# Table of Contents

Introduction .................................................................................. 2
Executive Summary ......................................................................... 3
Chapter I: Households and Individuals .......................................... 9
Chapter II: Business ...................................................................... 19
Chapter III: Government ................................................................. 27
Chapter IV: Education ................................................................... 33
Chapter V: Healthcare ................................................................... 41
Chapter VI: Tourism and Sports ...................................................... 47
Chapter VII: ICT Workforce ........................................................... 53
Appendix ....................................................................................... 57
Introduction

Over the past several years, the Supreme Council of Information and Communication Technology (ictQATAR) has been monitoring the overall progress of information and communication technology (ICT) penetration and utilization among key sectors crucial to the growth of a knowledge-based economy. A first-ever country-wide, survey-based ICT study was conducted in 2008 and released in early 2009. Two years later, ictQATAR commissioned International Data Corporation (IDC) to conduct an in-depth review of the same key sectors-households and individuals, the government, businesses, healthcare, education, and tourism and sports, as well as of the ICT job market. This report is a summary of IDC’s findings on the penetration and usage of ICT.

Qatar’s ICT Landscape 2011 outlines numerous areas of progress in ICT penetration and usage across various sectors in Qatar. Today, the country is better connected than ever, with ICT providing new means of delivering learning, enhancing business efficiencies, helping to improve healthcare and government services, and allowing households and travelers to socialize, access information, and seek entertainment.

This report is based on 16 surveys and 6,455 interviews, which were conducted by IDC between April and October 2010. In addition, fact-finding activities were also conducted as part of a secondary research effort to benchmark Qatar’s current performance against a group of countries across a wide-range of ICT indicators. The countries selected for international benchmarking are Australia, Bahrain, China, Estonia, India, Ireland, Jordan, Kuwait, Oman, Saudi Arabia (KSA), Singapore, the UAE, and the United Kingdom. The rationale for the selection of these countries is outlined in the report appendix.

Measuring the penetration and usage of ICT across varied sectors helps track progress within the country as well as comparing it with regional and global peers. This comparative data plays a crucial role in understanding where Qatar stands at present and how it is progressing toward its goal of transforming itself into a highly connected, knowledge-driven economy.

This study not only point to the significant progress Qatar has made over a short period of time, it also outlines the challenges the country faces in realizing its vision of a diverse economy and a bright future for its people.
Executive Summary
Background

Qatar has been making significant progress in terms of ICT access and use, with digital technology touching the lives of an increasing number of people within the country. With a national vision to transform itself into a knowledge-based economy by 2030, Qatar has continued to make significant investments in ramping up its national infrastructure as well as the capacity of its human capital.

Overall, Qatar’s ICT penetration rates have shown strong growth since the previous assessment conducted in 2008. A growing number of the country’s households are embracing the Internet—in 2010, 84 percent had access to the Internet, compared with 63 percent in 2008. Furthermore, broadband connectivity in households increased from 41 percent in 2008 to 70 percent in 2010. The business sector also saw a strong increase in overall PC penetration, growing from 67 percent in 2008 to 76 percent in 2010.

Beyond households and businesses, there is also high penetration of PCs, mobile phones, the Internet, and broadband connectivity among government organizations, schools, universities, and tourism facilities in the country.

Qatar’s growing ICT penetration rates have contributed to the country’s favorable placement in various comparative international indices. Qatar ranks 17th out of 139 nations in the Global Competitiveness Index produced by the World Economic Forum (WEF), and 30th out of 133 national economies within the Networked Readiness Index, which is produced by the WEF in cooperation with the INSEAD, the international business school. Also, the country ranks in the upper third of the UN E-Government Development Index and the Ease of Doing Business Index, which not only evaluate the spread and use of ICT, but also explicitly consider the roles played by major stakeholders, such as individuals, businesses, and governments.

Table 1: Qatar’s Ranking on Global ICT-Related Indices

<table>
<thead>
<tr>
<th>Index</th>
<th>Reference</th>
<th>World Rank</th>
<th>Arab Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Competitiveness Index 2010–2011</td>
<td>WEF, Global Competitiveness Report 2010–2011</td>
<td>17 (out of 139)</td>
<td>1</td>
</tr>
<tr>
<td>Knowledge Economy Index 2009</td>
<td>World Bank, Knowledge for Development program</td>
<td>44 (out of 146)</td>
<td>1</td>
</tr>
<tr>
<td>Ease of Doing Business Index 2010</td>
<td>IFC and World Bank 2010, Doing Business report</td>
<td>50 (out of 183)</td>
<td>4</td>
</tr>
<tr>
<td>ITU ICT Development Index 2008</td>
<td>International Telecommunication Union, Measuring the Information Society 2010</td>
<td>45 (out of 159)</td>
<td>3</td>
</tr>
</tbody>
</table>

Sources: World Economic Forum (WEF), INSEAD Business School, United Nations (UN), World Bank (WB), International Telecommunication Union (ITU), International Data Corporation (IDC).

It should be noted that improved rates of ownership and connectivity do not necessarily translate to effective utilization of ICT. Thus, in spite of the progress made in both penetration and usage, Qatar’s challenge will be to continue its momentum in fostering the effective deployment of ICT throughout the country in order to meet its goal of becoming a knowledge-based economy.

Analysis of the ICT landscape among Qatar’s major stakeholders and other key findings from the research conducted in 2010 are summarized below. A more detailed analysis is also available in the individual chapters of this report.

Households and Individuals

- In 2010, ICT penetration rates among Qatari households increased across all basic ICT infrastructure areas, including fixed telephone lines, personal computers, the Internet, and broadband connectivity. Qatar is also seeing positive momentum among individuals in the ownership of mobile phones and personal computers, and in Internet access.

- Broadband penetration is enabling many individuals within Qatar to access emerging Internet technologies such as video conferencing, video streaming, and large-file-sharing solutions. However, as these technologies require higher Internet throughput levels, judicious evaluation and monitoring of available bandwidth will be necessary in order to evaluate requirements for additional investment in infrastructure. For example, at a broadband speed of 256 Kbps, downloading a DVD-quality movie of 4 GB would take nearly 35 hours to complete, compared with a download time of slightly over five minutes with a broadband connection speed of 100 Mbps.
While households and individuals in Qatar are making greater and more diverse use of ICT, the transient labor population, females, and the elderly appear to have relatively lower levels of access to PCs and the Internet than the mainstream population.

Business

The increased pervasiveness of ICT is visible in the business sector. Whether motivated to gain a competitive edge or reacting to competitive forces, the business sector in Qatar witnessed increased penetration of PCs, Internet, broadband connectivity, local area networks, intranets, extranets, and corporate websites in 2010. Notwithstanding this growth, business entities in Qatar still trail regional and international benchmark countries and thus need to further ramp up ICT penetration rates.

Moving forward, any further increase in ICT penetration levels for the business sector can only be achieved by improving utilization among small businesses (i.e. companies with fewer than 10 employees). These entities have fallen behind their larger-sized counterparts in integrating ICT into their activities. The sheer number of small businesses in Qatar (i.e., 72 percent of all private sector companies) has a strong impact on ICT penetration rates within the private sector.

Government

The government sector is leading the way compared to other sectors in Qatar, with strong penetration levels in terms of PC, Internet connectivity, broadband connectivity, LAN connectivity, and organizational web presence. In 2010, all core government ministries, councils, and authorities in the country were utilizing PCs, broadband Internet, and LAN network connectivity, as well as maintaining dedicated websites.

Skills development is another area that is witnessing progress. As of 2010, 61 percent of government employees have received ICT training, with nearly one-quarter of those employees having received relevant training within the past 12 months.

Current awareness and usage levels of Qatar’s e-Government portal-Hukoomi-indicate that it has not yet been fully embraced by residents. At present, two-thirds of the mainstream population is aware of government services available online, but only one-quarter of residents have ever used them. Opportunities exist to further ramp up awareness and usage of the Hukoomi portal through enhanced marketing efforts.

Education

Access to PCs within K–12 schools in Qatar continues to increase, with the average number of PCs installed per hundred students rising from 12.8 in 2008 to 15.5 in 2010. Nonetheless, schools in Qatar rank within the bottom half among countries identified for benchmarking, ahead only of its regional peers Oman and Jordan.

Internet penetration is also growing; as of 2010, 98 percent of K–12 schools were connected to the Internet, up from 73 percent in 2008. In addition, 93 percent of schools were equipped with a broadband connection in 2010, significantly higher than the 59 percent recorded in 2008. This growth has positively impacted Qatar’s relative standing amongst its peers. At present, Qatar ranks within the upper half of countries identified for benchmarking.

