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**ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA (ESCWA)**

**NATIONAL PROFILE OF THE INFORMATION SOCIETY  
IN OMAN**

United Nations  
New York, 2009

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## ABBREVIATIONS

ADSL	Asymmetric Digital Subscriber Line (ADSL)
ATM	Asynchronous Transfer Mode
CERT	Computer Emergency Response Team
COI	Communities of Interest
CKS	Community Knowledge Center
DGCS	Directorate General of Civil Status
G2B	G2B Government to Business
G2C	G2C Government to Citizen
GTO	General Telecommunications Organization
HEAC	Higher Education Admissions Centre
HEIs	Higher Education Institutions
ICANN	International Corporation for Assigned Names and Numbers
ICDL	International Computer Driving License
ICT	Information and Communication Technology
IFS	Integrated Finance System
ITA	Information Technology Authority
KOM	Knowledge Oasis-Muscat
MDG	Millennium Development Goals
MOCI	Ministry of Commerce and Industry
MoE	Ministry of Education
MoF	Ministry of Finance
MoH	Ministry of Health
MoHE	Ministry of Higher Education
MoNE	Ministry of National Economy
MSP	Multi-Sector Partnership
NRS	National Registration System
OEPPA	Oman Establishment for Press, Publication and Advertising
OMANTEL	Oman Telecommunication Company
OMR	Omani Riyal
OMNIC	Oman Network Information Centre
ONA	Oman News Agency
OSO	Oman Statistics Online
OSS	One Stop Shop
OWAN	Oman Women's Association
PDO	Petroleum Development Oman
PEIE	Public Establishment for Industrial Estate
PPP	Public-Private Partnership
R and D	Research and Development
ROP	Royal Oman Police
SOC	Security Operation Centre
SQU	Sultan Qaboos University
SRC	Scientific Research Council
GTB	Government Tender Board
TKM	The Knowledge Mine
TLD	Top Level Domain
TRIPS	Trade Related Aspects of Intellectual Property Rights
WG-ADNs	Working Group of Arabic Domain Names
WiMAX	Worldwide Interoperability for Microwave Access
WIPO	World Intellectual Property Organization
WSIS	World Summit on the Information Society

## Introduction

Resting in the south-eastern corner of the Arabian Peninsula, the Sultanate of Oman is strategically located at the juncture of Asia, Europe and Africa. With more than 2000 km of coastline, covering an area of 309,500 sq km, its location and geography have been a key factor in the Sultanate's history and significant achievements<sup>1</sup>. Table 1 summarizes the Oman Social and Economic Indicators for 2008.

The Seventh Economic Development Plan<sup>2</sup> specifies a strategy towards transforming Oman into a knowledge-based economy. The Information Technology Authority (ITA), set up by a Royal Decree on 31<sup>st</sup> May 2006, is a financially and administratively independent legal entity responsible for the implementation of the Digital Oman Society strategy, or eOman strategy. Since its establishment, ITA has been pre-occupied in putting the Digital Oman strategy into actions and in 2008 ITA has achieved a good milestone in the journey towards a knowledge-based economy.

TABLE 1. OMAN SOCIAL INDICATORS, 2008

Indicators	Value
Population (in 1000s) (Mid 2008 estimates)	2,867,428
GDP at market price (Million. OMR3)	23,185.1
Average annual rate of growth of GDP	43.9
Gross National Income	22,334.1
GNI per capita (OMR)	7,790
Merchandise imports (Million. OMR)	8,896.3
Merchandise exports (Million. OMR)	14,502.9
Oil and Gas Revenues as a % of total government Revenue	78.6 %

*Source: Statistical Year Book 2009 Issue 37 – Ministry of National Economy*

His Majesty Sultan Qaboos emphasized the importance of learning, knowledge and information technology. His Majesty stated “Information Technology and communications have now become the main elements that move forward the development process in this third millennium; therefore we have accorded our attention to finding a national strategy to develop the skills and abilities of citizens in this domain with the aim of further developing e-government services. We are closely following the important steps that we have made in this regard. We call upon all government institutions to speedily enhance their performance, and to facilitate their services, by applying digital technology in order to usher the Sultanate into the constantly evolving spheres for applying knowledge”.<sup>4</sup>

<sup>1</sup> Emerging Oman 2007, “Eastern Promise”, pg 5.

<sup>2</sup> Oman, The Development Experience and Investment Climate 2008, “The Seventh Economic Development Plan” pg 39-47.

<sup>3</sup> The exchange rate - 1 Omani Rial (OMR) = USD 2.6.

<sup>4</sup> Excerpts from the speech of His Majesty Sultan Qaboos bin Said on the occasion of the Opening Annual Session of the Council of Oman (Majlis Oman) on 11th November 2008.

## I. THE ROLE OF THE GOVERNMENT AND ALL STAKEHOLDERS

### A. NATIONAL INFORMATION SOCIETY POLICIES AND E-STRATEGIES

The Sultanate of Oman has embarked upon its ambitious journey in transforming Oman by empowering its people, through the eOman strategy which was adopted in 2002 and was implemented in May 2003. The goals include providing job opportunities for nationals in the IT sector and to significantly improve the quality of services that the Government provides to its citizens. The eOman strategy focuses on the following areas:

- Streamlining Government services to citizens and businesses;
- Creating and nurturing knowledge-based industries;
- Developing a local ICT sector;
- Supporting a more competitive environment;
- Providing employment for Omani youth;
- Enabling better healthcare;
- Improving educational opportunities;
- Supporting tourism sector;
- Enhancing social development using IT;
- Making Oman a more attractive destination for foreign investment and conducive for businesses.<sup>5</sup>

The eOman strategy addresses eGovernment as well as Digital Society issues. It aims to create an effective government-community-citizen infrastructure that provides better public services to its people. Each component of the eOman strategy is embodied in the divisional structure of ITA, propelling the organisation to deliver its mandate effectively and efficiently. As of December 2008, ITA had implemented most of the IT projects listed in Oman Digital Society Report.<sup>6</sup> The statuses of these projects are reported under the appropriate headings throughout this report.

### B. PUBLIC/PRIVATE PARTNERSHIP (PPP) OR MULTI-SECTOR PARTNERSHIP (MSP)

Through the Community of Interests, ITA spearheads the eOman strategy and harnesses government entities, private enterprises, citizens and Multi-National Corporations (MNCs) to work in symbiotic relationships to achieve the eOman strategy objectives. Though most of the current IT projects are implemented through outsourcing means, ITA identified several IT initiatives which could signify a move toward Public/Private Partnership (PPP) program such as the electronic payment project. Through a PPP type of collaboration, ITA ensures the involvement of the Private sector in developing the ICT capabilities of the Sultanate.

#### 1. *Knowledge Oasis Muscat*

The Knowledge Oasis Muscat (KOM) is an example of successful multi-sector partnership (MSP) with the Public Establishment for Industrial Estate (PEIE). The techpark is home to bluechips such as Oracle, Hewlett Packard, Motorola, Microsoft, NCR, and Huawei as well as dynamic hi-tech start-ups. The ITA is also suitably located at KOM 3 building, at the heart of the ICT cluster in the oasis of knowledge. KOM-based companies vary in size, with organisations employing anything from two people to over 300. They all benefit from a range of core facilities, as well as business support from the PEIE, which manage the park.<sup>7</sup>

#### 2. *Other PPP initiatives*

The Petroleum Development Oman (PDO) led several PPP IT focus initiatives that help several NGOs and educational institutions to reap the benefits of technological advancement. Such initiatives included the

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<sup>5</sup> Oman Digital Society Report pg 18

<sup>6</sup> [http://www.ita.gov.om/ITAPortal/MediaCenter/Document\\_detail.aspx?NID=23](http://www.ita.gov.om/ITAPortal/MediaCenter/Document_detail.aspx?NID=23)

<sup>7</sup> <http://www.kom.om>

setting up of a multimedia centre for developing educative materials using modern technologies with the Ministry of Education (MoE). Currently the centre hosts interactive materials for Grade 4 and 5.<sup>8</sup> In addition, PDO funded the setting up of a state-of-the-art computer facility at the Al Wafa Technical Centre at Omar Ibn al Khatab Institute for visually impaired. In April 2009, PDO announced that they will fund four “smart” classrooms in four schools for the MoE<sup>9</sup> in four different regions.

### C. ROLE OF NON GOVERNMENTAL ORGANIZATION

There are a total of 6 groups of Non Government Organisations (NGOs) in Oman under the auspice of the Ministry of Social Development. Table 2 provides the details of NGOs in Oman.

TABLE 2. DETAILS OF NON GOVERNMENTAL ORGANISATIONS (NGOs) IN OMAN

Name of NGO	Target Group	Source of Funding	Branches	Members
Oman Women association	Women	Ministry of social Development	52	4908
Societies and Charity organizations	Community development through Charity work (Visually impair, Cancer enlightenment, social solidarity, ... etc)	Ministry of social Development, citizens	10	1103
Children handicapped association (Centers)	Handicapped children	Ministry of social Development	11	431
Early intervention for special need children	Special needs children	Ministry of social Development	1	128
Vocational societies			20	5035
Colonies clubs			10	2869

*Source: Strategic Planning Department, Ministry of Social Development 2009*

NGOs, such as the Oman Woman Association, take an active role in bridging digital literacy through adopting the Women in Technology program. This program aims to equip Omani women with IT skills and knowledge to empower them in a knowledge-based economy. (See section, C. Training programs for capacity building in the use of ICT). In addition, PDO provided funds for the setting up of IT classroom for the visually impaired school as well as training of their teachers. Such initiative ensures that the citizens with special needs can attain digital literacy and not be left behind in a knowledge-based economy.

<sup>8</sup> Oman Digital Society Report 2007 pg 36

<sup>9</sup> Oman Daily Observer, “Petroleum Development Oman signs social investment pacts with government and NGOs”, 7 April 2009.

## II. ICT INFRASTRUCTURE

### A. INFRASTRUCTURE

The internet communications platform riding on network access technologies such as fixed line, mobile cellular, wireless terrestrial and satellite, has increasingly gained widespread recognition as a knowledge infrastructure. At the end of August 2009, there were total 133,682 internet subscribers including Dial up, ADSL, and Prepaid Subscribers. The breakdown of subscribers at the end of August 2009 was 58 per cent dial up, 29 per cent ADSL and 12 per cent Prepaid Subscribers. Table 3 illustrates the latest figure as of August 2009.

TABLE 3. INTERNET PENETRATION FIGURES

Internet Subscribers: August 2009	
Internet Subscribers (Dial-up)	78,122
Broadband Internet subscribers (ADSL)	38,539
Internet Prepaid Cards Sold	16,640
Other Broadband (leased line)	381

Source: MoNE Monthly Statistically Bulletin September 2009.

Internet prepaid cards and cyber cafes are also playing important role to increase the internet usage in Oman. Omantel's prepaid internet services allow customers to access the internet from any fixed connection and its demand is growing. Omantel sold 18.7 per cent more prepaid internet cards (Al-Ufuq) for the denomination of OMR 6 and 35 per cent more cards for OMR10 during 2007 as compared to 2006. The demand for Cyber Cafes is also high due to low fixed line and personal computer penetration rate.<sup>10</sup>

#### 1. Telephone Penetration

The Telecommunications Regulatory Authority (TRA) was established in 2002, to liberalize and promote the telecommunications services in the Sultanate under the Telecommunications Act which was issued under the Royal Decree No. 30/2002. The Authority's policies and regulations aim to the development of infrastructure and the attraction of foreign investment into the sector. This will further promote the development of the Sultanate's economy and increasing employment prospects for Omani citizens.<sup>11</sup>

TABLE 4. FIXED AND MOBILE TELEPHONE PENETRATION RATES, AUGUST 2009

Type of Services	Value
Main Lines	215,004
Prepaid Lines	48,067
Number of Public Telephones (Payphones)	6,805
Total Main Telephone Lines (Fixed Lines)	263,071
Fixed Line Penetration (per 100 inhabitant)*	9.17 %
Mobile Postpaid Subscribers	343,366
Mobile Prepaid Subscribers	3,370,600
Total Mobile Subscriber	3,713,966
Mobile Penetration (per 100 inhabitant) **	130 % **

Source: MoNE Monthly Statistical Bulletin September 2009

\*Based on MONE 2007 population figures of 2,743,499

\*\* Figure is obtained by dividing the total number by the population and multiplying by 100

In addition to laying down the ground rules for the industry, infrastructure issues, number portability and inter-connectivity of both fixed and mobile lines, the TRA also oversees the pricing structure of the telephone operators. Table 4 indicates the level of mobile and fixed line penetration. From Table 4, mobile

<sup>10</sup> TRA Annual Report 2007 pg 27

<sup>11</sup> <http://www.tra.gov.om>

communication is clearly the most dynamic sector in the communication field with penetration rate of 130 per cent.

## *2. Wireless Local Loop (WLL)*

The Omani topography known for its high mountains, rocky earth and valleys besides scattered population over vast land areas constitutes one of the challenges in the efforts to spread telecommunication services in the Sultanate including telephone and internet. Moreover, there is significant gap between cities and rural areas, as over 40 per cent of Sultanate's fixed lines are in Muscat, with the rest spread throughout the country. TRA and Omantel have been working hard over the past years to reduce this gap. TRA aims to enable every citizen with access telecom service at affordable price although he/she lives in remote areas and bring them at a level so that he/she enjoys digital culture within the framework of digital society. Omantel initiated WLL project to fill up the gap and to cover rural villages those are un-served. WLL services covered more than 200 rural villages in all the regions of the Sultanate. They had provided 19,950 phone lines by using the frequency band of 450-470 MHz to contribute to some extent to the spread of digital culture in these rural villages and help residents to acquire information. This played an important role in securing interaction between remote villages and cities and outside the world.<sup>12</sup>

## *3. Universal Service Objection (USO) Project<sup>13</sup>*

TRA also planned a USO project to cover the rest of the villages in the Sultanate which will further help in enhancement of digital culture in the society within the framework of the efforts of the government to implement the e-government and digital society projects. A public consultancy was called in 2007 on the USO implementation policy and 30 underserved rural areas have been targeted for a pilot implementation in the second half of 2009.

