

Distr.
LIMITED
E/ESCWA/ICTD/2009/12/Add.9
14 December 2009
ORIGINAL: ENGLISH

ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA (ESCWA)

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

United Nations
New York, 2009

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Introduction

Located in the Middle East, Qatar projects from the Saudi Arabian mainland with a 60 km land border. Saudi Arabia is to the west; Qatar faces Iran across the Gulf to the east. It is south of Iraq and north of the United Arab Emirates. Its area is 11,437 sq km (4,427 sq miles), about the size of Switzerland. Qatar is small but its growing influence extends well beyond the Gulf region.¹

Renowned for its safe and secure environment, its pristine beaches, its dramatic sand dunes and its rapidly developing infrastructure, Qatar is reaping the rewards of well planned and far-reaching economic, political and tourism strategies.²

Qatar's rapid economic growth has enabled it to become one of the wealthiest countries in the world, as measured by GDP per capita which in 2007 reached a record level of USD 58 thousand, and is estimated to exceed USD 63 thousand by 2009. The Gross Domestic Product for 2008 is estimated to reach USD 90 Billion, while population is approaching approximately 1.5 Million.³

Qatar's economy continues to grow and has become one of the fastest growing economies in the world. Nominal GDP growth over the past five years has averaged 29.8 per cent.⁴ Moving the economy forward is the rapidly expanding oil and gas sector and related industries. Qatar continues its efforts to diversify its economy, and the growth of the non-oil and gas sector has averaged 31.1 per cent over the past five years.⁵

Qatar began its path towards a developed information society in 1987 with the corporatization of the Qatar Public Telecommunications Corporation, which became Qatar Telecom (Qtel) in 1998. In 2002, the Information Technology and Communications committee was established. Qatar's aims to fully exploit ICT to become a world-leading knowledge-based society⁶ were translated in 2004 by the launch of ictQATAR,⁷ the Supreme Council of Information and Communication Technology. ictQATAR was created by the Decree-Law 36 of 2004 to regulate the two sectors of Communication and Information Technology and to create an advanced Information Community by preparing a suitable environment of infrastructure and a community capable of using communication and information technologies. Its mission is to create an advanced information-based society, to improve the life of its citizens and to enhance the social and economic development of the country. Since then, the telecommunications law was promulgated giving ictQATAR broad powers for licensing and sector development. ictQATAR has been working tirelessly over the past years to fulfill its mandate.

¹ <http://www.doha-2006.com/gis/menuroot/aboutqatar/aboutqatar.aspx.html>

² Qatar Tourism Authority

³ Qatar Statistics Authority, Qatar National Bank

⁴ Qatar National Bank

⁵ Qatar National Bank

⁶ Dr Hessa Al Jaber, Secretary-General of ictQATAR statement at the World telecommunication development conferences (WTDC).

⁷ ictQATAR

I. THE ROLE OF THE GOVERNMENT AND ALL STAKEHOLDERS

“We connect people to the technologies that enrich their lives, drive economic development and inspire confidence in our nation’s future”⁸

A. NATIONAL INFORMATION SOCIETY POLICIES AND E-STRATEGIES

ictQATAR has adopted an ambitious program for ICT development touching on every aspect of the lives of Qatari citizens and residents, from students, to citizens, to businesses. Its mission is to enable the community at large to use information and communication technology to improve quality of life, actively contribute to the social and economic development of Qatar and transform it into a knowledge-based progressive society. Nine national strategies have been adopted to this end, in order to achieve three basic visions (Table 1):

TABLE 1. ICTQATAR STRATEGIC THRUSTS, NATIONAL PROGRAMS AND MISSIONS

Vision	National Program	Mission	Targets	Date	Progress
Establish a trusted, reliable and affordable infrastructure: To ensure the environmental components in which ICT can thrive are established and operated efficiently – telecoms regulatory and legal framework, broadband connectivity, cyber security, e-Commerce and cyber law	State-of-the-art Infrastructure	To implement an ultra high-speed infrastructure in the public and private sectors. Includes initiatives like connected schools and hospitals, broadband for all and wireless neighborhoods	100% coverage of 10Gbps ICT in gov institutions	Q4’09	1
			100% coverage of 10Gbps ICT in health institutions	Q4’09	1
			100% coverage of 1Gbps ICT in Independent Schools	Q3’09	1
			100% coverage of 1Mbps ICT for all residents	Q4’09	1
	Regulatory and Legal Framework	To increase customer benefits, enhance telecom sector performance and allow for universal access. Includes initiatives to liberalize the teleco market, introduce competition, drafting of new policies to regulate operators, drafting e-Legislation, e-Commerce and cyber-laws	2 nd Mobile operator license issued	Q2’08	4
			2 nd Mobile operator rollout ensured	Q3’09	1
			2 nd Fixed line operator introduced	Q2’08	3
			Ensure Qtel QoS compliance	Q2’09	3
			Ensure 2 nd Mobile operators QoS compliance	Q4’09	0
	Cyber Safety and Security	Q-CERT (Qatar - Computer Emergency Response Team) program builds cyber security capacity in government and private sector organizations and aims to be the trusted source for vulnerability reporting, incident response	Q-CERT ready to respond to cyber security incident	Apr’08	4
			100% orgs able to respond to cyber security incident	Q3’09	2
			75% of Critical Sector Organizations with risk management program in place that includes IS and BCP	Q3 ‘09	2
			Infosec policy in place	May ‘08	4

⁸ ictQATAR vision

Vision	National Program	Mission	Targets	Date	Progress
		management and information security awareness	Infosec protection program implemented	Sep '08	4
			50% compliance with Infosec policy	Q3 '08	4
Harness ICT to foster innovation, increase effectiveness and efficiency of government and significant national economic sectors: To achieve increased levels of innovation and efficiencies in the key economic sectors of government, education, health and SMEs by transforming their business ICT	i-Gov (integrated Government)	To improve e-Services to citizens, deliver inter governmental efficiency, enable an integrated government and to improve transparency and governance so that participation in the democratic process is stimulated	80% of services that can be delivered online, activated	Q3'10	1
			80% of businesses using online services	Q4'10	1
			50% of residents using online services	Q4'10	1
			100% readiness: shared gov ICT infrastructure and services	2010	1
			100% online availability, accuracy of laws, policy, regs	Q3'10	2
	e-Education	To promote advanced implementation of integrated ICTs as an effective education tool in all public Independent Schools, and to deliver enhanced staff ICT literacy and works to create knowledge communities	75% schools with Internet access, integrated LMS and ICT support agreement	Q4'09	3
			100% of students taking ICT as a subject	Q4'09	1
			3 subjects with e-Content aligned to curricula	Q4'09	1
			Electronic library in place	Q4'09	1
	e-Health	To promote and support the evolution of an effective healthcare delivery system using ICT to link health sector players. This includes initiatives such as an EHR (Electronic Health Record) and integrated health information exchange and network	70% reduction in number of duplicate medical records	Q4'09	1
			50% increase in shared e-Health resources	Q4'10	1
			50% increase in use of e-Clinical data exchange	Q4'09	1
			80% clinicians with access to e-HR	Q4'10	1
			100% of providers capable of sharing e-HR clinical data	Q4'10	1
			Public health info access pt in every major town	Q4'08	4
	Enterprise Development	To foster e-Business to increase effectiveness and efficiency based on worldwide best practices and to promote the adoption of e-Business particularly among small and medium enterprises	<p>Increase % of companies appreciating importance of ICT</p> <p>Increase % of businesses in which ICT improved performance and revenue</p> <p>Increase % of companies online</p> <p>Increase % of employees with PC and Internet connections</p> <p>Increase # of businesses providing e-Commerce services</p> <p>Increase growth rate of domestic IT industry</p> <p>Increase # of business software applications used within business</p>		