There is a disparity between schools’ ownership of various interactive learning devices and teachers’ use of these tools for educational purposes. The current usage-to-ownership ratios for interactive learning devices such as data projectors (0.65), interactive white boards (0.64), video players (0.41), audio/video conferencing (0.28), digital still cameras (0.26), digital video cameras (0.22), and mobile phones/PDAs (0.20) indicate there is an opportunity to further improve the utilization of digital tools for learning in Qatar.

Within higher education institutions, nearly 100 percent of educators and students have access to PCs for educational or personal purposes. In addition, almost all university educators and 95 percent of students also have access to the Internet within their universities.

Healthcare

Access to basic ICT infrastructure such as PCs and the Internet within the healthcare sector in Qatar is widespread. Nearly 98 percent of healthcare professionals access PCs and 97 percent utilize the Internet within the home or workplace.

While individual ICT penetration rates in the healthcare sector are high, institutional ownership of electronic medical record systems is just beginning to grow. As of 2010, the electronic storage of patient data is used in 49 percent of health organizations. By comparison, indicators from the European Commission show that countries such as Norway (98 percent), Estonia (98 percent), the United Kingdom (95 percent), and Slovenia (86 percent) are leading the way in terms of the electronic recording and storage of individual patient data.
• Individuals in Qatar have increased access to various e-Health services, as the penetration of Internet-connected PCs among individuals in the mainstream population rose by 19 percentage points to reach 82 percent in 2010. Thirty-six percent of the mainstream population actively searched for healthcare-related information online in 2010.

Tourism and Sports

• Nearly all tourism and sports establishments in Qatar currently maintain at least one PC, while 98 percent have broadband Internet connectivity within their organizations. However, in spite of the fact that a large number of visitors are business travelers and thus highly dependent on the Internet, only two-thirds of tourism and sports establishments in the country currently offer Internet access to their guests or customers.

• A web presence is now commonplace for establishments in Qatar’s tourism sector. In 2010, approximately 80 percent of organizations in the sector maintained a website and 70 percent provided customers with the option to make online queries. Still, only 15 percent of those websites currently allow customers to make online transactions.

ICT Workforce

• By 2009, an estimated 20,000 ICT staff were employed by Qatar’s private sector, representing 1.6 percent of the entire workforce in the country. This number is expected to increase to approximately 24,000 individuals by the end of 2011.

• As the ICT readiness among those actively employed in Qatar grows and evolves, so does the need for specialized ICT skills. As of 2010, approximately 90 percent of private sector enterprises in Qatar maintained at least one permanent ICT employee within their organizations. While a typical private sector company employs 6.7 ICT staff, on the whole, IT departments are noticeably understaffed with an average of 7.9 ICT-related positions remaining vacant.

• More than 5 percent of private companies are currently looking to recruit ICT staff with general skills in application development or software engineering, Internet and networking, databases, operating systems, email/groupware, enterprise resource management (ERP), and customer relationship management (CRM).

Looking Ahead

While there are numerous areas of progress in terms of overall ICT penetration and usage in Qatar, the country must further accelerate its efforts in order to truly integrate the use of ICT among individuals and institutions in the country. This is becoming more crucial, as Qatar is expected to see further growth in its total population over the coming years due to urban development, large-scale investment projects, and rising government expenditure.

Qatar has the ability to leverage the three fundamental characteristics of ICT: its pervasiveness or ability to spread across all economic sectors; its continuous evolution or ability to constantly improve over time; and its linkage with innovation or ability to facilitate new approaches and solutions.

Along with the cooperation and support of other public- and private-sector entities, ictQATAR will spearhead the efforts to build a world-class ICT market and society to support Qatar’s social, cultural, and economic goals.
Households and Individuals
Background

Qatar has witnessed a strong rate of population growth over recent years. According to the Qatar Statistics Authority (QSA) census results, Qatar’s total population has increased more than two-fold since 2004 to an estimated 1.7 million in 2010.

Figure 1: Total Population of Qatar (2004–2010)

A demographic characteristic that Qatar shares with other Gulf Cooperation Council (GCC) countries, such as the United Arab Emirates (UAE), Bahrain, and Kuwait, is its large base of transient workers, who are mainly laborers working in the construction sector. Their number increases or decreases from year to year depending on construction booms and slumps, and, accordingly, they affect Qatar’s total population figures.

Because of the complex and fluctuating nature of the population, two values are presented for major ICT indicators: one using the total population figure, which is standard global practice; and the other excluding the transient labor population (referred to in this document as the “mainstream population”). It is important to note that figures based on households are not impacted by the presence of transient laborers, who live in temporary housing.

In order to assess ICT penetration and usage levels among households and individuals, interviews were conducted with 1,400 Qatari nationals and expatriates as well as 300 individuals from the transient labor force.

Key Findings

• In 2010, ICT penetration rates among Qatari households increased across all basic ICT infrastructure areas, including fixed telephone lines, personal computers, the Internet, and broadband connectivity. Qatar is also seeing positive momentum among individuals in the ownership of mobile phones and personal computers, and in Internet access.

• Broadband penetration is enabling many individuals within Qatar to access emerging Internet technologies such as video conferencing, video streaming, and large-file-sharing solutions. However, as these technologies require higher Internet throughput levels, judicious evaluation and monitoring of available bandwidth will be necessary in order to evaluate requirements for additional investment in infrastructure. For example, at a broadband speed of 256 Kbps, downloading a DVD-quality movie of 4 GB would take nearly 35 hours to complete, compared with a download time of slightly over five minutes with a broadband connection speed of 100 Mbps.

• While households and individuals in Qatar are making greater and more diverse use of ICT, the transient labor population, females, and the elderly appear to have relatively lower levels of access to PCs and the Internet than the mainstream population.

Digital Devices in Households

Mobile phones, televisions, satellite antennae, and radios are widespread among households in Qatar. On average, each household in Qatar owns 3.9 mobile phones, 1.7 television sets, 1.3 satellite antennae, and 0.7 radios.

Increased appreciation of these devices is positively impacting ownership rates among the country’s households. For instance, mobile phone penetration within Qatar’s households increased in 2010, with 99 percent of Qatar’s households now equipped with at least one mobile phone, up from 98 percent in 2008. In addition, almost 95 percent of households now have at least one television, up from about 90 percent in 2008.

1 This corresponds to individuals 18+ years of age who have resided in Qatar for a period of at least six months.
Fixed Telephones in Households

Qatar’s fixed line penetration rate bucked the global trend by further expanding in 2010. Penetration among households increased from 83 percent in 2008 to 85 percent in 2010. This comes partly as a result of the country’s rapid population growth. Recently published figures from the QSA census indicate that household units among the mainstream population have grown by 44 percent since 2004 to reach nearly 147,000.

Access to Computers in Households

Household-level PC2 penetration continues to increase in Qatar, from 71 percent in 2008 to 89 percent in 2010. This places Qatar in the first quartile among countries selected for benchmarking.

Internet and Broadband Connectivity in Households

A growing number of households in Qatar are embracing the Internet. In 2010, 84 percent of households had access to the Internet, compared to 63 percent in 2008. This places Qatar in the first quartile of the regional and worldwide countries used for benchmarking based on the latest available data.
Furthermore, broadband connections in Qatar have also increased, from 41 percent of households in 2008 to 70 percent in 2010. This ranks Qatar in the middle of the countries selected for benchmarking purposes.

The current broadband Internet threshold level of 256 Kbps is likely to become increasingly insufficient to cater to the bandwidth requirements for emerging Internet technologies, such as video conferencing, video streaming, and large-file-sharing. For example, at 256 Kbps, downloading a DVD-quality movie of 4 GB would take nearly 35 hours to complete, compared to a download time of slightly over 5 minutes at a broadband connection speed of 100 Mbps. In Qatar, service providers are continuously upgrading their broadband Internet service portfolio to account for increasing demand for higher connectivity speeds.

### Table 1: Time Needed to Download Content at Different Download Speeds

<table>
<thead>
<tr>
<th>Content Type</th>
<th>Connection Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>256 Kbps broadband</td>
</tr>
<tr>
<td>Google home page (160 KB)</td>
<td>00:00:05</td>
</tr>
<tr>
<td>Music track (5 MB)</td>
<td>00:02:36</td>
</tr>
<tr>
<td>Video clip (20 MB)</td>
<td>00:10:25</td>
</tr>
<tr>
<td>CD/low-quality movie (700 MB)</td>
<td>00:04:35</td>
</tr>
<tr>
<td>DVD/high-quality movie (4 GB)</td>
<td>00:43:20</td>
</tr>
</tbody>
</table>

Source: ITU calculation, speeds are rounded values in hours, minutes, and seconds and represent time required to download listed types of digital content.

