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MESSAGE FROM THE MINISTER



The growth of the ICT sector in Qatar and the success of businesses of all sizes are essential to a vibrant, growing, and diversified economy. They are also essential to Qatar's transformation into a Smart Nation.

The landscape study that is detailed in the pages of this report demonstrates how businesses are using ICT to expand and prosper. It also shows that following the worldwide trend, the ICT sector itself is playing a fundamental role as both an innovative business sector and a spur for the whole economy. Revenues in the sector continue to grow, and the number of ICT professionals has grown at a compound annual growth rate of 10 percent since 2012. Clearly the investments the government and the private sector have made over the past decade in Qatar's infrastructure and its people continue to bear fruit.

The ICT enterprises surveyed for this report recognize the key role the government is playing and will continue to play in the future. These providers feel that government projects are a key driver of the ICT industry in the country. They also cite the FIFA World Cup 2022 and the Qatar National Vision 2030 as playing a critical role in driving the ICT market.

Most important, this data proves invaluable to policymakers and decision makers as we continue to invest in ICT and in the sector. This report also validates the focus we have placed and will continue to place on e-commerce. There is great potential in this area, and our plans to liberalize the delivery system in Qatar and look at a national payment gateway will greatly enhance the future of e-commerce here.

In spite of the many successes documented in this report, we will continue to address the challenges that remain. Investment in research and development, the lifeblood of any business or industry, is lower in ICT enterprises than we would like. In addition, the use of advanced ICTs, including cloud computing and mobile applications, is still in the nascent stage in Qatar. And businesses cite the complex registration process to start a business and the lack of skilled manpower among the key challenges to growth of the ICT market in Qatar—areas that the government is in the process of addressing.

The Ministry is committed to ensuring that Qatar develops an ecosystem that is ripe for business development and the growth of the ICT sector. We welcome you to join our efforts.

HE Jassim Saif Ahmed Al Sulaiti

Minister of Transport and Communications

INTRODUCTION

For more than a decade now, Qatar's investments in state-of-the art ICT infrastructure, skills development, ICT products and services, and e-government have not only contributed to the growth of the ICT sector, they have created a positive impact on all sectors in Qatar. In 2014, the total revenue generated by the ICT providers in Qatar was estimated to be close to QAR 9 billion, reflecting a compound annual growth rate (CAGR) of 15.4 percent for the period 2012–2014.¹ And according to International Data Corporation (IDC), total ICT spending by the commercial sector in Qatar in 2015 was USD 1,932.25 million, and is projected to increase to USD 2,761.07 million by 2019.

In addition, ICT investments are transforming businesses of all kinds. ICT has improved the quality of products and services, provided access to new geographic markets, allowed better customer relationship management, and provided access to better quality raw materials and services.

In order to objectively measure how the ICT sector is developing and how ICT is transforming businesses, the government of Qatar has been conducting objective market research on the country's businesses since 2008, in addition to its studies on households and individuals, and on the government. This current 2015 study of businesses consisted of primary and secondary research, including a survey of 1,093 business establishments in Qatar across industry segments, size, geography, and ownership, a survey of 419 ICT enterprises, and focus groups among businesses representing several sectors and enterprises of various sizes. The objectives of the study included:

- Assess the current levels of ICT access and usage among businesses in Qatar
- Measure the progress of ICT development
- Benchmark Qatar against selected countries
- Measure the impact of ICT usage among businesses

¹ ICT Enterprise Directory Survey, 2015.

In line with the global trend, the ICT sector in Qatar is growing and is expected to increase significantly in the future.

Today, a review of the ICT landscape in the business sector—which comprises 44,439 business establishments (excluding specific government bodies; see Appendix) in Qatar employing 1,233,110 people²—shows that a great deal of progress has been made since the last study was conducted in 2012, and since 2008 when the first study was commissioned. In line with the global trend, the ICT sector itself is growing and is expected to increase significantly in the future. And the trend in the use of ICT among businesses has also increased over the past seven years, including measures such as computer penetration, Internet penetration, web presence, and enhanced use of e-services and e-commerce, among others. A majority of businesses acknowledge the benefits created by ICT: improved access to customers in newer geographies, as well as better quality of raw materials and faster delivery of products and services, among others.

Despite the progress made, business establishments with 1–9 employees, which form the majority of businesses in Qatar, still trail behind industry averages on many indices including computer and Internet connectivity and various areas of ICT usage—web presence, e-commerce, and readiness to deal with cyber threats. Use of emerging technologies such as cloud computing and the use of mobile applications is still quite low overall. And a majority of ICT enterprises cite government policies including the registration process and lack of skilled manpower, among others, as continuing challenges.

This report is organized into six sections:

Overview of the ICT Industry in Qatar examines the supply side—enterprises that offer ICT products and services in Qatar, as well as the total workforce employed in this sector. In addition, this section looks at the forces and trends that drive and challenge the growth of the sector.

ICT Professionals examines the ICT-related technical staffs employed in any establishment in any sector in Qatar.

Business Use of ICT looks at the demand side—how businesses are connected and using ICT, overall and across different business segments and sizes of establishments.

Security of Networks and Data deals with the readiness of businesses to handle ICT security threats and looks at the presence of ICT security policies, the availability of specialized ICT security employees, and the use of security software solutions, among other topics.

Business Satisfaction with ICT examines the ICT services provided in the country overall—their availability, reliability, and value for money. It also looks at the services provided through Hukoomi, Qatar's e-government portal, as well as broadband affordability and government support of ICT.

Impact of ICT in Transforming Businesses reports on the benefits businesses gain from the availability and usage of IT and telecom services in Qatar.

² Ministry of Development Planning and Statistics (MDPS), *Census 2015*.

BACKGROUND

To assess the current levels of ICT access and usage among businesses in Qatar and to measure the development of the ICT sector, the government of Qatar contracted with AMRB, a market research firm in the MENA region, to conduct a large-scale study of 1,093 business establishments spread across industry sectors. They varied in size, ownership, and geographical location. Between March 2015 and May 2015, face-to-face interviews were conducted with senior employees—including IT managers and owners—at these establishments. During that same time period, based on extensive research by AMRB that identified close to 550 ICT enterprises in Qatar, a short telephone survey was conducted with 419 ICT providers, and in-depth face-to-face interviews were conducted with 300 of them. Focus group discussions were also conducted with industry experts.

The research was developed and implemented in close consultation with the Ministry of Development Planning and Statistics, Qatar University, the Qatar Chamber, and the Qatari Businessmen Association.

This report presents the findings at an overall level for all business establishments within Qatar, and where relevant, the findings have been reported by “size of establishment” and “main economic activity.”

The report also presents data by business size in the following categories: businesses having 1–9 employees, 10–49 employees, 50–249 employees, and 250 or more employees.

An understanding of the business environment in Qatar provides a context for the data and analysis in this report.

Businesses with 1–49 employees constitute more than 90% of the total number of establishments in Qatar, contributing significantly to the overall performance of the business economy.

The most recent census data indicates 44,439 business establishments in Qatar employing 1,233,110 people.³

Businesses with 1–9 employees represented 71 percent of all business establishments in Qatar, but employed only 9 percent of the workforce.³ In contrast, establishments with 250 or more employees employed 60 percent of the workforce, but made up only 2 percent of the total establishments as estimated by AMRB.

Since establishments with 1–49 employees constitute more than 90 percent of the total number of establishments in Qatar,³ businesses of this size contribute significantly to the overall performance of the business economy.

Retail and wholesale trade (including repair of motor vehicles and motorcycles) is the largest industry segment, with 37 percent of all businesses belonging to this segment. However, given the number of small establishments in this segment, this sector employs 19 percent of the workforce. The construction segment, on the other hand, employs 42 percent of the workforce but constitutes 10 percent of all businesses.³

For the purposes of this report:

- **ICT workforce** is the sum of the permanent employees (including both technical and non-technical) working only in ICT enterprises.
- **ICT enterprises** are those involved in any information or communications products or services—manufacturing, wholesale, or retail—excluding small electronics shops.
- **Technical employees** are those engaged in information and communications technology design, manufacturing, installation, operations, maintenance, business development/sales support work, and technical consulting.
- **Business establishment** is an enterprise or part of an enterprise that is situated in a single location and in which only a single (non-ancillary) productive activity is carried out or in which the principal productive activity accounts for most of the value added.
- **Government clients** are companies that are completely or partly owned by the government of Qatar.
- **ICT professionals** are the ICT-related technical employees working in any establishment in any sector.
- **High-speed Internet/broadband** is an Internet connection with a speed of 10 Mbps or more.

³ MDPS, *Census 2015*.

EXECUTIVE SUMMARY

Qatar's ICT Landscape 2016: Business reveals continued progress in the ICT sector in Qatar as well as the transformation of businesses that are critical to the growth and diversification of Qatar's economy. In particular, business establishments with fewer than 50 employees, which make up 93 percent of Qatar's businesses,⁴ have improved their ICT penetration and usage rates and are reaping the benefits of ICT. In addition, on international benchmarks such as the World Economic Forum's Global Competitiveness Index, Qatar ranks 12th on technology absorption at the firm level.⁵

This report looks at the state of the ICT sector—the supply side—as well as business establishments' use of ICT—the demand side. In addition, the report explores the benefits businesses are deriving from ICT, and some of the challenges they face. The results and trends of this quantitative and qualitative research are summarized below.

Following the worldwide trend, the ICT industry is helping to fuel growth and diversification in Qatar's economy.

Today, there are close to 550 ICT enterprises operating in Qatar. While the ICT industry in Qatar is still mainly import dependent, all leading ICT products and services are currently available in Qatar, mostly through

resellers and service providers. Based on the survey of ICT providers, few ICT enterprises in Qatar are involved in manufacturing ICT products. Fifty-eight percent of ICT enterprises have a presence only in Qatar, while the remaining ICT enterprises have a regional or an international presence. ICT providers feel that government projects are important to the ICT industry in Qatar, with 24 percent of ICT providers identifying government projects and initiatives as a key driver for growth of this sector.

The number of ICT professionals in Qatar is growing.

An estimated 35,500 ICT professionals work in Qatar, representing 3 percent of the total number of people employed in Qatar's business establishments. The number of ICT professionals has grown at a CAGR of 10 percent since the 26,900 estimated in 2012. In comparison, the number of ICT professionals in Singapore was reported to be 150,200 in 2014, representing about 4 percent of the total workforce in Singapore.⁶ The wholesale and retail trade, construction, and information and communications sectors have

⁴ MDPS, *Census 2015*.

⁵ World Economic Forum, *The Global Competitiveness Report 2015–2016*.

⁶ Singapore Government, Ministry of Manpower.

The overwhelming majority of businesses—83%—believe that they have benefitted from ICT.

the highest numbers of ICT professionals. And even though the information and communications sector forms a very small proportion of businesses in terms of both employee base and number of establishments, it comprises 10 percent of the total number of ICT professionals.

R&D expenditures of ICT enterprises are low, inhibiting innovation.

Among ICT enterprises in Qatar, 10 percent reported that they invested in R&D activities in 2014, with only 1 percent of ICT enterprises spending more than 20 percent of their revenues. Thirteen percent of multinational ICT companies invested in R&D, with 8 percent of the local ICT companies investing in R&D activities in 2014. Among the ICT enterprises investing in R&D in Qatar, a majority (63%) of them spent less than 5 percent of their annual revenue for R&D in 2014 in Qatar.

Internet penetration has increased since 2010, as has web presence among businesses.

Internet penetration has increased from 59 percent in 2010 to 70 percent in 2015 among business establishments. The percentage of employees routinely⁷ using the Internet for business purposes reached 30 percent in 2015. Although flat since 2012, web presence nearly doubled from 20 percent in 2010 to 39 percent in 2015. Growth can also be observed in terms of increased online activities, including use of online marketing and customer support, e-banking, social media, and e-government services. In particular, the Internet activities that have shown a great deal of growth at business establishments include marketing products and services online, increasing from 27 percent in 2012 to 42 percent in 2015; and providing online customer service, with an increase from 15 percent to 36 percent during the same period.

ICT is benefiting and helping to transform businesses in Qatar.

The overwhelming majority of business establishments—83 percent—believe that their businesses

have benefited from ICT. Nearly half of the business establishments surveyed—48 percent—said that ICT helps them access customers in new geographies and expand their potential market. Improved quality of products and services was cited as a key benefit by 37 percent, followed by faster delivery (30%) and better customer relationships (23%).

The use of cloud computing and mobile applications is still in the nascent stage.

While awareness of such technologies has increased exponentially, usage is still very low. Awareness of cloud services has increased from 14 percent in 2012 to 76 percent in 2015, however, usage is minimal at 3 percent overall. The same is true regarding the use of mobile applications, with only 3 percent of the business establishments surveyed currently having a mobile application. Mobile application presence is lowest among the establishments with 1–9 employees (2%) and highest among those establishments with 250+ employees (13%). However, 9 percent of businesses without a mobile app stated their plan to launch one in the next 12 months, with a higher proportion (12%) of establishments with 1–9 employees intending to do so.

E-commerce in Qatar has a great deal of room to grow.

The survey of business establishments shows that overall about 12 percent reported receiving and 8 percent reported placing orders over the Internet. According to *Qatar National e-Commerce Roadmap 2015*, the B2C market contributed about 44 percent of the e-commerce market in Qatar in 2014. Compared to the global average, the B2B share of the e-commerce market in Qatar is relatively lower, at 56 percent compared to 82 percent globally. As the survey results indicated, businesses continue to use the traditional methods of doing business. The 73 percent of businesses not receiving orders over the Internet have cited the industry norm of taking physical orders as the biggest barrier.

⁷ International Telecommunication Union (ITU), *Core ICT Indicators, 2010*.

Since the research was conducted, Qatar's government has launched initiatives to leverage the country's potential in e-commerce. In addition to the publication of *Qatar National e-Commerce Roadmap 2015*, a blueprint for an aggressive e-commerce effort, the government has announced its intention to open the postal and delivery market to competition. See Conclusion on page 46 for further details.

Business establishments continue to risk breaches of network and data security.

Overall, only 15 percent of the business establishments in Qatar reported the presence of a documented and internally published ICT security policy. However, overall, almost three-quarters of business establishments report using one or more security software solutions, and 42 percent have an archiving/back-up policy that is documented and published internally, with the proportion increasing with the size of the business. In addition, 73 percent of business establishments report backing up data. A dedicated resource for ICT security was employed by 17 percent of business establishments, with the highest percentages in the information and communications (58%) and banking and financial services (56%) sectors.

Business establishments are relatively satisfied with the ICT infrastructure and services available in Qatar.