## *4. PC Penetration*

PC penetration is relatively low as well in Oman. The official figure based on 2003 population census is 5.06 PCs per 100 inhabitants.<sup>14</sup> The National PC initiative aims to address two main issues in ITA's strategy, namely, capacity building and PC penetration. The program intends to build capacity in the general population by creating a PC bundle offer that is affordable, provides value and includes a basic training module. The latter is designed to get the citizen off to a 'fast start' in his ability to use the core system and the Internet and in doing so increase the PC penetration rate. A feasibility study was carried out in 2008 to determine the best options to implement this project. A national roll-out plan is expected to be done in the fourth quarter of 2009.

# **B. INITIATIVES/PROJECTS FOR ICT INFRASTRUCTURE AND DEVELOPMENT OF NEW SERVICES**

## *1. National Data Center (NDC)*

ITA signed an agreement with Mideast Data Systems (MDS) for the establishment of the National Data Centre in the first quarter of 2008. The National Data Center addresses the shortage of a reliable infrastructure in Oman to house critical government IT systems and data and will enable the government to sustain services to the required mission criticality level. This situation was evident in 2007 when tropical storm "Gonu" struck Oman. The NDC will enable government agencies to utilize the site either as their main IT site or as their Disaster Recovery Center. It also addresses the requirement for a disaster recovery strategy that is absent in almost all of the government IT systems. The National Data Center will also have the setup for the environment necessary to house ITA led IT initiatives such as; the eGovernment Services (Ubar)

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<sup>12</sup> TRA Annual Report 2007 pg 26

<sup>13</sup> TRA Annual Report 2007 pg 27

<sup>14</sup> Sustainable Development Indicators 2006, Ministry of National Economy

Portal, Security Infrastructure, ePayment Gateway and Public Key Infrastructure.<sup>15</sup> The NDC is completed and officially launched on 3 May 2009.

## 2. Additional Fixed Line Services from Second Operator

Nawras, the second mobile telephone operator has been awarded the second Fixed Line Licence in Oman on the 27th November 2008. With this licence, Nawras has plans to introduce Fixed Line Services (voice and data) in Sultanate of Oman. The key in delivering broadband Internet data access to the greatest number of the Sultanate's population is the "last mile" access network. They intend to use the optimal combination of fixed line technologies and Broadband Wireless Access (BWA) technologies. Nawras intends to roll out the BWA network using equipment based on the WiMAX standard, as it is the best-in-class currently available BWA technology, and enjoys the backing of an ecosystem of operators and vendors worldwide. A WiMAX access network enables a new operator to build its own "last mile" infrastructure, and to avoid being dependent upon the incumbent's fixed copper network.

They plan to provide broadband access in all regions and points of presence for more than 95 per cent of the regions in one year, provide broadband services to >81 per cent of the Omani population by the end of 2010 and provide broadband coverage to 100 per cent of Wali offices, 51 per cent of schools, 64 per cent of hospitals and health centres, and 90 per cent of police stations by the end of 2010.<sup>16</sup>

## 3. Mobile Virtual Network Operator (MVNO)

In June 2008, TRA awarded 5 companies in Oman with Class II<sup>17</sup> licence. These companies become Oman's first mobile virtual network operator (MVNO) by reselling mobile phone service. The new Class II licenses are expected to boost demand for basic mobile services as the resellers target new subscriber segments through enhanced marketing strategies. The infrastructure serving basic mobile services is expected to grow and the new licenses would help bring down prices and further diversify the offered mobile services to subscribers. Under the license terms, the new firms are obliged to earmark a minimum of 65 per cent of all jobs for Omanis during the first year of operation. They must also set up contact centre to respond to customer queries and complaints.<sup>18</sup> Currently, 2 MVNOs namely Mazoon Mobile and Arabia Connect have launched their products and services. Oman's telecommunication industry becomes the first to entertain MVNO's in the region.

## 4. Future Trends in ICT

TRA has doing various studies to meet the technological convergence of media, communication and the internet so that it would be ready for the future. The bundling of phone, data and televisions – known in the telecommunications industry as Triple Play services, has moved into the limelight a set of different business models. In order to promote the use of new technologies in the field of telecommunications, TRA has looked into the following future technology.

### (a) Next Generation Network (NGN)<sup>19</sup>

Telecommunication development requires an infrastructure beyond the existing subordinated networks –a core network for all the access networks. This new network is called the Next Generation Network

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<sup>15</sup> ITA Annual Report 2006-2007 pg 25

<sup>16</sup> Nawras RFQ dated December 2008

<sup>17</sup> Definition of Class II License - The provision of public telecommunication services that depend on using the capacity of telecommunication network of Class 1 license and the provision of additional public telecommunication services which require exploiting the national resources (numbering), without exploiting any natural resource of the Sultanate shall be through Class Two license issued by a decision of the Minister based on a proposal of the Authority after its approval. The decision shall determine the duration of the license which is not to exceed 10 years. [http://www.tra.gov.om/newsite1/ClassII.aspx?Menu\\_ID=23](http://www.tra.gov.om/newsite1/ClassII.aspx?Menu_ID=23)

<sup>18</sup> <http://www.tra.gov.om/newsite1/NewsDetails.aspx?newsid=56>

<sup>19</sup> TRA Annual Report 2007 pg 61

(NGN). The internet protocol is the most significant integration factor because it is available globally and, at least in principle, it can use almost all the services and applications in all the networks. The ITU dedicated to technical aspects of telecommunications- regards NGN technology to support new services with greater operational flexibility on IP communications platform with soft switches. The service functions provided are independent from basic transmission functions and are based on the Internet Protocol (IP). The advantage of IP networks is their flexibility and the simple integration for new applications. Many operators around the world are investing in next generation network technology.

(b) Wi-Fi<sup>20</sup>

Wi-Fi enables the user to connect to the internet without wires or cables. One of the benefits of Wi-Fi technology is its ability to have a wireless connection for laptop to the Internet and corporate network when away from the office. Many cafes, coffee shops, libraries, airports, and other public places offer Wi-Fi Access Points for general public. These public Wi-Fi Access Points are often called Wireless Hot Spots. In order to get connected the user simply needs a Wi-Fi enabled device and a Wireless Internet Service Provider (WISP) account. There are 21 Wi-Fi Hotspots operated by Omantel in Public malls, lobbies, cafés and restaurants.

(c) Voice over IP<sup>21</sup>

The telecom world is rapidly migrating from circuit switching to packet switching. Many international service providers around the world have deployed Voice over IP services in their networks. As opposed to traditional Public Switch Telephony Network (PSTN) where voice is transported using dedicated circuits, VoIP service architecture exploits processing calls by transporting packets of data that contain voice without having to dedicate a circuit for every call. Voice over IP technology has evolved over the time, VoIP will be an area of high priority for TRA and developing and articulating a long term view of VoIP and increased liberalization in light of global developments. The TRA is in the process of developing rules and regulations that will create the right environment for operators to deploy their VoIP services.

(d) Broadband Wireless Technologies<sup>22</sup>

Broadband Wireless Access (BWA) is a term used to describe new broadband wireless technologies that involve mobile, nomadic and fixed applications. Growing demand for bit stream access to provide multimedia services at fixed locations has led the industry to develop new technological solutions capable of surmounting the technical hurdles involved (such as direct line of sight), with more efficient modulation techniques than those that have added mobility. TRA called for a public consultation in March 2008 to invite discussions on the technical issues involved (e.g. technical solutions, spectrum and standards) and at a regulatory framework for this technology, with the aim of achieving harmonization in the adopted solutions.<sup>23</sup>

### C. ICT CONNECTIVITY

Achieving total country connectivity in Oman is quite a challenge due to the vastness of the country and the population distribution. Apart from main cities like Muscat and Sohar which housed a third of the population, the remaining of the population is spread throughout the 309,500 sq km. With the slew of recent ICT initiatives under the Digital Oman strategy coupled with liberalization of the telecommunication industry, Oman hopes to bridge the digital divide and enable the citizens, civil servants and private businesses to interact, transact and transform Oman into a knowledge-based economy.

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<sup>20</sup> TRA Annual Report 2007 pg 61

<sup>21</sup> TRA Annual Report 2007 pg 61-62

<sup>22</sup> TRA Annual Report 2007 pg 62

<sup>23</sup> [http://www.tra.gov.om/newsite1/Portal/Upload/Documents/279\\_PC\\_BroadbandWirlessAccess.pdf](http://www.tra.gov.om/newsite1/Portal/Upload/Documents/279_PC_BroadbandWirlessAccess.pdf)

Today, all schools, colleges and government offices are electronically connected via various means. Through the eGovernment Services Portal,<sup>24</sup> various eGovernment services are being developed to meet the demands of a knowledge-based economy. The rest of the public institutions are undergoing various degree of transformation to be able to provide electronic services and harness the power of information technology. The Governance Office in ITA is charged with the mandate to assist such entities to embrace information technology. By the end of 2008, the ITA Governance Division had provided consultancy services to 22 government entities.<sup>25</sup>

With the focus on meeting the ICT needs of persons with disabilities, in 2008, Oman celebrated the UN/ITU World Telecommunications and Information Society day which aimed to empower every citizen with information and knowledge, improve the lines of communication to the remotest and most vulnerable groups. During the 2008 celebrations under the theme ‘Connecting Persons with Disabilities: ICT Opportunities for All’, ITA addressed the special requirements of disabled people. The visually challenged were given laptops, screen-reading software and training programs during the events.<sup>26</sup>

In addition, children/student online magazines are made available through the MoE’s Education portal in Arabic which served as information for parents and students as well.<sup>27</sup> To connect the 1052 schools in the MOE schools, a combination of fixed connectivity, wireless and satellite connectivity are used to bring the internet into the classrooms across all schools. Table 5 provides the details.

TABLE 5. TYPE OF CONNECTIVITY IN THE MOE SCHOOLS

No of Schools	Type of Internet Services					Educational Regions
	ADSL	Dialup/Prepaid	Wireless Land Line	Total less V-Sat	V-Sat	
1052	242	357	48	647	*322	11 Regions

Source: Ministry of Education Statistics

\*Include areas with weak dialup connection

#### D. INTERNET INFRASTRUCTURE

Currently, Internet Services are being provided mainly by the fixed line Operator Oman Telecommunications Company (Omantel). Omantel is a publicly listed telecommunication company which is 70 per cent owned by the government. It is the largest communications service provider in the Sultanate of Oman. In 2008, Telecommunications Regulatory Authority (TRA) has already opened up the ISP market segment for competition. However, no new ISPs have come forward. One of the main reasons is lack of infrastructure support for potential ISPs. Local loop un-bundling is yet to be implemented in Oman, though a Consultation Paper on the same has already been floated for public consultation and responses are awaited. Another Consultation Paper on “Opening Up of Telecom Market” has also been floated in 3 March 2008.

The National Internet Protocol (IP) network comprises 11 Post-Office Protocol (PoP) covering the whole country. Muscat, the most densely populated city in the Sultanate has 3 PoPs. Each PoP is equipped to provide IP services covering: Dial-up, ADSL, Wi-Fi, Leased Lines and corporate services such as MPLS. The broadband speed provided varies from 512 kbps up to 16 Mbps.<sup>28</sup>

The other means of internet delivery includes Wi-Fi hotspots deployed in cafes, shopping malls and hotels. In addition, users have accessibility to the internet by using the 3G mobile network. In the rural areas, internet access via Satellite is also provided as part of a lease line offering especially for schools and

<sup>24</sup> <http://www.oman.om/>

<sup>25</sup> ITA Annual Report 2006-2007 pg 33-34

<sup>26</sup> <http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx>

<sup>27</sup> <http://www.moe.gov.om/portal/sitebuilder/sites/EPS/Arabic/MOE/eduauth.aspx>

<sup>28</sup> Omantel Infrastructure Overview, May 2009

hospitals. Oman has two internet gateways in two locations that is the peering point for Internet Traffic to and from Oman.

Omantel presently hosts the .om root servers. The current international bandwidth is 3.5 Gps and the actual traffic is 2.1Gbps.

New Broadband Access Technology options are also being explored. Omantel also is executing a major initiative towards provisioning of Broadband services and quantum jump in the growth is expected in coming months. Individual ISPs are also expected to meet the requirements for security and interceptions which tend to increase the cost. Further, each ISP in the normal circumstances needs to link to the global internet backbone through international leased circuits. Multiple ISPs are likely in coming months, provided access is given to the necessary and available infrastructure.<sup>29</sup>

The government is committed to expand the base of internet users in the Sultanate. In order to increase the number of internet subscribers, several measures have been adopted including significant investment by the government owned company, Omantel, in various projects for infrastructure development, reduction in tariffs for special entities such as schools and other educational institutions etc, and decrease in leased line tariffs.

The effort exerted by the government over past years in the area of information technology and the internet reflects the growing importance of technology in modern world. TRA is aware of the role of internet in providing information and data and due importance is given for internet expansion throughout the country. It is also attractive proposition for the operators. Considering the importance and role of internet, Omantel invested OMR 7 million for the provision of broadband for ADSL to facilitate the roll out of 180,000 new ADSL lines in all parts of the Sultanate. It has introduced wireless internet service known as Wi-Fi in commercial complexes, cafes, hotels and airport where frequent users can surf internet at high speed through prepaid cards.