---

Internet connections with minimum speeds of 256 Kbps as per ITU definition.
Mobile Phones among Individuals

Mobile phone ownership continued to grow in Qatar in 2010, with overall penetration increasing 6 percentage points from 2008 to reach almost full saturation, or 99 percent of individuals.

The use of prepaid mobile services continues to significantly outstrip that of postpaid services in Qatar. This is because nearly all members of the transient labor force choose to use prepaid mobile services. Data from national telecommunication operators confirms this: As of September 2010, the total number of prepaid mobile phone subscriptions in the country stood at 2.4 million, while postpaid mobile phone subscriptions totaled nearly 306,000. As such, prepaid accounts make up nearly 89 percent of all subscriptions in the country.

Figure 7: Mobile Phone Penetration Rates

In terms of mobile phone penetration among the mainstream population, almost all males (99 percent) and females (97 percent) have mobile phones. In addition, ownership consistently ranges in the high 90 percent rates across various age groups.

Figure 8: Mobile Phone Penetration Rates by Gender

Personal Computer Penetration among Individuals

A vital indicator on the state of ICT is the number of computers available for use by individuals. In Qatar, the PC penetration rates across the mainstream population stood at 85 percent in 2010, up from 54 percent in 2008.

However, when considering the overall individual population (including the transient labor force), computer penetration in 2010 stood at 72 percent, a substantial increase from 32 percent in 2008. The gap between penetration rates of the overall and mainstream populations is due to the significantly lower rates of PC access among the transient labor force. Only 12 percent of laborers reported having access to PCs in 2010.

Figure 9: Mobile Phone Penetration Rates by Age Group

Figure 10: Personal Computer Penetration Rates

Nonetheless, in relation to the latest available data from other countries, Qatar’s PC penetration figures rank in the upper third of the regional and international nations selected for benchmarking.
Within the mainstream population, the PC penetration rate is slightly higher for males (86 percent) than it is for females (81 percent). It is also clear that PC penetration in Qatar progressively decreases among older age groups.

Internet Connectivity among Individuals

Internet access is becoming increasingly commonplace, with penetration of the overall population increasing from 38 percent in 2008 to 69 percent in 2010. When viewed exclusively through the lens of the mainstream population, Internet penetration rates increased 19 percentage points since 2008 to reach 82 percent in 2010. Again, the disparity between the overall and mainstream penetration rates can be attributed to lower rates within the transient labor force, with only 8 percent of that segment of the population having access to the Internet in 2010.

From a regional and international perspective, the situation in Qatar remains positive, with the country ranking in the upper half of the benchmark countries identified.
Within the mainstream population, females have lower Internet penetration rates than males and older age groups have lower Internet penetration than younger age groups. As of 2010, Internet penetration rates stood at 78 percent for females, compared with 84 percent for males. The rates also steadily decrease among older age groups, ranging from 96 percent for those under 20 years of age to 64 percent for those over 50 years of age.

Location of Internet Use and Online Activities Performed by Individuals

Individuals in Qatar predominantly access the Internet from their homes (94 percent), followed by the workplace (62 percent). More than half connect via mobile telephones (57 percent), or via another person’s home or workplace (54 percent).

The Internet has become a critical tool in the digital economy for carrying out various day-to-day activities. It facilitates new ways of socializing, accessing information, performing financial transactions, and seeking entertainment. Over the past 12 months, the most common tasks performed by individuals in Qatar on the Internet included sending and receiving emails (93 percent of individuals); downloading movies/images/music or watching
television or video (65 percent); obtaining information about goods and services (51 percent); finding and installing software (41 percent); and reading online newspapers or magazines (42 percent).

While a lower percentage of individuals sought information from government websites (24 percent) and utilized online banking services (22 percent) in 2010, these figures have nonetheless increased considerably from the 18 percent and 7 percent, respectively, reported in 2008.

Figure 18: Tasks Performed on the Internet by Individuals in Qatar

Source: Households and Individuals Survey (Qatar, 2010), n=1,143 (individuals with Internet connection).
Business
Background

There are more than 24,000 private businesses operating in Qatar, employing nearly 760,000 people as stated by the national statistics authority.

Figure 1: Distribution of Private Establishments and Employees by Size

<table>
<thead>
<tr>
<th>Size</th>
<th>Establishments</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small (1-9 employees)</td>
<td>17,351</td>
<td>63,126</td>
</tr>
<tr>
<td>Medium (10-99 employees)</td>
<td>5,724</td>
<td>155,374</td>
</tr>
<tr>
<td>Large (100-499 employees)</td>
<td>742</td>
<td>146,441</td>
</tr>
<tr>
<td>Very Large (500+employees)</td>
<td>220</td>
<td>394,786</td>
</tr>
</tbody>
</table>


Small businesses currently represent 72 percent of the total number of private entities in Qatar, but only employ 8 percent of the entire private sector workforce. At the other end of the scale, very large businesses employ 52 percent of the private sector workforce, but represent less than 1 percent of the number of companies operating in the private sector.

Because small businesses account for such a large percentage of the total number of private sector entities in the country, the data on ICT penetration and use presented in this chapter relies heavily on the relative rates of ICT uptake among these businesses.

In order to provide a picture of the current state of ICT in the business sector, interviews were conducted with senior IT decision makers at 594 organizations registered and running operations in Qatar.

Access to Computers

In order to provide a business environment that attracts talent and allows investors to establish operations in the country, Qatar needs to ensure the availability of requisite ICT infrastructure, foster a forward-looking business culture, and provide conditions for existing talent to effectively leverage technology.

To this extent, a key highlight within the business sector in Qatar is the strong increase in the overall PC penetration, which grew from 67 percent in 2008 to 76 percent in 2010. At the individual level, 36 percent of employees within businesses in Qatar have access to computers.

Key Findings

- Qatar’s business sector witnessed increased penetration of PCs, Internet, broadband connectivity, local area networks, intranets, extranets, and corporate websites in 2010. Notwithstanding this growth, business entities in Qatar still trail regional and international benchmark countries and thus need to further ramp up ICT penetration rates.

- Moving forward, increase in ICT penetration levels for the business sector can be achieved by significantly improving utilization rates among small businesses (i.e., companies with fewer than 10 employees). These entities have fallen behind their larger-sized counterparts in integrating ICT into their activities. The sheer number of small businesses in Qatar (i.e., 72 percent of all private sector companies) has a strong impact on ICT penetration rates within the private sector.

Figure 2: PC Penetration Rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>67%</td>
</tr>
<tr>
<td>2010</td>
<td>76%</td>
</tr>
</tbody>
</table>

Source: Business Executives Survey (Qatar, 2008 and 2010), n=532 (2008), n=594 (2010).

However, small businesses clearly do not have the same capacity and maturity as larger businesses to embrace ICT for competitive advantage and differentiation. For instance, PC penetration within the small business segment stood at 65 percent in 2010, while each of the larger business segments had almost full penetration.

It is important to note that the sheer number of small businesses has a strong impact on overall penetration rates. As such, further growth in Qatar’s PC penetration in the future can only be realized by further increasing ownership levels among the country’s small businesses.
Despite the strong rise recorded in PC penetration, Qatar still trails the regional and international benchmark countries, and thus needs to further ramp up its efforts in order to catch up with its GCC peers, Saudi Arabia and the UAE, as well as countries such as Ireland, Estonia, and the United Kingdom.

As with the uptake of PCs, there is a wide disparity in Internet penetration across segments within the wider business sector. As of 2010, small businesses have a substantially lower Internet penetration rate (46 percent) than medium-sized businesses (89 percent), large businesses (97 percent), and very large businesses (100 percent).

Internet penetration rates in the business sector currently lag behind those of most benchmark countries. Decreasing the wide disparity in Internet access between small businesses and other companies will be critical to maintaining growth over the coming years.
There is a clear move away from older Internet technology in Qatar. In 2010, only 4 percent of businesses were still using dial-up connections, down from 10 percent in 2008. This is further supported by the continued increase in ADSL subscriptions among all businesses in Qatar, with penetration rates up from 39 percent in 2008 to 52 percent in 2010.

The same trend previously observed in terms of PCs and Internet connectivity is also visible in the penetration of broadband Internet in Qatar. In 2010, 58 percent of businesses were equipped with a broadband connection, up from 38 percent in 2008.