At least half of the business establishments using the Internet reported being satisfied with the speed and reliability of Internet services. Business establishments were least satisfied with the cost of IT products and services (31% satisfied), the availability of desired telecom services (33% satisfied), and the cost of

Internet services (38% satisfied). In addition, business establishments identified key areas where government support is expected in the future: improvement of ICT infrastructure (cited by 54% of surveyed businesses) and development of ICT skills (37%).

The government is viewed as a key driver in the continued growth of the ICT industry in Qatar.

Among the ICT enterprises interviewed, the economic growth of Qatar (27%) and the increasing use of IT solutions in all industries (25%) were cited as the top two drivers of growth of the ICT industry in Qatar. Nearly 40 percent of the ICT enterprises also reported that government initiatives, the FIFA World Cup, and the Qatar National Vision 2030 also play a critical role in driving the ICT market.

ICT providers cite challenges in growing the ICT industry in Qatar.

Government policies and the complex registration process is cited by 20 percent of surveyed ICT enterprises as a key inhibitor to growth of the ICT market. In addition, increasing competition in Qatar is also cited as a challenge by 19 percent of those ICT enterprises interviewed as well as lack of available skilled manpower (14%), and import and customs clearance issues (13%). Labor visa issues (11%) and increasing cost of running a business in Qatar (11%) are other challenges faced by these ICT establishments. These survey results are reinforced by Qatar's ranking—50th globally—in ease of doing business, whereas Qatar's regional counterpart UAE ranks 22nd. In addition, Qatar ranks 103rd in one of the report's sub-indices, starting a business.⁸

⁸ World Bank Group, *Doing Business 2015: Going Beyond Efficiency*.

RESEARCH FINDINGS

OVERVIEW OF THE ICT INDUSTRY IN QATAR

ICT PROFESSIONALS IN QATAR

BUSINESS USE OF ICT

SECURITY OF NETWORKS AND DATA

BUSINESS SATISFACTION WITH ICT

IMPACT OF ICT IN TRANSFORMING BUSINESSES

OVERVIEW OF THE ICT INDUSTRY IN QATAR

Key Findings

- Currently, close to 550 companies providing ICT products and services are estimated to be operating in Qatar.
- 58% of the ICT enterprises in Qatar have a presence only in Qatar, while the remaining ICT enterprises have a regional or an international presence.
- The total workforce employed by ICT enterprises in Qatar is estimated to be about 22,600 employees.
- In 2014, the total revenue generated by the surveyed ICT service providers in Qatar is estimated to be close to QAR 9 billion, reflecting a CAGR of 15.4% for the period 2012–2014.
- Government policies and the registration process, at 20%, is the top inhibitor to growth in the ICT industry cited by survey respondents.
- Other challenges include increasing competition in Qatar (19%), lack of skilled manpower locally (14%), and import and customs clearance issues (13%).
- Only 10% of the surveyed ICT enterprises in Qatar reported spending on R&D activities in 2014.
- Among the ICT enterprises interviewed, the economic growth of Qatar and the increasing use of IT solutions in all industries were cited as the top two drivers of growth of the ICT industry in Qatar.
- Nearly 40% of ICT enterprises reported that government initiatives, the FIFA World Cup, and the QNV 2030 play a critical role in driving the ICT market.

Over the past decade, around the world, ICT has served as an innovative economic sector as well as a spur for other economic sectors. A country's ICT sector enables economic diversification and growth, drives innovation and entrepreneurship, and creates lucrative employment opportunities. This section looks at the supply side—the ICT providers, their business activities, products, and services, and the workforce employed in the ICT industry in Qatar.

ICT PROVIDERS IN QATAR

Currently, close to 550 ICT companies⁹ providing ICT products and services are estimated to be operating¹⁰ in Qatar.

A mix of local, regional, and international ICT enterprises are operating in Qatar. Fifty-eight percent of the ICT enterprises in Qatar have a presence only in Qatar, while the remaining ICT enterprises have a regional or an international presence (see Figure 1).

BUSINESS ACTIVITIES AND PRODUCTS AND SERVICES OF QATAR'S ICT ENTERPRISES

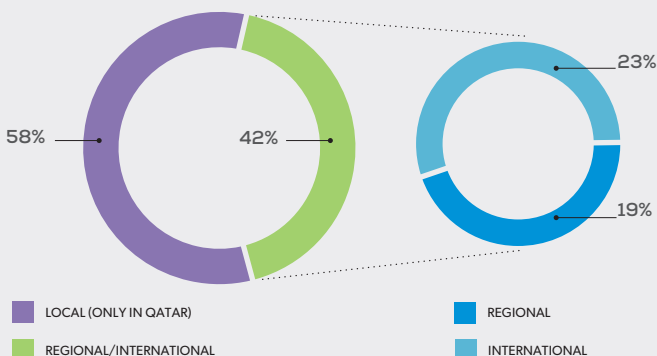
The key services offered by the ICT enterprises in Qatar include system integration, software development and consulting, and hardware maintenance

⁹ Per the establishment census 2015 conducted by the Ministry of Development Planning and Statistics, there were about 199 business establishments in the information and communications sector in Qatar in 2015. However, a number of wholesalers and retailers of ICT products and services were categorized under the wholesale and retail trade segment (ISIC Rev. 4-Category 45-47).

¹⁰ Defined as those with a registered office in Qatar and a valid Commercial Registration (CR) number.

Figure 1
ICT ENTERPRISES IN QATAR, GEOGRAPHICAL PRESENCE

Percentage of ICT Enterprises in Qatar



Source: ICT Enterprise Directory Screening, 2015; n=419

and support. Retail and wholesale (42% combined) are the other significant business activities of the ICT enterprises in Qatar.

The ICT manufacturing industry hardly exists in Qatar; thus, ICT products sold in Qatar are mainly imported, and there is a higher dependence on the international markets for the latest technologies. However, due to the presence of international ICT enterprises in Qatar and the ability of the local ICT enterprises to import all products and services, all demanded technologies are available in Qatar, mainly through resellers or service providers.

A majority of ICT companies in Qatar are operating in multiple areas. Approximately 70 percent of the companies surveyed are involved in IT hardware trading, 56 percent in IT software development, 55 percent IT support services, 52 percent in IT managed services, 49 percent in IT integration services, and 38 percent in communication network development (see Figure 2).

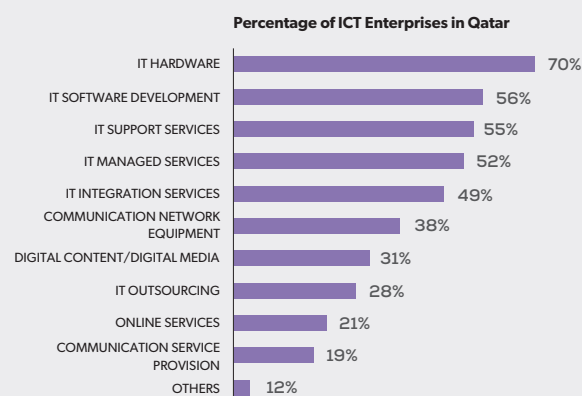
WORKFORCE IN ICT ENTERPRISES IN QATAR

Eighty-four percent of the ICT enterprises in Qatar reported having fewer than 50 employees (see Figure 3).

The total workforce employed by ICT enterprises in Qatar is estimated to be about 22,600 employees. Out of the total ICT industry workforce, about 53 percent of the employees are estimated to be employed in technical roles: design, installations, operations, maintenance, marketing, sales, support, technical consulting, and manufacturing. The remaining are non-IT staff, many in administrative roles.

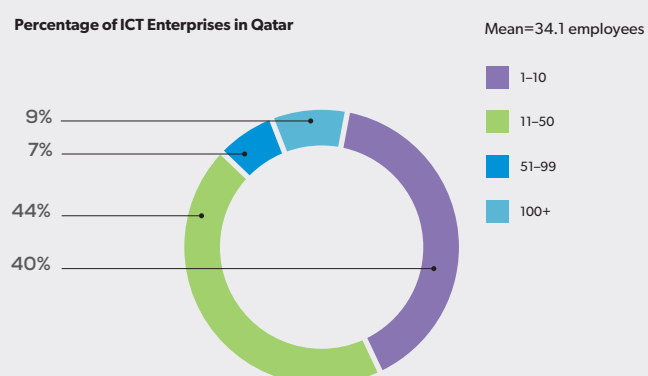
During the interviews with the ICT providers, a representative of a mid-sized multinational ICT enterprise in Qatar supplying turnkey software and hardware solutions to the hospitality and retail industry said, "Finding a specialized employee with niche technical skills is not easy in Qatar. At the same time, it is difficult to source someone from outside the country due to the visa regulations. This is affecting our business right now and it will affect the whole ICT industry in the long run."

Figure 2
ICT ENTERPRISES IN QATAR, PRODUCTS AND SERVICES OFFERED



Source: ICT Enterprise Directory Screening, 2015; n=419

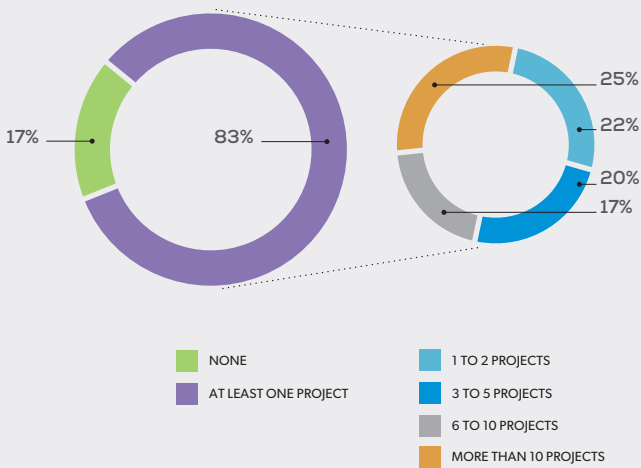
Figure 3
ICT ENTERPRISES IN QATAR, SIZE BY PERMANENT EMPLOYEES



Source: ICT Enterprise Directory Screening, 2015; n=419

Figure 4
ICT ENTERPRISES IN QATAR THAT WORKED FOR GOVERNMENT,
2012–2014

Percentage of ICT Enterprises in Qatar



Source: ICT Enterprise Directory Survey, 2015; n=300

ICT SECTOR'S CONTRIBUTION TO OVERALL BUSINESS AND EXPORTS

In 2014, the total revenue generated by the surveyed ICT providers in Qatar is estimated to be close to QAR 9 billion. The revenue of the ICT industry has seen a CAGR of about 15.4 percent during the 2012–2014 period, with further ICT sector growth projected.

It is also vital to note that a majority of the ICT enterprises in Qatar serve only the local Qatari market, with only about one-tenth of the ICT enterprises exporting their products and services from Qatar to regional and international markets. Among those exporting their products or services, three-fourths are exporting only to other GCC countries.

The total export revenue of the ICT enterprises in Qatar in 2014 is estimated to be about QAR 30 million, which is less than 1 percent of the total revenue of these enterprises.

ICT enterprises have largely benefited from ICT-related government projects, with 83 percent of the ICT enterprises in Qatar reporting having worked with government organizations at least once between 2012 and 2014. Nearly two-thirds of the ICT enterprises that have worked for government clients during this period claim to have executed more than two projects for them. About one-fourth reported having worked on more than 10 projects for the government (see Figure 4). All types and sizes of ICT enterprises in Qatar are benefitting from the large number of government projects in Qatar.

R&D EXPENDITURES BY ICT ENTERPRISES

The growth of the ICT sector depends on ICT enterprises developing new products and services. Therefore, expenditures on research and development (R&D, as defined in the Appendix), and acquisition of patents (see Appendix) have an impact on the innovation in the sector. In particular, the involvement of private ICT enterprises in these two activities is an essential factor to showcase the readiness of the industry for innovation.

Within the ICT industry in Qatar, only 10 percent of the surveyed ICT enterprises reported having spent any amount on R&D activities in 2014, with 1 percent of ICT enterprises investing more than 20 percent of their revenues (see Figure 5).

In comparing the percentage of multinational and local ICT companies investing in R&D in Qatar, 13 percent of multinational ICT companies invested in R&D, with 8 percent of the local ICT companies investing in R&D activities in 2014. Among the ICT enterprises investing in R&D in Qatar, a majority of them (63%) spent less than 5 percent of their annual revenue in Qatar in 2014. On average, these ICT enterprises have spent about QAR 330,000 on R&D activities in Qatar in 2014. Because the majority of the ICT enterprises in Qatar are in the wholesale and retail sector, the role of R&D among them is lower.

Businesses surveyed mentioned that to improve innovation, the ecosystem should support start-ups along with other initiatives like generating awareness about incubation centers such as the Qatar Business Incubation Center, Qatar Science and Technology Park, and the Digital Incubation Center, which are developing industry clusters of government and education providers, and attracting international companies.

In line with the low R&D investments in 2014, less than 2 percent of the ICT enterprises reported spending any amount on acquisition of patents in Qatar.

KEY DRIVERS FOR GROWTH OF THE ICT INDUSTRY IN QATAR

In order to understand the forces that will drive the future growth of the ICT market and how to support it, current drivers and challenges must be examined.

Among the ICT enterprises interviewed, the economic growth of Qatar and the increasing use of IT solutions in all industries were cited as the top two drivers of ICT industry expansion in Qatar. Nearly 40 percent of the ICT enterprises also reported that government initiatives, the FIFA World Cup, and the Qatar National Vision 2030 also play a critical role in driving the ICT market (see Figure 6).

