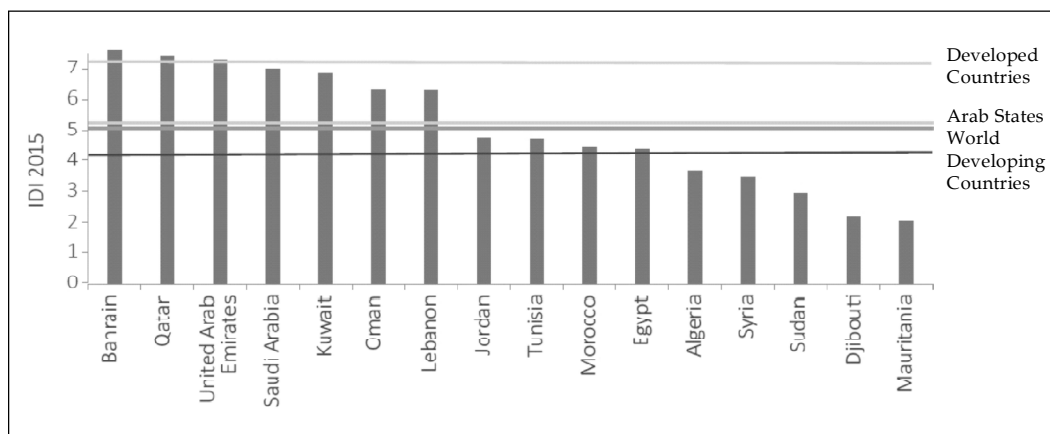


Figure 1: Arab States IDI ranking (Source: ITU, 2015)

In 2015 Oman ranked 6th among the Arab states. The global rank of 14 for Oman in 2015 indicates that Oman is making rapid progress in its quest for implementing e-Government. [11]

5.1. Measuring E-readiness in Oman

Measurement and assessment of e-readiness has been of paramount concern for policy makers as it provides a direction to move forward. Various instruments had already been created for measuring e-readiness by institutions like World Bank, EIU, ASEAN, MOSAIC and CSPP. The basic purpose of a measurement tool for e-readiness should be its probable impact on the economic growth of a country. One of the most significant frameworks for measuring national e-readiness has been given by Bui *et al.* [4], a framework for measuring national e-readiness, who proposed that a framework should consist of 8 global factors that should be considered to having a significant impact on a nation's e-readiness. In order to measure the proposed 8 global factors 52 variables are used.

5.2. Computing the e-Readiness

In this paper the same framework is being adopted to calculate the e-readiness of the GCC nations with focus on sultanate of Oman. Data on possible 46 factors was collected and 6 factors were not considered due to complete unavailability of the data from the secondary sources available. The methodology adopted is the same as proposed by Bui *et al.* [4], in their proposed and published framework for measuring national e-readiness.

In order to make a comparison and prepare the e-readiness index a group of 13 countries was selected mainly from the Middle East and North African countries region (MENA) and the G7 nations as well as USA was taken to make a comparison of the regional countries with advanced and developed countries where ICT application and penetration is the highest. Sudan and Djibouti represented the least developed nations in terms of ICT in the region as per the international telecom union (ITU) report on measuring the information society, 2015.

Many of the MENA countries especially the Middle Eastern countries have no official data published on many variables considered in this framework, therefore only 46 variables were considered out of the total 52 proposed in the original framework.

Model

$$e-readiness_i = \sum_{j=1, n} w_{ij} e_{ij}^{/n}$$

Where e-readiness: the overall e-readiness value

i: country

j: each of the 46 measures

w_{ij} : relative weights assigned to the 46 measures (j)

e_{ij} : individual score for each measure on a scale of 1 to 5
 n: total number of measures

5.3. Analysis and interpretation

Using the framework, the data is collected and an analysis is done using the following steps:

1. Data is gathered for the 46 variables from secondary sources.
2. The data is grouped into 8 factors based on its measures.
3. For each measure range is determined by subtracting the smaller values from the larger values.
4. Normalized values are assigned for each country.
5. Weighted average for each factor is computed.
6. Average of all factors provides the e-readiness index for each country under study.