However, growth has been uneven, with broadband penetration of the small business segment standing at just 45 percent in 2010 compared with rates of more than 85 percent for large and very large businesses.

When compared with regional and international benchmark countries, Qatar’s business sector appears to have further room to grow in terms of broadband access. At present, businesses in the country rank in the lowest quartile of the benchmark countries.

Broadband Internet penetration among Qatari businesses can only truly reach the same rates achieved by its peers internationally by further driving connectivity among small businesses in the country. Efforts to encourage Internet usage among these entities should directly address their specific concerns, including perceived high cost of services, lack of understanding of the potential benefits of broadband connectivity, and lack of technical resources. Service quality and pricing levels are expected to further improve within Qatar in the future, with the anticipated entry of an alternative broadband service provider into the market.

Internet Activities Performed by Businesses

More than half of businesses currently access the Internet for email. At 40 percent, searching for business-related information is the second most popular Internet activity undertaken by businesses. Overall, the use of the Internet to interact with government organizations ranks as the third most popular activity, cited by 19 percent of businesses.

In addition, 15 percent of companies currently conduct business transactions with other organizations online; 13 percent use the Internet to provide customer support; and 11 percent perform online banking or receive orders for goods and services.

Network Connectivity

Ubiquitous access to information has driven businesses to adopt local area networks (LANs), intranets, and extranets. The percentage of businesses connected to a LAN, an intranet, or an extranet has increased since 2008 to 46 percent, 15 percent, and 7 percent, respectively, as of 2010.
Online Presence among Businesses

Establishing an online presence can help businesses innovate and stand out from the competition. Being online not only provides greater visibility with clients, it also enables companies to better interact and transact with suppliers and partners.

In 2010, 19 percent of businesses in Qatar had a web presence: 10 percent had a foreign-language (non-Arabic) website, 8 percent had a website in more than one language besides Arabic, and approximately 1 percent had a website in Arabic only.

Similarly, business sector penetration of websites is highly skewed toward larger enterprises. Ownership stands at 6 percent for small businesses, 40 percent for medium-sized businesses, 68 percent for large businesses, and 95 percent for very large businesses.

Source: Business Executives Survey (Qatar, 2010), n=594.
Background

Qatar has made significant investments in its public sector in order to enhance government services for users, improve internal efficiencies, and increase governance and transparency. For the 2010–2011 fiscal year, the Qatari government announced a general budget of $32.4 billion (QAR 117.9 billion), with 30 percent allocated for infrastructure-focused expenditure, inclusive of ICT-related spending.

Under Qatar’s i-Gov Master Plan, various ICT initiatives are being deployed to enhance the provision of government services in the country. Among these are Hukoomi, Qatar’s online government portal, which provides seamless access to close to 70 transactional services; the Government Network, which directly links Qatar’s government agencies over a secure communications platform; and a common payment platform for all government entities that will allow users to pay for services using a variety of e-payment methods.

As part of this primary research effort, interviews were conducted with 380 employees in government ministries, councils, and authorities, as well as with IT executives from 45 core government organizations. As for-profit state enterprises have been covered in the survey of businesses in Qatar, these entities are excluded from the government sector study.

Performance on the UN e-Government Development Index

The 2010 UN e-Government Development Index shows that Qatar ranks 62nd out of 183 countries globally. In terms of the selected benchmark countries, Qatar’s performance lies slightly below the average index value: 0.49 out of 1.0. The index assesses how governments are utilizing ICT to improve access to information, products, and services among residents and businesses.

Key Findings

- The government sector is leading the way compared to other sectors in Qatar, with strong penetration levels in terms of PC, Internet connectivity, broadband connectivity, LAN connectivity, and organizational web presence. In 2010, all core government ministries, councils, and authorities in the country were utilizing PCs, broadband Internet, and LAN network connectivity, as well as maintaining dedicated websites.
- Skills development is another area that is witnessing progress. As of 2010, 61 percent of government employees have received ICT training, with nearly one-quarter of those employees having received such training within the past 12 months.
- Current awareness and usage levels of Qatar’s e-Government portal-Hukoomi-indicate that it has not yet been fully embraced by residents. At present, two-thirds of the mainstream population is aware of government services available online, but only one-quarter of residents have ever used them. Opportunities exist to further ramp up awareness and usage of the Hukoomi portal through enhanced marketing efforts.

Personal Computer, Internet, and Broadband Penetration

The use of PCs and the Internet in Qatar’s public sector is widespread. Consistent with 2008 figures, government authorities in the country have full penetration of PCs as well as broadband Internet connectivity. In terms of connectivity, the majority of government entities have broadband speeds in excess of 4 Mbps.

---

5 Core ministries, councils, authorities, and institutions of a regulatory nature involved in setting standards or having a key role in national strategies and policies.
Connectivity on an individual level is understandably lower, as not all public sector employees require access to PCs and the Internet in order to fulfill their work responsibilities. At the government employee level, 56 percent of persons employed in public sector institutions use computers, while 51 percent have access to broadband connectivity in the workplace.

Network Connectivity across the Government Sector

The ability to share accurate and current information with other public and private sector organizations is critical to efficient public sector operations. As such, governments are increasingly employing network connectivity; almost all government entities in Qatar maintained LAN connectivity in 2010. However, there appears to be lower organizational penetration of intranet and extranet connectivity at present, with rates of 64 percent and 55 percent, respectively.

Progress is also being made in terms of connectivity to the Government Network\(^6\) among Qatari public sector entities. In 2010, approximately 82 percent of surveyed entities believed they were connected to the Government Network, an increase from the self-reported connectivity rate of 54 percent in 2008.

---

\(^6\) The Government Network is a highly secure network communications platform in Qatar that connects a range of government agencies with the aim of improving communication and data sharing between them and supporting the delivery of e-services.
Web Presence and the Use of Government e-Services

As of 2010, all government entities had a website, thus enabling the general public to easily access information and obtain relevant government services. In total, 91 percent of public sector organizations have a bilingual or multilingual website, while 9 percent have Arabic-only websites.

As of 2010, two-thirds of the mainstream population indicated an awareness of government e-services available online via the Hukoomi portal. However, only 24 percent have ever used these services. Furthermore, one-third are currently unaware of any government services provided online, indicating an opportunity to further improve awareness levels of the wide range of functions available through the portal.

Most popular government e-services used by the mainstream population include settling traffic violations, paying utility bills, applying for or renewing visas, and applying for or renewing health cards. It is important to note that these figures do not correspond to a ranking of importance among e-Government services, but rather indicate the specific services that are most often used.

<table>
<thead>
<tr>
<th>Services</th>
<th>% of Individuals using e-Government Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settling traffic violations</td>
<td>68%</td>
</tr>
<tr>
<td>Paying utility bills online</td>
<td>49%</td>
</tr>
<tr>
<td>Applying for or renewing visas</td>
<td>27%</td>
</tr>
<tr>
<td>Applying for or renewing a health card</td>
<td>25%</td>
</tr>
<tr>
<td>Applying for a new residence permit, or renewing or cancelling an existing residence permit</td>
<td>17%</td>
</tr>
<tr>
<td>Applying for a driver’s license and viewing application status</td>
<td>10%</td>
</tr>
</tbody>
</table>

In 2010, 83 percent of those accessing government e-services indicated overall satisfaction with the experience, while 4 percent were dissatisfied.
ICT Professionals in Government

As of 2010, government employees specializing in ICT made up 3.6 percent of the total public sector workforce in Qatar, an increase from 3.2 percent in 2008.

In the absence of a multi-country study that can provide comparative benchmarks, this indicator cannot be compared with global leaders. Nonetheless, the increasing ratio of ICT workers in Qatar’s public sector reflects the important role played by digital technologies within the government.

![Figure 8: Government Employees Specializing in ICT in the Public Sector.](image)

Source: Government IT Executive Survey (Qatar, 2010), n=28 (2008), n=44 (2010).

ICT Training among Government Employees

In 2010, the percentage of government employees having ever received ICT training stood at 61 percent. Nearly one-quarter received training in the past 12 months, while a further 28 percent obtained training more than one year ago. As of 2010, 39 percent of government employees in Qatar have never undergone any ICT training.

![Figure 9: Last Occurrence of ICT Training among Government Employees](image)

Source: Government Employees Survey (Qatar, 2010), n=380.