Vision	National Program	Mission	Targets	Date	Progress
Empower citizens with access to information/ public services and build a knowledge society: To ensure everyone has access to ICT, to benefit from new opportunities, participate in socio-economic development. Key strategies are to develop individual and collective capacity in the ICT industry	e-Inclusion	To reduce broadband gap, enhance e-Accessibility, promote inclusive e-Gov, improve digital literacy and e-Competencies among all citizens irrespective of education, age, gender, regardless of disabilities and ethnicity	9000 trained ICDL government employees	Q2'09	2
			7000 e-Citizen trained individuals	Q3'10	1
			50% increased online professional development resources	Q4'09	2
			75% rate of online course completion	Q4'09	2
	Innovation	To promote and incentivize innovation through focused investments in R&D and new ventures and to identify R&D partnerships, innovation alliances, and venture capital channels for developing a local IT industry	5% of annual ictQATAR budget invested in R&D	Q4'10	1
			9 new local entrants to ICT sector (3 in 2009, 6 in 2010)	2010	0
			100% increase in ICT contribution to GDP	Q4'09	1

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

ictQATAR implements its strategies through participatory partnerships with major stakeholders in Qatar including the Government, public sector, private sector, and regional/international organizations. Comprehensive governance structures are implemented to manage the different programs of the National ICT Strategy.

The assistive technology working group (ATWG) is a prime example of a successful Public Private Partnership in Qatar. Formed in response to the International Telecommunications Union's 2008 focus on delivering on the promise of achieving connectivity for the disabled, the ATWG group acts as a steering committee, administers a fund, and discusses and approves major works, events or projects related to assistive technologies. The working group's objectives are to:

- Enable access to technology and the knowledge economy in a way that is fundamental to disabled people, so they can freely access services, advance their independence and change their lives;
- Provide independent advice, resources, information, assessment and training on all aspects of access to assistive technology for disabled people;
- Work to create opportunities for people who would benefit from receiving assistive technologies to obtain that assistance;
- Create awareness of how assistive technologies can benefit certain people in society and improve social welfare in Qatar; and
- Promote research, development and production of new assistive technology.

The working group is led by ictQATAR and has over 17 members, from NGOs, to educational

institutions, to international and local ICT companies.^{9,10}

On world disability day 2008 (3rd of December), the ATWG organized a successful workshop focusing on the visually impaired. Bringing in experts from international and regional companies working on assistive technologies, the working group demonstrated the advantages that assistive technologies could bring visually impaired users of ICTs. With particular emphasis on the development of the technology for Arabic speakers, the workshop showcased screen readers, Arabic voice-over software, among other technologies to interested parties. Moving forward, the ATWG plans to organize for the training of trainers as well as users of assistive technologies.

C. ROLE OF NON GOVERNMENTAL ORGANIZATION

ictQATAR recognizes the important role of NGOs and civil society in furthering its goals of achieving connectivity to drive economic development and transform Qatar into a knowledge-based society. It therefore works very closely with a number of NGOs.

One of its key partners is the Qatar Foundation whose mission it is to prepare the people of Qatar and the region to meet the challenges of an ever-changing world, and to make Qatar a leader in innovative education and research. ictQATAR recognizes that collaboration with the Qatar Foundation on education programs, research and development and community development is fundamental to the success of transforming Qatari society.

II. ICT INFRASTRUCTURE

Through its vision of creating an advanced ICT infrastructure throughout the nation, ictQATAR works as a powerful agent for change in Qatar. It is through establishing solid infrastructure and putting in place carefully considered, long-term plans that all sectors of society will benefit from, and contribute to the development of a strong, knowledge-based society in Qatar. The latest Global Information Technology Report published by the World Economic Forum in 2008 ranked Qatar as 32 out of 127 in the Network Readiness Index (NRI), moving up seven places from 2006.¹¹ The NRI measures the degree of preparation of a nation to participate in and benefit from ICT developments.

A. INFRASTRUCTURE

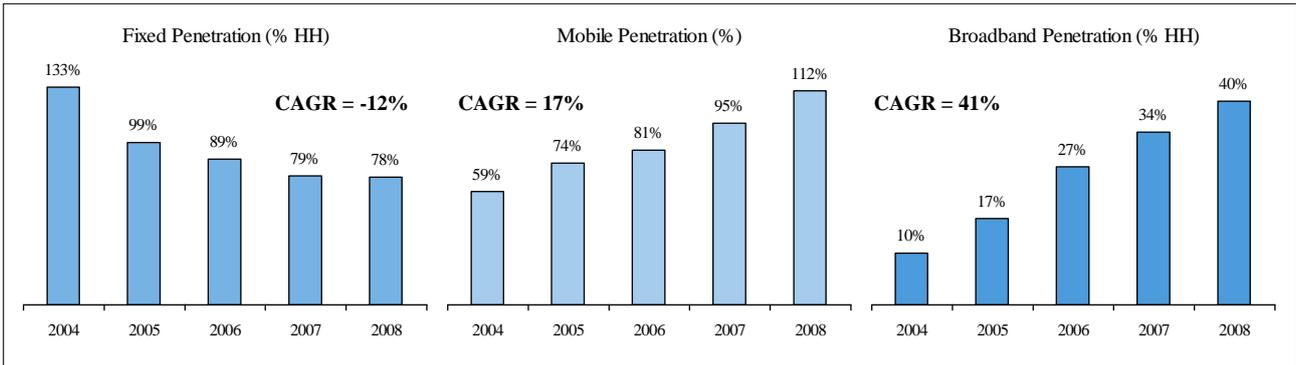
The success of collaboration between ictQATAR, ICT companies, the public sector and NGOs in pushing ICT is evident from the impressive penetration rates of key ICT services (Figure 1).