On the other hand, the Sultanate is among the most important country in the world in the field of telecommunications, as it has become a main point of international telecommunications traffic and an international transit point for the internet through submarine fibre optic cables. The Sultanate has great potential to become a hub for international cables as Seeb and Khasab are suitable points for these cables. This can constitute a great shift in economic development process and a leap in telecommunications sector and information technology in the country.

Hence, Oman Economic Review projected that the compound annual growth rate for internet penetration could grow at an impressive 21.5 per cent from 2005-2009 (assuming the entrance of a second internet provider). This would increase the number of subscribers from 63,000 in 2006 to 185,000 by 2009.<sup>30</sup>

### *Mobile Internet*

One of the major driving factors in the recent popularity boom in mobile connectivity is the fact that traditional landline options are simply unavailable or are prohibitively inconvenient to access in many areas. Wireless connectivity is key to the development of internet infrastructure in Oman. Due to the long waiting time for fixed line connections (sometime waiting reached to three months) more customers are turning to mobile options.<sup>31</sup> Nawras, the second mobile operator offers the wireless internet connectivity with its Nawras Broadband Internet and Mobile Internet. Broadband Internet is using the Nawras 3G+ network and provide the fastest Internet access in Oman. The service is available in all major cities. Mobile Internet is based on the Nawras 2.75G network and although slightly slower than 3G+ is more widely available in areas outside of Muscat and Sohar and is instantly available.<sup>32</sup>

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<sup>29</sup> [http://www.tra.gov.om/new/english\\_tra/pdf/Public\\_Consultation\\_Internet\\_Exchange.pdf](http://www.tra.gov.om/new/english_tra/pdf/Public_Consultation_Internet_Exchange.pdf), pg 5

<sup>30</sup> Emerging Oman 2007 pg 119

<sup>31</sup> Emerging Oman 2007 pg 119

<sup>32</sup> [http://www.nawras.om/nawras\\_internet\\_overview.shtml](http://www.nawras.om/nawras_internet_overview.shtml)

However, separate figures are not available as the current internet subscribers figures only considered fixed line connections. Wireless internet connections are counted as mobile subscribers, hence the surge in the number of mobile connectivity.

In rural areas where land or wireless infrastructure are not feasible, satellite connectivity provides an alternative option.

### III. ACCESS TO INFORMATION AND KNOWLEDGE

#### A. PUBLIC DOMAIN INFORMATION

##### 1. *Oman Electronic Network (OEN)*

The Oman Electronic Network (OEN) represents the new media that was established by Ministry of Information in 1996 and developed consistently to be a channel to the outside world, through which it can present a complete portrayal of Oman and its development, in addition to providing authentic information about the Sultanate. It contains more than forty main branches sites, beautiful and impressive galleries about nature and daily life in Oman. It provides links to hundreds of useful sites. It is a window into aspects of life in Oman including development, investment opportunities, tourist sites, heritage and historic as well as modern attractions.<sup>33</sup>

OEN continually updates its portal and relevant websites contents Arabic & English and offer links to several major websites around the world. On February 2007 OEN's portal <sup>34</sup>(Omanet) began transmitting its "Daily News Letter – Arabic electronic News paper – as part of the global service for subscribers to its popular with Omani Students in the United States, Britain, Morocco, Malaysia, Japan, India, Pakistan and elsewhere. The Oman electronic Network's English version has been inaugurated in November 2008. A list of related website is attached in Annex I.

Visitors to OEN's websites have been dramatically increased from (1,494,067) one million, four ninety four hundred thousand and sixty seven in 2003 to (54,914,341) fifty four million, nine hundred thousand and fourteen, three forty one in 2008.<sup>35</sup>

##### 2. *Oman Statistics Online (OSO)*

The increasing awareness of the importance of statistics and its many uses, has led many governments and non-governmental units in the sultanate to indulge in statistical activities that cover data collection, analysis and the issue of statistical bulletins and reports. The National Statistics Online a flagship project which aims to present socio-economic indicators based on various criteria and timeline in a dynamic and graphical manner. Oman Statistics Online (OSO) is a free-access online database with quality data compiled and published by the Ministry of National Economy (MoNE) periodically.

##### 3. *National Records and Archives Authority*

Established by Royal Decree No. 60/2007 on 2<sup>nd</sup> July 2007, the Authority organises and manages documents and archives.<sup>36</sup> The NRAA catalogues and stores a wealth of Omani records and written documentation. Its property is deemed to be public property. The Authority is based in Muscat with plans to establish computer linked branches in the governorates and regions. The Authority plans to invest in an ICT based library system to manage the textual and non-textual materials found in their archives.<sup>37</sup>

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<sup>33</sup> Oman 2008-2009 published by the Ministry of Information pg 82

<sup>34</sup> <http://www.omannet.om>

<sup>35</sup> Ministry of Information – Information Bulletin pg 10

<sup>36</sup> Oman 2008-2009 published by the Ministry of Information pg 60

<sup>37</sup> Oman 2008-2009 published by the Ministry of Information pg 161

#### 4. *Omani Manuscripts*<sup>38</sup>

The Ministry of Heritage and Culture's Manuscripts Department has a collection of some 4,600 manuscripts from Oman and elsewhere covering a diverse range of topics. The manuscripts on medicine, chemistry, hadith, Quranic sciences along with critical interpretation of the text have been catalogued as part of a scheme that aims to index all the manuscripts in the department's possession. The Manuscript Department offers facilities for scholars and post-graduate students to study the manuscripts in details of its published and printed materials which can be accessed through internet. The process of documenting and preserving them is still on-going. The project to install a digital based library repository is entering into its tendering stage.

#### B. ACCESS TO INFORMATION AND PUBLIC INFORMATION

The National Records and Archives Authority provides access to information and public information in the Sultanate. Currently the public records are manually accessible as they are established only in 2007. The Authority plans to invest in an ICT based library system to manage the textual and non-textual materials found in their archives.<sup>39</sup>

In addition, all government entity websites provide limited retrieval function of archival issues which have been published and stored electronically in their database. These documents are mostly stored using portable document format or html for easy retrieval.

Through the eGovernment Portal, users can obtain detailed information about the government service and how these services are provided by organizations as well as the mechanisms to obtain such services. In addition, another initiative is being rolled out to implement a contact centre for government services which will be initially targeted towards providing citizens with information in relation to government services and addressing concerns and issues that relate to government services. ITA is also working with various government organizations to enhance their web presence through providing guidelines in developing web sites such as presenting information related to respective organizations on their web sites, providing a mechanism for interaction between organizations and citizens and facilitating general knowledge about the government. ITA is providing government organizations with a common look-and-feel for government web sites that link to the government e-services portal

#### C. MULTI-PURPOSE COMMUNITY PUBLIC ACCESS POINTS

##### 1. *Library of Public Knowledge*<sup>40</sup>

The Library of Public Knowledge is based in Qurum, Muscat. It invites public to make use of its information services including the latest books, periodicals and internet services. However, at present, there are no electronic books or on-line services available to the public.

##### 2. *Community Knowledge Center (CKC)*

Apart from the public libraries, ITA has set up Community Knowledge Centers (CKC) in various regions in Oman as part of their eOman strategy to bridge the digital divide. These CKCs are set up within multi-purpose facilities such sports complex and education institutions for easy access by the general public. Currently, the CKCs have been set up in the following cities:

- Sultan Qaboos Sports Complex –Muscat;
- Sur Sports Complex – Sur;
- Seeb Sports Complex – Seeb;

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<sup>38</sup> Oman 2008-2009 published by the Ministry of Information pg 157

<sup>39</sup> Oman 2008-2009 published by the Ministry of Information pg 161

<sup>40</sup> Oman 2008-2009 published by the Ministry of Information pg 157

- Salalah College of Technology – Salalah.

Each CKC will be equipped with the required computing and communication equipments and furnishings. The trainers will be trained to offer IT training at the CKC using the Microsoft Digital literacy curriculum, to the rest of the community. Public can utilize the CKC centres for accessing the Internet for availing e-services and participating in IT training. This initiative supports members of the community to prepare for higher Digital Literacy Certifications and provide them with free access to the e-services.

#### D. USING DIFFERENT SOFTWARE MODELS

The Government of Oman, represented by ITA, signed a 3 year agreement with Microsoft on the 2 Jul 2006. The agreement enables the government to procure licenses to facilitate the use of Microsoft Desktop Products and they will invest 6.5 million OMR in this program which initially covered the use of the licensed products for 22,500 desktops across a range of government organizations. In 2008, the number increased to 31,320 for Microsoft desktop and 1956 for server licenses. This initiative encourages the adoption and use of licensed software within the government agencies and discourages the use of unauthenticated or pirated software, thus protecting Intellectual Property Rights within the Sultanate.<sup>41</sup>

ITA also has a similar agreement with Oracle and in 2008, a total of 1048 licenses were purchased for government usage.

ITA is currently working with other software providers such as Sun Microsystems, CISCO, IBM, SAP, etc; to explore ways in which alternative software model can be developed and adopted in the Digital Oman strategy.

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<sup>41</sup> ITA Annual Report 2006-2007 pg 45

## IV. ICT CAPACITY BUILDING

### A. BASIC LITERACY

#### *Basic Education*

The Sultanate's educational sector has made impressive progress, maintaining traditional values while embracing the science and culture of the modern world. For more than three decades education has been a priority sector for the government, taking the Sultanate from the era of the "kuttab" (traditional Qur'an school) often conducted under the shade of a tree to the high tech university age. Literacy rate among 15-25 age group is at 87 per cent in 2006. Education is free and available to all Omanis. The school year, 2007-2008, there are 553,000 students in Oman's 1,052 government schools, staffed by some 42,000 teachers.<sup>42</sup>

The Ministry of Education also regards the private education sector as being within its remit and monitors the country's private schools regularly to ensure they comply with standards and regulations. Today there are 174 private schools with 37,000 students and 2,484 teachers.<sup>43</sup>

Under the revised education system, Information Technology is incorporated into the curriculum. Some 292 schools in various parts of the country are now equipped with a modern wireless system, giving students easy access to computer facilities and a computer network and creating links between students, teachers and the electronic course syllabus. Around 350 schools have internet facilities, some with ADSL/Broadband, and students can obtain their general certificate examination results via the internet.<sup>44</sup>

On 1 Sep 2007, the Education Portal<sup>45</sup> was launched. The Education portal, IT applications are used to support learning, teaching, administration and communication with the various stakeholders especially parents. The Portal provides an electronic link between schools, the regional educational directorates and departments and the Ministry, enabling them to transfer and exchange plans, programs, data and statistics. It is one of the biggest e-government initiatives in the Sultanate, initially covering 304 schools and over 112,800 students and 6,855 teachers in Muscat and in Buraimi.<sup>46</sup>

### B. ICT IN EDUCATION AND TRAINING

Information Technology is now taught in all schools as a separate subject from Grade 1 to Grade10 in Basic Education. In Grade 11, the ICDL (International Computer Driving License) is a required course and each student has the opportunity to learn IT skills. There are units in many subjects that require application through exercises in IT. Students in the Basic Education program make use of the Learning Resource Centres at their schools to practice their IT skills. Students in Grades 5 to 9 of Basic Education have access to computer laboratories where both PCs and laptops are available.

Education plays a critical role in the two aims of eOman: developing awareness and building capacity. The majority of the Sultanate's Higher Education Institutions (HEIs) offer programs in IT or Computer Science, with Sultan Qaboos University and the Government's newly transformed Colleges of Applied Sciences (formerly Colleges of Education), as well as many private universities and colleges, offering major or degrees in IT. And there are two exclusively technology oriented colleges namely the Middle East College of Information Technology and the new Oman-German University of Technology.

The Oman Accreditation Board has developed a high end, state-of-the-art interactive web site and the MoHE is in the process of upgrading their existing web site to a similar standard. For effective IT capacity

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<sup>42</sup> Oman Statistical Year Book 2008

<sup>43</sup> Oman Statistical Year Book 2008

<sup>44</sup> Oman 2008-2009, Ministry of Information pg 114

<sup>45</sup> <http://www.moe.gov.om/portal/sitebuilder/sites/eps/english/home.aspx>

<sup>46</sup> Ministry of Education website, <http://www.moe.gov.om>

building in the area of Human Resources, it is best to begin with the young child. The Ministry of Education has made great strides in expanding access to computers in schools and in integrating e-learning in the curriculum.

Oman's government has plans to use the Internet to increase eGovernment and eEducation. On January 2007, Omantel launched the Easy Learning Service to provide hundreds of electronic training courses in accounting, sales, marketing, and customer services. In February 2007, Omantel began offering sixty free hours of Internet access to new subscribers, describing the initiative as part of a larger plan to spread digital culture.

### 1. *ICT for Special Needs Education*

The PDO also funded the setting up of a state-of-the-art computer facility at the Al Wafa Technical Centre at Omar Ibn al Khatab Institute for visually impaired. The fully equipped computer laboratory serves the educational needs of the visually impaired students using the latest trends in hardware and software including the Text-to-Speech (TTS) technology, which displays Arabic text in Braille language. So far, 19 students have been trained on content enlargement to read books and documents and another 123 students and 7 teachers are trained on the Super Nova (TTS) where they learn to write using the keyboard. Technology is providing new opportunities for the visually impaired to learn, to communicate and to work. It provides them with a tool to allow them to fulfil their potentials<sup>47</sup>.