Benefits Derived from ICT within the Government

Overall, 61 percent of IT executives within government entities feel that ICT has been helpful in enhancing internal workflows, while an almost equivalent group (57 percent) feel that ICT has helped improve corporate communications and facilitate knowledge management. In addition, 55 percent of executives also feel ICT was useful in enhancing relationships.

![Table 2: Benefits Derived from ICT by Government Entities](image)

Source: Government IT Executives Survey (Qatar, 2010), n=44.
Education
Background

Qatar has continued to invest significantly in its education sector. For the 2010–2011 fiscal year, about 15 percent of the country’s budget, or $4.75 billion (QAR 17.3 billion) has been allocated to the sector, of which $2.06 billion (QAR 7.5 billion) has been set aside exclusively for the creation of new educational facilities.

At the K–12 level, the latest figures indicate that Qatar has nearly 15,200 teachers and nearly 150,000 students, resulting in a ratio of one teacher per approximately 9.9 students, similar to the ratio of one teacher per 10.0 students in 2008.

More than one-third of K–12 institutions were public schools, known as independent schools, under the aegis of the Supreme Education Council (SEC); nearly 20 percent were public/semi-independent schools under the supervision of the Ministry of Education (MoE); the remainder were private international schools, private Arabic schools, and community schools. The country has continued to restructure its education system. As of September 2010, the country had converted all MoE schools into independent schools under the management of the SEC.

At the post-secondary level, Qatar University is complemented by 10 private universities and a community college established in September 2010. Qatar plans to establish additional higher education institutions in the country.

As part of the primary research effort, 1,816 respondents (students, executives, and teachers/educators) across both schools and higher education institutions provided feedback to better assess ICT penetration and usage levels in the Qatari education sector.

Table 1: Distribution of K–12 Schools, Students, and Teachers

<table>
<thead>
<tr>
<th>School Type</th>
<th>Number of K–12 Schools</th>
<th>Number of Teachers</th>
<th>Number of Students</th>
<th>Student to Teacher Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public/Independent Schools (Supreme Education Council)</td>
<td>127</td>
<td>4,506</td>
<td>49,900</td>
<td>11.1</td>
</tr>
<tr>
<td>Public/Semi-Independent Schools (Ministry of Education)</td>
<td>71</td>
<td>4,975</td>
<td>30,493</td>
<td>6.1</td>
</tr>
<tr>
<td>International Schools (Private)</td>
<td>69</td>
<td>2,757</td>
<td>25,227</td>
<td>9.2</td>
</tr>
<tr>
<td>Private Schools (Arabic)</td>
<td>53</td>
<td>790</td>
<td>8,987</td>
<td>11.4</td>
</tr>
<tr>
<td>Community Schools</td>
<td>38</td>
<td>2,147</td>
<td>35,241</td>
<td>16.4</td>
</tr>
<tr>
<td>Total</td>
<td>358</td>
<td>15,175</td>
<td>149,848</td>
<td>9.9</td>
</tr>
</tbody>
</table>


Key Findings

- Access to PCs within K–12 schools in Qatar continues to increase, with the average number of PCs installed per 100 students rising from 12.8 in 2008 to 15.5 in 2010. Nonetheless, schools in Qatar rank in the bottom half among countries identified for benchmarking, ahead only of its regional peers Oman and Jordan.

- Internet penetration is also growing; as of 2010, 98 percent of K–12 schools were connected to the Internet, up from 73 percent in 2008. In addition, 93 percent of schools were equipped with a broadband connection in 2010, significantly higher than the 59 percent recorded in 2008. This growth has positively impacted Qatar’s relative standing among its peers. At present, Qatar ranks in the upper half of countries identified for benchmarking.

- There is a disparity between schools’ ownership of various interactive learning devices and teachers’ use of these tools for educational purposes. The current usage-to-ownership ratios for interactive learning devices such as data projectors (0.65), interactive white boards (0.64), video players (0.41), audio/video conferencing (0.26), digital still cameras (0.26), digital video cameras (0.22), and mobile phones/PDAs (0.20) indicate there is an opportunity to further improve the utilization of digital tools for learning in Qatar.

- Within higher education institutions, nearly 100 percent of educators and students have access to PCs for educational or personal purposes. In addition, almost all university educators and 95 percent of students also have access to the Internet within their universities.
Access to Computers

As was also the case in 2008, nearly 100 percent of K–12 and higher education institutions in Qatar have at least one PC, whether it is used for administrative or educational purposes. On an individual level, nearly 100 percent of school teachers, university educators, and university students, and 96 percent of school students have access to PCs for educational or personal purposes.

In addition, the country has also effectively increased the availability of PCs to support teaching, learning, and management in K–12 schools, with the mean number of PCs per 100 students increasing from 12.8 in 2008 to 15.5 in 2010.

Qatar’s K–12 schools rank in the bottom half among countries identified for benchmarking in terms of PCs per 100 school students, ahead only of its regional peers Oman and Jordan.

Distribution of PCs

Efforts to further integrate PCs into the educational process are also progressing. Personal computers are now increasingly being made available beyond computer laboratories, and are being placed within school libraries and classrooms in K–12 institutions. In 2010, distribution grew across all three locations, with PC penetration across K–12 school libraries and classrooms seeing the highest rates of increase since 2008.

Internet and Broadband Connectivity

Improved Internet access allows students to expand their learning activities beyond classic teacher-led education. In 2010, 98 percent of K–12 schools were connected to the Internet, which compares favorably with 73 percent of schools in 2008. In addition, 100 percent of post-secondary institutions had Internet access as of 2010.

The surge in Internet penetration within K–12 schools has positively impacted Qatar’s relative standing among its regional and international peers. At present, Qatar ranks in the upper half of countries identified for benchmarking, behind only the United Kingdom, Singapore, and Bahrain.
Within K–12 schools, 86 percent of teachers and 82 percent of students have accessed the Internet. Among higher education institutions, nearly all university educators and 95 percent of university students have accessed the Internet. Across all locations, 96 percent of teachers and students have access to the Internet, along with 100 percent of university educators and 99 percent of university students.

There has been a strong increase in broadband connectivity across K–12 schools in Qatar. In 2010, 93 percent of schools were equipped with a broadband connection, which marks a significant improvement over the 59 percent penetration rate observed in 2008.

Network Connectivity

In total, 61 percent of K–12 schools in Qatar indicated that they utilize a LAN as of 2010, up from 53 percent in 2008. Like the Internet itself, a LAN can be used to share information within the school and thus act as an effective means of information exchange.
Interactive Learning Devices

Overall, 98 percent of K–12 schools own one or more interactive learning devices, such as a data projector, video player, interactive white board (IWB), or digital camera, for teaching purposes. Among these, the most commonly owned devices across all school levels were data projectors (83 percent), video players (78 percent), and IWBs (68 percent). In terms of usage ratios, data projectors, IWBs, and video players are the most utilized teaching tools.

However, beyond merely looking at interactive learning device ownership and usage individually, a combined view of these indicators results in a value that provides an indication of technology integration within schools.

For instance, data projectors and IWBs have markedly higher use-to-ownership ratios (0.65 and 0.64 respectively) versus other interactive learning devices, such as video players (0.41), audio/video conferencing (0.26), digital cameras (0.26), video cameras (0.22), and mobile phones/PDAs (0.20). Nonetheless, current usage-to-ownership ratios for all interactive learning devices indicate an opportunity to further improve the utilization of these devices.

Presence of ICT Support Staff

Staff specifically trained on ICT can provide students and teachers with the necessary support and motivation to help overcome roadblocks to usage. Among K–12 schools with ICT departments, there was an average of 2.8 permanent full-time equivalent (FTE) ICT support staff per school in 2010.

Confidence in Performing Various PC Activities

Text processing is performed with greatest confidence among students, with 64 percent of K–12 school students and 89 percent of university students confident in performing this task. The other confidently performed activities include the use of email (73 percent of school students and 88 percent of university students are confident) and creating presentations (61 percent of school students and 86 percent of university students, respectively).

Lowest levels of confidence among both K–12 school and university students are seen in tasks including software programming (20 percent of school students and 28 percent of university students are confident); troubleshooting (27 percent of school students and 50 percent of university students are confident); and creating web pages (32 percent of school students and 35 percent of university students are confident).
ICT Training among Teachers

The percentage of K–12 school teachers in Qatar who received ICT training has risen from 44 percent in 2008 to 71 percent in 2010. More than one-third of K–12 school teachers (36 percent) have obtained such training during the past 12 months.