Figure 5
SPENDING ON R&D IN QATAR, PERCENTAGE OF 2014 ICT ENTERPRISES' REVENUE

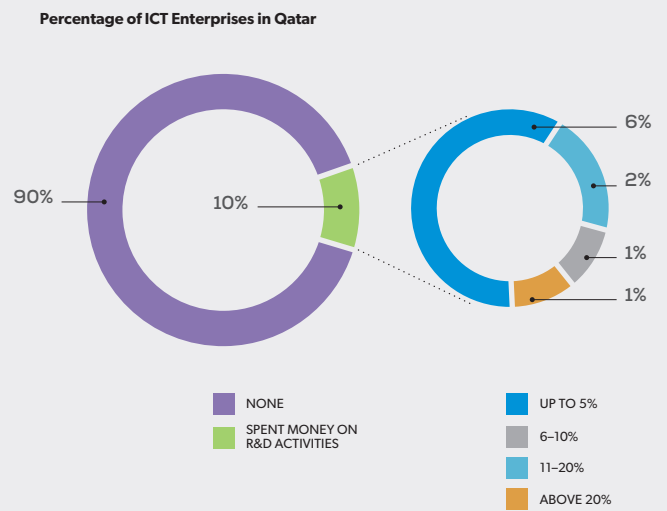
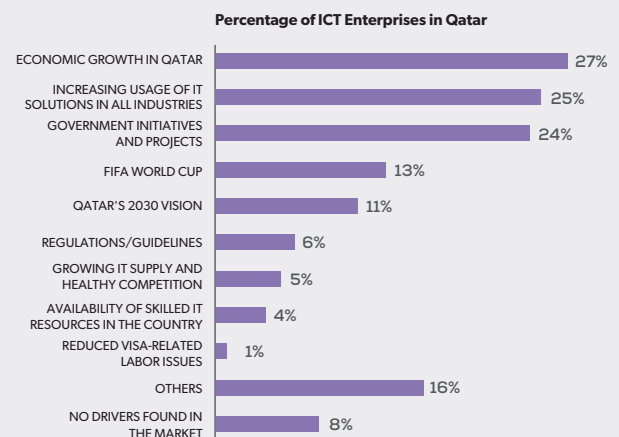


Figure 6
KEY DRIVERS FOR QATAR'S ICT INDUSTRY GROWTH



In terms of the importance of the ICT industry to the government's vision, Qatar is ranked 3rd worldwide out of 143 countries in the Networked Readiness Index 2015, second among GCC countries.¹¹

Regulations and guidelines relating to the ICT sector also drive the market for ICT products and services in Qatar. Six percent of those interviewed cited regulations and guidelines as one of the key drivers of future ICT growth in Qatar (see Figure 6). Currently, Qatar ranks 5th worldwide in the Networked Readiness Index 2015 on laws relating to ICTs, second among GCC countries.¹¹

The top segments cited by ICT enterprises with the highest growth in the ICT industry in Qatar in 2015 were IT hardware (38%), IT support services (38%), and IT integration services (36%), followed by IT managed services (31%), IT software development (30%), and online services (30%) (see Figure 7).

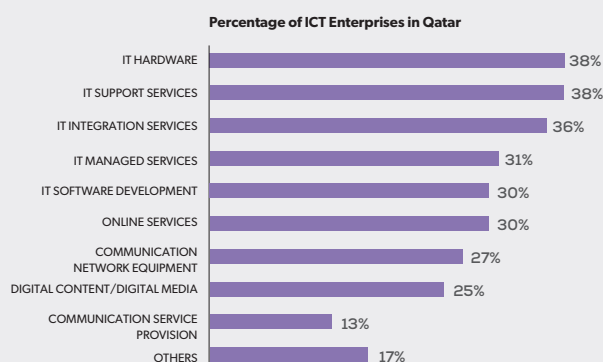
KEY CHALLENGES FOR THE GROWTH OF THE ICT INDUSTRY IN QATAR

Given the underlying benefits of having a strong ICT industry in a country, it is important to understand the key obstacles to growth of the industry.

Government policies and the complex registration process is cited by 20 percent of ICT enterprises as one of the key challenges to growth of the ICT market (see Figure 8). As a representative of one ICT enterprise in Qatar stated, "It is difficult to start a business in Qatar as compared to some of the other GCC countries, mainly because of the complex registration process and time taken for approval from the government."

Increasing competition in Qatar is also cited as a challenge by 19 percent of those interviewed. The lack of skilled manpower (14%) and labor visa issues (11%) are other key challenges reported by ICT enterprises in Qatar (see Figure 8). It is important to note that although Qatar ranks 31st in the overall ICT Development Index (IDI) in 2015, it ranks only 90th in the ICT skills sub-index.¹²

Figure 7
QATAR'S ICT INDUSTRY GROWTH 2015, BY SEGMENT



Source: ICT Enterprise Directory Survey, 2015; n=300

¹¹ World Economic Forum Insight Report, *The Global Information Technology Report 2015: ICTs for Inclusive Growth*.

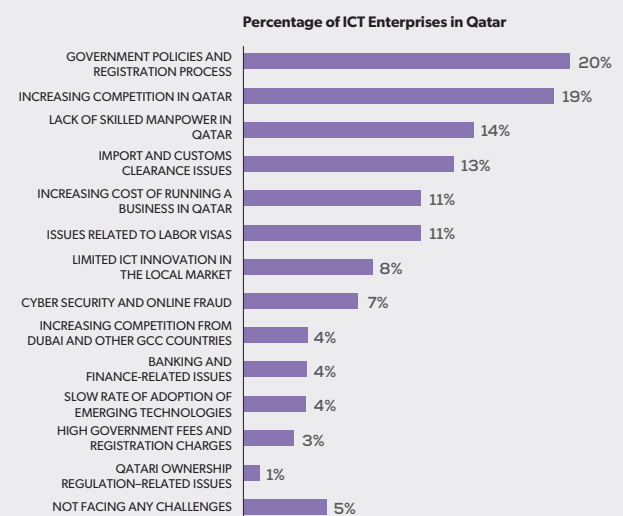
¹² ITU, *Measuring the Information Society Report 2015*.

ICT enterprises cite government policies and registration process as the top inhibitor to ICT industry growth.

Import and customs clearance issues (13%) and increasing cost of running a business in Qatar (11%) are other challenges faced by the establishments. An ICT enterprise representative put it this way: “Customs formalities are difficult to understand and follow. In addition, it also takes weeks to get clearance for the imported products in most cases. Because of these import issues, we always budget an extra 10 days to deliver the products to the customers. This affects the whole ICT industry in Qatar.” Another representative echoed that sentiment: “Customs charges, delay in receiving the shipment, paperwork related to the government sector are the key challenges we face now. Especially, importing closed circuit TV systems involves a complicated process and requires the approval of the Ministry of Interior.”

In addition to these challenges, limited ICT innovation in the local market (8%), cyber security and online fraud (7%), increasing competition from the businesses in Dubai and other GCC countries (4%), banking and finance-related issues (4%), and the slow rate of adoption of emerging ICT technologies by establishments in Qatar (4%) are also affecting the growth of the ICT industry in Qatar (see Figure 8).

Figure 8
KEY INHIBITORS FOR QATAR'S ICT INDUSTRY GROWTH



Source: ICT Enterprise Directory Survey, 2015; n=300

ICT PROFESSIONALS IN QATAR

Key Findings

- The number of ICT professionals in Qatar is estimated to be about 35,500, representing about 3% of the total number of persons employed in Qatar's businesses.
- The wholesale and retail trade, construction, and information and communications sectors are the largest contributors to the total number of ICT professionals.
- Although it forms less than 1% of business establishments and total workforce in Qatar, the information and communications sector contributes 10% of the total ICT professionals in the country.
- Overall, 31% of establishments reported having ICT professionals.

As the globalization of markets accelerates

the pace of innovation, new occupations are emerging and replacing others. Even within each occupation, required skills and competencies are evolving as the knowledge content of production processes and services is rising. Thus the success of a technology-driven industry like ICT and the continued existence and access to advanced technology infrastructure depend heavily on the availability of skilled ICT professionals.

This section looks at the ICT professionals in Qatar who are working either in ICT enterprises or in any business establishment that uses ICT products or services.

Estimates based on the Business Establishment ICT Survey 2015 show that the number of ICT professionals in Qatar is about 35,500. This represents about 3 percent of the estimated number of persons employed in business establishments in Qatar, and has grown at a CAGR of 10 percent—up from 26,900 in 2012. In comparison, the number of ICT professionals in Singapore is reported to be 150,200 in 2014, representing about 4 percent of Singapore's total workforce.¹³

The wholesale and retail trade, construction, and information and communications sectors are the largest contributors to the total number of ICT professionals. Even though the information and communications

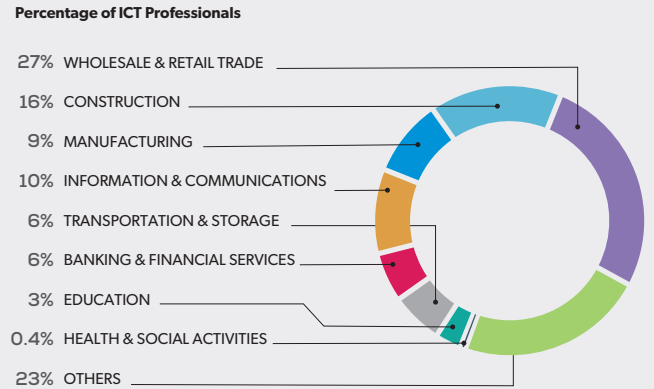
¹³ Singapore Government, Ministry of Manpower.

sector forms less than 1 percent of business establishments and total workforce in Qatar, it contributes 10 percent to the total number of ICT professionals in the country (see Figure 9).

Overall, 31 percent of establishments reported having ICT professionals. Not surprisingly, a higher percentage of ICT professionals correlates with a bigger establishment size (see Figure 10).

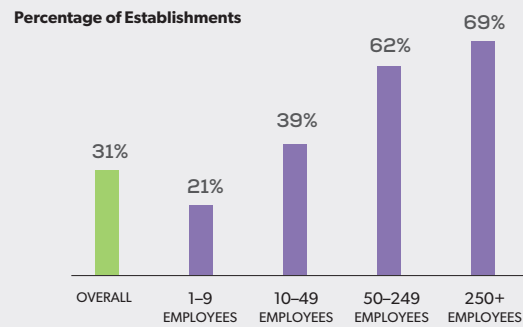
The proportion of establishments with ICT professionals varies with the industry. A higher proportion of ICT-related professionals is reported by establishments belonging to information and communications (76%), construction (61%), and banking and financial services (60%) sectors. A lower proportion is reported among health and social activities (14%), wholesale and retail trade (27%), and transportation and storage (29%) (see Figure 11).

Figure 9
ICT PROFESSIONALS IN QATAR, BY SECTOR



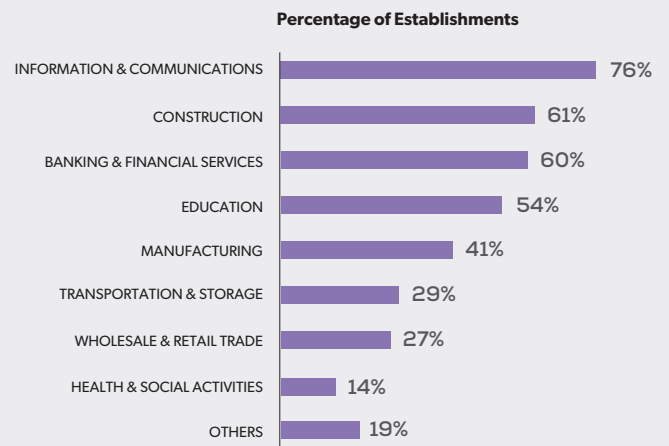
Source: Estimates based on Business Establishment ICT Survey, 2015

Figure 10
PRESENCE OF ICT PROFESSIONALS, BY BUSINESS SIZE



Source: Business Establishment ICT Survey, 2015; n=1,093

Figure 11
PRESENCE OF ICT PROFESSIONALS, BY MAIN ECONOMIC ACTIVITY



Source: Business Establishment ICT Survey, 2015; n=1,093

BUSINESS USE OF ICT

Key Findings

- Overall, 76% of the business establishments in Qatar used computers in 2015, a penetration level that has stayed relatively flat since 2010.
- The use of the Internet for business purposes is increasing in Qatar, from 59% in 2010 to 70% in 2015.
- In 2015, 93% of all businesses connected to the Internet are connected to fixed broadband, and 10% are connected to mobile broadband.
- Marketing products and services online showed the most growth among Internet activities performed by businesses—increasing from 27% in 2012 to 42% in 2015.
- 39% of business establishments in Qatar reported having a web presence—through their own website or elsewhere online.
- Use of social media networks has increased over the past five years—from 3% in 2010 to 12% in 2015.
- Nearly twice as many businesses with 50+ employees exploit the opportunities offered by social media networks compared to their smaller counterparts.
- Overall, only 3% of businesses in Qatar currently own a mobile application, with 13% of those with 250+ employees having one.
- Though 76% of businesses are aware of cloud computing, use is very low, with only 3% of businesses adopting it.
- Overall, about 12% of the businesses reported receiving orders over the Internet, and 8% of them reported placing orders over the Internet.
- The 73% of businesses not receiving orders over the Internet cited the industry norm of taking physical orders as the biggest barrier.
- 55% of businesses receiving online orders agreed that there should be a government-promoted national payment gateway in Qatar.
- Although flat since 2012, the percentage of users of online government services increased from 37% in 2010 to 58% in 2015.

ICT and its applications benefit business establishments through improved efficiency of business processes. Other benefits include reducing transaction costs and allowing firms to store, share, and use their acquired knowledge and know-how, among others. In the survey, businesses were asked about their connectivity and use of computers, the Internet, and broadband, as well as their online activities, web presence, mobile apps development, and use of cloud computing. In addition, the survey measured e-commerce and e-government services adoption among these businesses.

This section looks at six key areas of ICT usage that were surveyed, including computer usage, access to

the Internet, online presence, e-commerce, advanced ICT usage such as cloud computing, and use of e-government services.

COMPUTER PENETRATION

Overall, computer penetration among business establishments—namely those who have owned or have used computers over the past 12 months—stands at 76 percent in 2015, a level that has stayed relatively flat since 2010. Despite the growth in the total number of business establishments and further adoption of ICT over the period, the overall penetration rate for the sector has remained unchanged.

However, at the employee level, only 29 percent of all those employed within the business establishments in Qatar routinely use computers at work. The presence of a high proportion of blue-collar workers (see Appendix for definition) in the total workforce who do not need computers for their work could be the explanation for this (see Figure 12).

The level of computer penetration varies with the type of business ownership. Among the government business establishments, computer penetration is 100 percent, whereas among the privately owned businesses, it is at 76 percent. Even at the employee level, a lower proportion of those employed in private business routinely use a computer at work.

The level of computer penetration also varies with the size of the business establishment. While almost all the establishments with 50+ employees use computers, only two out of every three (66%) of the establishments with 1–9 employees use computers. However, the proportion of employees routinely using computers for work is higher among smaller business establishments (1–9 employees and 10–49 employees), at 39 percent and 41 percent respectively. Employees in bigger businesses (50–249 employees and 250+ employees) routinely use computers at 31 percent and 25 percent respectively. These figures point toward the presence of a high proportion of blue-collar employees in the establishments with 50+ employees—and the nature of blue-collar work does not require ICT use.

Computer penetration also varies by industry sectors. Penetration is lower in the agriculture and the accommodation and food services sectors, which have low expected need of ICT. In addition, a majority of the business establishments in these two sectors are smaller establishments, with 1–9 employees, also contributing to their low computer usage. Even among sectors like construction and education, whose business establishments have near universal computer usage, less than half of the employees routinely use computers at work. The proportion of employees routinely using computers at work is highest in banking and financial services (70%), and information and communications (57%), and lowest in construction (19%) and manufacturing (32%) (see Figure 13).