⁹ ictQATAR

¹⁰ Members of the ATWG include: ictQATAR; Al Noor Institute; Qatar Society for Rehabilitation of People with Special Needs; Qatar Cultural and Social Centre for the Deaf; Educational School for Deaf Girls; Qatar Telecom (Qtel) QSC; Vodafone Qatar QSC; Microsoft QSTP LLC; Cisco Systems International BV Shafallah Centre for Children with Special Needs; The Learning Centre; Qatar Foundation /Reach Out to Asia; Supreme Council for Family Affairs; Sunbeam Centre of Excellence for Special Needs Children; Qatar Society for Rehabilitation and Special Needs; Qatar Preparatory Independent School for Girls; Hamad Medical Corporation.

¹¹ Global Information Technology Report, WEF.

Figure 1. Basic Telecommunications Services Penetration Rates, 2004-2008¹²



The growth of penetration has been phenomenal in the mobile and Internet sectors. Qatar has 100 per cent broadband coverage today, and approximately 40 per cent of households have DSL services.¹³

While historic figures for PC penetration are unavailable, today, PC penetration is estimated at over 70 per cent of households.¹⁴

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

For a number of years, Qtel remained the monopoly telecommunications service provider for fixed, mobile and Internet services. As part of its liberalization strategy, Qatar has begun licensing new service providers. Qtel was formally licensed in October 2007, and following a competitive licensing process, Vodafone was awarded the second mobile license, in June 2008. It will launch mobile services that compete with Qtel on or before the 1st of July 2009. The fixed licensing program is also well underway, and competition will likely be introduced into the market before the end of 2009 (please see section 6.A).

There will be significant infrastructure based competition in Qatar, and investment in infrastructure will increase steadily over the next few years. As competition increases, operators will begin to compete for customers by offering new and innovative services. ictQATAR will facilitate the development of fair competition by issuing and enforcing necessary regulation.

C. ICT CONNECTIVITY

ictQATAR is currently implementing a number of initiatives to ensure national broadband connectivity to support programs such as e-Health, e-Education and e-Enterprise. The vision is to connect all education institutions, libraries, government institutions and information points, museums and community centers. Programs such as the school and hospital networks are currently being piloted. A physical national network will gradually grow to encompass other areas, like universities, vocational centers and Small and Medium Enterprises (SMEs). ictQATAR is working with the private sector to achieve another such initiative - it is fostering collaboration to help develop a Government Network over the Qtel backbone.

D. INTERNET INFRASTRUCTURE

Over the past years, Qtel has ensured that Qatar has appropriate and excess Internet and international bandwidth and infrastructure. Qtel has made multi-million dollar investments in order to have access to

¹² ictQATAR, Arab Advisors Group

¹³ ictQATAR, Arab Advisors Group

¹⁴ MADAR e-readiness report

submarine cables, and in order to maintain alternative routes.¹⁵ In February and December of 2008, major cuts in Mediterranean submarine cables significantly impacted Internet connectivity. Cables cut in December carried 75 per cent of traffic between the Middle East, Europe and America. However Qtel's careful route planning and availability of alternative international routes meant that loss of capacity in Qatar was kept below 47 per cent.¹⁶ There are currently plans for at least two further international connectivity projects which will serve Qatar and the Gulf region. Qtel, ictQATAR and Q-CERT continue to work together to ensure effective, available, and appropriate Internet infrastructure is available for Qataris. This co-operation will also extend to newly licensed operators.

Qtel has managed to provide considerable Internet bandwidth through different submarine cables:

TABLE 2. QTEL'S SUBMARINE CABLES AND INTERNET BANDWIDTH

Route (Local)	Bandwidth	Number	ROUTE (International)
FOG Submarine cable	STM-1	2	FLAG
QAT-UAE Submarine Cable	STM-1	5	SMWE3
	DS3	1	SMWE3
Qatar- KSA Fiber Optic Land Cable	STM-1	8	SMWE3
	STM-4	9	SMWE4
FALCON Submarine Cable	STM-1	9	FLAG
	STM-4	4	FLAG
TOTAL	DS3	1	SMWE3
	STM-1	24	FLAG/ SMWE3
	STM-4	13	FLAG/ SMWE3

Within Qatar, much work has been done to ensure that Internet infrastructure is available to end users. In addition to work being done to roll-out Internet in all schools and government institutions, ictQATAR has been working to roll out such infrastructure in spaces for the general public. To that end, and in collaboration with the Ministry of Municipal Affairs and Agriculture, ictQATAR has rolled out free wireless Internet in major public parks under the iParks program (please see section III.C).

III. ACCESS TO INFORMATION AND KNOWLEDGE

A. PUBLIC DOMAIN INFORMATION

Public institutions in Qatar place great emphasis on developing public domain information - from their own websites, to supporting other institutions in developing their online presence. For instance, available in both English and Arabic, Hukoomi, Qatar's online government portal, ensures the ease of access to all and any necessary information for citizens, residents, visitors and businesses. The portal covers all government ministries, agencies and authorities and aims to be a fundamental working tool by all stakeholders in Qatar to improve governance, and ease interaction between stakeholders. The portal is continuously being updated to ensure access is rapid and convenient, and has presence on YouTube, Facebook and other portals (please see section VII.A).

B. ACCESS TO INFORMATION AND PUBLIC INFORMATION

Institutions such as the Qatar Foundation are very active in promoting access to knowledge and information. The Foundation's own Central Library is scheduled to open in 2010; it will be open to schools, universities, research institutes, and various community development organizations from within and without

¹⁵ <http://www.ameinfo.com/58561.html>

¹⁶ http://www.gulf-times.com/site/topics/printArticle.asp?cu_no=2&item_no=262075&version=1&template_id=57&parent_id=56

Education City. In the meantime, several major libraries with heavy online and physical presence are available in Doha, bringing the resources of a number of acclaimed academic institutions to Qatar.¹⁷ These include the Academic Bridge Program library, the Carnegie Mellon University Library and the Learning Center School library,¹⁸ among others.

In addition, the National Council for Culture, Arts and Heritage in Qatar actively collates archives and disseminates public domain information.

ictQATAR continues to work with marginalized and vulnerable groups to ensure that access to e-Resources is available to all.