Within higher education institutions in Qatar, the percentage of educators who received ICT training totaled 28 percent, with approximately 13 percent of them having taken such training during the past year.
Healthcare
Background

Qatar’s vision to build and maintain a world-class healthcare system has resulted in significant investment in the sector. For the 2010–2011 fiscal year, approximately 7 percent of the country’s budget, or $2.3 billion (QAR 8.6 billion), has been allocated for the healthcare sector.

Data from the Supreme Council of Health indicates that Qatar’s public and private healthcare sectors include approximately 223 hospitals, health centers, and emergency centers (excluding dental clinics); 74 percent of all healthcare sector workers are employed within government-sponsored healthcare organizations, with the remaining 26 percent employed by private healthcare organizations.

Table 1: Healthcare Providers in Qatar

<table>
<thead>
<tr>
<th>Healthcare Providers in Qatar</th>
<th>Number of Facilities</th>
<th>Number of Professionals Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government hospitals, health centers, and emergency centers</td>
<td>42</td>
<td>13,060</td>
</tr>
<tr>
<td>Private hospitals and private sector clinics</td>
<td>181</td>
<td>4,595</td>
</tr>
</tbody>
</table>


Primary research for this study included conducting 501 face-to-face interviews with general practitioners, specialist physicians, nurses, allied health professionals, and other ancillary staff in the healthcare sector in Qatar.

Access to Computers

In 2010, 98 percent of healthcare professionals accessed PCs from their home or workplace. Nearly 100 percent of general practitioners, specialist physicians, ancillary staff, and allied health professionals, as well as 94 percent of nurses in Qatar currently have access to PCs.

Key Findings

- Access to basic ICT infrastructure such as PCs and the Internet in the healthcare sector in Qatar is widespread. Nearly 98 percent of healthcare professionals access PCs and 97 percent utilize the Internet within the home or workplace.

- While individual ICT penetration rates in the healthcare sector are high, institutional ownership of electronic medical record systems is just beginning to grow. As of 2010, the electronic storage of patient data is used in 49 percent of health organizations. By comparison, indicators from the European Commission show that countries such as Norway (98 percent), Estonia (98 percent), the United Kingdom (95 percent), and Slovenia (86 percent) are leading the way in terms of the electronic recording and storage of individual patient data.

- Individuals in Qatar have increased access to various e-Health services, as the penetration of Internet-connected PCs among individuals in the mainstream population reached 82 percent in 2010. Thirty-six percent of the mainstream population actively searched for healthcare-related information online in 2010.

Internet Connectivity

Internet penetration at home and work stands at 97 percent among healthcare professionals in Qatar. Nearly 100 percent of general practitioners, specialist physicians, ancillary staff, and allied health professionals have Internet access, along with 91 percent of nurses.

Figure 2: Internet Penetration by Healthcare Professional Type

Source: Healthcare Professionals Survey (Qatar, 2010), n=501.
Internet Activities Performed by Healthcare Professionals

High-frequency tasks performed by healthcare professionals on the Internet in 2010 include sending work-related emails (83 percent), followed by communicating with colleagues or other health professionals (70 percent), and searching for work-related information (68 percent).

By comparison, in 2008, a significantly higher proportion of healthcare professionals indicated using the Internet to search for work-related information (88 percent), and staying up to date with new healthcare treatments (79 percent). This has decreased to 68 percent and 58 percent, respectively, in 2010.

<table>
<thead>
<tr>
<th>Internet Tasks Performed</th>
<th>Percentage of Professionals in 2008</th>
<th>Percentage of Professionals in 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sending work-related emails</td>
<td>79%</td>
<td>83%</td>
</tr>
<tr>
<td>Communicating with colleagues or other health professionals</td>
<td>68%</td>
<td>70%</td>
</tr>
<tr>
<td>Searching for work-related information</td>
<td>88%</td>
<td>68%</td>
</tr>
<tr>
<td>Searching for information on general medical issues</td>
<td>70%</td>
<td>60%</td>
</tr>
<tr>
<td>Staying up-to-date with new treatments, techniques, and drugs</td>
<td>79%</td>
<td>58%</td>
</tr>
<tr>
<td>Scheduling business appointments</td>
<td>22%</td>
<td>45%</td>
</tr>
<tr>
<td>Searching for information on clinical trials and research papers</td>
<td>53%</td>
<td>42%</td>
</tr>
<tr>
<td>Communicating with patients</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>Placing orders for equipment/supplies</td>
<td>14%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Table 2: Internet Tasks Performed by Healthcare Professionals


Electronic Storage of Patient Data

Electronic medical record systems are a crucial component of any computerized health information system. Without them, technologies such as decision support systems cannot be effectively integrated into the clinical workflow.

Nearly half of all healthcare professionals reported utilizing electronic storage of patient data within their organizations in 2010. By comparison, the latest available figures reveal that Qatar has a wide gap in penetration levels compared with countries such as Norway, Estonia, the United Kingdom, and Slovenia.

Eighteen percent of healthcare professionals in Qatar were connected to an online healthcare network in 2010. Connectivity was highest among specialist physicians (26 percent), followed by ancillary staff (24 percent), general practitioners and allied health professionals (20 percent each), and nurses (10 percent).

Access to Online Healthcare Networks

Improved connectivity to online healthcare networks can facilitate access to patient information, current clinical trends, and evidence-based medicine, and promote global collaboration among healthcare professionals.
e-Health among Individuals in Qatar

Qatar continues to take strides forward in terms of acquiring the requisite infrastructure to access e-Health services. The percentage of individuals accessing an Internet-connected PC rose from 63 percent in 2008 to 82 percent in 2010, increasing their ability to utilize various e-Health services.

Overall, 36 percent of the mainstream population actively searched for health-related information on the Internet within the past 12 months. Searching for information related to their own personal health had the greatest response (73 percent), followed by information queries regarding the health of somebody else (52 percent). The search for a specific healthcare product or service ranked third and was performed by 38 percent of individuals.

ICT Training

Nearly one-third of healthcare professionals received ICT training in 2010. Forty percent of nurses have received ICT training, followed by roughly one-quarter of general practitioners, ancillary staff, specialist physicians, and allied health professionals.

Sources: Healthcare Professionals Survey (Qatar, 2010), n=501.
Tourism and Sports
Background

As a major part of Qatar’s strategy to diversify its economy, the tourism sector is set for a major boost over the coming years. According to the Qatar Tourism Authority, the government has earmarked more than $20.0 billion (QAR 72.8 billion) in funds through 2013 to develop the country’s tourism facilities and infrastructure.

A number of investments with significant bearing on the country’s tourism industry are already underway or are currently being planned: these include the New Doha International Airport, the causeway and rail line to Bahrain, a new deepwater port, and additional accommodation facilities. Hotel rooms are expected to number 15,000 units by early 2011 and are projected to add up to 30,000 units by the end of 2013.

Investments in the tourism sector are set to continue over the mid-to-long term, particularly in light of Qatar’s successful bid to host the 2022 FIFA Football World Cup. This global event will entice a greater number of people to visit for tourism, as well as cultural and sporting events, not just for business.

Due to these investments, the World Travel & Tourism Council estimates the travel and tourism sector’s contribution to Qatar’s GDP will rise from 8.4 percent or $9.35 billion (QAR 34.0 billion) in 2010 to 9.4 percent or $29.04 billion (QAR 105.8 billion) by 2020. Accordingly, the sector’s contribution to employment is also expected to increase from 67,000 jobs in 2009 to 105,000 jobs by 2020.

As part of the research into this sector, interviews were conducted with 50 tourism and sports executives from hotels, conference centers, travel agencies, tour operators, and sports and recreation centers, as well as with 380 visitors to Qatar.

Access to Computers and the Internet

Tourism is highly information-intensive. Information must be able to flow quickly and accurately at every stage in the sales cycle of a tourism product such as an airline ticket, a hotel room booking, or a car rental. Travelers too are becoming more dependent on travel-related information as they prepare for their trips and while they are away. As a result, ICT has become a necessity for the tourism industry.

Nearly all tourism and sports establishments in Qatar maintain at least one PC. At present, the sector has an average of 3.4 dedicated or shared PCs per 100 employees.

In 2010, 98 percent of tourism and sports facilities had corporate access to the Internet. This compares favorably with the most recent international benchmarks for the United Kingdom and Estonia.

Key Findings

- Nearly all tourism and sports establishments in Qatar currently have at least one PC, while 98 percent have broadband Internet connectivity within their organizations. However, in spite of the fact that a large number of visitors are business travelers and thus highly dependent on the Internet, only two-thirds of tourism and sports establishments in the country currently offer Internet access to their guests or customers.