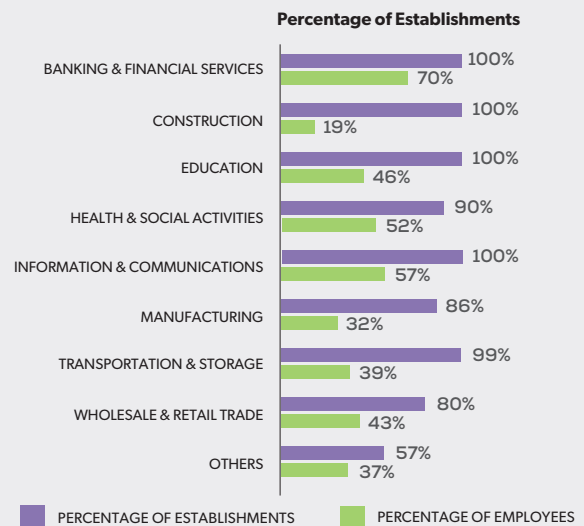
When compared with selected regional and international peers for businesses of all sizes, Estonia (98% of business establishments), Ireland (99%), Saudi Arabia

Figure 12
BUSINESS SECTOR COMPUTER PENETRATION, 2008–2015



Source: Business Establishment ICT Survey; 2008 n=433, 2010 n=594, 2012 n=928, 2015 n=1093

Figure 13
COMPUTER PENETRATION, BY MAIN ECONOMIC ACTIVITY



Source: Business Establishment ICT Survey, 2015; n=1,093

(82%), Singapore (97%), and UAE (100%) have higher computer penetration than Qatar at 76 percent.¹⁴ Qatar’s lower rate is due to the lower computer penetration for the smaller businesses in the country.

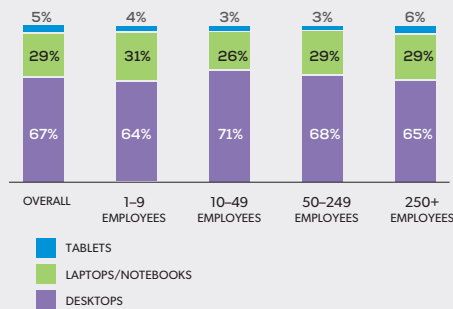
In terms of percentage of employees using computers, Estonia (46%) and the UAE (44%) have a higher percentage of employees using computers than Qatar at 29 percent.¹⁵

¹⁴ Estonia: <http://pub.stat.ee>; Ireland: <http://www.cso.ie>; Saudi Arabia: <http://www.citc.gov.sa>; UAE: <http://www.wam.ae/>; Singapore: <https://www.ida.gov.sg/>.

¹⁵ Estonia: <http://pub.stat.ee>; UAE: www.tra.gov.ae.

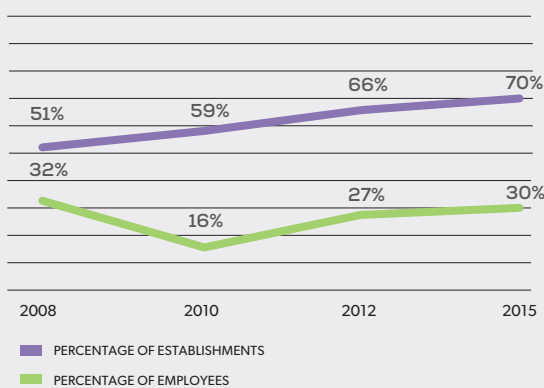
Figure 14
DEVICES OWNED, BY BUSINESS SIZE

Percentage of Total Devices Owned



Source: Business Establishment ICT Survey, 2015; n=1,093

Figure 15
BUSINESS SECTOR INTERNET PENETRATION, 2008–2015



Sources: Business Establishment ICT Surveys; 2008 n=433, 2010 n=594, 2012 n=928, 2015 n=1093

Business establishments in Qatar are using different types of computers such as desktops, laptops/notebooks, and tablets. Overall, about two-thirds of all the computers being used by the business establishments in Qatar are desktops. Laptops/notebooks account for 29 percent and tablets 5 percent. Among the business establishments with 1–9 employees, the proportion of laptops/notebooks (31%) is higher than that of their larger counterparts, and desktops at 64 percent is lower than their larger counterparts, most likely due to the portability advantage of laptops/notebooks, which can be used on the go (see Figure 14).

INTERNET PENETRATION

With over 3.2 billion Internet users worldwide,¹⁶ the Internet has revolutionized the way information is found and shared. For business establishments in Qatar, grabbing the opportunities provided by this trend is a fundamental part of success.

The Internet penetration among business establishments has continuously increased over time, with the percentage of employees routinely using the Internet for business purposes reaching 30 percent in 2015. Overall, 70 percent of all the business establishments surveyed have used the Internet during the last 12 months for business purposes (see Figure 15).

Internet penetration varies with the ownership of the business establishments. Similar to computer penetration, the Internet is used among the government establishments at 100 percent, whereas about 70 percent of the privately owned business establishments are using the Internet. A higher proportion of employees among government establishments routinely use the Internet compared to those employed in private business establishments, due to the higher proportion of blue-collar employees in the private establishments.

¹⁶ ITU, *ICT Facts and Figures 2015*.

As with computer penetration, Internet penetration increases with the size of the business establishment. Almost all the establishments with 50+ employees use the Internet (see Figure 16).

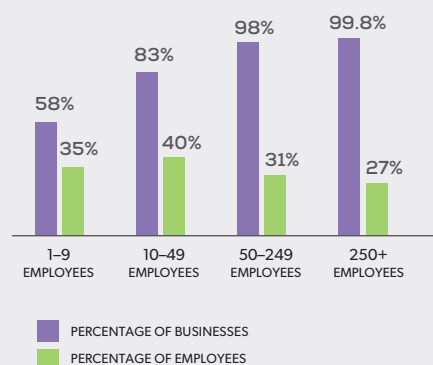
The Internet can level the playing field for small establishments to compete with larger ones. Currently, among establishments with 1–9 employees, though computer penetration is 66 percent, Internet penetration is 58 percent.

Across sectors of the economy, Internet penetration is highest among banking and financial services (100%), construction (100%), education (99%), and transportation and storage (99%). Internet use is expected to help business establishments reach new markets in a cost-effective manner. In addition, the use of ICT devices and the Internet among the general mainstream customers of these sectors is expected to increase in Qatar in the future.

As with computer usage, the proportion of employees routinely using the Internet for work varies significantly among industries. The banking and financial services rate is the highest at 71 percent, followed by the information and communications sector at 56 percent and health and social activities at 52 percent. Construction at 20 percent has the lowest employee use of the Internet, which is attributed to lower penetration at the business establishment level and presence of a high proportion of blue-collar employees.

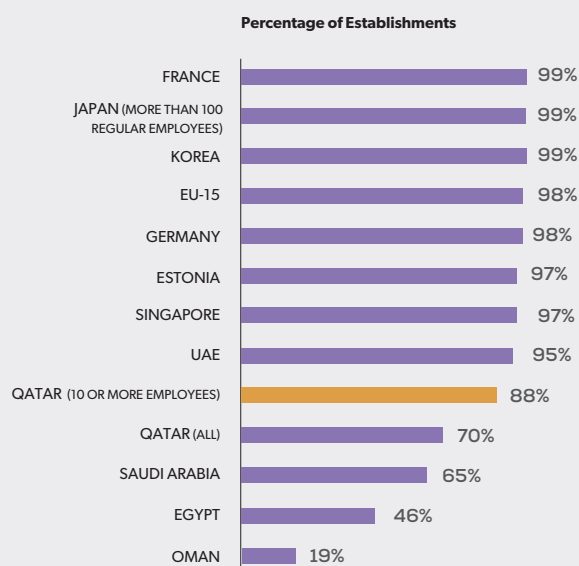
When Qatar is compared with selected regional and international peers, overall, Internet usage by business establishments in Qatar (70% overall and 88% of business establishments with 10 or more employees) is higher than that in other GCC countries such as Saudi Arabia and Oman, but lower than UAE, France, Singapore, Germany, EU-15, Japan, and Korea, leaving room for improvement in Internet penetration for Qatar to be on par with global leaders (see Figure 17).

Figure 16
INTERNET PENETRATION, BY BUSINESS SIZE



Source: Business Establishment ICT Survey, 2015; n=1,093

Figure 17
INTERNET PENETRATION FOR BUSINESSES, INTERNATIONAL BENCHMARKS



Sources: Egypt: <http://www.new.egyptictindicators.gov.eg/>; Oman: <http://www.oman.om/>; UAE: <http://government.ae/en/>; Singapore: <https://www.ida.gov.sg/>; EU-15, Estonia, France, Germany: <http://ec.europa.eu/eurostat#>; Korea, Japan: <http://www.keepeek.com/>

Note: Data for Ireland is not available for Internet penetration among business establishments

Type and Speed of Internet Connection Used

Overall, 93 percent of all the business establishments with access to the Internet are connected to fixed broadband and 10 percent are connected to mobile broadband at the time of the survey (see Figure 18).

As fiber network coverage in Qatar expands and DSL connections are being migrated, a majority of the business establishments connected to the Internet in 2015 (60%) are using fiber-to-the-business connections, 24 percent are using copper based (DSL), 2 percent are using high-speed leased lines, and 1 percent are using integrated services digital network (ISDN).

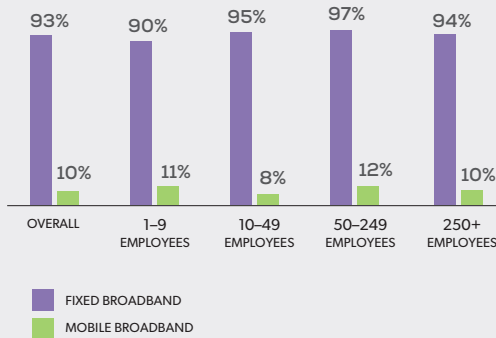
Qatar's initiative to expand its fiber network across the country has transformed how business establishments are connected to the Internet. As Figure 19 demonstrates, 53 percent of businesses subscribe to fixed broadband with speeds of 10 Mbps or more.

Internet connection speed increases with the size of the business establishment and varies significantly by industry. A higher proportion of banking and financial services and information and communications sector establishments are using 10 Mbps or higher, since the nature of work in these sectors requires high-speed Internet. In contrast, significantly fewer human health and social activities, manufacturing, and wholesale and retail trade establishments are using high-speed Internet.

Fixed broadband Internet uptake (speeds of 10 Mbps or more) among smaller establishments has improved significantly since 2012. For those with 1–9 employees, it has increased from 2 percent in 2012 to 50 percent in 2015, and among the establishments with 10–49 employees, the increase has been from 7 percent in 2012 to 49 percent in 2015 (see Figure 20).

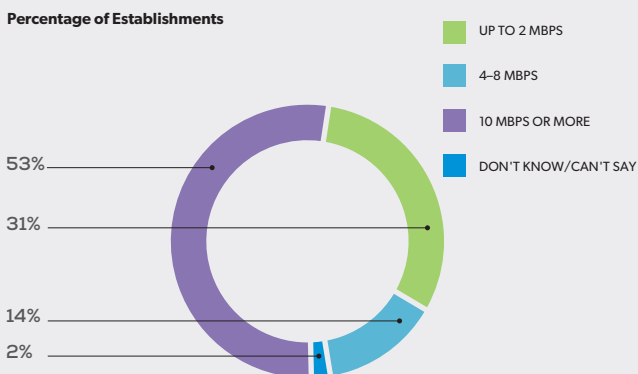
It should be noted that the survey found that about 19 percent of fiber-to-business fixed broadband and one-third of DSL fixed broadband connections of business establishments are reported to be subscriptions to plans meant for individuals and households. This is even truer for mobile broadband subscriptions. Individual plans for mobile broadband and 3G/4G

Figure 18
BROADBAND PENETRATION FOR BUSINESSES



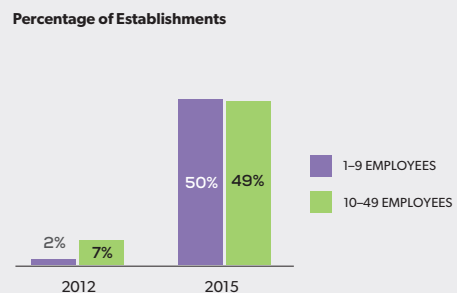
Source: Business Establishment ICT Survey, 2015; Business establishments with an Internet connection n=904

Figure 19
FIXED BROADBAND SPEED FOR BUSINESSES, BY SUBSCRIPTION PLAN



Source: Business Establishment ICT Survey, 2015; Business establishments with a fixed broadband Internet connection (fiber-to-the-business, DSL, leased line, and ISDN) n=854

Figure 20
HIGH-SPEED FIXED BROADBAND PENETRATION (10 MBPS+) FOR BUSINESSES, 2012-2015



Sources: Business Establishment ICT Surveys, 2012 and 2015; Business establishments using fixed broadband: 2012 1-9 employees n=168 and 10-49 employees n=289; 2015 1-9 employees n=184 and 10-49 employees n=396

mobile data packages are reported to be used by 53 percent and 37 percent of the businesses in Qatar, respectively, due to the ease of using individual mobile connections for business activities.

The primary driver for such a practice (highest among establishments with 1–9 employees and with 10–49 employees) could be the cost. There is a significant price difference between home and business broadband plans—for example the monthly rental for a business fiber broadband connection is 2.5 to 3 times higher than the cost of the comparable home subscription plan.¹⁷

Internet Activities Performed by the Business Establishments

All sizes of business establishments are exploring how to use the Internet to become more productive and competitive.

The survey looks at the type of activities business establishments perform online. Overall, the business establishments surveyed reported sending and receiving emails over the Internet (68%) and getting information about goods or services (51%). Business establishments in Qatar also use the Internet for getting information from government organizations (48%) and to interact with government organizations (36%) (see Figure 21).