C. MULTI-PURPOSE COMMUNITY PUBLIC ACCESS POINTS

Qatar is working to ensure that sustainable, free of charge access to Internet resources are available to all segments of the population. In addition to a school network initiative which aims to connect all students, the Hukoomi portal works to connect all residents and businesses. Access to the Internet is available for free in public parks. Furthermore, it is available for free at public Internet points in two major post office locations.¹⁹ The Hukoomi contact center can be reached 24 hours a day if any help or further information is required either online, by email or by telephone.

D. USING DIFFERENT SOFTWARE MODELS

ictQATAR is committed to ensuring that the ICT sector develops in a competitive and sustainable manner. Therefore its delivery arm for ICT projects –Maalomatia– works to ensure that the most appropriate software model is used for each project. It works without discrimination with both local Qatari and international partners to ensure awareness, use, diversity and robustness of software.

Malomatia is a pioneering initiative to build sustainable ICT capability in Qatar, providing niche domain and technical expertise for the implementation of major ICT initiatives in various economic sectors such as government, health and education. Malomatia is working closely with local partners such as Meeza and international partners such as Webmedia and Crimson Logic to achieve sustainability in Qatar's ICT sector expertise.

IV. ICT CAPACITY BUILDING

A. BASIC LITERACY

Qatar's literacy rate for 2006 was estimated at 91 per cent (88 per cent for females, 94 per cent for males).²⁰ This is a significant improvement from 2004 estimates of 89 per cent,²¹ and is reflective of Qatar's deep commitment to education. ICT has been used extensively in promoting basic literacy, for in addition to ICT education and training programs described below, Qatar has used ICT to increase the effectiveness of related institutions such as the Ministry of Education, which has implemented SMS based transactions, trilingual online training for staff and educators, as well as digitization of its administration.²²

¹⁷ Qatar Foundation

¹⁸ <http://www.qf.org.qa/output/page556.asp>

¹⁹ Qatar Post: Lulu branch, and Qatar Post head office

²⁰ World Health Organization Regional Office for the Eastern Mediterranean country profile for Qatar, <http://www.emro.who.int/emrinfo/index.asp?Ctry=qat>

²¹ United Nations Program on Governance in the Arab Region; <http://www.pogar.org/countries/morestats.asp?ind=10&cid=15&gid=3&sgid=24>

²² <http://www.moe.edu.qa/ecatalog/items/education.aspx?itemId=439>

B. ICT IN EDUCATION AND TRAINING

Over the past years, ictQATAR has worked to integrate ICT in all aspects of education and training, whether in schools, universities, government or business. Qatar has achieved significant success in this regard, and continues to work towards universal ICT literacy as it transforms into an information society.

Qatar boasts almost 13 computers per 100 students in schools, a school system where 60 per cent have broadband access and 40 per cent have websites. About 20 per cent of schools use PCs in the classroom. Initiatives that have contributed to this digitization include the Knowledge Net portal program for schools, and the e-Content curriculum program that is integrating math and science e-Curricula into schools.²³

Significant efforts are also underway to train teachers. In 2008, 40 per cent of teachers underwent IT related training, with nearly 60 per cent taking ICDL training programs.²⁴

Training centers for ICT available throughout Qatar with the participation of a number of public and private sector stakeholders such as Qatar University, Qtel, ASPIRE, Al Bayan Educational Complex, Independent Schools and others.²⁵

The emphasis on ICT in education extends to all segments of society, ictQATAR strives to ensure full participation. In the space of distance learning, an online training portal developed in partnership between ictQATAR and the Institution of Administration Development offers over 4,000 open and free courses.²⁶

C. TRAINING PROGRAMMES FOR CAPACITY BUILDING IN THE USE OF ICT

In addition to ICT in the field of education, Qatar strives to ensure basic e-Literacy for all its citizens. 30 per cent of Government employees have undergone IT training, as have over 20 per cent of nurses in the healthcare sector. As for businesses, 15 per cent provide IT training to their non- IT staff.

ictQATAR is implementing a program for residents who may not necessarily be looking for an ICDL-level qualification, but are interested in participating in an Internet society. Specific segments targeted by the e-Citizen program include women, retirees, government representatives and the disabled. For instance, ictQATAR is helping the Al Noor Foundation for the blind become ICDL accredited.

D. INNOVATION AND PATENTS

In order to promote innovation and the registering of patents, Qatar has adopted a strict legal framework for the protection of intellectual property. In addition to the law on the protection of copyrights, the law on trademarks, the law on the protection of trade secrets and the law on patents, Qatar is a signatory of the WIPO since 1976, the WTO since 1996 and a signatory of the TRIPS agreement.²⁷ There are no pending disputes against Qatar at the WTO.

²³ ictQATAR

²⁴ ictQATAR

²⁵ ictQATAR

²⁶ ictQATAR

²⁷ WIPO: World Intellectual Property Organization, WTO: World Trade Organization, TRIPS: Trade Related Aspects of Intellectual Property Rights. <http://www.wipo.int>

V. BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICTS

Q-CERT, Qatar's center for information security, was created to safeguard and improve the security of information and communications systems. Q-CERT works with government agencies, businesses and the citizens of Qatar to address cyber security risks, protect sensitive information, and ensure the safety of children on the Internet.

A. USE OF ELECTRONIC TRANSACTIONS AND DOCUMENTS

An e-Commerce law covering e-Documents, e-Signature and authentication has been drafted for Qatar based on the UNCITRAL Model Law on Electronic Commerce and the Model Law on Electronic Signatures. The law is currently going through the legislative process and will soon be published.

B. ONLINE AND NETWORK SECURITY

Q-CERT is working closely with government and private sector entities to promote a national “Culture of Cyber-Security.” It works with organizations who deliver critical services in Qatar to help them:

- Identify their most important information assets and develop appropriate risk management strategies;
- Prevent attacks by improving the security of the services that they provide;
- Recognize when they have been attacked, respond quickly and effectively, and continue to offer important services despite ever-changing cyber attacks. Q-CERT accomplishes this by helping Critical Sector Organizations to create and improve their cyber security capability and capacity. Furthermore, because cyber security is not confined to national boundaries, Q-CERT works with other security teams world-wide to maintain awareness of global trends and coordinate response to international threats.

C. PRIVACY AND DATA PROTECTION

As part of the electronic commerce law, Qatar plans to incorporate its stance on data protection and protection of personally identifiable data. Typically, this covers obligations that data be:

- Fairly and lawfully processed;
- Processed for limited purposes;
- Adequate, relevant and not excessive;
- Accurate;
- Not kept longer than necessary;
- Processed in accordance with the data owner's rights;
- Stored and used in accordance with established confidentiality, integrity and availability requirements;
- Not transferred to countries without adequate protection.

In addition, privacy measures covering purpose, consent, protection, disclosure, access and accountability will be covered.