- A web presence is now commonplace for establishments in Qatar’s tourism sector. In 2010, approximately 80 percent of organizations in the sector maintained a website and 70 percent provided customers with the option to make online queries. Still, only 15 percent of those websites currently allow customers to make online transactions.

Figure 1: Level of Access to the Internet—International Benchmark


However, a lower percentage of tourism and sports establishments currently offer Internet access to their guests or customers. In 2010, 66 percent of tourism-sector facilities provided connectivity to customers, an increase from 41 percent in 2008.
In 2010, the primary means of Internet access provided to guests was via wireless networks, supported by 97 percent of Internet-connected tourism establishments. This was followed by connectivity using a wired Internet terminal for guests (85 percent of establishments). In 2010, fewer than half (48 percent) of Internet-connected establishments in Qatar provided access through centrally located kiosks.

Whether Internet access is being provided via distributed or centrally located points, all connected tourism and sports entities are utilizing broadband Internet, with more than 86 percent of establishments providing speeds of above 1 Mbps to their customers.

In 2010, 88 percent of visitors accessed the Internet during their stay in Qatar, a decline from 94 percent in 2008. The majority connected to the Internet from hotels (66 percent), the workplace (63 percent), and the airport (35 percent), signifying the importance of having good Internet coverage in these primary locations.

Consistent with findings from 2008, the two most widely performed types of Internet activity in 2010 were personal and professional access to email, search, or web browsing. Overall, 87 percent of visitors to Qatar access the Internet for personal purposes, while 81 percent do so for professional reasons.

Searching for business-related information is the third most popular Internet activity undertaken by visitors at 26 percent, showing a marked increase from 2008. Other tasks, such as searching for government-related information, online banking, searching for information on tourist activities, and accessing e-government services, have also seen an increase in usage levels since 2008.

<table>
<thead>
<tr>
<th>Reasons for Internet Access</th>
<th>2008</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal (private email, search, etc.)</td>
<td>90%</td>
<td>87%</td>
</tr>
<tr>
<td>Professional (office email, VoIP calls, etc.)</td>
<td>69%</td>
<td>81%</td>
</tr>
<tr>
<td>Search for information on businesses in Qatar</td>
<td>5%</td>
<td>26%</td>
</tr>
<tr>
<td>Search for information about government organizations in Qatar</td>
<td>2%</td>
<td>14%</td>
</tr>
<tr>
<td>Online banking</td>
<td>3%</td>
<td>14%</td>
</tr>
<tr>
<td>Search for information about tourist activities or leisure</td>
<td>3%</td>
<td>13%</td>
</tr>
<tr>
<td>Access e-government services</td>
<td>2%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Source: Visitors Survey (Qatar, 2008 and 2010), n=405 (2008), n=380 (2010).
Mobile Phone Usage by Visitors

Mobile services are widely utilized by travelers in Qatar, with 86 percent using their wireless handsets while in the country. Of these travelers, 41 percent exclusively use roaming services, while 22 percent utilize only local SIM cards, and 24 percent utilize both.

**Figure 5: Mobile Phone Usage of Visitors**

<table>
<thead>
<tr>
<th>Percentage of Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use a local SIM card</td>
</tr>
<tr>
<td>Use roaming</td>
</tr>
<tr>
<td>Use both</td>
</tr>
<tr>
<td>Do not use a mobile handset</td>
</tr>
</tbody>
</table>

Source: Visitors Survey (Qatar, 2010), n=380.

Web Presence among Tourism and Sports Facilities

Web presence is now commonplace for the tourism sector in Qatar. In 2010, 80 percent of establishments maintained a website, with more than half having a web presence available in both Arabic and English.

**Figure 6: Language of Tourism and Sport Facilities’ Websites**

<table>
<thead>
<tr>
<th>Percentage of Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not have a website</td>
</tr>
<tr>
<td>Have a website in a language other than Arabic only</td>
</tr>
<tr>
<td>Have a website in Arabic and at least one other language</td>
</tr>
</tbody>
</table>

Source: Tourism and Sports Executives Survey (Qatar, 2010), n=50.

Among organizations that have an online presence, 15 percent have a website that enables customers to transact online. This figure has increased since 2008, when only 6 percent of websites were transactional. In addition, 70 percent of tourism and sport facilities’ websites now allow customers to make online queries, up from 17 percent in 2008.

**Figure 7: Transactional Capabilities of Tourism and Sport Facilities’ Websites**

<table>
<thead>
<tr>
<th>Percentage of Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have websites that do not allow filling in forms or paying online</td>
</tr>
<tr>
<td>Have websites that allow only filling in forms (e.g., for enquiries)</td>
</tr>
<tr>
<td>Have fully transactional websites that allow filling in forms and paying online</td>
</tr>
</tbody>
</table>


ICT Training among Tourism and Sports Organizations Staff

In 2010, approximately 5 percent of the staff within tourism and sports organizations in Qatar had received ICT training over the previous 12 months, down from the 2008 figure of 24 percent.

**Figure 8: Tourism and Sports Organization Staff Receiving ICT Training Over the Previous Year**

<table>
<thead>
<tr>
<th>Percentage of Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
</tr>
<tr>
<td>2010</td>
</tr>
</tbody>
</table>

ICT Workforce
Background

Qatar’s ability to recruit and retain ICT-skilled personnel is essential to fostering greater innovation and development across all its economic sectors.

To profile the ICT workforce in Qatar, face-to-face interviews were conducted with 312 HR executives in companies with 50 or more employees to measure the perceived demand for ICT-qualified employees. In addition, interviews were conducted with 45 managers in recruitment agencies in order to obtain expert opinion on the supply of ICT-skilled employees in Qatar and the rest of the GCC countries.

ICT Workforce Forecast

As of 2008, the number of ICT staff in Qatar totaled approximately 13,500 individuals. By 2009, this grew to around 20,000, representing 1.6 percent of the entire workforce in the country.

The global economic crisis resulted in a more conservative approach toward hiring of ICT staff compared with previous years. Nonetheless, Qatar continued to see growth of its ICT workforce. In 2010, the approximate size of the country’s ICT workforce stood at about 21,500 individuals, a modest increase of 7.4 percent over the previous year.

As the overall ICT market in Qatar is forecasted to continue its growth trajectory, so too is the ICT workforce. This base is projected to grow 11.4 percent over 2010 levels, to reach an estimated total of 24,000 individuals by the end of 2011.

Figure 1: Size and Forecasted Growth of Qatar’s ICT Workforce

Source: IDC model utilizing survey data and secondary research information.

Key Findings

- By 2009, an estimated 20,000 ICT staff were employed by Qatar’s private sector, representing 1.6 percent of the entire workforce in the country. This number is expected to increase to approximately 24,000 individuals by the end of 2011.

- As the ICT readiness among those actively employed in Qatar grows and evolves, so does the need for specialized ICT skills. As of 2010, approximately 90 percent of private sector enterprises in Qatar maintained at least one permanent ICT employee within their organizations. While a typical private sector company employs 6.7 ICT staff, on the whole, IT departments are noticeably understaffed with an average of 7.9 ICT-related positions remaining vacant.

- More than 5 percent of private companies are currently looking to recruit ICT staff with general skills in application development or software engineering, Internet and networking, databases, operating systems, email/groupware, enterprise resource management (ERP), and customer relationship management (CRM).

Private sector organizations in Qatar with 50 or more employees exhibit appreciation of the transformational capabilities of ICT. As of 2010, approximately 90 percent of such enterprises maintained at least one permanent ICT employee within their organization.

Overall, companies in Qatar employ an average of 264.8 permanent employees, of which 6.7 individuals comprise the ICT staff. This equates to an overall ratio of 39.5 non-ICT-related permanent employees for every ICT staff member. It is important to note is that the average number of ICT staff refers to the average number of employees within the internal IT department of a company.

As Qatar’s economy continues to grow and evolve, it will increasingly need specialized ICT skills. At present, private sector companies in Qatar have an average of 7.9 ICT positions they are seeking to fill.

---

7 Refers to individuals performing design, development, build out, sales and management, as well as support of computer hardware, software solutions, information systems, and telecommunication networks.
Table 1: Private Sector ICT Workforce Overview

<table>
<thead>
<tr>
<th>Qatar Workforce Indicators</th>
<th>Private Sector Enterprises with 50 or More Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of permanent employees</td>
<td>264.8</td>
</tr>
<tr>
<td>Average number of permanent ICT employees</td>
<td>6.7</td>
</tr>
<tr>
<td>Percentage of ICT staff relative to full-time employees</td>
<td>2.5%</td>
</tr>
<tr>
<td>Average number of full-time ICT positions available</td>
<td>7.9</td>
</tr>
</tbody>
</table>

Source: HR Executives Survey (Qatar, 2010), n=312.