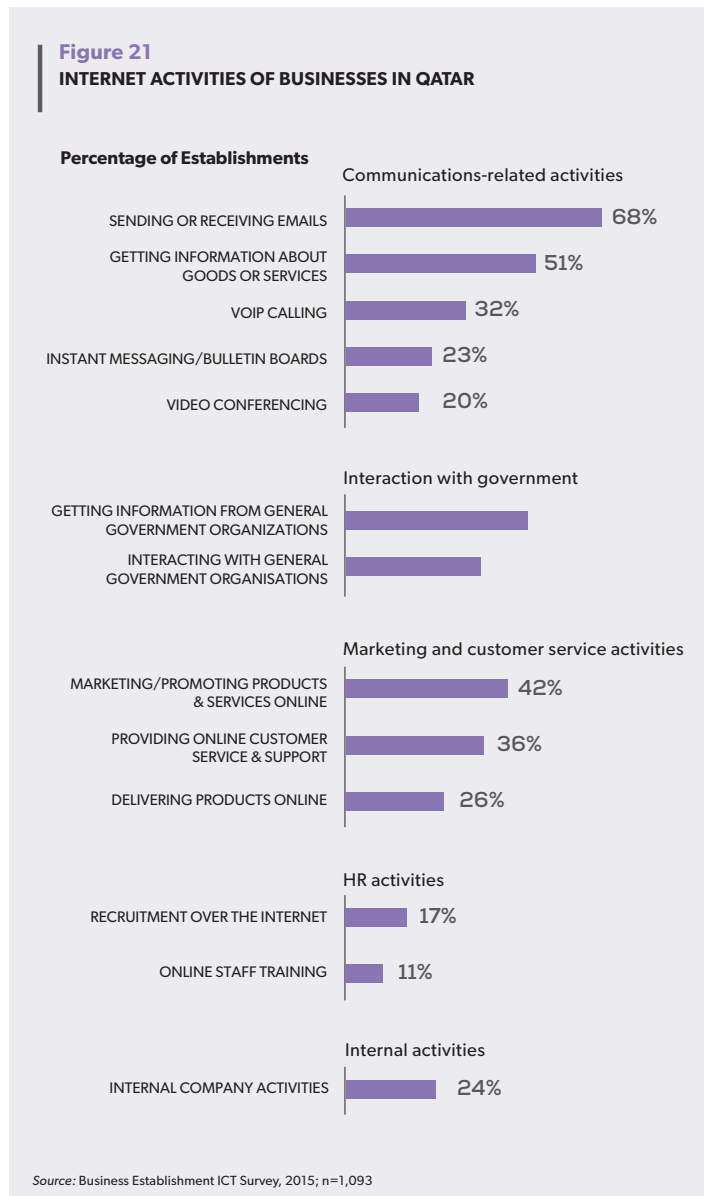
The Internet gives businesses of all sizes an opportunity to reach wider markets and provide better customer service. Globally, marketing and customer-service-related activities performed using the Internet include online marketing and promoting products and services, providing online customer service and support, and delivering products online. The business establishments in Qatar are not only promoting their services online (42%), but are engaged in providing customer service (36%) and delivery (products delivered over the Internet in digitized form¹⁸) (26%) as well (see Figure 21).

A recent landscape report on households and individuals in Qatar shows that 69 percent of general mainstream individuals (see definition in Appendix) used the Internet to get information about goods and services, and 18 percent used the Internet for placing orders in Qatar in 2013,¹⁹ which is helping to drive the Internet usage for marketing and customer-service-related activities by the business establishments.

¹⁷ Business and home fiber broadband plans: www.ooredoo.qa.

Around one-sixth of the business establishments reported online recruitment of employees and about one-tenth of the business establishments provide online staff training (see Figure 21). This trend of using the Internet for recruitment and training activities is seen to be relatively more common among establishments with 50 or more employees as compared to the establishments with fewer than 50 employees (42% compared to 14% for recruitment, and 25% compared with 9% for staff training).

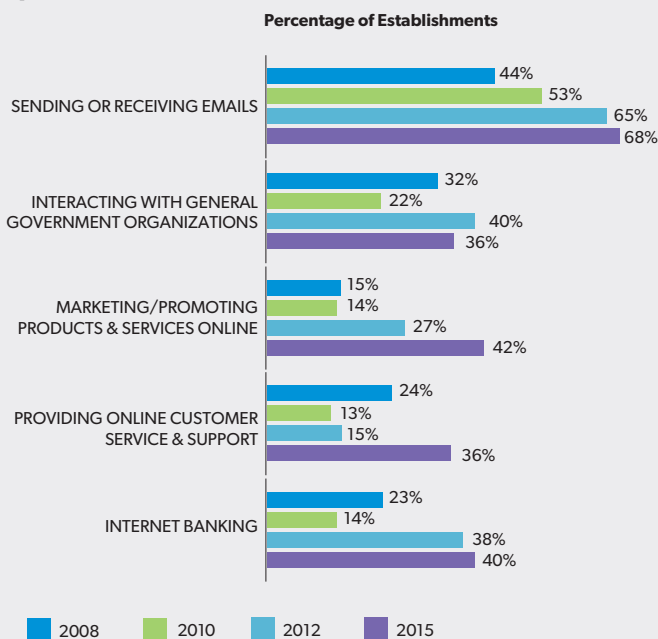
And overall, about 40 percent of business establishments in Qatar use the Internet for banking and nearly one-fifth also access other financial services online (see Figure 21).



¹⁸ As defined in UNCTAD, *Manual for Production of Statistics on the Information Economy*, (2009, Revised Edition).

¹⁹ Qatar's ICT Landscape 2014: Households and Individuals.

Figure 22
INTERNET ACTIVITIES OF BUSINESSES, 2008–2015



Source: Business Establishment ICT Surveys; 2008 n=433, 2010 n=594, 2012 n=928, 2015 n=1,093

The 2012 and 2015 surveys covered a wider spectrum of industries compared to studies conducted in 2008 and 2010. Comparisons are presented for those activities that were captured in previous surveys. Overall, compared with previous years, Internet activities have increased, with a higher percentage of business establishments using the Internet for performing various business-related activities in 2015 (see Figure 22), an encouraging trend.

The activities that have shown the most growth are marketing products and services online—increasing from 27 percent in 2012 to 42 percent in 2015 and providing online customer service, which increased from 15 percent to 36 percent during the same period.

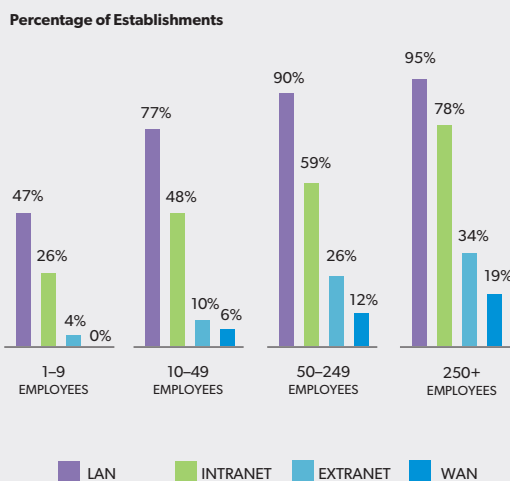
Network Connectivity

Overall, the presence of local area networks (LAN) is high among business establishments in Qatar and stands at 61 percent. While 37 percent of business establishments had intranet at the time of the survey, very few reported using extranet (9%) and wide area networks (WAN) (3%).

Not surprisingly, the presence of all types of network connectivity is higher among the establishments with 50 or more employees. For example, the penetration of LAN is more than 90 percent among the establishments with 50 or more employees. The trend is similar across other network connections, e.g., WAN, extranet, and intranet, where the establishments with 50–249 employees are better connected than establishments with fewer employees (see Figure 23).

Overall, network connectivity of business establishments in Qatar has increased significantly compared to previous surveyed periods. In particular, LAN penetration has gone from 25 percent in 2008 to 61 percent in 2015, and intranet penetration has increased from 9 percent in 2008 to 37 percent in 2015.

Figure 23
NETWORK CONNECTIVITY, BY BUSINESS SIZE



Source: Business Establishment ICT Survey, 2015; n=1,093

ONLINE PRESENCE

Online presence provides business establishments a virtual 24-hour information center and an online showroom. Potential customers can research the product or service anytime, anywhere. Online presence also allows for 24-hour order placement to capture a sale as soon as a customer wants to place an order instead of waiting for the brick-and-mortar store to open, as

well as helping businesses build a credible brand, provide quality and timely customer service, and receive customer feedback.

Web Presence

Overall, 39 percent of the business establishments in Qatar reported having a web presence (see Figure 24). While 34 percent of business establishments have their own website, the remaining 5 percent are only present on the web through other means, most prominently through social media networks such as Facebook and LinkedIn.

At an overall level, web presence is at 39 percent in 2015, nearly doubling since 2010, when only 20 percent of business establishments reported having one; however, web presence has remained relatively flat since 2012.

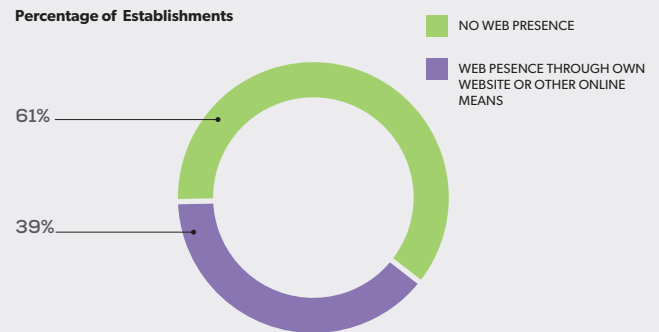
Enhanced web presence through their own website is most prevalent among establishments with 50 or more employees, and the proportion increases with an increase in the size of the business. While around a quarter of the establishments with 1–9 employees reported being online, more than 70 percent of the establishments with 50 or more employees have a web presence (see Figure 25).

Compared with selected regional and international peers, web presence (including their own website and other means) among the business establishments in Qatar with 10 or more employees is higher—at 55 percent—than in Saudi Arabia (48%) and Egypt (27%). UAE is the regional leader in terms of business web presence at 75 percent.²⁰

Overall, among business establishments with their own website, the majority have websites in languages other than Arabic (mainly in English). Among business establishments with a website, only 21 percent have developed their website in Arabic. However, this percentage is slightly higher among establishments with 50 or more employees, at 26 percent.

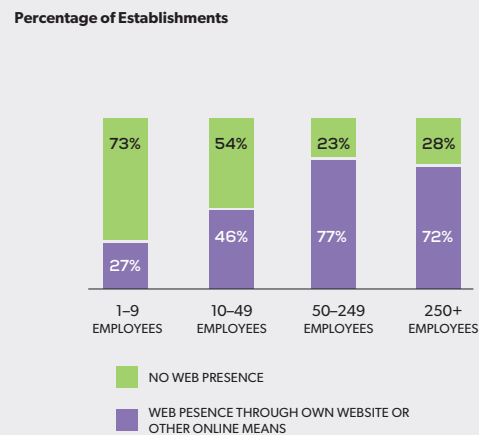
Thirty-seven percent of business establishments developed their website outside Qatar. This trend is higher among establishments with 1–9 employees, where more than 45 percent of business establishments developed their website outside Qatar.

Figure 24
WEB PRESENCE OF BUSINESSES IN QATAR



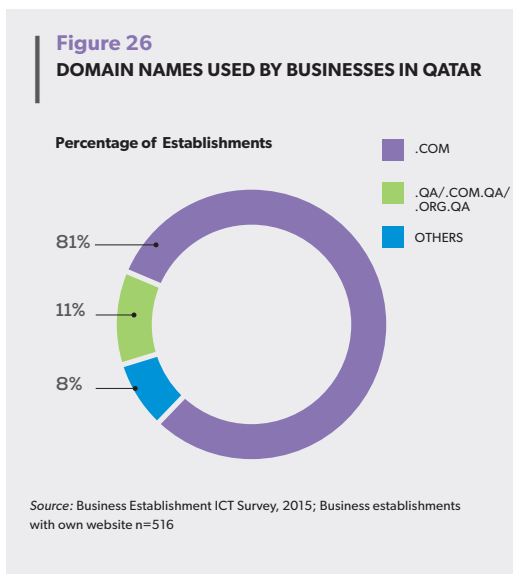
Source: Business Establishment ICT Survey, 2015; n=1,093

Figure 25
WEB PRESENCE, BY BUSINESS SIZE



Source: Business Establishment ICT Survey, 2015; n=1,093

²⁰ Egypt: http://www.new.egyptict indicators.gov.eg/en/Indicators/_layouts/viewer.aspx?id=409; Saudi Arabia: <http://www.citc.gov.sa/English/Reportsandstudies/Studies/Documents/IT%20009%20E%20-%20Computer%20and%20Internet%20Usage%20in%20KSA%202007-2009.pdf>; UAE: www.tra.gov.ae/download.php?filename=UAE_ICT_Survey_en.pdf.

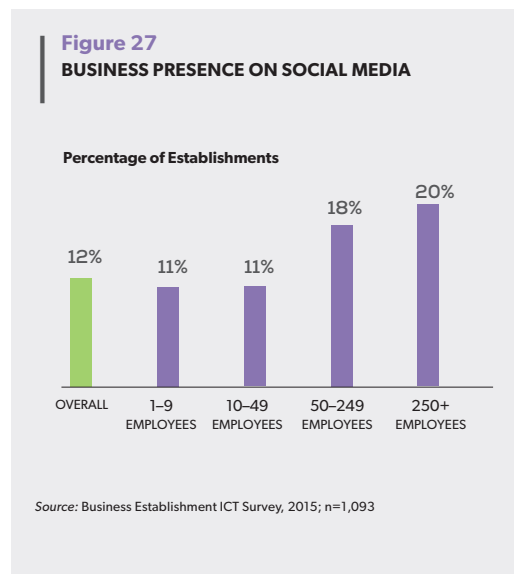


Though a majority of the websites are developed in Qatar, the domain extensions .qa/.com.qa/.org.qa are used only by around one-tenth of business establishments (see Figure 26). The use of various domain extensions is similar across different sizes of businesses.

Social Media Presence

The increase in use of social media among consumers has made it necessary for business establishments to engage with consumers via such channels as well. Significant numbers of the business establishments in Qatar are quite active across various social media platforms. Though the percentage of business establishments using social media networks to reach their consumers is still low compared to those using their own website, the percentage has increased from 3 percent in 2010 to 12 percent in 2015. A higher percentage of business establishments with 50 or more employees exploit the opportunities offered by social media networks compared to their smaller counterparts (see Figure 27).