D. COUNTERING MISUSE OF ICTS

Q-CERT has been working closely with policymakers to enact and enforce a comprehensive set of laws relating to cyber-security and cyber-crime, consistent with the provisions of the convention on cyber-crime. It liaises with the local law enforcement agencies in improving nation-wide cyber-crime deterrent processes and has assisted in building cyber-forensic capabilities.

Q-CERT is also developing a coordinated national cyberspace security response system to prevent, detect, deter, respond to and recover from cyber incidents. It aims to:

- Establish a proactive focal point for managing cyber incidents that brings together, government (including law enforcement), infrastructure operators and vendors to reduce both the risk and severity of incidents;
- Participate in watch, warning and incident response information sharing mechanisms;
- Develop, test and exercise emergency response plans, procedures and protocols to ensure that government and non-government collaborators can build trust and coordinate effectively in a crisis.

VI. ENABLING ENVIRONMENT

“The experience of nations throughout the world has shown that market forces lower rates, improve the quality of service, drive innovation and spur investment.”²⁸

A. LEGAL AND REGULATORY ENVIRONMENT

Qatar’s efforts to implement a supportive, transparent and pro-competitive legal and regulatory framework began in 2004, with Decree-Law 36 of 2004 which established the Supreme Council for Communication and Information Technology (ictQATAR), and gave it the mandate to create a legal and regulatory environment that promotes the development of the communication and information technology sector and contributes to the overall social and economic development in Qatar. This was followed in 2006 by Decree Law Number 34 of 2006 which gives ictQATAR a full range of powers to regulate the telecommunications market. Its authority includes licensing service providers and implementing policies that promote competition in the telecommunications sector.

ictQATAR continues to promote competition and transparency and in 2007 granted a license to the incumbent Qtel. In 2008, ictQATAR licensed a new mobile operator; Vodafone Qatar, and it intends to license a new fixed operator; also Vodafone, in the next few months. The licensing process was fully competitive and supported by public consultation and appropriate investment incentives. Interest in licensing was further enhanced by the transparency of the regulatory regime, the existence of dispute resolution provisions in the law that have since been tested and used to resolve disputes between the incumbent and the new entrant.

ictQATAR is also creating a Regulatory Framework within which Licensed Operators will function. ictQATAR believes that appropriate competition improves the sector’s offering to consumers. In addition to introducing competition, ictQATAR continues to work to protect consumers. It intends to introduce specific consumer protection measures both in the law and in upcoming regulation. In the meantime, it has implemented a customer complaints service that has been able to resolve 99 per cent of complaints to date.

Beyond the considerations of telecommunications market players, Qatari laws are supportive of the general ICT sector, and Qatar has worked to promote the rights of intellectual property right holders (please

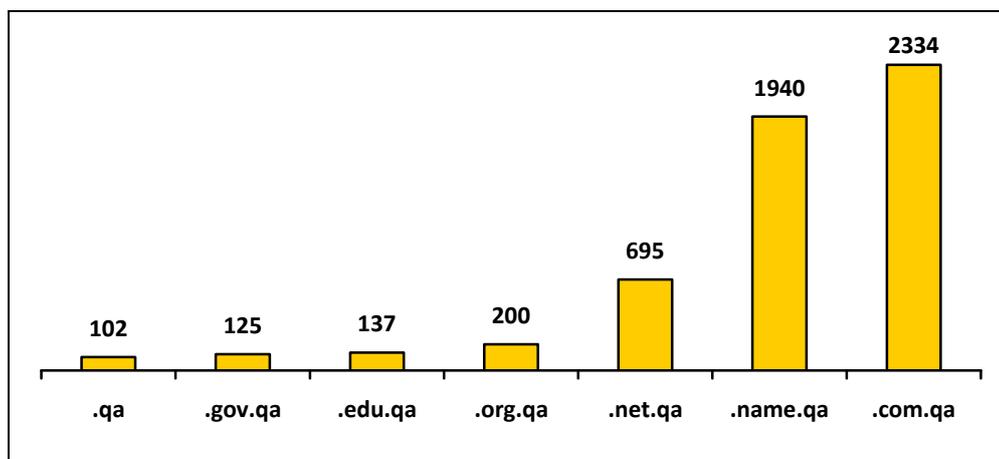
²⁸ Dr. Hessa al-Jaber

see section IV). Since 2005, piracy rates have dropped from 60 per cent to less than 54 per cent.²⁹

B. DOMAIN NAME MANAGEMENT

Today, as the only player in the fixed sector, Qtel continues to manage and supervise the Qatar country code top-level domain name. However, all mechanisms for migration of this management to ictQATAR are in place, and implementation should be completed by the end of the year. The transition of Qatar's Country Code Top Level Domain "ccTLD" management to ictQATAR will ensure fair competition in the Internet and domain name space and enhances the ability to create and avail Qatari local online content. Below are the current statistics of .QA Domain names which total about 6,000 domain names, ictQATAR plans to continue promoting the use of Qatari national domain names to further develop the local Internet community.

Figure 2. Qatari Domain Names Breakdown



C. STANDARDIZATION IN ICT

ictQATAR fully supports the development, use and promotion of open, interoperable and non-discriminatory and demand-driven standards. For instance, as part of its e-Government program, it is working to setup government-wide IT architecture frameworks and standards that are a reference for all government agencies, provide a joint IT governance model and roadmap, and harmonize government-wide IT standards.

D. SUPPORTING MEASURES

In addition to ictQATAR's work to create an enabling environment for ICT development, other stakeholders and government agencies have been working towards fostering an Information Society. The Qatar Foundation's mission is to prepare the people of Qatar and the region to meet the challenges of an ever-changing world, and to make Qatar a leader in innovative education and research.³⁰ To that end, the Foundation's work focuses on education, science and research and community development.