The entire 8 Factors and their calculation are summarized in table 1 as given below. The entire details of the calculation for all the variables are beyond the scope of this study.

As is evident from the table 1, among the MENA (Middle East and North Africa) countries the highest e-readiness index is of UAE at 3.5 followed by Qatar at 3.3. With an e-readiness index of 3.2, Oman shares the third position with Bahrain among the

Table 1
Average Factor Values and Computed E-Readiness Index By Country

Country	Factors*								e-Readiness (Overall)
	KC	ME	IC	AI	SW	CC	CLP	DI	
G7	4.62	4.6	4.2	3.1	4.8	3.4	4.1	4.4	4.2
USA	4.71	4.3	4.4	3.9	5	4.2	4.4	4.6	4.4
Lebanon	3.67	2.4	2.8	3.2	3.6	3.4	3.4	2.7	3.1
Jordan	3.4	2.8	2.4	3	3.5	3.1	3.4	2.5	3.0
Tunisia	3.56	1.9	1.8	2.1	3.4	3.1	3.1	2.1	2.6
Sudan	2.9	1.8	1.7	1.6	2.5	2.8	3.1	2	2.3
Djibouti	1.6	1.7	1.4	1.2	2	2.7	2.7	1.8	1.9
Bahrain	3.4	2.4	2.9	3.1	3.5	3.4	3.4	3.2	3.2
Qatar	3.1	3.6	3	3.1	2.9	3.54	3.8	3.1	3.3
UAE	3.2	3.9	3.6	3.3	2.9	3.8	3.94	3	3.5
KSA	2.8	3.8	3.4	3.2	3	3.1	2.9	2.9	3.1
Kuwait	2.79	3.4	3.1	2.8	2.7	3	3.5	2.81	3.0
Oman	2.98	3.1	3.5	2.9	3.4	3.68	3.1	2.8	3.2

*KC-Knowledge Citizens; ME- Macro Economy; IC – Industry Competiveness; AI – Attitude of Investors; SW- Access to Skilled Workforce; CC- Country Culture; CLP- Cost of Living and Pricing; DI- Digital Infrastructure

GCC countries in terms of the e-readiness. It is closely followed by Lebanon and KSA. The e-readiness index of Oman shows that it is considered to be one of the best in terms of the culture for doing business but lacks in terms of digital infrastructure, Knowledge citizens and has to still create confidence among the international investors to be the most attractive destination for investment.

Oman it seems has picked up quite a lot and as compared to other LDCs (Least developed countries) in the region in terms of e-readiness.

With the government of Oman committed to improving the digital infrastructure and enhancing easiness of doing business in the country, it is poised to develop rapidly in the next five years. It may be concluded that Oman as an e-ready country is placed quite high and looks promising for future opportunities of doing e-business.

6. CONCLUSIONS

With the growing competition from investor friendly economies of United Arab Emirates, Bahrain, Qatar, KSA and Kuwait, it had become imperative for Oman to position its economy as robust and transparent among the countries in the region. This warranted the transformation of the entire system into a business/investor friendly one through an accelerated implementation of the ICT. The e-initiatives taken by the government of Oman are quite futuristic and fairly result oriented. It is a right step, at the right time and in the right direction. It is obvious that the government intends to transform Oman into a hub for doing business in the Middle East. The e-initiatives in Oman have already given a boost to the foreign investments into the country. There is no doubt that very soon Oman will become a prime destination for business in this region. Surely the future belongs to Oman.

Note

1. The ICT Development Index (IDI) is a composite index that combines 11 indicators into one benchmark measure that can be used to monitor and compare developments in information and communication technology (ICT) between countries and over time.

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