Among the social networks used by the business establishments, Facebook (used by 87% of enterprises with a social media presence) is the most-used channel, followed by LinkedIn (39%) and Twitter (20%). About

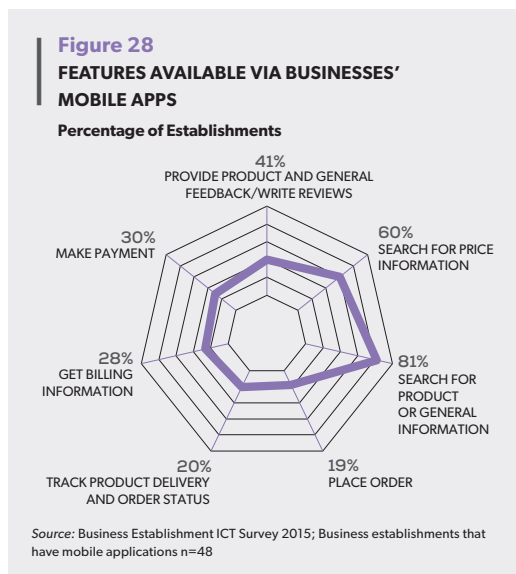


one-third of all business establishments using social networks in Qatar are reported to be using more than one social platform for promoting their products and services or for providing customer service and support.

The trend toward online presence among business establishments is increasing in Qatar, though some barriers still remain. Among the business establishments with no web presence, 79 percent felt no need, 12 percent said they lack in-house expertise, 7 percent cited lack of time, 5 percent cited budgetary constraints, and lack of technical help (from external service providers) was cited by 4 percent.

Mobile Applications

Following the wide adoption globally of smart mobile devices, a significant number of business establishments worldwide have launched mobile applications in addition to their web presence. The aim is to help consumers better engage by finding product information (including price), placing orders, making payments, providing product and general feedback/writing reviews, finding billing information, and tracking product delivery.

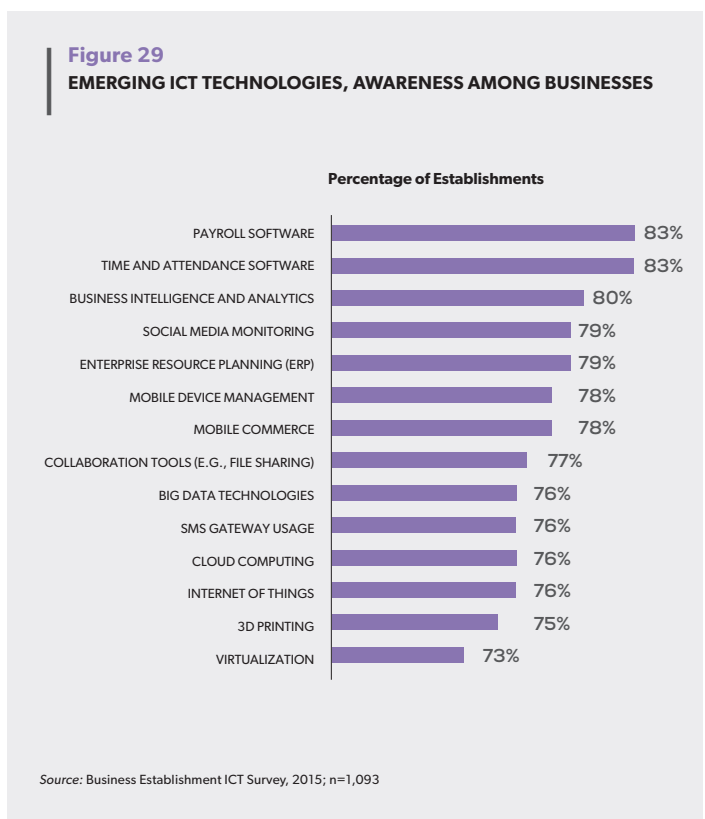


In 2015, 97.9 percent of the individuals living in households in Qatar were reported to be using smartphones.²¹ As a majority of smartphone users are expected to use mobile applications for getting information on products/services or placing orders, having a mobile application can help business establishments reach potential markets efficiently.

At an overall level, in 2015, only 3 percent of the business establishments surveyed reported having a mobile application. Mobile application presence is lowest among establishments with 1–9 employees (2%) and highest among establishments with 250 or more employees (13%). When looking at mobile application ownership by industry, a higher proportion of banking and financial services (16%) have mobile applications due to the nature of their business.

Among the business establishments with a mobile application(s), the top three features available include product or general information search (81%), price information (60%), and a feedback/reviews feature (41%). However, only about one-fifth of the business establishments with mobile applications provide features to place orders (see Figure 28).

Despite the low mobile application adoption among business establishments in Qatar, 9 percent of those



enterprises that do not have a mobile app expressed their intention to launch one in the next 12 months, with a higher proportion (12%) of the establishments with 1–9 employees planning to do so.

USE OF ADVANCED ICT

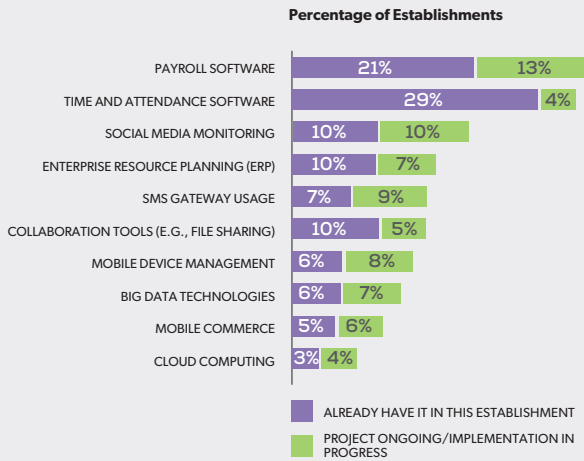
According to Gartner's Hype Cycle for Emerging Technologies (2014),²² the technologies that could be transformational in the next two to five years are cloud computing, data science, and 3D printing. Other technologies such as virtualization, Internet of Things, big data, digital security, and M2M communication are considered to be transformational in the longer term (five to 10 years).

According to the survey, more than 70 percent of the business establishments in Qatar said they were aware of various emerging ICT services. Awareness of payroll software (83%) and time and attendance software (83%) is highest among the business establishments (see Figure 29).

²¹ Households ICT Survey 2015.

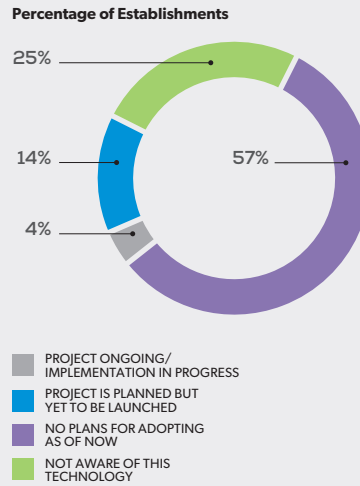
²² Gartner, "Gartner's 2014 Hype Cycle for Emerging Technologies Maps the Journey to Digital Business" (August 2014).

Figure 30
EMERGING ICT TECHNOLOGIES, USE BY BUSINESSES



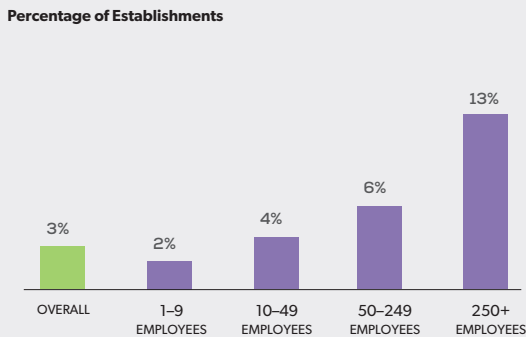
Source: Business Establishment ICT Survey, 2015; n=1,093

Figure 32
CLOUD COMPUTING, LIKELIHOOD OF IMPLEMENTATION



Source: Business Establishment ICT Survey, 2015; Business establishments not using cloud computing currently n=1,042

Figure 31
CLOUD COMPUTING, USE BY BUSINESS SIZE



Source: Business Establishment ICT Survey, 2015; n=1,093

The technologies most used by business establishments are time and attendance software (29%) and payroll software (21%) followed by social media monitoring (10%) and enterprise resource planning (ERP) (10%). Cloud computing is used by only 3 percent of the business establishments in Qatar (see Figure 30). Use of these ICT solutions increases with the increase in the size of the business establishments. As seen in Figure 30, in addition to those already using emerging ICT technologies, some business establishments

reported that such technologies are currently in the implementation phase in their establishments.

Cloud Computing

Cloud computing offers a great number of advantages, including reduced spending on technology infrastructure, improved accessibility, improved collaboration within the organization, improved data security, disaster recovery, and automatic updates from software providers. Cloud services allow business establishments to maintain easy access to information with minimal upfront spending and 24/7 access.

Though about 76 percent of the business establishments are aware of cloud computing (up from 14% in 2012), use of the technology is very low, with only 3 percent of the business establishments in Qatar currently using this technology. The larger the business the higher the use of cloud computing (see Figure 31).

Among the business establishments not using cloud computing, 57 percent of them reported that they do not have any plan to use cloud services as of now, though they are aware of these services (see Figure 32).

Key barriers to cloud computing reported by those businesses surveyed are lack of need felt (62%) and lack of familiarity with the concept of cloud computing

services (24%), while 13 percent are not sure how cloud computing would help their business (see Figure 33).

The qualitative research supported these survey results, with businesses citing similar barriers to cloud computing adoption. And in fact a few business experts in the focus group discussions suggested that another possible reason for low cloud services adoption is that it might put the IT manager’s job at risk. One possible way to promote further adoption is to demonstrate to businesses a clear return on investment through adoption of cloud technology.

Among the users of cloud computing, Storage as a Service (STaaS) (41%), Desktop as a Service (DaaS) (35%), and Database as a Service (DBaaS) (35%) are the most commonly used service models, as storage, virtual desktop, and database usage are most common among business establishments.

Of those business establishments using cloud services, about 61 percent reported that the data storage for their cloud services is physically located within Qatar. The trend of using cloud services with physical data storage capabilities within Qatar is higher among the establishments with 50+ employees; small establishments with 1–9 employees seem to be more flexible and equally consider cloud services with storage facilities outside Qatar.

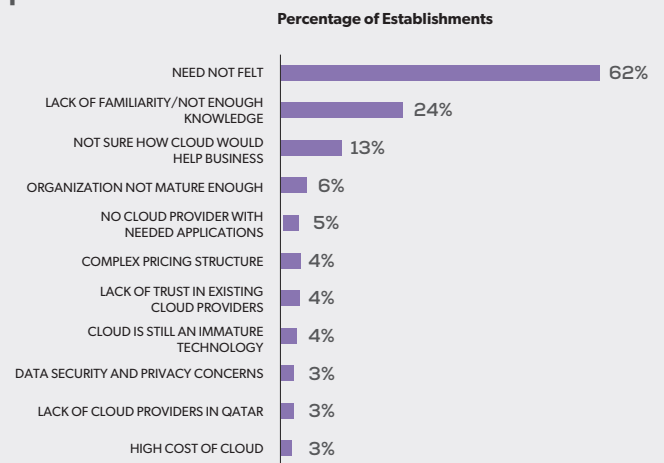
E-COMMERCE

The global e-commerce market is booming. The move from traditional brick-and-mortar stores to electronic commerce (e-commerce) opens up new markets and opportunities for business establishments and offers customers access to new products across geographical boundaries. According to *Qatar’s ICT Landscape 2014: Households and Individuals*, one out of five general mainstream individuals reported purchasing or placing orders for goods and services online. This, together with the high ICT penetration rates among the population of Qatar, shows a potential for growth of the e-commerce market in Qatar. This part of the report examines the use of e-commerce and the factors that influence e-commerce adoption among the business establishments in Qatar.

E-Commerce Usage

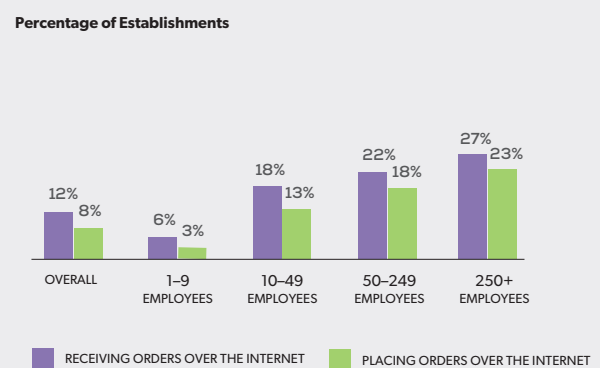
The use of e-commerce is measured by looking at the proportion of business establishments receiving and placing orders over the Internet. Overall, about 12

Figure 33
CLOUD COMPUTING, BARRIERS TO USE



Source: Business Establishment ICT Survey 2015; Business establishments that have no plan for adopting or have not implemented cloud services n=759

Figure 34
RECEIVING AND PLACING ORDERS ONLINE, BY BUSINESS SIZE



Source: Business Establishment ICT Survey, 2015; n=1,093

percent of the surveyed business establishments reported receiving orders over the Internet and 8 percent of them reported placing orders over the Internet (see Figure 34).

In tracking businesses with 1–49 employees in terms of their involvement in placing and receiving orders over the Internet, 18 percent of the establishments with 10–49 employees have been involved in receiving orders over the Internet while only about 6 percent of the establishments with 1–9 employees are involved in receiving orders over the Internet. In addition, while 13 percent of the establishments with 10–49 employees reported involvement in placing online orders, only 3

Figure 35
RECEIVING AND PLACING ORDERS ONLINE, INTERNATIONAL BENCHMARKS

Percentage of Establishments



Sources: UAE: <http://government.ae/en/>; Estonia, EU-15, France, Germany, and Ireland: <http://ec.europa.eu/eurostat#>

Note: Data for Egypt, Saudi Arabia, and Nigeria not available for this indicator

percent of the establishments with 1–9 employees are involved in placing online orders.

In addition, the use of e-commerce also varies by industry segment, with the highest proportion of business establishments receiving and placing orders over the Internet in the construction (30% receive orders and 25% place orders) and transportation and storage (32% receive orders and 8% place orders) sectors.

In comparing Qatar with regional and international peers who are advanced in ICT supply and usage, Singapore, UK, Ireland, Germany, and EU-15 are way ahead of Qatar in placing orders over the Internet. In terms of receiving orders online, Qatar businesses with 10 or more employees are relatively on par with UK, Germany, UAE, and the EU-15 (see Figure 35).