### 2. *Women in Technology Program*

The Women in Technology program organized by the Omani Women's Association –Muscat (OWAN) along with Microsoft and the Institute of International Education has trained and certified a total of 1,163 women with 33 trainers at 11 centres across the Sultanate. The program delivers IT training through Microsoft's Unlimited Potential (UP) curriculum along with Professional Development workshops that aim to improve women's standard of living and quality of life by building their knowledge and skills and eliminate illiteracy in information technology (IT).<sup>48</sup> Their plan is to train approximately 10,000 women by 2010, induct them into mainstream workforce and expanded to cover the remaining 42 women associations.

## C. TRAINING PROGRAMS FOR CAPACITY BUILDING IN THE USE OF ICT

The National IT Training & Awareness Framework (NITTA) initiative is a governmental nation-wide eOman initiative aimed at developing Information Communication Technology skills, capability and increasing ICT awareness and proficiency within the Government, the community and the private sector. The NITTA Framework covers a wide range of ICT competency and skills development projects. Based on the NITTA Framework, ITA has implemented the following projects:

### 1. *Government IT Training & Certification in IT (GITC)*

ITA selected Certiport Internet and Computing Core Certification (IC<sup>3</sup>) for nationwide implementation. The Government IT Training and Certification program (GITTC) that was formally sealed with a contract between the ITA and Certiport Inc, US commence its training schedule at the end of February 2009. This contract is to train about 93,507 civil employees in cooperation with the MoCS and the MoE over a period of three years.<sup>49</sup> The project will improve the skills and performance of the civil servants, empowers them with ICT knowledge and skills to enable delivery of public sector e-services and most importantly prepare them for the knowledge-based economy.

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<sup>47</sup> Oman Digital Society Report 2007, pg 45

<sup>48</sup> Oman Daily Observer, "Oman Women's Association takes part at the Women's Forum for the Economy and Society", 3 Dec 2008

<sup>49</sup> Oman Daily Observer 16 Feb 2009, pg 2

## *2. The Community IT Training Project*

The Community IT Training Project aims to provide Information Communication Technology Training opportunities to the citizens of Oman in order for them to fully participate in a digital, knowledge-based society. The initiative aims to deliver digital literacy training programs to the community through the use of Community Knowledge Centers that will be established in all the governorates and various regions of the Sultanate. ITA conducted 2 pilots in July 2007 and August 2008. A total of 543 citizens participated in the pilot. A national roll-out plan is being put in place and Memorandum of Understanding was signed in 2008 to signify the partnership between the ITA and the NGOs which include Oman Woman Association, the Sports Centers and Educational Institutions.

## *3. Specialised IT Training*

In order to provide specialized IT Training to all government employees engaged in IT positions, a number of specialized training courses such as the Microsoft Certified Systems Engineer (MCSE), Microsoft Certified Solution Developer (MCSA) and Microsoft Certified Databases Administrator (MSDBA) were offered. Through the pilot program, ninety-eight civil servants were tested from which 19 underwent the MCSA training and 15 were certified by Microsoft.<sup>50</sup>

In 2008, ITA oversaw the conduct of 51 per cent of the 116 seats of the Microsoft Specialized Trainings (MCSA-MCSE-MCSA). They hope to fully utilize the seats by June 2009. Through the Microsoft Licensing Agreement, ITA also conducted End User Training which saw 40 per cent completion of 1330 seats and Train-The-Trainer program which saw 45 per cent completion of the 42 seats. ITA hopes to fully utilize all the seats by June 2009.

In addition, the Microsoft eLearning for Microsoft application, servers and operation system which is enabled based on the number of registered licenses.

## D. INNOVATION AND PATENTS

The Innovation and Support Center (ISC) was established by ITA on 26 January 2008. The center was established in association with Microsoft Corporation, houses consultants who work with a local team to identify, design and implement new innovative solutions to benefit the Government of Oman. The ISC aimed at creating a local ICT center with world-class capabilities, managed and operated by highly trained local Omani talent.<sup>51</sup> Up till December 2008, a total of 300 government employees from the Ministries and auxiliary government entities had been trained in the ISC.<sup>52</sup>

ISC facilitates governmental IT day to day support issues, with assistance just a phone call away. To date, the ISC has completed 9 e-government consultancy projects for various ministries and government bodies.<sup>53</sup>

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<sup>50</sup> ITA Annual Report 2006-2007, pg 30

<sup>51</sup> ITA Annual Report 2006-2007, pg 27

<sup>52</sup> Innovation Support Center Administration

<sup>53</sup> <http://www.isc.gov.om>

## V. BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICTS

### A. USE OF ELECTRONIC TRANSACTIONS AND DOCUMENTS

Apart from emails as one of the communication means, the use of electronic transactions and electronic means of authentication have yet to be implemented in Oman. Until the full implementation of the eGovernment Services Portal and the development of more eGovernment applications, the use of electronic documents and transactions will be limited.

On 14 Mar 2009, ITA signed a Memorandum of Understanding with the National Digital Certification Agency (Agence Nationale de Certification Electronique - ANCE) to undertake cooperative efforts to establish the Digital Certification system for the Sultanate in order to enhance the use of electronic transactions and documents. The ANCE is working to foster a climate of confidence and security for eGovernment services. Digital certification aims at enabling citizens to have on-line access to administrative services from their own homes and in full confidence through strong authentication and digital signature solutions.

### B. ONLINE AND NETWORK SECURITY

The centre of information security provides a set of security services which are based on standards and best practices to the Oman Government entities to ensure information confidentiality, integrity, availability and non repudiation. Since its inception in 2007, the centre has provided security consultancy to a number of government entities in establishing an information security management systems, trained a number of security professionals from the government in implementing information security management systems as per the ISO 27001 standard, conducted a number of security seminars and conferences for government staff and provided security solutions and security advice and consultancy to other eOman projects and initiatives.

### C. PRIVACY AND DATA PROTECTION

The rapid development of the information produced inevitable legislation in this area. This is essential to develop definitive legal interests of individuals and ensure their protection which in all cases should not be the information and means to diminish the human dignity, human rights or public and private life. The legislature laid the ground rules for electronic transactions with a separate section addressing privacy and data protection.<sup>54</sup> There are 9 chapters and 54 Articles listed in the Electronic Transaction Law. Chapter 7 specifies the protection of private data and Articles 43 to 49 lay down the rules on when and how such data can be collected and use. For instance:

- Article 43 states that personal data cannot be collected without explicit consent of the person from whom such data is collected;
- Article 44 states that the authentication service provider shall ensure confidentiality of the personal data in his possession and he shall not be allowed to disclose or transfer or declare or publicize these data for any purpose;
- Article 45 states that any person who controls any personal data by virtue of his job in electronic transactions shall, before processing such data, notify the person from whom it is collected by a designated notice of the procedure he is following to protect those data;
- Article 46 states that the authentication service provider shall, upon the request of the person from whom data is collected, enable that person to have access to or update those personal data;
- Article 47 states that the users of the personal data collected shall not be allowed to send electronic documents to the person from whom such data is collected if he explicitly refuses to accept them;

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<sup>54</sup> Chapter 7 from ETA 69/2008

- Article 48 states that any person controlling personal data is not allowed to process these data if the processing will cause damage to persons from whom such data is collected or will prejudice their rights and freedoms;
- Article 49 states that when the personal data are supposed to be transferred outside Oman, regard shall be had to the security of such information.

#### D. COUNTERING MISUSE OF ICTS

Increasing incidents of security risks in the use of computers and the internet as well as the lack of adequate information security awareness are global phenomena requiring organized ways to tackle the related issues. As a proactive approach, ITA aims to establish the National Computer Emergency Response Center (CERT) in order to create cyber security awareness and to undertake proactive measures to minimize security risks and their impacts as well as to respond to the security incidents.

On 17 March 2009, ITA engaged E-COP PTE Ltd., Singapore (E-Cop) to set up the National Computer Emergency Response Center (CERT) of the Sultanate. Through this contract E-COP will establish, operate the National CERT of Oman, and transfer knowledge to the Omani team in the next 20 months period. The National CERT is a vital component of the nation's IT strategy aiming to create adequate cyber security awareness as well as to respond to security incidents in a timely manner.

In 2008, ITA supported the establishment of the GCC CERT committee as a GCC initiative. ITA representative is currently the Chairman for the GCC CERT committee. In 2009, Oman obtained the membership of OIC-CERT.

## VI. ENABLING ENVIRONMENT

### A. LEGAL AND REGULATORY ENVIRONMENT

#### 1. *Telecommunications Regulations*

The Telecommunication Regulation Authority (TRA) regulating the telecommunications sector works in accordance with the Telecom Act (Royal Decree No: 30/2002) which has provisions regarding the use of any electronic means for communication including radio waves. The above act also penalises violations by way of misuse of any telecommunication medium under the control of TRA with high penalties and imprisonment. In addition, the VOIP regulation is being draft in September 2008. This regulation relates to the use of VOIP licensing and services.<sup>55</sup>

#### 2. *Electronic Transactions Law - Royal Decree 69/2008*<sup>56</sup>

The e-transactions law consists of 9 sections and combined as 54 articles which have been developed and refined over a period of 3years. ITA along with a few other government entities and a private law firm have compiled this law based on studies about the United Nations Commission on International Trade Law (UNCITRAL), Organization for Economic Cooperation and Development (OECD) guidelines on the Protection of Privacy and trans-border Flows of Personal Data, and e-laws of several countries and personal data Protection, electronic crimes involving e-transactions.

The e-transactions law of Oman legalizes the use of digital signatures in and communications through letters, emails, etc. Organizations wishing to introduce digital signatures for their use must be approved by the ITA through a formal process. The objective of this regulation is to control and regulate electronic transactions and provide a legal framework that facilitates e-transactions, consolidating the public trust in the

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<sup>55</sup> [http://www.tra.gov.om/newsite1/Guidelines\\_Regulations.aspx](http://www.tra.gov.om/newsite1/Guidelines_Regulations.aspx) (REG/TA/0015 dated 2 Sep 2008)

<sup>56</sup> <http://www.ita.gov.om/ITAPortal/Data/DocLibrary/FID2009511101710689/Electronic%20Transactions%20Law.pdf>

safety and authenticity of the e-transaction, messages, and records and reinforcing the development of the e-transaction at the national, Gulf, and Arabic domain by using the e-signature.<sup>57</sup>

To educate the public on the Electronic Transactions Law, ITA held five workshops in 2008. The objectives of these workshops were to enhance awareness about the Electronic Transactions Law of Oman and clarifications regarding specific applications of this law.

## B. DOMAIN NAME MANAGEMENT

According to ISO 3166 standard domain name codes, .om (Sultanate of Oman) is the two-letter country code, referred to as the 'Top Level Domain' (TLD), in Internet terminology, assigned to the Sultanate of Oman by the International Corporation for Assigned Names & Numbers (ICANN). Registration of domain names under the '.om' TLD is managed solely by the Oman Network Information Centre (OMNIC) under the Ministerial Decree No.44/2001. The mission of OMNIC is to provide an equitable, just and competent technical and administrative management of domain name registrations and IP address allocations for Internet community in the Sultanate of Oman.<sup>58</sup> The total registered domains under .om are 988 domains.

## C. STANDARDIZATION IN ICT

### *Oman e-Government Architecture Framework and Standards (OeGAF)*

The Oman e-Government Architecture Framework and Standards is developed for use by government agencies in aligning their ICT systems and comply with standards and best practices.

The "Oman e-Government Architecture Framework (OeGAF)" is a subset of the larger framework and serves as a reference model for Oman Government entities to seamlessly integrate their IT Infrastructure and collaborate to deliver better citizen services. OeGAF guides the development, deployment and operations of Information Systems of the Oman Government entities. It contains the principles, strategies and standards that support the goals of the government.<sup>59</sup>

Phase 1 of the project which is establishing the Oman e-Governance Framework and Oman e-Government Architecture Framework Domains and Domain principles has been completed. Phase 2 of the project which is to establish the standards and guidelines for the OeGAF domains is expected to start in Quarter 1 of 2009.

On 16 March 2009, ITA signed a contract with the Info-communications Development Authority (IDA) International to develop the Oman's eGovernment Architecture Framework (OeGAF). IDA International will review and baseline the "Oman eGovernment Architecture Framework", its Domains and Domain Principles. They will define and develop a set of government-wide standards and associated guidelines & specifications for the architectural domains and further develop a formal architectural governance and management process for implementing, maintaining and updating OeGAF.

## D. SUPPORTING MEASURES

The following are several supporting measures that have been adopted in Oman to spearhead the growth of eOman strategy which includes competitions and awareness programs. Through competitions and awareness programs, ITA hopes to encourage the adoption of ICT in Business, education and within the government organisations.

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<sup>57</sup> Article 2 from Electronic Transaction Law 60/2008

<sup>58</sup> <http://www.omnic.om>

<sup>59</sup> Information Brochure on Oman eGovernance Framework

### 1. *Big Business Ideas*

To draw young entrepreneurs to venture into the ICT sector, the Big Business Idea Competition was launched in 2006 at the Knowledge Oasis Muscat. In partnership with The Knowledge Mine incubator program, the competition brings together seven of Oman's leading organization, ITA, Ernst and Young, Ericsson, National Bank of Oman, NCR, Nawras and Apex Publishing. The competition aims to give the entrants an opportunity to become entrepreneurs by turning their business ideas into viable and successful business under the care of the business incubator at KOM. Since its inception, the Big Business Ideas had crowned 3 winners. Prizes include cash and free office accommodation in the Knowledge Mine incubator.<sup>60</sup>

In addition, ITA also initiated an ICT Incubation Model, aims to nurture a pro-business environment, facilitate the growth of industries and improve innovation and capabilities of small and medium enterprises for better access to global markets and opportunities. The incubator will help develop an environment harnessing knowledge management, innovative thinking and creativity.