The Foundation's Research Division and its partners are working hand in hand to build Qatar's innovation and technology capacity, and are uncovering solutions to national challenges in health, climate change, clean energy and other fields. The commercialization of new knowledge is central to Qatar's plans, and this is being championed by the Qatar Science and Technology Park (QSTP) which provides support

²⁹ BSA and IDC 2007 Global Software Piracy Study, Booz & Company analysis

³⁰ Qatar Foundation

programs to enable research and business ventures to materialize in the marketplace. The QSTP is Qatar's first free trade zone and to date has attracted over USD 300 Million in investment by companies such as EADS, GE, Shell, ExxonMobil, Microsoft and Total.³¹

The Foundation's education programs focus on capacity building and character development at Education City. At the heart of Education City are six universities, they are the branch campuses of prestigious international institutions that are delivering some of their most renowned programs. The availability of these world-class programs inspires young learners to strive for higher academic achievement.³²

The Foundation recognizes that Qatar's fast-evolving society has certain shortages of specialized skills, and seeks to address them through investment promotion strategies, incubator schemes and joint ventures. Under the JV schemes, new companies are set up in Qatar, operating on a commercial basis, in which ownership is shared by Qatar Foundation and its partner. Under the arrangements, Qatar Foundation provides premises and the partners provide the experienced professionals who can get locally-based enterprises off the ground. The joint ventures will in time recruit and train increasing numbers of talented Qataris, and in this way the skills will transfer to the local population. MEEZA is one such venture – a privately held JV with the Foundation that will deliver world class Managed IT Services and Solutions to enable Qatar's rapidly expanding business community.^{33, 34}

The community development part of the Qatar Foundation's mission aims to enhance lives by identifying and meeting immediate needs and opportunities, and by addressing factors that impede human development. Through its community development initiatives, the Foundation demonstrates that it is flexibly tackling current social needs and preserving the country's unique heritage, while at the same time building the foundations of a new knowledge-based society.³⁵

VII. ICT APPLICATIONS

A. E-GOVERNMENT

ictQATAR has unveiled a program that puts government services at the fingertips of those who live and work in Qatar. The i-Gov Program (Integrated e-Government) will fold into one central program every government agency's existing and future customer services. The result for all who call Qatar home will be a more accessible, more open, and better understood government. Achievements include launching the following programs:

- Hukoomi, Qatar's e-Government portal
- Customer contact center with full functionality to handle all types of requests, queries and complaints;
- ICT architecture and standards reference, a comprehensive architectural blueprint of the Government IT framework, infrastructure, application standards and policies;
- e-Procurement program, to provide the ability to perform business-to-business purchases and sales of supplies and services through the Internet as well as other information and networking systems;

³¹ Qatar Foundation

³² Qatar Foundation

³³ Qatar Foundation

³⁴ Qatar Foundation

³⁵ Qatar Foundation

- Government data network, to serve cross-governmental connectivity providing a secure communications platform through which government agencies can share data, applications and services;
- Government data center, a centre of excellence for IT that will house critical computer systems and associated components for all government entities;
- e-Payment platform, a central payment platform that allows government entities to offer its users e-Payment services to procure/pay for online services;
- Business setup services, provides the necessary e-Services, guidelines and interactive information for setting-up a business through multiple channels;
- Customs clearance services, an automated and streamlined system that provides essential information to residents and businesses regarding procedures related to custom clearance;
- Personal documents services, a system to enhance delivery levels of ID related services and provide a seamless e-Enabled multi-channel offering;
- Service center.

Notable achievements of the i-Gov program include the digitization of over 300 services, including 60 e-Services, and the digitization of content from 48 public entities. Over the past years, over QAR 930 Million in e-Payments have been made via e-Government.³⁶ 88 per cent of government employees have computers, and today 33 per cent of government services are online.³⁷

B. E-BUSINESS

ictQATAR works to help businesses - particularly small and medium sized enterprises - harness the technology that will give them access to new markets and make them more competitive locally and globally. Over the last year, it has implemented a number of initiatives to this end:

1. *Online Business Directory*

ictQATAR will soon launch an online and mobile based directory for organizations, businesses, hotels and other commercial establishments in Qatar. The directory will provide all necessary information about the establishments including contact details and the nature of their business, in order to connect businesses and promote online presence.

2. *Business Connect Program*

ictQATAR regularly invites businesses (with a focus on SMEs) to seminars to assist them in developing their businesses, and to remain aware of their requirements. Seminars highlight the latest thinking and advances in information and communication technology for businesses with up to 99 employees. The first seminar, "Technology and SMEs in Qatar: Opportunities and Challenges," was held in March 2008. January 2009's seminar covered "Realizing the Power of e-Marketing."

3. *Business Software Platforms*

The initiative aims to provide online business software platforms to companies through a specific subscription program. The program aims to help companies manage technical, maintenance and licensing costs.

³⁶ ictQATAR

³⁷ MADAR e-readiness report

Today, businesses in Qatar are increasingly taking advantage of ICTs. Over 96 per cent of large enterprises and 72 per cent of SMEs use broadband services. Almost 100 per cent of large companies and 43 per cent of SMEs access government websites for information and e-Government transactions. PC penetration among employees is at 43 per cent for large enterprises and 56 per cent for SMEs.³⁸

C. E-LEARNING

A number of e-Learning and online learning programs have been spearheaded by the Supreme Education Council and ictQATAR over the past year (for further details and KPIs, please see section IV.B). The following highlights three e-Learning programs of particular interest:

KNet: School Knowledge Net provides a portal³⁹ for sharing education applications and student data. It allows for three-way communication between students, teachers, and parents. The KNet has been implemented in 50 per cent of Independent Schools (37) and by the end of the year, the KNet will reach 100 per cent of Independent Schools, and 300 schools by 2011.

e-Schoolbag: The e-Schoolbag⁴⁰ provides students with portable Tablet PCs filled with materials on science, math and English mapped to Qatari curriculum standards. The PCs are fully customizable by teachers and allow students take notes digitally, and then share and edit the information electronically. To date, 4 Independent Schools have benefited from this program (including the training of teachers as appropriate), by 2010, the pilot project will cover 6 schools.

e-Content: ictQATAR in collaboration with the Supreme Education Council looks to develop e-Content to provide interactive materials to encourage and support student self-learning and new resources for teachers. E-Content will also enable students and teachers to:

- Efficiently access and retrieve reference material;
- Reduce learning time and increase knowledge retention rates;
- Effectively integrate information access into routine education processes;
- Protect investment in collected reference material;
- Reduce resource requirements necessary to maintain reference material.

D. E-HEALTH

Providing an effective and responsive healthcare system is one of the pillars of Qatar's National Vision. Based on this premise, ictQATAR has cooperated with a number of stakeholders to launch programs for the development of the healthcare system, including:

1. *Hamad Medical Corporation Emergency Unit System*

To better streamline medical work and patient services while upgrading medical procedures.

2. *Hamad Medical Corporation Voice Instructions System*

To automate registration of all medical information and data where access to the registered data can be standardized and compared to local or Gulf requirements. During the first phase of implementation, all internal patient sections and external clinics transitioned to the system and over 500 doctors were provided

³⁸ MADAR e-readiness report

³⁹ <http://www.knet.edu.qa>

⁴⁰ <http://www.ict.gov.qa/output/page19.asp>

required training.

3. Heart Diseases Center IT Strategy

To develop integrated systems for heart disease treatment in the new center. The main vendor has been selected and ictQATAR is currently developing the operations strategy and is providing guidance and direction on new integration methods.