E-Commerce Ecosystem in Qatar

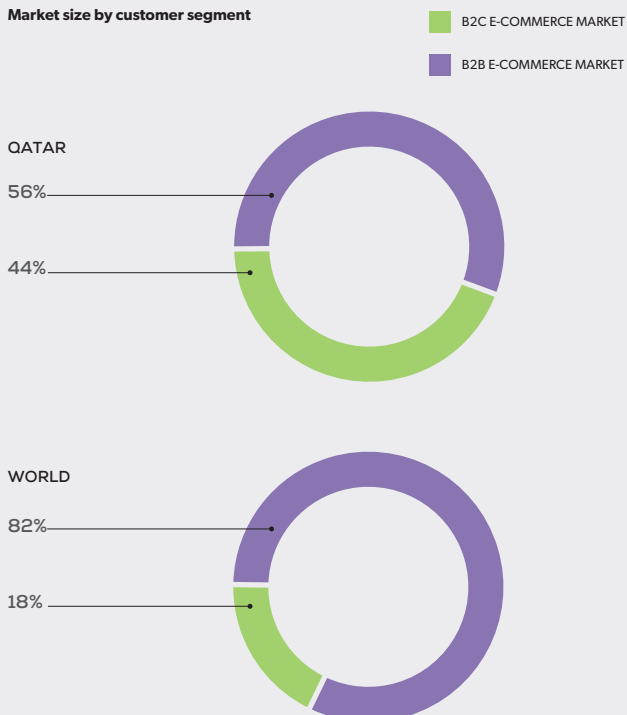
The e-commerce market size in Qatar is estimated to be QAR 8.44 billion in 2014, with the B2C market contributing 44 percent and the B2B market contributing 56 percent (QAR 4.73 billion).²³ Worldwide, the B2B market segment makes up 82 percent of the e-commerce (see Figure 36). Considering this global average and the small e-commerce market size in Qatar, the B2B market in Qatar is still in the nascent stage of development.

Lack of knowledge about offers among customers, trust and security concerns, lack of technical resources, and issues with payment methods and gateways are a few of the key factors reported by business establishments in the survey that affect the adoption of e-commerce in Qatar. A representative of a leading bank in Qatar echoed these findings, “Security concerns are one of the key reasons preventing the adoption of online payment and e-commerce business among many users.”

E-commerce portals offer information and services from a variety of sources and help business establishments sell and purchase products or services through the Internet. These portals include features such as payment gateways and delivery mechanisms, among others. Overall, 3 percent of the business establishments surveyed have implemented an e-commerce portal, with 11 percent of business establishments

Figure 36
E-COMMERCE MARKET: QATAR VS. WORLDWIDE, BY CUSTOMER SEGMENT

Market size by customer segment



Source: Qatar National e-Commerce Roadmap 2015

²³ Qatar National e-Commerce Roadmap 2015.

with more than 50 employees having an e-commerce portal. Only a negligible percentage of the establishments with 1–9 employees have one. The initial setup and regular maintenance costs as well as the lower computer and Internet penetration among small businesses are considered to be the key barriers for the implementation of e-commerce portals. When looking at it by main economic activity, the construction sector has a higher rate of e-commerce portals than other sectors, though still only at 12 percent.

A factor for the growth of e-commerce is the penetration of credit and debit cards. When it comes to online purchases, globally, payment through such cards is one of the most preferred payment modes along with cash on delivery and bank-to-bank transfer.

According to Payfort's *The State of Payments in the Arab World 2014*, among relevant peers, Kuwait has the highest penetration of bank cards per capita in the Arab world at 97 percent, followed by UAE with 89 percent and Saudi Arabia with 46 percent. Qatar's rate stands at 45 percent.

At the same time, credit cards were used for just 6 percent of total consumption (consumer spending) in Qatar for the period 2008–2012, whereas credit cards contributed 31 percent in UAE, 25 percent in Kuwait, and 23 percent in Saudi Arabia.²⁴ The expected increased use of credit cards will drive the e-commerce market in the future.

According to a November 2015 Gartner report, "Payments have become strategic and, when simplified, can increase sellers' conversion rates and revenue; IT leaders should recognize this and help simplify payment processes for their organizations."²⁵

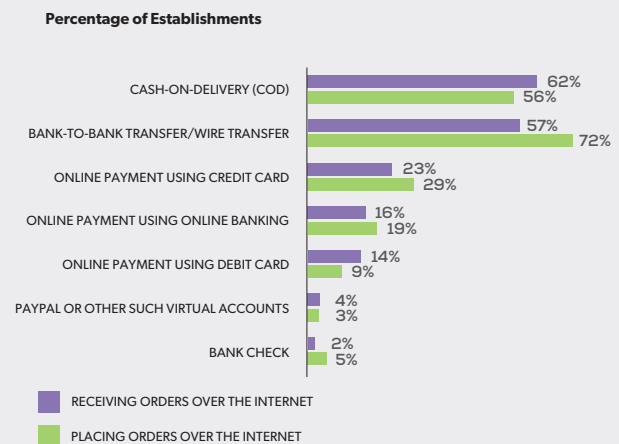
During the focus groups, a representative of an ICT enterprise in Qatar said, "Though the customers are ready to place orders online, acceptance to use online payment methods among them is low in Qatar. There is a need for the government to help to inculcate the e-payment concept and increase trust among the public in Qatar."

The growth of e-commerce requires provision of a variety of payment methods for customers. Business establishments in Qatar receiving orders over the Internet are offering different payment methods to their customers: cash-on-delivery (62%) and wire transfer (57%) are the two most popular payment methods offered to customers, followed by credit card (23%) and online banking (16%).

²⁴ Payfort, *The State of Payments in the Arab World 2014*.

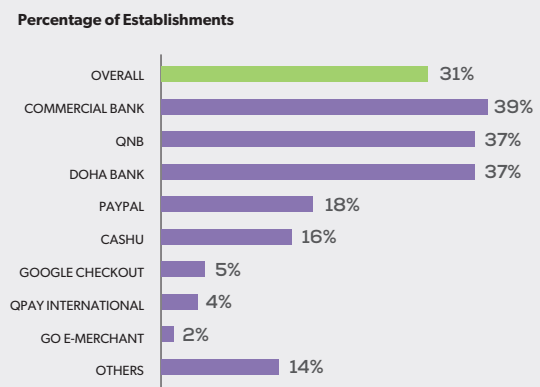
²⁵ Gartner, "Payments Present New Strategic Implications for Commerce," (November 2015).

Figure 37
RECEIVING AND PLACING ORDERS ONLINE, PAYMENT MODES OFFERED



Source: Business Establishment ICT Survey, 2015; Business establishments that receive online orders n=168; business establishments that place online orders n=115

Figure 38
PAYMENT GATEWAYS USED BY BUSINESSES RECEIVING ORDERS ONLINE

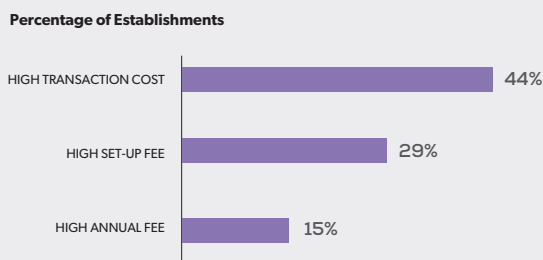


Source: Business Establishment ICT Survey, 2015; Business establishments that use payment gateways while receiving payments for online orders (n=63)

Similarly, the most popular payment method used by business establishments to place and receive orders over the Internet are wire transfer (72%) and cash-on-delivery (56%) (see Figure 37). Offering more than one payment mode is reported to be higher among the establishments with 50 or more employees (on average 2.19 modes of payment compared with 1.72 among establishments with fewer than 50 employees).

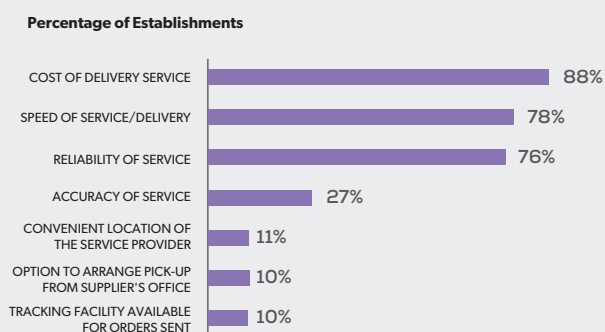
Among business establishments that receive orders over the Internet, 31 percent are using payment gateways for receiving payments. Among such establishments, payment gateways offered by Commercial Bank (39%), QNB (37%), and Doha Bank (37%) are most popular, followed by PayPal at 18 percent and CashU at 16 percent (see Figure 38).

Figure 39
AFFORDABILITY BARRIERS OF PAYMENT GATEWAYS



Source: Business Establishment ICT Survey, 2015; Business establishments that use online payment gateways while receiving online orders n=63

Figure 40
DELIVERY PARTNER SELECTION, FACTORS CONSIDERED



Source: Business Establishment ICT Survey, 2015; Business establishments receiving online orders n=168

In this study, satisfaction was indicated on a 7-point scale; those coding the top 2 boxes are considered highly satisfied. Overall, 45 percent of the business establishments using payment gateways have reported being highly satisfied with the experience of receiving payments online in Qatar.

In terms of affordability of e-payment options, 44 percent of the business establishments that use online payment methods while receiving online orders reported high transaction costs of e-payment solutions in Qatar. The other major issues cited were high set-up fees (29%) and high annual fees (15%) (see Figure 39).

With more than half of the business establishments receiving online orders saying they are not highly satisfied with the current payment gateways in Qatar, there is clearly a demand for alternative payment gateways. Fifty-five percent of the business establishments receiving online orders agreed that there should be a government-promoted national payment gateway in Qatar. This percentage is higher among the establishments with 50 or more employees, where more than 70 percent of such business establishments supported the need for a government-promoted national payment gateway. The key features these business establishments expect from a government-promoted national payment gateway include better choice of payment (54%) and lower transaction costs (45%).

Delivery is another major aspect of the e-commerce ecosystem in Qatar. Business establishments in Qatar use different methods to deliver their products and services to their customers. The most popular are direct physical delivery by supplier's own staff (65%), collection by the customers from supplier's place of business (55%), and physical delivery by private couriers (32%). Additional options are delivery through QPost at 17 percent and online delivery at 4 percent. Delivery methods used are similar across different sizes of business establishment, with the exception of delivery through private couriers, which is mainly used by establishments with 50+ employees.

Overall, more than one-third of the business establishments receiving online orders use third-party delivery partners such as private couriers, Q-Post, and unregistered couriers to deliver their products or services. Among all the business establishments receiving online orders, the top parameters considered for selecting a partner for product delivery are cost of delivery (88%), speed of service (78%), and reliability of service (76%) (see Figure 40).

An exploration of the e-commerce ecosystem would not be complete without a look at Qatar's Electronic Commerce and Transactions Law, which came into force to support the growth of e-commerce in Qatar in August 2010. The e-commerce law includes provisions for e-signatures, e-documents, and authentication. It covers all e-commerce transactions in Qatar, including e-government services. The law represents an important step forward in fostering business usage of e-commerce and online transactions.

In measuring the awareness level of such laws, overall 28 percent of the business establishments reported awareness of laws related to e-commerce/online transactions in Qatar. The awareness of the law is highest among businesses with 50+ employees, probably due to their experience and availability of relevant technical resources.

Industry segments such as education (82%), banking and financial services (73%), and information and communications (51%) exhibit higher awareness of the e-commerce transaction law compared with those in manufacturing (23%), wholesale and retail trade (24%), and transportation and storage (28%).

Of those business establishments aware of the law, 75 percent said it reduces the risk of cyber fraud, 53 percent cite ensuring product quality, and 46 percent stated it ensures faster delivery (see Figure 41).

Though the penetration of e-commerce is increasing in Qatar,²⁶ more than 75 percent of the business establishments surveyed reported receiving and placing only physical orders. The barriers expressed by those who did not receive online orders and those who did not place online orders are similar, with 73 percent and 71 percent respectively citing the industry norm to take physical orders as the biggest barrier. Other barriers cited include customers prefer issuing physical orders—cited by 42 percent of those not receiving orders online, and vendors prefer to get physical orders, reported by 40 percent of those not placing orders online. Lack of trustworthy delivery options is quoted by 9 percent of those not placing orders online, and absence of a suitable e-commerce platform to receive online orders is also stated as a barrier by 7 percent of the business establishments not receiving orders online.

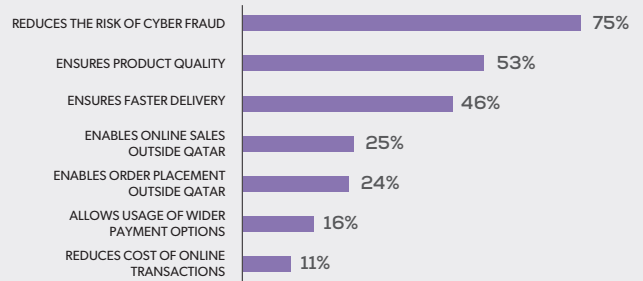
Since the research was conducted, Qatar's government has launched initiatives to leverage the country's potential in e-commerce. In addition to the publication of *Qatar National e-Commerce Roadmap 2015*, a blueprint for an aggressive e-commerce effort, the government has announced its intention to open the postal and delivery market to competition. See Conclusion on page 46 for further details.

USE OF E-GOVERNMENT SERVICES

Qatar's leadership has been committed to making government more efficient, effective, and transparent

Figure 41
E-COMMERCE LAWS, PERCEIVED BENEFITS

Percentage of Establishments



Source: Business Establishment ICT Survey, 2015; Business establishments aware of the laws related to e-commerce in Qatar n=460

to the people it serves. Since Qatar launched an integrated e-government program in 2006 and an e-government portal (Hukoomi) in 2008, more and more informational and transactional services have come online, and the goal of putting 100 percent of key government services online is targeted to be completed by 2020.

The 2014 United Nations e-government survey ranked Qatar 44 out of 193 in the E-Government Development Index.²⁷ Qatar moved up four places in the last two years and 18 places in the last four years (ranked 62 in 2010), as more and better services are being offered online.

Overall, 79 percent of the business establishments in Qatar are aware of the e-government services available online for business establishments. This awareness is primarily driven by familiarity with the name "Hukoomi," with 78 percent of the business establishments surveyed aware of Hukoomi; only 50 percent were aware when asked about "online government services" without mentioning Hukoomi.

Awareness of e-government services increases with an increase in the size of the business establishment. While 74 percent of the establishments with 1–9 employees report awareness of e-government services,

²⁶ Households ICT Survey 2015.

²⁷ United Nations E-Government Survey 2014: E-Government for the Future We Want.

more than 90 percent of businesses with 50+ employees report awareness of online government services (see Figure 42).

The awareness of e-government services also varies with the industry segment. Awareness is lowest among the business establishments belonging to the agriculture, forestry, and fishing segment (30%) and highest among health and social activities (100%), banking and financial services (nearly 100%), and information and communications (99%) sectors.