### 2. *Imagine Cup*<sup>61</sup>

Imagine Cup 2009 is another initiative championed by ITA and Microsoft to encourage Omani students' participants in IT innovation. The worldwide technology competition, which this year includes nearly 100,000 students from 111 countries, is a way to inspire young people to apply their imagination, passion, and creativity to technology innovations that can create a better world.

Imagine Cup is a premier student technology competition, in which teams and individuals submit their projects online or in person for a chance to compete at the global finals—like the Olympics of technology—held in a different country each year. This year the final event will be held in Paris. The main aim of the event is to inspire young people to conceive and build innovative technology solutions to real-world challenges. In the current year teams and individuals can enter nine categories that include software design, embedded development, Web development, short film, photography, IT, algorithms, and software programming. Details of this competition can be found at [www.imaginecupgulf.com](http://www.imaginecupgulf.com).

### 3. *Oman Web Award*<sup>62</sup>

The main objectives of the Oman Web Awards are to promote the spirit of innovation and creativity, raise the standards of web design and websites, advocate growth & development of local talents, promote intellectual property awareness and encourage all sectors to become involved in the digital economy. This Award was introduced in 2006 and in 2009; there is a record number of 180 participants in 24 different categories.

In response to His Majesty's call for enhancing the government services using electronic means to usher the Sultanate of Oman into a knowledge society, several government agencies and ministries have developed professional websites of high standards for their organisation. This was evident from the entries in the Ministries and Govt. Organisations category. The Gold Award in this category was taken with pride by the Civil Service Employees Pension Fund while the Ministry of Regional Municipalities and Water resources walked away with the Silver Award. The Telecommunication Regulatory Authority's website bagged the Bronze award in this category. All these websites are well structured with highly useful information and good levels of interactivity.

### 4. *ITA Digital Oman Roadshow*

The eOman Roadshow aimed at reaching out to the citizens on the Digital Oman Strategy and to bridge the digital divide between technology-enabled and the other sectors of the society. The eOman

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<sup>60</sup> Oman Digital Society Report 2007, pg 43

<sup>61</sup> <http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx?NID=240>

<sup>62</sup> <http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx?NID=245>

Roadshow conducted both IT awareness programs as well as digital literacy campaigns. In 2007, there were a total number of 11,225 participants who took part in the events.<sup>63</sup>

In 2008, based on the eOman road shows 2nd Phase theme of 'Promoting digital culture', a series of educative sessions on averting online security risks, eLegislation, ePayment and eLearning services were conducted by experts from ITA, the public and private sectors and the industry. Through a schedule of awareness programs and skill-building workshops, ITA raised the public awareness on the secured use of information communication technologies, progress of eOman projects and their benefits to the community. With a special focus on children and women, ITA also hosted a series of plays and competitions at the Al Lubna - family village. The plays depicted the newly emerging digital culture and the benefits of using technology in various walks of life. In addition, weekly raffle draws were conducted through television programs for laptops and several other live competitions which were held especially for the children. The IT Talent corner in the family village housed a host of computers loaded with interactive software especially for the children to interact and learn.<sup>64</sup>

## VII. ICT APPLICATIONS

### A. E-GOVERNMENT

#### 1. *Unified Government Network*

The Unified Government Network is a nation-wide telecommunication infrastructure interconnecting government agencies. It aims to support other e-Government initiatives and to ultimately improve public service. The implementation and management of the Unified Government Network has been outsourced to the Oman Telecommunication Company (Omantel), who has been investing heavily in the expansion of an MPLS-enabled, IP network. MPLS (Multi-Protocol Label Switching) can also be used to provide Virtual Private Networks (VPNs) which can be used to isolate traffic of different Ministries across the Government Network. MPLS-based VPNs are also very flexible as the addition of new sites to a certain Ministry VPN or reconfiguration can be achieved with relatively minimal effort. The use of MPLS would also allow the use of traffic engineering to balance the traffic load on the various links within the network and thus makes it possible to utilise the network bandwidth more efficiently. Approximately 121 sites have currently been linked to the Unified Government Network and IP address migration for 24 organisations have been completed.<sup>65</sup>

#### 2. *eGovernment Services Portal*

The eGovernment services portal<sup>66</sup> (Ubar), acts as the main gateway to electronic services offered by the government. Both citizens and businesses can access government information and services online. These services may be provided via the portal either by integrating with other government entities or providing links to their websites. Anytime, anywhere access to the portal can occur through multiple channels such as the web and mobile devices. Navigation on the portal site will be simplified through a live event service delivery model and searchable content.<sup>67</sup> The portal is almost completed with the integration of two government eServices. A soft launch of the portal was done in December 2008 for few target groups. The portal was launched to the public on 25 May 2009.

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<sup>63</sup> ITA Annual Report 2006-2007 pg 39

<sup>64</sup> <http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx>

<sup>65</sup> ITA Annual Report 2006-2007, pg 24

<sup>66</sup> <http://www.eoman.gov.om/www.oman.om>

<sup>67</sup> ITA Annual Report 2006-2007, pg 24

### 3. *e-Tendering*

As part of the eOman initiative, ITA and Government Tender Board (GTB) are working closely to automate all tendering and procurement processes in government that will be integrated with e-Government Services Portal as one of the Quick win projects.

The primary goal of E-Tendering is to establish a centralized state of the art procurement management system & processes. This will help in achieving higher efficiency and will also enhance elements of transparency and accuracy in government procurement process with considerable cost-savings. E-Tendering will make it possible for government entities to prepare, float, evaluate and award tenders online. It will also provide Contractors, Suppliers and Consultants the mechanism to purchase Tenders, submit offers, register and renew registration with Tender Board online. ITA assisted GTB in defining the appropriate Interfaces to integrate with other government applications over the Government Nervous System to ensure seamless service availability.<sup>68</sup> On 15 September 2008, the e-Tender project worth 2,129,123 OMR was awarded to Imtac and C1 India.<sup>69</sup>

### 4. *One-Stop Shop*

The One-Stop Shop (OSS) is a highly useful service offered by the Ministry of Commerce and Industry (MoCI), which will enable investors to set up companies in Oman while minimizing paperwork, saving costs and time. ITA has worked with MoCI to align this service with the overall e-Government framework in an integrated manner from a single-access point. Commercial Registration Database is a Shared Database within the e-Government architecture whereby other entities can reference complete and updated company data electronically via the Government Nervous System. The commercial registration number becomes a national identifier for businesses.

All applications and governmental processes involved in company registration and approval requests will become possible online through the e-Government Services Portal. The Portal will become a single-entry access point for OSS services for appropriate entities. The OSS will improve services rendered to new and existing businesses by minimizing the number of visits needed to complete registration processes. In future the payment for such services will also be performed online through other electronic channels. As of Dec 2008, the OSS processed a total of 221,544 e-applications.<sup>70</sup>

### 5. *National Registration System (NRS)*

National Registration System (NRS) developed by the Directorate General of Civil Status (DGCS), ROP is an integrated computer system with archive of accurate information about social events for all citizens and residents of Oman. The system generates a unique civil number for each individual at the time of registration. This civil number will be printed on the ID cards and will be used to verify the individual's identification while accessing e-Government services.

This NRS project covers the following activities:

- Issue of Omani Identity cards (ID Smart Cards);
- Issue of resident cards for expatriates;
- Registration and issue of certificates for birth & death;
- Registration of marriage and divorce.

ITA involved with the DGCS in the evaluation of applications and solution-providers for the NRS system. It also contributed its expertise in the quality-assurance of the entire project. ITA implements the

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<sup>68</sup> [http://www.ita.gov.om/ITAPortal/Government/Government\\_Projects.aspx](http://www.ita.gov.om/ITAPortal/Government/Government_Projects.aspx)

<sup>69</sup> <http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx>

<sup>70</sup> Director General of IT, Ministry of Commerce and Industry

Digital Oman strategy by ensuring the delivery of this service as a shared means of authentication for electronic transactions through the eGovernment Services portal (gateway to eGovernment services).

## B. E-BUSINESS

### 1. *National ePayment Gateway*<sup>71</sup>

The National ePayment Gateway (ePG) provides an operational component of the eGovernance infrastructure and full ecommerce facilities that allow secure online payments (ePayments). The ePayment Gateway supports multiple acquiring banks and will operate as a critical shared service within the eGovernance architecture along with Oman's forthcoming Government eServices Portal.

Enabling the gateway is expected to increase the adoption of eServices along with electronic payments, particularly Internet-enabled payments which are easy and efficient. The presence of such a robust and secure ePayment Gateway enables eGovernment shared services to be paid for electronically using major local and international credit & debit cards, and in future, other electronic payment instruments. The gateway currently accepts all international credit cards, debit cards including Visa, MasterCard, Amex and Diner cards.

The ePG currently supports the Internet and various other electronic channels including the mobile phone, IVR, Call Center, etc will be offered in future. ePG is reliable, secure and future proof with Payment Card Industry Standards. It is a cost effective and complete payment solution for ministries and private sector merchants.

Several Omani banks, like National Bank of Oman, Bank Muscat and Bank Sohar have online banking websites. they allow the account holder carry out several transactions, like transferring between accounts, third party transfers, make utility bill payments, checking statement, making utility payments and ordering cheque books online.

There are few local websites that are ecommerce portals, like [www.omanbay.com](http://www.omanbay.com), an internet auction website, where users can offer their second hand or other valuable items for sale online, omanbay is also connected to the e-Payment Gateway allowing users to pay for the advertisement of their products. Currently the website does not allow direct payments to the users account. The two mobile telecom operators have also connected to the local e-payment gateway for their customers to make online payments and top up for their telephone charges. (B2C). The current merchants are Royal Oman Police [www.rop.gov.om](http://www.rop.gov.om) , where car owners can pay their traffic fines online. Online donations portal, [www.onlinedonations.org.om](http://www.onlinedonations.org.om) is a common portal which embraces all the local charities under one umbrella. Currently five charities are member of this portal, and several others are being added at the moment. Users can go online and donate to their desired charities.

In Phase 1, ITA uses the MasterCard Internet Gateway Services (MiGS) as their ePayment platform. In Phase 2, it will be further developed and internally hosted for payment methods like ePurse, account to account transfer and mobile payments. From the official launch of the e-Payment Gateway on the 30 August 2008 (with 5 merchants) till 14 February 2009, there have been more than 12,000 transactions with a value over OMR 417,000. There are total of 10 merchants online now.

### 2. *B2B Portal*

E- Business is one of the fastest growing industries around the globe which has improved the efficiency and effectiveness of organizations as it is less time consuming and less costly to operate online. In May 2009, Oman Chamber of Commerce and Industry (OCCI) launch its first B2B portal<sup>72</sup> marketplace where consumers and suppliers can interact together to enhance their business in the local and global market.

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<sup>71</sup> [http://www.ita.gov.om/ITAPortal/Government/Government\\_Projects.aspx](http://www.ita.gov.om/ITAPortal/Government/Government_Projects.aspx)

<sup>72</sup> <http://www.made-in-oman.com>

The portal provides companies the opportunity to search, promote, sell, buy and produce strategies for their products and services in order to compete. Through this mode of marketing, companies in Oman can easily reach a wide range of audience at a very minimum cost in no time thus enhancing their marketability and profitability.

### 3. ePurse

On 6 January 2009, The Information Technology Authority (ITA) along with the Royal Oman Police (ROP) signed a Memorandum of Understanding with Bank Muscat and Gemalto for the implementation of the first phase (pilot phase) of the ePurse application which will be integrated into the National Identity and Resident Card of the Sultanate.<sup>73</sup>

The main aim of the ePurse project is to permit both Citizens and the Residents to store /load money in their National ID and Resident Card and use this to make payments using electronic means, besides to credit and debit cards. Both the National Identity Card and the Resident Card are a mandatory requirement for all citizens and residents of Oman respectively. Thus, even non-banking citizens and residents of Oman, who do not carry debit or credit cards, can pay electronically. This scheme will bring about greater benefits for all government entities that will collect payment for their services using the credit/debit cards and the ePurse application residing in the National Identity and the Resident Cards.

## C. E-LEARNING

### 1. MOE Education Portal<sup>74</sup>

Through the integrative Learning manager system LMS, the Educational portal takes care of all educational aspects for publishing and playing digital text and e-books audio and video affects and other educational subjects and also presenting the subject in an attractive way which increase the process of self learning. From the e-Learning Portal, students can choose the subjects from the guide and adding it to their list (personal file). They can also follow up their learning achievement in all subjects, they can also change their personal data, they can also attend the virtual classes which have been recorded before and interact with the teacher and exchange knowledge through the internet and also they can save the educational reference and use it whenever they want.

TABLE 6. STATISTICS ON THE EDUCATION PORTAL BETWEEN 2 OCTOBER 2008 - 1 NOVEMBER 2008

Content Overview		
Pages	Pageviews	% Pageviews
/portal/SiteBuilder/Sites/EPS/ar	197,868	20.11%
/Admin//EmployeeAttendance/E	99,109	10.07%
/SMS//StudentAttendanceUI/St	82,515	8.38%
/portal/Home/main.aspx	54,513	5.54%
/SMS//studentsearchui/students	52,156	5.30%

Source: Excerpts from MoE-Analytics\_moe.gov.om\_20081002-20081101 (DashboardReport) from Google

Through the education portal, the teachers can also contact with the students through the use of virtual classrooms. The teachers can design the educational content in the virtual classrooms and exchange it

<sup>73</sup> <http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx?NID=236>

<sup>74</sup> <http://www.moe.gov.om/portal/sitebuilder/sites/eps/english/home.aspx>

through the net with different places without being restricted within the classroom. They also can follow up with the students learning achievement and motivate them to be self learners. Table 6 indicates number of time the portal was accessed between October and November 2008.