4. Image and Communication Archive System

Consultation and technical assistance in developing a central image and communication archive system for all major hospitals in Qatar including Al Sadra center in the Qatar Foundation. ictQATAR is also assisting the radiology department at the Hamad Medical Corporation in developing a central storage system that includes an archive for X-ray images.

5. Hamad Medical Corporation IT Strategy

Providing assistance regarding technical and procurement needs to develop an IT strategy to enhance the delivery of an integrated medical registry system within the corporation which consists of 5 hospitals.

6. The ICT Infrastructure Design in Dukhan City

Designing the ICT structure for new hospitals in the city – the Dukhan Hospital will be the first to use these designs. The designs provide specifications for elements within the hospital that will enable the latest technology available for a hospital integrated in the digital environment.

7. Qatar Biology Bank Project

Defining the bank's ICT vision and strategy in cooperation with the Hamad Medical Corporation and the Qatar Biology Bank working group in the Qatar Foundation. Biology banks help medical researchers track medical conditions like cancer, heart disease and diabetes and measure the relevant advantages and risks and monitor interaction between specific genes, lifestyles, new treatments and medications in order to find new methods to provide the best healthcare to minimize patient suffering.

E. E-EMPLOYMENT

E-Employment is an important initiative within the i-Government program in Qatar. It is a joint effort between the Council of Ministers, the Ministry of Labor and ictQATAR. In January 2009, HRsmart was awarded a contract to develop an integrated one-stop-shop e-Service that connects Qatari residents, international job seekers and employers by providing all users with necessary employment and recruitment information and transactional services in support of the national labor market.⁴¹

⁴¹ <http://www.hrsmart.com/index.php/news-010509>

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

“What has been achieved in the past must be transformed into a living future”⁴²

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

Qatar places great emphasis on preserving cultural and linguistic heritage. Recognizing the potential of ICT to help in the preservation and development of cultural heritage, stakeholders take full advantage of ICTs to this end. For instance the National Council for Culture Arts and Heritage and the Qatar Museum Authority have impressive bi-lingual online presence, both to inform and to attract those interested in Qatari and regional culture, heritage and language. Interactive online forums further serve these organizations' aims.^{43, 44}

B. LOCAL AND NATIONAL DIGITAL CONTENT DEVELOPMENT

Qatar specifically values the development of Arabic language content. As part of its e-Initiatives, Arabic online content is being actively developed and promoted. Furthermore, ictQATAR is active in ensuring that local content development is pursued for all segments of society. For instance, as part of its assistive technology development program, it is working with Nattiq Technologies to ensure the availability of bespoke programs for visually impaired Arabic speakers.⁴⁵

C. ICT TOOLS AND R&D PROGRAMS

Qatar places great emphasis on the development of local ICT tools, including research and development. Qatar itself has dedicated 2.8 per cent of its GDP to research, an amount which currently stands at USD 1,500 Million annually. In particular, the Qatar National Research Fund (QNRF) was created under Qatar Foundation to guide the creation of the country's research programs, which will be a catalyst for a new knowledge-based economy. QNRF administers financial support to researchers at all levels, from students to professionals, in the private, public and academic sectors. Funding is awarded through a competitive process to original projects in engineering and technology, physical and life sciences, medicine, humanities, social sciences and the arts.⁴⁶

Examples of research projects awarded grants by the QNRF include:

- Automated tutors and interactive computer games to enhance education for the visually and aurally impaired, and automated tools for effective team coordination in emergency response, led by Carnegie Mellon University Qatar;
- Design and analysis of triple-play networks, wireless personal area networks, and scalable wireless multimedia, led by Texas A&M University Qatar.

The Qatar Science and Technology Park also supports R&D collaboration which benefit information society objectives. Examples of collaboration include:

⁴² H.E. Sheikha Al Mayassa Bint Hamad al Thani

⁴³ <http://www.qma.com.qa/eng/>

⁴⁴ <http://www.nccah.com/english.asp>

⁴⁵ <http://www.ict.gov.qa/files/images/Press%20Coverage.pdf>

⁴⁶ Qatar Foundation

- Building a collaborative platform comprising business and collaboration applications, including blogs, wikis, telePresence, social networking and unified messaging with Cisco;
- Developing and commercializing an automated map of Qatar with Qatar Navigator;
- Creating software that assists the design of environmentally-friendly buildings with Tata;
- Establishing the Qatar University Wireless Center to carry out applied research, provide consulting services, and promote education and training in wireless communications.

IX. MEDIA

“...One of freedom’s dearest friends is an open press. Committed, courageous reporters, editors, bloggers, and producers who tell the truth safeguard democracy and protect us all. As we look ahead, we do not know what the news industry of the future will look like, any more than five years ago anybody could imagine a concept called citizen journalism, or YouTube. But we do know that professionals and citizens who communicate through the media are motivated by a dedication to truth, transparency, and liberty.”⁴⁷

A. MEDIA INDEPENDENCE AND PLURALISM

Qatar has an active media presence, locally, regionally and internationally. With over seven newspapers, and a number of audio and audiovisual channels, Qataris have a number of channels to choose from. Perhaps the most renowned of its media channels are the Qatar News Agency, Sout al Khaleej and Al Jazeera:

1. Qatar News Agency (QNA)

QNA was established on 25 May 1975; it covers the Gulf region and the Arab World as well as many other countries. All daily Newspapers in Qatar all have online versions.

2. Sout al Khaleej Radio

This station was established by a directive issued by the director of Qatar Broadcasting and Television Corporation. The station was the first of the kind in the Middle East to be using digital technology.

3. Al Jazeera Satellite Channel (JSC)

Al Jazeera (JSC) is the first independent Arabic all-news satellite TV channel serving audiences in the world. With a humble start of 6-hour transmission a day, JSC went on air on 1 November 1996. The channel made its online debut of the Arabic web site of Al Jazeera in January 2001, with a dedicated news portal⁴⁸ offering complete transcriptions and audio recordings of all programs broadcast by Al Jazeera. JSC launched the English version of Al Jazeera net in early September 2003. Among other things, JSC airs detailed and comprehensive political and sports news. Economic news is backed up by live online briefing from reporters in international financial centers in London and New York. Al Jazeera English provides accurate, impartial and objective news for a global audience from a grass roots level, giving voice to different perspectives from under-reported regions around the world.⁴⁹ Al Jazeera is known worldwide for its contribution to freedom of expression and plurality of information.