Roles of Existing ICT Staff and Corresponding Vacancies

In the private sector, individuals with Internet and networking skills comprise 44 percent of currently filled ICT positions. Database skills (38 percent) are the second-most popular, followed by individuals with operating systems skills (37 percent).

Figure 2: Filled ICT Positions versus Vacancies in Private Sector Companies

Even while considering the relatively high penetration rates of these skills, it does not appear that the market is fully saturated. In fact, at least 5 percent of private sector companies are looking to recruit ICT staff with capabilities in application development or software engineering, Internet and networking, databases, operating systems, email-groupware, ERP, and CRM.

Primary Origin of ICT Skills Base in Qatar

As of 2010, 75 percent of ICT professionals working in Qatar came from outside the GCC region, 17 percent from within Qatar, and 8 percent from other GCC countries. The largest countries being tapped by recruitment firms for ICT manpower outside the GCC are India, Nepal, Pakistan, the Philippines, and Sri Lanka.

Figure 3: Primary Origin of ICT Skills Base in Qatar

Perceived ICT Employee Retention in Qatar

In a 2010 survey of recruitment executives in Qatar and other GCC countries, Qatar received a positive rating in the area of employee retention. Overall, 58 percent of recruitment executives surveyed rated ICT employee retention in Qatar positively. Looking ahead, in order to ensure that skilled professionals continue to be attracted and remain interested in working in Qatar, recruitment campaigns must be balanced with continuous training of the existing ICT workforce.

Figure 4: Perceived ICT Employee Retention in Qatar

Source: Recruitment Executives Survey (Qatar, 2010), n=45.

Source: HR Executives Survey (Qatar, 2010), n=312.

Qatar’s ICT Landscape 2011
Appendix
Methodology

Qatar’s ICT Landscape 2011 report was conducted using a two-pronged approach to data collection:

The primary research effort encompassed 16 surveys across relevant audience groups in Qatar. In total, 6,455 surveys were conducted between April and October 2010. Data collection was conducted primarily through face-to-face interviews, supplemented by self-administered questionnaires and, in some cases, telephone interviews.

Table 1: Target Groups Surveyed and Sample Distribution

<table>
<thead>
<tr>
<th>Audience Groups Surveyed</th>
<th>Sector</th>
<th>Completed Sample Size (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household and Individuals</td>
<td>Households and Individuals</td>
<td>1,700</td>
</tr>
<tr>
<td>Residents utilizing Media</td>
<td>Media</td>
<td>633</td>
</tr>
<tr>
<td>School Students</td>
<td>Education Sector</td>
<td>418</td>
</tr>
<tr>
<td>School Executives</td>
<td></td>
<td>309</td>
</tr>
<tr>
<td>School Teachers</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td>University Students</td>
<td></td>
<td>380</td>
</tr>
<tr>
<td>University Executives</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>University Educators</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td>Business Executives</td>
<td>Business Sector</td>
<td>594</td>
</tr>
<tr>
<td>Government IT Executives</td>
<td>Government Sector</td>
<td>44</td>
</tr>
<tr>
<td>Government Employees</td>
<td></td>
<td>380</td>
</tr>
<tr>
<td>Health Care Professionals</td>
<td>Healthcare Sector</td>
<td>501</td>
</tr>
<tr>
<td>Visitors</td>
<td>Tourism Sector</td>
<td>380</td>
</tr>
<tr>
<td>Tourism/Sports Executives</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>HR Executives</td>
<td>ICT Workforce</td>
<td>312</td>
</tr>
<tr>
<td>Recruitment Executives</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6,455</td>
</tr>
</tbody>
</table>

Note: Some of the surveys provide information to multiple sectors, e.g., households and individuals. Media sector report published separately.

The sample size required across each audience group was a specific consideration in the survey design process in order to obtain a margin of error threshold that would permit robust analysis. Accordingly, all surveys, with the exception of those for the tourism and sports sector, obtained a margin of error of ±5 percent or less at the 95 percent confidence interval. These figures have room for both statistical and non-sampling errors.

IDC also conducted secondary and supply-side research to obtain statistics on the various sectors covered in the research. In addition a list of international data indicators was also designed for benchmarking purposes. The countries included in the international benchmarking were:

- Estonia, Ireland, and Singapore-three relatively small countries that quickly developed into solid knowledge-based economies, becoming models in their respective regions.
- China and India-two large economies with above-average growth and developing ICT sectors.
- Bahrain, Jordan, Kuwait, Oman, Saudi Arabia, and the UAE-regional peers for Qatar in the Middle East.
- Australia and the United Kingdom-countries that are particularly advanced in terms of uptake in the ICT sector.

Also included in the benchmarking are combined indicators for EU-15, a basket of 15 countries within the European Union made up of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

As part of the secondary research effort, fact-finding activities included consulting international organizations for ICT-related country data; referencing annual statistical abstracts of Qatar government sources; meeting with officials in various organizations within the national statistical system to identify and gather relevant information; referencing IDC proprietary in-house databases, newspaper clippings, and periodicals; and researching the Internet for relevant databases, articles, and reports.
Definitions of Terminology Used (in Alphabetical Order)

Asymmetric digital subscriber line (ADSL), a form of digital subscriber line technology, is a data communication technology that enables faster data transmission over ordinary telephone lines by utilizing frequencies that are not used by voice telephone calls.

Benchmark is a standard test or measurement used to compare the performance of similar components or systems.

Broadband Internet refers to a high-speed-data-transmission-rate Internet connection with speeds equal to or greater than 256 Kbps as the sum of the capacity in both directions.

CRM is an abbreviation for customer relationship management. It is a widely implemented strategy for managing a company’s interactions with customers, clients, and sales prospects and involves using technology to organize, automate, and synchronize business processes.

ERP is an abbreviation for enterprise resource planning, which integrates internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales, and service.

EU-15 is a reference to the 15 countries that constituted the European Union before the union was expanded into former Eastern Europe.

Extranet is a private network that uses Internet protocols and the public telecommunication system to securely share part of a business’s information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company’s intranet that is extended to users outside the company.

Fixed telephone line refers to a telephone line connecting customer equipment (e.g., telephone set or facsimile machine) to the public switched telephone network (PSTN) that has a dedicated port on a telephone exchange.

Government Network is a highly secure network communications platform in Qatar that connects a range of government agencies with the aim of improving communications and data sharing between them and supporting the delivery of e-services.

Household consists of all persons who occupy a housing unit. The unit must be intended for year-round use and not seasonal or migratory use. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements. Persons living in group quarters/temporary housing are not classified as living in households.

ICT covers any product that will store, retrieve, manipulate, transmit, or receive information electronically in a digital form. A good way to think about ICT is to consider all the uses of digital technology that already exist to help individuals, businesses, and organizations use information.

ICT training includes all training on the use of computers and related hardware, software, PC applications, and systems. It can be basic (such as International Computer Driving License training or how to use MS Office, etc.) or advanced (such as network management training). The training can be received in ICT-related workshops, seminars, or courses—whether such training is carried out in-house, in training institutions, or in other locations.

Indicator is a quantitative or qualitative measure derived from a series of observed facts that can reveal relative position in a given area and, when measured over time, can point out the direction of change. In the context of policy analysis at national and international levels, indicators are useful in identifying trends in performance and policies and drawing attention to particular issues.

ICT-qualified employees or ICT staff refers to individuals performing design, development, build out, sales and management, as well as support of computer hardware, software solutions, information systems, and telecommunication networks.

Internet refers to a global system of computer networks interlinked by a broad array of electronic, wireless, and optical networking technologies.
Intranet is a computer network, based on Internet technology, that is designed to meet the needs for sharing information within a single organization.

K–12 is a designation for the sum of primary and secondary education. The expression is a shortening of kindergarten through 12th grade or grade 12.

Local area network (LAN) is a computer network technology designed to connect multiple computers separated by a short distance in order to share information. A LAN can be connected to the Internet and can also be configured as an intranet.

Mobile phone refers to an electronic device used for two-way radio telecommunication over a cellular network. It is also known as a cellular telephone, a cell phone, or simply a mobile.

Online banking is a term used for performing transactions, payments, etc., over the Internet through a bank’s secure website.

Transactional website is a database-driven website that allows two-way interaction between the site owner and the end user. It is where a user can acquire goods or services by filling in simple electronic forms on website pages.