## 2. Sultan Qaboos University

The Sultan Qaboos University, the only government funded university in Oman, uses Moodle and WebCity as the backbone of their e-learning system. Course contents are available online for the students and lecturers can use the WebCT as their virtual classroom.

## 3. Ministry of Higher Education eLearning System

The Ministry of Higher Education (MoHE) has partnered with Edutech Middle East, a leading provider of technology-enabled information and learning solutions, to provide eLearning opportunities to six colleges across the Sultanate. The initiative has provided a centralised learning platform that is now facilitating information sharing and dissemination among 10,000 students enrolled across the geographically-spread colleges in Sur, Ibra, Sohar, Rustaq, Nizwa and Salalah.

The 'Blackboard Learning System' enables the colleges to post their courses online and provide information to students about the various courses and programs offered across colleges, while the 'Blackboard Community System' allows administrators to build vibrant online communities and improve the flow of information to let students connect and learn outside the classroom.<sup>75</sup>

## D. E-HEALTH

The E-health application or the Al Shifa System from the Ministry of Health is one of the most advanced e-Government applications. The system comprises:<sup>76</sup>

### 1. Automated reporting and Business Intelligence: Informatica & Cognos Software

The health related data are available locally at each institution. The Informatica tool implemented in 2008 brings together all the required data from all locations to a central warehouse at the Ministry headquarters. From the data warehouse, the data will be analyzed by the tool Cognos as per the user requirements to produce reports and indicators. This project will eventually allow project managers to analyze health information from their desktop electronically and in real time. So far data is imported directly, through a connection, from 31 computerized health institutions.

### 2. E-Notifications

The current system of notification requires each health institution to notify the relevant departments in the Ministry of Health via fax or mail. For instance, Malaria Notifications will be routed to the malaria Eradication Department. For Birth and Death notifications, the system will generate a local register at the institution level and a national register at central level and also route them to civil status National Registration Center. MOH is currently working to automate this system and web enabled it so that the information can flow to the various departments and authorities immediately. The system is not fully completed as it involved further discussions and streaming of procedures among inter ministries agencies and departments.

### 3. Standardization

Currently each Institution is using their own codes for Medications, Laboratory, Radiology, and Institution name. The codes are being standardized so as to make the E-referral system more efficient.

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<sup>75</sup> Oman Daily Observer, "Oman Ministry of Higher Education partners with Edutech", 17 Feb 2009, pg 1

<sup>76</sup> Ministry of Health –Directorate General of IT

#### 4. E-Referral System

The system of referring a patient from one institution to another is started on line in 6 Hospitals and in 11 Health Centers in Muscat region. Some of interior Hospitals and Health Centers with internet connectivity have started to use the E-Referral system.

#### E. E-EMPLOYMENT

##### 1. Human Resource Management System (HRMS)

The Ministry of Civil Service (MoCS) developed the Human Resource Management System (HRMS) to administer and manage HR transactions electronically. The system links workflow within HR departments in 39 government entities with MoCS. The unified HR database helped government entities to get online information, reports and statistics that will help them to plan and make the right decisions. Validations done by the system have reduced the mistakes in all HR transactions. The web enabled environment makes the system available anytime, anywhere.

All employees can access their personal data and update their address, phone numbers, apply for leave, and get other services online through Self Service provided by HRMS. The HRMS also enables G2G transaction through interface with the Manpower system, Pension system and Civil Registration system. G2C transaction is also available through the online application for jobs and G2E transaction through Self Service. Table 7 indicated the usage of the HRMS.

TABLE 7. HRMS STATISTICS REPORT

Description	Value
Units connected to the system	39
Number of users registered	2,500
Average Number of users logged in 2008	2,220
Number of data processes in 2008	44,273

Source: Ministry of Civil Service Directorate General of Information Technology

An interesting feature in the HRMS is the e-Recruitment process. All the Omani job seekers have to register in the manpower registration system located in all Ministry of Manpower's branches throughout the country. An interface between HRMS system and the Manpower system helped in having one point of data entry.

To assist the citizens (coming from different regions in Oman) applying for jobs in civil service units, MoCS introduced the SMS service. The applicants can send a short message with the code (AJ) followed by their manpower number and job number from their mobile phones to the number (90226) and get an approval for their applications. Applications got checked automatically by comparing the job requirement with the applicants' information in the manpower system. Table 8 provides some statistics on the use of SMS in the HRMS.

TABLE 8. SMS STATISTICS REPORT

Description	Value
Registration in notification service	40
Incoming SMS from 18-10-2008 to 1/11/2008 (last advertisement in 2008)	98459
Accepted Applicants in last advertisement.	26219
Rejected Applicants in last advertisement.	72240

Source: Directorate General of Information Technology, Ministry of Civil Service

## 2. Ministry of Manpower Web Portal<sup>77</sup>

Ministry of Manpower portal caters to the needs of the sponsors (companies) and job-seekers. The Ministry of Manpower has a comprehensive database of National Manpower through his National Manpower Registration (NMR) System. Companies can apply for any vacancy with the Ministry online or manually at any of the Ministry offices. Job seekers can contact the employees directly. In the portal, Job seekers have the facility to create their CV automatically from the details they submitted to the National Manpower Registration System. Table 9 and 10 illustrate the usage of the Ministry of Manpower e-services.

TABLE 9. STATISTICS OF WEBSITE TRAFFIC FOR WWW.MANPOWER.GOV.OM

Service/Web page	Total No. since 2007	No. in 2008
Total visitors	471,012	227,610
Total Page views	2,844,589	1,399,550
Job Postings	146,981	82,084
Colleges	133,078	79,639
E-Services	132,395	76,960

*Source: Directorate General of Information Technology, Ministry of Civil Service*

TABLE 10. NUMBER OF JOB POSTINGS HANDLED THROUGH THE SYSTEM

Total No of Job Postings with Ministry of Manpower for 2008	
No of Posts	62,646
Male Vacancies	91,150
Female Vacancies	16,125
Total No. of Vacancies	107,275

*Source: Directorate General of Information Technology, Ministry of Civil Service*

<sup>77</sup> <http://www.manpower.gov.om>

## VIII. CULTURAL DIVERSITY AND IDENTITY, LINGUISTIC DIVERSITY AND LOCAL CONTENT

### A. USE OF ICT IN SUPPORT OF CULTURAL AND LINGUISTIC DIVERSITY

The preservation of some 4,600 manuscripts from Oman and the region and archiving the manuscripts electronically, is one of the landmark projects in using IT in support of cultural and heritage program. The National Records and Archives Authority which catalogues and stores a wealth of Omani records and written documentation, has plans to invest in an ICT based library system to manage the textual and non-textual materials found in their archives.<sup>78</sup>

### B. LOCAL AND NATIONAL DIGITAL CONTENT DEVELOPMENT

#### 1. *Oman Encyclopaedia Project*<sup>79</sup>

The Oman Encyclopaedia Project is a national project that aims to publish a comprehensive reference work on Oman and its people. It will bring together all major knowledge on Oman in a referred encyclopaedia that is expected to be produced in a multi-volume book with thousands of entries. These entries will cover major humanistic aspects about Oman like history, culture, politics, economics, sociology and ethnology, as well as natural aspects such as biology, archaeology, geology, engineering, astrology, and so on. The project deals with hundreds of national and international academic intellectuals, editors, researches, translators, photographers, IT specialists, and administrative and financial teams. The project also deals with a number of governmental and private organisations worldwide. The final production stage is due to begin in 2009, where the material will be edited, revised and checked for accuracy, style, soundness of approach and unity and similarity of structure, before it is finally printed. The project is due for completion in November 2010 with plans to produce an electronic version subsequently. With the electronic version, the digital contents from this project will provide much needed contents for information and education purposes in both English and Arabic.

#### 2. *Center of Excellence for eContent*

In May 2009, ITA called for a Request for Information for the consultancy, setting up and management of the Center for Excellence for eContent. The center is aimed at creating a platform to be used by businesses for developing the content industry in Oman.

### C. ICT TOOLS, AND R&D PROGRAMS

The Royal Decree No. 54/2005 issued in Jun 2005 established the Scientific Research Council (SRC). This legislation reflects official recognition of the importance of scientific research both for the national economy and the entire society in a sustainable manner.

The Scientific Research Council organised an international conference at Al-Bandar Hotel, Bar Al-Jissah Resort, for the period Oct 21st - 23rd 2007. The objective of the conference was to obtain feedback and comments on the Oman research strategy final report from stakeholders and local and international experts. The scientific Research Council had invited international experts from around the world to participate in this conference, as well as local experts, the quality assurance team, members of the research sectors and experts from the International Consultant (CRA International). This conference was the final step towards finalizing the research strategy for the Sultanate following a series of workshops that were held at Sultan Qaboos University. During the conference several key strategies were discussed including the ICT Sector-Situation Analysis which presented a comparative analysis of the situation in Oman and that of an ICT developed nations like Singapore and Finland.<sup>80</sup> This analysis formed the basis for the R&D activities in

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<sup>78</sup> Oman 2008-2009 published by the Ministry of Information, pg 161

<sup>79</sup> Oman 2008-2009 published by the Ministry of Information, pg 161

<sup>80</sup> ICT Sector Situation Analysis – The Research Council

the ICT sector. The full strategy is currently at the approval stage and will be unveiled in Q4 2009.

## **IX. MEDIA**

### **A. MEDIA INDEPENDENCE AND PLURALISM**

The Omani leadership has long been aware of the importance of a functioning media that has an essential role in the development of the information society, with freedom of expression and plurality of information as genuine efforts are being made to open up the media to informed discussion and debate from different sides of the political, economic, cultural and religious spectrum. The Omani media shuns sensationalism and exaggeration in its approach to all issues, domestic and foreign. Instead, it aims to present the facts with clarity, candour, credibility and objectivity.

The Ministry of Information is recognized as an important contributor in encouraging the media-print and broadcasting, as well as new media, to continue to play an important role in the information society. It encourages the development of domestic legislation that guarantees the independence and plurality of the media, as steps have been taken recently to offer the private sector more opportunities to play a part in the Sultanate's media.

The Ministry of Information takes full advantage of ICT tools, to encourage traditional media to bridge the knowledge divide and to facilitate the flow of cultural content, particularly in rural areas. The anticipated entry of private press, radio and TV stations into the Oman media market is certain to lead to greater competition and consequently to better media.

The diversity of the media can be clearly seen in the variety of services provided which include the Main Arabic service, the Youth service, the Holy Qu'ran Program and the Sultanate of Oman Radio's English service – FM 90.4 MHz.

#### *1. Non-government radio and TV channels*

The Law on Private Radio and Television Stations, promulgated in 2004, opened up opportunities for the Omani private sector to own and manage radio and TV transmission channels in the Sultanate. Today there are three privately-owned Omani radio stations broadcasting on the FM band. They are Radio Wasal, owned by Sabco Media = FM 96.5 MHz, Radio Hala, owned by the Media Entertainment Network, and broadcasting on FM 102.7 MHz and Hi FM (English) also owned by the Media Entertainment Network, broadcasting on FM 95.9.

#### *2. Sultanate of Oman TV*

Sultanate of Oman TV employs the latest technology to cover events and developments at home and abroad. Today its program can be received round the clock, not only in Oman but throughout the world, either by satellite or via the internet. Sultanate of Oman TV focuses on local and international events and developments in the Gulf, Arab and international arenas.

Sultanate of Oman TV launched its Second Program on 1st November 2006. This service, which broadcasts for nine hours a day gives priority to programs for the younger generation, who form the majority of the population. A major aim of this service is to educate and disseminate information about the modern world, as well as to stimulate discussion on topics such as Oman's tourist attractions and heritage. In August 2008, full coverage of the Olympic Games in Beijing was broadcast daily.

### **B. THE MEDIA AND ITS ROLE IN THE INFORMATION SOCIETY**

Information access in Oman is relatively easy with a vibrant media industry. Media play an important role in dissemination of information in the Information Society. In the Sultanate, the Ministry of Information is quick to embrace the new media. They formed the Oman Electronic Network which comprised of all the traditional media forms and converged them into a single information portal. Although at present, the use of

rich media is limited to webcasting, the information portal will transform to include more interactive media. In the rural area, television and radio are still the most effective means of information dissemination. Here are some of the agencies who enable the knowledge-based economy with information using both traditional print media and new media.

### 1. *The Omani press*<sup>81</sup>

The Omani press, which is not subject to censorship, comes under the Law on Printed Matter and Publications, amended by Royal Decree No. 87/2004, issued on 3rd August 2004. Most of the press is owned by the Omani private sector, which is significant in enabling citizens to enjoy the freedoms guaranteed by the Basic Law of the State and the amended Law on Printed Matter and Publications. Today there are over 60 daily, weekly, fortnightly, monthly, quarterly, half-yearly and yearly newspapers, magazines and other publications, with others in the pipeline catering to everyone in Oman including the 'Al Mar'a' magazine for women, and the booklet 'Oman Today'. There is also a wide selection of specialist professional publications available. All the local news agencies have an online version of the news with basic archival functions.