⁴⁷ Dr. Hessa al-Jaber

⁴⁸ <http://www.aljazeera.net>

⁴⁹ Foreign Information Agency (FIA) - <http://www.qatarinfo.net>

B. THE MEDIA AND ITS ROLE IN THE INFORMATION SOCIETY

ictQATAR maintains very good relationships with all media channels to ensure that the media is being leveraged to the fullest extent possible to help transform Qatar into an information society. It is very active in its media and PR campaigns for specific ICT initiatives, and leverages these relationships to this end. In order to emphasize and strengthen these ties, in January 2009, ictQATAR hosted 'Media Connected: an ICT forum for journalists'. The forum was attended by over 200 journalists, communications professionals and students and explored the transformative power of technology on society and how technology is changing how news is covered and how it is received.

X. INTERNATIONAL AND REGIONAL COOPERATION

A. FINANCING OF ICT NETWORKS AND SERVICES

Qatar's attractive investment climate and commitment to development and transparency has enabled it to attract major private national and foreign investments to the ICT sector. It successfully licensed a second mobile operator and will soon be licensing a second fixed operator. Licensees have and will continue to invest heavily in the sector through the deployment of networks and advanced services.

B. INFRASTRUCTURE DEVELOPMENT PROJECTS

Sector players in Qatar have been able to implement major infrastructure projects through raising their own capital. Fortunately, Qatar's strong economic conditions place it in a position where it can help other countries in their development projects. For instance, the Qatar Foundation is implementing a campaign to extend its human development mission to an international arena. The Reach Out To Asia (ROTA) program seeks to bringing high-quality education to the less fortunate across Asia and the Middle East, furthering some of the United Nations Millennium Development Goals.

C. WSIS FOLLOW-UP

Qatar has developed a detailed report mapping the WSIS Regional Plan of Action for building the information society to the ictQATAR master plan. It is also very active in evaluating and regularly assessing the magnitude of the digital divide in its domestic dimension, regularly publishing its achievements on the ictQATAR website and in collaboration with media channels. ictQATAR is eager to share its experience with other sector developers, and learn from successful projects in other countries.

Most recently, Qatar hosted a regional cyber security forum, and in April, Carnegie Mellon University in Qatar will host the International Conference on Information and Communication Technologies and Development.

XI. MILLENNIUM DEVELOPMENT GOALS

A. PROGRESS TOWARD ACHIEVING THE MDGs

Qatar's approach to achieving the Millennium Development Goals has been through ensuring that implemented ICT initiatives put it on track towards doing so for itself, as well as the rest of the global community. In fact, the following table demonstrates alignment between ictQATAR initiatives and Millennium Development Goals, and ictQATAR remains vigilant regarding the implementation of these initiatives (Table 3).

B. USE OF ICT FOR ACHIEVING THE MDGs

ictQATAR has been collaborating with ROTA since November 2005. ROTA's mission is to extend assistance into Asia and the Middle East, where Qatar's strategic geographic location gives it a unique opportunity to support its neighboring countries as they overcome developmental difficulties. In addition, more than 60 per cent of Qatar's own expatriate community is of Asian origin, giving ROTA added insight and understanding of the needs and cultural norms of the Asian people.

TABLE 3 - PROGRESS TOWARD THE MILLENNIUM DEVELOPMENT GOALS

Initiative	Affinity Level							
	Goal 1: Poverty and Hunger	Goal 2: Universal Primary Education	Goal 3: Gender Equality	Goal 4: Child Mortality	Goal 5: Maternal Health	Goal 6: HIV + Malaria + Other Diseases	Goal 7: Environment	Goal 8: Partnership for Development
State-of-the art Infrastructure	1	3	2	1	1	1	1	3
Regulatory and Legal Framework	0	1	2	0	0	0	1	3
Cyber Safety and Security	0	0	0	0	0	0	0	2
i-Gov	1	1	2	0	0	0	1	2
e-Education	3	3	3	1	1	1	1	3
e-Health	0	0	2	3	3	3	1	3
Enterprise Development	2	1	0	0	0	0	1	2
e-Inclusion	2	2	3	0	1	0	1	2
Innovation	1	1	1	0	0	0	1	2

Affinity Level (0 = No Affinity; 1 = Weak Affinity; 2 = Medium Affinity; 3 = Strong Affinity)

XII. BUILDING THE ICT SECTOR

A. ICT FIRMS

ictQATAR works to promote ICT firms throughout the value chain. It founded Malomatia in May 2008 with a vision for the company to be a leading IT services provider in the region, specializing in end-to-end business and technology solutions. Malomatia has to date served ictQATAR through innovative use of strategic IT solutions and services, supporting it in the launch of the Hukoomi portal⁵⁰ and the KNet initiative.⁵¹

B. R&D AND INVESTMENTS IN THE ICT SECTOR

Qatar dedicates 2.8 per cent of its GDP to R&D, an amount which currently stands at USD 1,500 Million annually.⁵² Locally, Qatar seeks to promote research and innovation through funding and incubation programs. It also looks to draw foreign investment in the ICT sector, and through the QSTP has succeeded in attracting a number of high profile R&D investors such as GE, ExxonMobil and Microsoft.

⁵⁰ <http://www.gov.qa>

⁵¹ ictQATAR

⁵² Qatar Foundation

C. CONTRIBUTION OF ICT SECTOR IN THE NATIONAL ECONOMY

A small country, with a population approaching 1.5 Million, Qatar has over 13,000 employees in the ICT sector.⁵³ The ICT workforce has grown at a rate of approximately 19 per cent over the past years. Revenues from ICT are equivalent to 1.5 - 2 per cent of Qatar's GDP. It is a sector that is growing in importance, particularly given efforts to diversify the economy and reduce its dependence on oil and gas. Over the past year, revenue from ICT has grown at a rate of 8 per cent, and as the economy diversifies, this number is set to increase.⁵⁴

D. GOVERNMENT FACILITATION

The Qatari government, and all public stakeholders aim to assist SMEs in adopting and implementing ICT related solutions, increasing their competitiveness and facilitating their access to capital. To a large extent, this is the aim of the e-Business initiatives described in section VII.B. ictQATAR firmly believes that SMEs contribute to productivity at every income level. In today's global economy, the ability of SMEs to leverage technology is crucial. By promoting the adoption of ICTs, ictQATAR promotes SMEs' ability to find new markets for their goods and services, and discover the most efficient suppliers. Where ictQATAR sees gaps in the development of SMEs in this regard, it acts to address their causes. Over the next years, ictQATAR will collaborate with the private and public sector to roll out 21 SME-targeted e-Business initiatives based on exhaustive analyses of market conditions and the business landscape.

⁵³ MADAR e-readiness report

⁵⁴ Qatar National Bank, HSBC, IDC