### 2. *Oman Establishment for Press, Publication and Advertising (OEPPA)*<sup>82</sup>

Oman Establishment for Press, Publication and Advertising (OEPPA) is the Sultanate's largest press establishment in terms of the number of publications produced as well as technical and human resources. Its publications include two daily newspapers – 'Oman' and 'Oman Daily Observer'; one weekly magazine – 'Al Yawm al Saadis' (The Sixth Day); the fortnightly magazine 'Hayati,' and three quarterly publications: 'Nizwa' a literary magazine specialising in Omani, Arab and world literature and culture that is highly respected within the Sultanate and beyond its borders; 'Al Fusool al 'Arba'a' (The Four Seasons), which is devoted to tourism and the Omani heritage; and 'Oman al Raqmiyya' (Digital Oman), which deals with developments in the world of information technology. Online versions of these publications are available to the public at no charges.

### 3. *Oman News Agency (ONA)*<sup>83</sup>

Oman News Agency (ONA), the country's official news agency, is the official source of information on Omani policies and events involving the Sultanate under the auspice of the Ministry of Information. ONA transmits in Arabic and English, by satellite and through its internet website. Its 'Sabq' SMS service, introduced in collaboration with Oman Mobile, provides subscribers with the latest political, economic, sports and general news. The Agency also has an archive containing news coverage and photographs of major events, particularly those that took place in Oman.

### 4. *Digital Oman ICT Magazine*<sup>84</sup>

Digital Oman, the first and only exclusive ICT magazine in the Sultanate of Oman published since April 2005 in cooperation with the Information Technology Authority of Oman (ITA) and the Oman Establishment for Press, Publication and Advertising (OEPPA). Running on the key theme of 'Connected to the community; Wired to the world' this quarterly magazine provides an insight into the ICT landscape of Oman while covering international ICT news, events, views, trends and technologies.

This publication serves as the regional information resource for business leaders, managers, and professionals while acting as a catalyst for the growth of ICT awareness within the community. Until now about 11 volumes have been published. The magazine is very well received by the IT community and its reach has enabled the community to be more aware of the events and developments in the field of Information Technology.

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<sup>81</sup> Oman 2008-2009 published by the Ministry of Information, pg 88

<sup>82</sup> Oman 2008-2009 published by the Ministry of Information, pg 89

<sup>83</sup> Oman 2008-2009 published by the Ministry of Information, pg 90

<sup>84</sup> <http://www.digitaloman.com>

## X. INTERNATIONAL AND REGIONAL COOPERATION

### A. FINANCING OF ICT NETWORKS AND SERVICES

Most of the ICT networks and services are currently government funded initiatives. There are new initiatives for a Public/Private partnership which ITA is currently undertaking. However, no details are available.

### B. INFRASTRUCTURE DEVELOPMENT PROJECTS

#### 1. *MOU with IDA International Singapore*

Information Technology Authority (ITA) signs a Memorandum of Understanding with Information Communications Development Authority (IDA), Singapore. The MoU aims to promote collaboration between the two on ICT matters; specifically in the use of ICT in government and various economic clusters such as, but not limited to, Education, Justice & Law and Trade & Customs. Through this agreement, efforts will be undertaken to promote exchanges regarding the use of ICT by the government and private sectors which may further enhance and advance trade, investment, business and technology partnerships and collaboration between Oman and Singapore ICT industries. The scope of collaboration through the MoU includes co-operative efforts on programs and projects to be implemented by both the public and private sectors which will further accelerate the development and adoption of ICT in Oman; and develop the ICT capabilities, manpower and industry in Oman.

#### 2. *MOU with Huawei*

Information Technology Authority (ITA) signs a Memorandum of Understanding with Huawei Tech Investment Oman LLC (Huawei) on the 27<sup>th</sup> January 2009. Through this MoU, Huawei undertakes to contribute to the development of the educational system in the sultanate through providing the modern communication technology (LAN – Wireless Network) to 100 of the government Schools, in Sultanate of Oman. Signing of this MoU is in line with ITA's aim to bridge the digital divide in the Sultanate of Oman by integrating ICT into education.

ITA is encouraging local and international companies working in the ICT field in the Sultanate of Oman to provide initiatives that reflect their appreciation and social responsibilities towards the community in harnessing technology.

### C. WSIS FOLLOW-UP

In conjunction with the WSIS, ITA has started compiling ICT indicators through surveys such as the Business ICT Survey, Government ICT Survey, Education ICT Survey and Household and Individual Access and Usage of ICT Survey.

(a) Business ICT survey is conducted in association with the MoNE launched the survey of ICT in Business. This survey will collect and compile Core ICT Indicators on Infrastructure and Use of ICT in Businesses. It also measures the dispersion of Omani and non-Omani ICT professionals and also collects this data based on gender. These indicators will be useful for effective planning of training, development and Omanisation programs in this sector. The online survey is available on ITA website.<sup>85</sup> The final result is expected at end of September 2009;

(b) The Education Survey will be done in collaboration with the Ministry of Education and it is still in the discussion stage;

(c) House Hold & Individual Access and Usage of ICT Survey will be with technical assistance from UN ESCWA Advisors and MoNE with regards to the sampling size, reviewing the questionnaire, tabulation plan etc. It is currently in planning stage;

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<sup>85</sup> <http://www.ita.gov.om/ITAPortal/Pages/Page.aspx?NID=211&PID=708&LID=40>

(d) The Government ICT survey which is an online survey is available on ITA website<sup>86</sup>. This survey is scheduled to be completed in June 2009.

## **XI. MILLENNIUM DEVELOPMENT GOALS – MDG**

### **A. PROGRESS TOWARD ACHIEVING THE MDG**

The Sultanate's participation in the various international activities related to the sustainable developments and ratification of the charters issued in this regard is a manifestation of its commitments to its essence and its resolve to go forward achieving the Millennium Development Goals and Targets. Details of the data compiled towards this are available in the Annex B of this report.

### **B. USE OF ICT FOR ACHIEVING THE MDGS**

ICT is changing the way we live, learn and work and ITA and TRA have spearheaded numerous ICT related initiative that will transform the Sultanate into a knowledge-based economy. The following four ICT projects have been successfully developed and implemented.

#### *1. Higher Education Admission System<sup>87</sup>*

The Ministry of Higher Education (MoHE) has built the Higher Education Admission Centre (HEAC) System to unify the admission process in all higher education institutions. From 1st of April 2006, the system is accessible online and students who have completed their General Certificate Examination can apply for higher education through this system. Application from potential candidates can be submitted online through the website [www.heac.gov.om](http://www.heac.gov.om). The HEAC system can gather the students' details based on their General Certificate Examination registration number. The applicants will then be allocated to the appropriate program in each institution according to their program of choice and their grades. The system will direct these applicants to appropriate higher education institutions such as the Sultan Qaboos University, Higher Colleges of Technology and various other private colleges, institutes and training organizations in a seamless manner.

The Higher Education Admission Center (HEAC) electronic system was selected by the World Summit Grand Jury among nominees from 160 countries as one of the World's Best eContent Applications in the Category eINCLUSION and was awarded The World Summit Award as the best in eContent & Creativity for 2007. One of the main reasons for its success was that from the very start, HEAC approach to implement the admission process was to think carefully of what was needed, to learn from the experiences of others in this field, to lay down accurate and detailed plans to implement it taking into considerations the requirements and needs of all the stakeholders.

#### *2. MOE Education Portal<sup>88</sup>*

The electronic educational portal is a link between all educational elements using group of programs and several services using internet which aims at facilitating the educational process and present it in an affective and attractive shape for teachers, students and parents. It also facilitates the observation and communication process of the educational elements. It also helps in organising and observing the administrative work and making it very organized through a number of systems such as electronic requests and document archive.

Students have now many electronic services and can follow up their learning achievements, attend virtual classes and exchange knowledge through the portal as a means of online interaction supporting therefore self-study. They can access their learning materials wherever and whenever they need them.

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<sup>86</sup> <http://www.ita.gov.om/ITAPortal/indicators/>

<sup>87</sup> Ministry of Higher Education, United Nations Public Service Awards, Nomination Form 2009

<sup>88</sup> <http://www.moe.gov.om/portal/sitebuilder/sites/eps/english/home.aspx>

Teachers can also contact students through using virtual classrooms. They can benefit from the electronic services authorized from them to trace and enhance students' performance with the observation of their parents. Teachers can use the various web tools to communicate with each other and the students.

Parents could carry out many electronic services available online, thus saving them time, efforts and money. They even can trace students' performance through the Short Message Services (SMS) and the Interactive Voice Response (IVR).

### 1. *National Registration System*<sup>89</sup>

The National Registration System (NRS) project was launched on 3/1/2004. It is a state-of-the-art system designed to store and retrieve data through the largest database in the Sultanate known as the Civil Register. It includes data on births, deaths, marriages and divorces in the Sultanate. It also includes data on identity cards for Omanis and residence cards for residents. The system links all 12 civil status centers throughout the Sultanate to provide services with absolute confidentiality and accuracy. Before the implementation of the electronic based NRS, the manual process was laborious, tedious, time-consuming and inaccurate.

The NRS services are given now in one stop shop at the Civil Status Centers. This modern approach ensures confidentiality of the data. The process to issue the card has been reduced between 5 - 15 minutes approximately. The number of transaction increased up to 16,278 ID cards per month and 31,747 resident cards monthly. While the birth, death, marriage and divorce entries are up to 48,026 transactions per month. Retrieving information is now fast, easy and accurate due to electronic archiving.

### 2. *The Recruitment through SMS Applications system of the Royal Court Affairs*<sup>90</sup>

The Recruitment Solution through SMS Applications from the Royal Court Affairs (RCA) has won the prestigious World Summit Award in the eGovernment category this year. Oman has won the coveted award among over 700 projects from 168 countries across the globe in the World Summit Award 2009. This innovative solution has also won the best e-content in the Arab region in the eGovernment category at the Bahrain International eGovernment Forum 2009 under the WSA program.

This novel solution uses mobile technology and an integrated system between two the RCA and the Ministry of Manpower to enable Omani citizens to apply for job advertisements by sending an SMS and get the first response within seconds.

The Electronic Evaluation System is an innovative approach utilising the Ministry of Manpower systems to cross-match applications that are submitted for vacancies at the Royal Court Affairs with least manual intervention and effort. This solution has stood out in the e-government category as a winning entry because of effective utilisation of existing infrastructure to enable efficiency in service delivery.

The new system has reduced the process cycle time to 5-10seconds and brought down the cost of processing to only 10Baiza through automated sorting of applications. In addition the solution also helps the Ministry of Manpower to maintain information accuracy and promote transparency in the recruitment process ensuring equal opportunity for all.

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<sup>89</sup> Directorate General of Civil Status- Royal Oman Police, United Nations Public Service Awards, Nomination Form 2009.

<sup>90</sup> <http://www.ita.gov.om/ITAPortal/MediaCenter/NewsDetail.aspx?NID=255>

## XII. BUILDING THE ICT SECTOR

### A. ICT FIRMS

According to Ministry of Commerce and Industry, there are 5931 business entities currently operating ICT related businesses. Most of them are involved in the retail of computers and non-customised software, followed by maintenance and repair of computing machinery and terminals. ITA hope to develop the ICT industry further with the introduction of the ICT Incubation program and their other ICT related initiatives as spelt out in the Digital Oman Strategy.

The following table indicates the type of ICT related business activities registered with the number of companies from the Ministry of Commerce and Industry.

TABLE 11. BREAKDOWN OF ICT RELATED BUSINESS ACTIVITIES

Code	Activity name	Value
523903	Retail of computers and non-customized software	3436
523960	Sale of software	1408
722901	System analysis	27
722902	Designing & programming of special programs	93
722903	Maintenance & designing of websites	44
722999	Provision of other consultancy related to ready-made (non-customized) software	9
723001	Data entry services	5
723002	Management and operation of data preparation of other agencies on permanent basis	18
724001	Collection of data from one or more sources	5
724002	Data storage and retrieval	6
725001	Maintenance and repair of computing machinery and terminals	2516
523311	Sale and maintenance of radio and terminal equipment	126
523942	Retail of electricity and communication cables	234
642001	Telephone, telegraph and telex communication companies	31
642099	Other activities related to telecommunications	56

Source: Directorate General of Commerce, Ministry of Commerce and Industry

### *The Knowledge Mine*

The Knowledge Mine (TKM) is an ICT incubator. Since its launch in 2004, TKM has played a pivotal role in helping create innovative, high growth companies for the future. It is currently home to 15 start-ups companies working in areas that include e-security, serious gaming, engineering, web design, and marine environment. TKM offers a creative, stimulating and supportive environment that helps entrepreneurs grow. It provides top class broadband connections, state-of-the-art office space and meeting rooms. But it's not just about the facilities, TKM also provides access to business advisers, professional mentors and a wide range of workshops designed to meet the needs and interests of entrepreneurs. On 27 Jan 2009, TKM announced the success of its incubation program with 5 graduating companies; R and D; Seeb Systems; e-Brain; Sohar Soft; and Kindows.<sup>91</sup>

### B. R&D AND INVESTMENTS IN THE ICT SECTOR

The Scientific Research Council has developed an ICT strategy that will boost the research and development activities in the ICT sector. The full strategy will be revealed and implemented in the fourth quarter of 2009.

<sup>91</sup> Oman Daily Observer, "TKM Graduates 5 Start-ups"- 27 Jan 2009

### C. CONTRIBUTION OF ICT SECTOR IN THE NATIONAL ECONOMY

As of September 2008, the import of ICT goods and services amounted to OMR 141 million which is 2 per cent of the total annual import of the economy. Export of ICT goods and services amounts to OMR 163 million which constituted 6 per cent of the total of non-oil export.<sup>92</sup> Currently, there is no statistics available on the contribution of ICT as percentage of GDP.

TABLE 12. CONTRIBUTION OF ICT SECTOR IN THE NATIONAL ECONOMY

Description	Value in 2008 (OMR)
Import of ICT Goods & Services	140,158,298
Grand Total of Imports	6,571,607,403
% of Import of ICT Goods and Services of Total Import	2%
Export of ICT Goods & Services	162,578,108
Grand Total of Non-Oil Export	2,708,128,650
% of Export of ICT Goods and Services of Total Non-Oil export	6%

*Source: Directorate General of Statistics, Ministry of National Economy*

### D. GOVERNMENT FACILITATION

ITA initiated the ICT Incubation Program which aims to nurture a pro-business environment, facilitate the growth of industries and improve innovation and capabilities of small and medium enterprises for better access to global markets and opportunities. The incubator will help develop an environment harnessing knowledge management, innovative thinking and creativity.

Focus areas would be in expanding ICT Small and Medium business base in Oman to facilitate increase ICT exports, foreign and local investments, generate new ICT jobs, create commercially viable technology-based enterprises; and upgrading skills through training in new technology-based subjects and methods. This ICT Incubation program will be the stepping stone for initiating a multi sector partnership. The ICT business incubation proposed will be a centralized system integrating stakeholders from different sectors. The ICT Incubation program will be on stream by late 2009.

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<sup>92</sup> Directorate General of Statistics, Ministry of National Economy

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## ANNEX I

### OMAN ELECTRONIC NETWORK (WWW.OMANET.OM) AND ITS RELEVANT WEBSITES

Site	URL
Omanet Arabic	<a href="http://www.omanet.om/arabic/home.asp">www.omanet.om/arabic/home.asp</a>
Omanet English	<a href="http://www.omanet.om/english/home.asp">www.omanet.om/english/home.asp</a>
Oman TV Arabic	<a href="http://www.oman-tv.gov.om/tvara/default.asp">www.oman-tv.gov.om/tvara/default.asp</a>
Oman TV English	<a href="http://www.oman-tv.gov.om/tveng/default.asp">www.oman-tv.gov.om/tveng/default.asp</a>
Oman TV2	<a href="http://www.oman-tv.gov.om/tvara2/default.asp">www.oman-tv.gov.om/tvara2/default.asp</a>
Radio Oman – General Program Arabic	<a href="http://www.oman-radio.gov.om/rdara/default.asp">www.oman-radio.gov.om/rdara/default.asp</a>
Radio Oman – General Program English	<a href="http://www.oman-radio.gov.om/rdeng/default.asp">www.oman-radio.gov.om/rdeng/default.asp</a>
Shabab Program	<a href="http://www.oman-radio.gov.om/shabab/default.asp">www.oman-radio.gov.om/shabab/default.asp</a>
Quran Program	<a href="http://www.oman-radio.gov.om/qurn/default.asp">www.oman-radio.gov.om/qurn/default.asp</a>
Radio Oman	<a href="http://www.oman-radio.gov.om/fmeng/default.asp">www.oman-radio.gov.om/fmeng/default.asp</a>
Oman News Agency	<a href="http://www.omannews.gov.om">www.omannews.gov.om</a>
Oman Center for Traditional Music Arabic	<a href="http://www.octm-folk.gov.om/marab/default.asp">www.octm-folk.gov.om/marab/default.asp</a>
Oman Center for Traditional Music English	<a href="http://www.octm-folk.gov.om/meng/default.asp">www.octm-folk.gov.om/meng/default.asp</a>
Press	<a href="http://www.omanet.om/arabic/press/main.asp">www.omanet.om/arabic/press/main.asp</a>
Office of GCC Media Training	<a href="http://www.omanet.om/arabic/pcoit/main.asp">www.omanet.om/arabic/pcoit/main.asp</a>
Oman Information Attache in Cairo	<a href="http://www.omaninfattach.com">www.omaninfattach.com</a>
Oman Information Attache in Washington	<a href="http://www.omaninformationattache.org">www.omaninformationattache.org</a>

## ANNEX II

### MILLENNIUM DEVELOPMENT GOALS (MDGS) INDICATORS TILL 2007

Year						Eradicate extreme poverty and hunger	Goal 1
2007	2006	2005	2000	1995	1990	Indicators	Targets
-	-	-	-	-	-	1.1 Proportion of population whose income below the purchasing power of \$1 a day.	1.A : Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day
-	-	-	-	-	-	1.2 Poverty gap ratio.	
-	-	-	5.1	-	-	1.3 Share of poorest quintile in national consumption.	
						1.4 Growth rate of GDP per person employed	1.B: Achieve full and productive employment and decent work for all, including women and young people
38.24	34.07	30.09	29.85	36.60	22.15	1.5 Employment-to-population ratio <sup>93</sup>	
-	-	-	-	-	-	1.6 Proportion of employed people living below \$1 (PPP) per day	
-	-	7.6 In 2003	-	11.5 In 1993	-	1.7 Proportion of own-account and contributing family workers in total employment	
-	-	-	18%	23%	-	1.8. Prevalence of underweight children under-five years of age.	1.C Halve, between 1990 and 2015, the proportion of people who suffer from hunger
-	-	-	-	-	-	1.9. Proportion of population below minimum level of dietary energy consumption.	
Year						Achieve universal primary education	Goal 2
2007	2006	2005	2000	1995	1990	Indicators	Targets
95.0	92.6	92.2	92.0	85.4	-	2.1. Net enrolment ratio in primary education.	2.A. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling
98.4	96.1	97.6	88.9	83.6	81.6	2.2. Proportion of pupils starting grade 1 who reach grade 5.	
-	-	98 in 2003	-	92.0 in 1993	-	2.3. Literacy rate of 15-24 years old.	

Year						Promote gender equality and empower women	Goal 3
2007	2006	2005	2000	1995	1990	Indicators	Targets
						3.1. Ratios of girls to boys in education stages,	3.A. Eliminate gender disparity in primary and secondary education preferably by 2005 and to all levels of education no later than 2015.
96.6	96.5	95.7	93.1	92.5	88.7	Primary	
91.1	92.0	92.3	106.4	109.8	94.6	Secondary	
105	102	103	138	-	83.0	University	

<sup>93</sup> The numbers of employments include Omani and Expatriate working in in public and private sectors according to data in statistical year book 2007.

-	-	17.9 In 2003	-	7.8 in 1993	-	3.2. Share of women in wage employment in the non-agricultural sector.	
						3.3. Proportion of seats held by women in national parliament:	
0.0	2.4	2.4	-	-	-	- Majlis Ash Shura	
20.0	15.0	15.0	-	-	-	- Majlis A'dawla	
<b>Year</b>						<b>Reduce child mortality</b>	<b>Goal 4</b>
<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2000</b>	<b>1995</b>	<b>1990</b>	<b>Indicators</b>	<b>Targets</b>
13.0	11.0	11.1	21.7	27.0	35.0	4.1. Under-five mortality rate.	4.A Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate
10.1	10.25	10.28	16.7	20.0	29.0	4.2. Infant mortality rate.	
97.0	96.0	98.7	99.8	97.5	98.0	4.3. Proportion of 1 year old children immunized against measles.	
<b>Year</b>						<b>Improve maternal health</b>	<b>Goal 5</b>
<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2000</b>	<b>1995</b>	<b>1990</b>	<b>Indicators</b>	<b>Targets</b>
22.9	13.2	15.4	16.1	22.0	-	5.1. Maternal mortality ratio.	5.A. Reduce by three- quarters, between 1990 and 2015, the maternal mortality ratio
99.0	98.0	98.0	97.0	95	-	5.2. Proportion of births attended by skilled health personnel.	
-	-	-	31.7	-	-	5.3 Contraceptive prevalence rate	5.B: Achieve, by 2015, universal access to reproductive health
7.1	6.7	7.4	-	-	-	5.4 Adolescent birth rate	
99.3	99.4	99.4	99.1	-	-	5.5 Antenatal care coverage (at least one visit and at least one visits)	
86.3	83.3	86.0	75.7	-	-	5.5 Antenatal care coverage (at least one visit and at least four visits)	
-	-	-	25	38 in 1997	58 in 1994	5.6 Unmet need for family planning	

Year						Combat HIV/AIDS, malaria and other diseases	Goal 6
2007	2006	2005	2000	1995	1990	Indicators	Targets
13	20	18	16	21	6	6.1 HIV prevalence among population aged 15-24 years.( number of cases)	6.A. Have halted by 2015 and begun to reverse the spread of HIV/AIDS
-	-	-	3.3	-	-	6.2 Condom use at last high-risk sex	
-	-	-	-	-	-	6.3 Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV/AIDS	
+	+	+	+	+	+	6.4 Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years	
100	100	100	100	100	100	6.5 Proportion of population with advanced HIV infection with access to antiretroviral drugs	Target 6.B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it
705	443	544	694	1801	32720	6.6 Incidence associated with malaria(number of cases)	Target 6.C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases
0	0	0	0	-	-	6.6 death rates associated with malaria	
+	+	+	+	+	+	6.7 Proportion of children under 5 sleeping under insecticide-treated bednets	
+	+	+	+	+	+	6.8 Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs	
12.4	13.3	11.5	13.7	14.6	37.2	6.9 (a) Prevalence rates associated with tuberculosis per 100000 population	
37	37	14	14	19	22	6.9 (b) Death rates associated with tuberculosis (number of cases)	
95%	95%	90 %	90%	-	-	6.10 Proportion of tuberculosis cases detected under directly observed treatment short course	

Year						Ensure environmental sustainability	Goal 7
2007	2006	2005	2000	1995	1990	Indicators	Targets
According to the international classifications the land area covered by forests in the Sultanate are very meagre as most of Oman desert semi-arid plains and mountains.						7.1. Proportion of land area covered by forest.	7.A. Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources
						7.2. CO2 emissions, total, per capita and per \$1 GDP (PPP)	
364.5 Metric ton	563.4 Metric ton	411.9 Metric ton	710.9 Metric ton	-	-	7.3. Consumption of ozone-depleting substances	
29.6 Ozone depletion ton	55.4 Ozone depletion ton	47.0 Ozone depletion ton	314.7 Ozone depletion ton	-	-		
						7.4. Proportion of fish stocks within safe biological limits	
1460 million cubic metres	1430 million cubic metres	-	1270 million cubic metres	-	-	7.5. Proportion of total water resources used	
2.6	9.6	9.6	9.6	9.6	9.6	7.6. Proportion of terrestrial and marine areas protected	7.B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss
136 Vegetal types endangered area 9 species of animals endangered for extinction 11 species of animals endangered for extinction in slightly less extent.						7.7 Proportion of species threatened with extinction	
-	-	75 in 2003	-	-	-	7.8 Proportion of population using an improved drinking water source	7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation
-	-	93 In 2003	-	76.1 In 1993	-	7.9 Proportion of population using an improved sanitation facility - Equipped toilets  - Equipped bathrooms.	
-	-	95 in 2003	-	79.5 1993	-		
+	+	+	+	+	+	7.10 Proportion of urban population living in slums	7.D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers

Year						Develop a global partnership for development	Goal 8
2007	2006	2005	2000	1995	1990	Indicators	Targets
+	+	+	+	+	+	<i>Some of the indicators listed below are monitored separately for the least developed countries (LDCs), Africa, landlocked developing countries and small island developing States.</i> <u>Official development assistance (ODA)</u>	8.A: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system
+	+	+	+	+	+	8.1 Net ODA, total and to the least developed countries, as percentage of OECD/DAC donors' gross national income	8.B: Address the special needs of the least developed countries Includes: tariff and quota free access for the least developed countries' exports; enhanced programme of debt relief for heavily indebted poor countries (HIPC) and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction
+	+	+	+	+	8.2 Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation)		
+	+	+	+	+	8.3 Proportion of bilateral official development assistance of OECD/DAC donors that is untied		
+	+	+	+	+	+	8.4 ODA received in landlocked developing countries as a proportion of their gross national incomes	8.C: Address the special needs of landlocked developing countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly)
+	+	+	+	+	+	8.5 ODA received in small island developing States as a proportion of their gross national incomes <u>Market access</u>	
+	+	+	+	+	+	8.6 Proportion of total developed country imports (by value and excluding arms) from developing countries and least developed countries, admitted free of duty	8.D: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term
+	+	+	+	+	+	8.7 Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries	
+	+	+	+	+	+	8.8 Agricultural support estimate for OECD countries as a percentage of their gross domestic product	
+	+	+	+	+	+	8.9 Proportion of ODA provided to help build trade capacity <u>Debt sustainability</u>	Target 8.E: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries
						8.10 Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative)	
						8.11 Debt relief committed under HIPC and MDRI Initiatives	
						8.12 Debt service as a percentage of exports of goods and services	
All medicines are provided free of charge						8.13 Proportion of population with access to affordable essential drugs on a sustainable basis	Target 8.F: In cooperation with the private sector, make available the benefits of
9.99	10.48	10.24	9.37	7.98	6.58	8.14 Telephone lines per 100 population	

Year						Develop a global partnership for development	Goal 8
2007	2006	2005	2000	1995	1990	Indicators	Targets
117.35	70.55	53.13	6.74	-	-	8.15 Cellular subscribers per 100 population	new technologies, especially information and communications
-	-	154 In 2003	-	-	-	8.16 Internet users per 100 population.	
All medicines are provided free of charge						8.13 Proportion of population with access to affordable essential drugs on a sustainable basis	Target 8.E: In cooperation with pharmaceutical companies, provide access to affordable essential drugs
9.99	10.48	10.24	9.37	7.98	6.58	8.14 Telephone lines per 100 population	8.F: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications
117.35	70.55	53.13	6.74	-	-	8.15 Cellular subscribers per 100 population	
-	-	154 In 2003	-	-	-	8.16 Internet users per 100 population	

- Data not available

+ Not Applicable