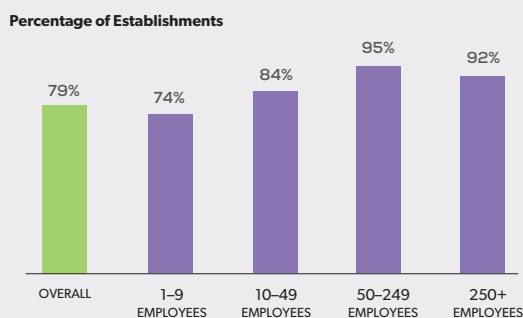
About 58 percent of the business establishments reported experience with e-government services in the past, and about 50 percent of the business establishments reported that they prefer to avail themselves of business-related government services through the Hukoomi website in the future.

Although it has remained flat since 2012, the percentage of users of e-government services in 2015 increased substantially among business establishments over the past five years, from 37 percent in 2010 to 58 percent in 2015.

Total Expenditures on ICT Products and Services

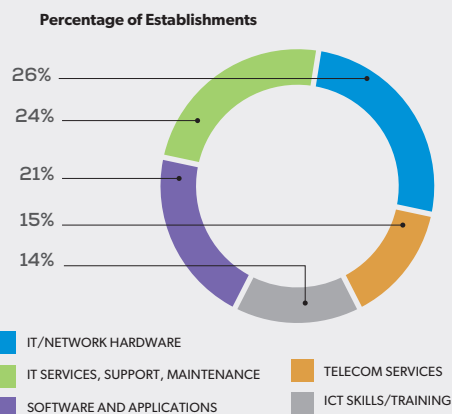
The business establishments in Qatar spend money on IT and network hardware, software and applications, IT services, support, maintenance, telecom services, ICT skills/training, etc. In total, the business establishments in Qatar are estimated to have spent about QAR 6,750 million on various ICT products and services in 2015. Construction is the top segment, contributing about 35 percent of the total ICT expenditure in Qatar. At an overall level, 26 percent of the ICT expenditure in Qatar is spent on IT/network hardware, followed by 24 percent on IT services, support, and maintenance, and 21 percent on software and applications (see Figure 43).

Figure 42
E-GOV SERVICES AWARENESS, BY BUSINESS SIZE



Source: Business Establishment ICT Survey, 2015; n=1093

Figure 43
EXPENDITURE ON ICT, BY TYPE OF PRODUCTS AND SERVICES



Source: Business Establishment ICT Survey, 2015; n=1,093

SECURITY OF NETWORKS AND DATA

Key Findings

- Overall, only 15% of the business establishments in Qatar reported the presence of a documented and internally published ICT security policy.
- Almost three-quarters of businesses surveyed reported using one or more security software solutions.
- 17% of business establishments had employed a dedicated resource for ICT security at the time of the survey.
- The presence of ICT security resources is reported to be highest among the information and communications (58%) and banking and financial services (56%) sectors.
- Overall, 42% of all businesses reported having an archiving/back-up policy and this percentage increases with the size of the business.
- Overall, 73% of all business establishments report backing up data.
- External hard disks and flash memory are the most common media used for data backup at 41%; remote locations and central servers have not yet developed.
- The use of off-site data storage increases with the size of the business, with 8% of businesses with 250+ employees backing up their data to the cloud.
- About one-sixth of the businesses in Qatar reported having provided training to their employees on safe browsing activities.

With advances in technology and communication, security, archiving, and backup are emerging as some of the most important elements in ICT planning and implementation. In order to assess the readiness of business establishments to handle ICT security threats, measures such as the presence of ICT security policies, availability of specialized ICT security employees, usage of security software solutions, and back up and archiving details were examined.

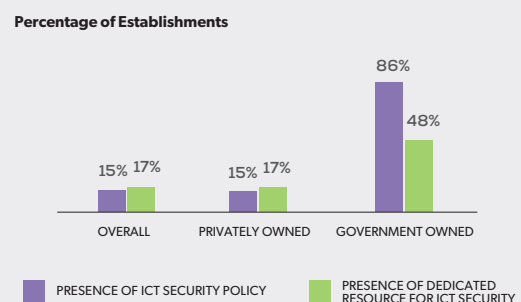
A huge difference is observed in terms of an ICT security policy and a dedicated cyber security resource based on the ownership of the establishment. Eighty-six percent of government-owned businesses have an ICT security policy and 48 percent have a dedicated resource for ICT security, compared with 15 percent of privately owned businesses with an ICT security policy and 17 percent with a dedicated ICT security resource (see Figure 44).

ICT SECURITY POLICY AND DEDICATED RESOURCES

The primary purpose of having a defined ICT security policy and security resources is to protect a business establishment's information assets, ensure accountability, and enable it to recover from any incident.

Overall, only 15 percent of the business establishments surveyed reported the presence of a documented and internally published ICT security policy. A similar proportion of business establishments (17%) have employed a dedicated resource(s) for ICT security.

Figure 44
ICT SECURITY POLICY AND DEDICATED STAFF PRESENCE, BY BUSINESS OWNERSHIP



Source: Business Establishment ICT Survey, 2015; n=1,093

The presence of an ICT security policy and dedicated ICT security resources also differs significantly for business establishments of different sizes. While less than 10 percent of the establishments with 1–9 employees have an ICT security policy, this proportion increases with the size of the business establishments—up to 50 percent for those establishments with 250 or more employees. A similar trend can be observed for the presence of dedicated ICT security resources as well.

The presence of an ICT security policy and an ICT security resource also varies with economic activity. The presence of an ICT security resource is reported to be highest among information and communications (58%) and banking and financial services (56%) (see Figure 45).

Though overall only 15 percent of the business establishments have acknowledged having a documented ICT security policy, almost three quarters of those surveyed reported using one or more security software solutions. Antivirus is the most commonly used security solution (76%) across the business establishments in Qatar followed by firewall/VPN (21%) and content management (10%).

ARCHIVING AND BACK-UP

In addition to appropriate policies and following defined standards to protect data from any threat, archiving all information to enable recovery in case of loss is one of the key steps that would help build data security. With the growth in the amount of data collected by businesses each year comes the challenge of protecting that data from accidental deletions and disasters and complying with regulatory requirements for long-term retention.

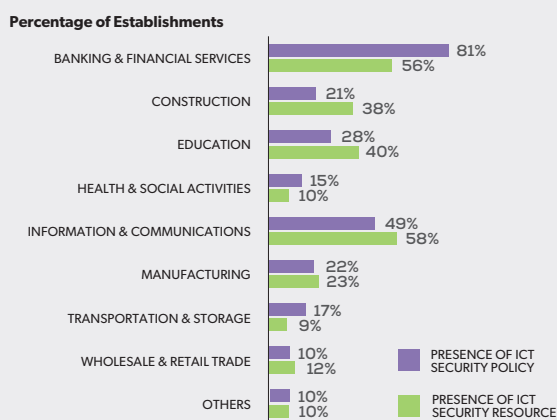
Overall, 42 percent of all business establishments in Qatar have an archiving/back-up policy that is documented and published internally. The proportion of business establishments with archiving and back-up policies significantly increases with an increase in the size of the business (see Figure 46).

Almost all government-owned establishments (97%) report the presence of a documented archiving/back-up policy, compared to the privately owned business establishments (41%).

The proportion of businesses with an archiving and back-up policy also varies with industry segment. Banking and financial services (96%), education (69%), and construction (69%) are the top sectors in terms of having an archiving and back-up policy, followed by information and communications (67%), transportation and storage (67%), manufacturing (42%), wholesale and retail trade (41%), and health and social activities (37%).

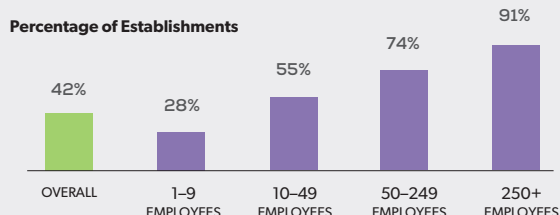
In addition to the implementation of an archiving and back-up policy, it is also essential that certain basic standard practices are followed to ensure that business establishments have some sort of disaster recovery or business continuity plan. Overall, nearly

Figure 45
ICT SECURITY POLICY AND DEDICATED STAFF PRESENCE, BY MAIN ECONOMIC ACTIVITY



Source: Business Establishment ICT Survey, 2015; n=1,093

Figure 46
PRESENCE OF ARCHIVING AND BACK-UP POLICY



Source: Business Establishment ICT Survey, 2015; n=1,093

20 percent of the business establishments in Qatar have a documented or published disaster recovery or business continuity plan in place. Similar to other indicators presented in the section, availability of the documented disaster recovery plan is highest among establishments with 250 or more employees at 57 percent and lowest with businesses with 1–9 employees (11%).

Overall, 73 percent of all business establishments report backing up data. External hard disks and flash memory are the most common media used for data backup at 41 percent, followed by hard disk of the same PC at 36 percent. Remote locations and central servers have not yet developed as mediums for data back-up among business establishments in Qatar with only 2 percent backing up data to the cloud and 17 percent on a server (see Figure 47).

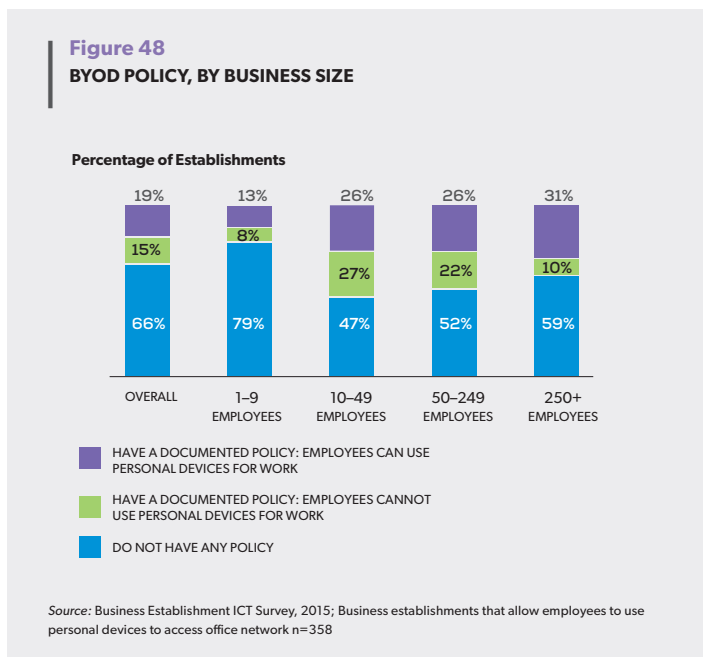
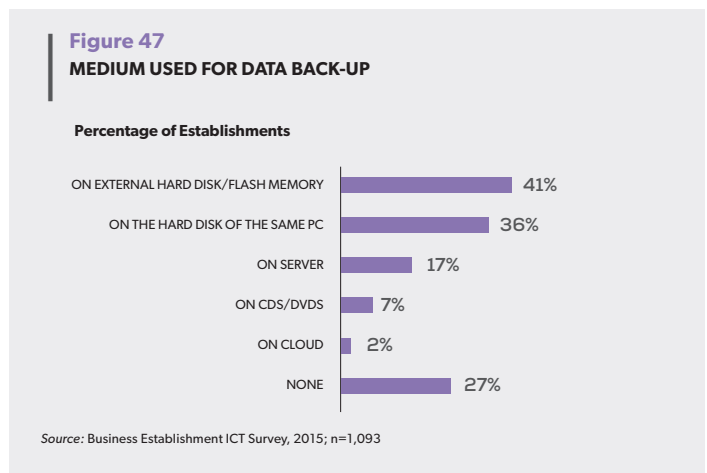
The business establishments that back up data can store their data either within the premises or off-site. Among the business establishments backing up their data, about 85 percent store the back-up within their premises, 15 percent store their data at a remote location, and 2 percent use the cloud.

The proportion of business establishments storing their back up data within their premises is highest among the establishments with 1–9 employees (89%). The usage of off-site data storage facilities increases with the increase in the size of the business establishment, with 8 percent of businesses with 250 or more employees backing up their data to the cloud.

BRING-YOUR-OWN-DEVICE (BYOD) PRACTICE AMONG BUSINESSES IN QATAR

People around the globe use their smartphones and tablets at work. By combining an architecture-based technical implementation with carefully considered business policies, organizations can create a safe and appropriate environment that blends personal and business resources.

Overall, approximately two-thirds of employees at surveyed business establishments do not connect their personal devices to the office networks, whereas 26 percent connect their personal smartphones,



17 percent connect their personal laptops, and 7 percent connect their personal tablets with the office networks. The survey has shown that the proportion remains the same across different-sized companies.

Among the business establishments whose employees connect their personal devices with the office networks, two-thirds of the business establishments do not have any documented policy for or against using personal devices. This proportion is even higher among the establishments with 1–9 employees (79%) (see Figure 48).

Of the business establishments surveyed that have a documented policy that allows employees to use personal devices for office purposes, 58 percent of them install anti-virus or any other security solution on personal devices before granting network access. About one-fourth of surveyed business establishments do not take any preventive actions before giving network access, with this figure being higher among establishments with 1–9 employees (see Figure 49).

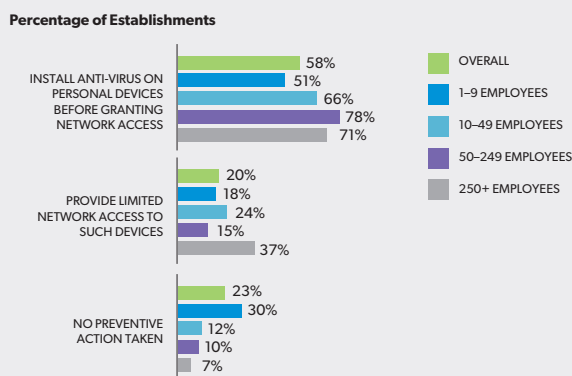
INCIDENTS RELATED TO ONLINE THREATS

Though a majority of the business establishments in Qatar are using anti-virus software, about 2 percent of the business establishments have reported that their organization’s employees had been victims of an online threat like fraud, identity theft, or stealing of confidential data in the last 12 months, while 90 percent of establishments mentioned that their employees have not experienced an online threat at work (see Figure 50).

Among the business establishments whose employees have been victims of an online threat like fraud, identity theft, or stealing of confidential data, about two-thirds of the business establishments reported that incident to concerned banks, Ministry of Interior, and Q-CERT. One-third of the business established did not report the threat at all. Among the business establishments that have reported an online threat at work in the last 12 months, about 86 percent of them have reported only one incident.

Looking ahead, two-thirds of the business establishments stated that they would be reporting online

Figure 49
ACTIONS TAKEN TO PREVENT CYBER THREATS FROM EMPLOYEE DEVICES TO OFFICE NETWORK, BY BUSINESS SIZE



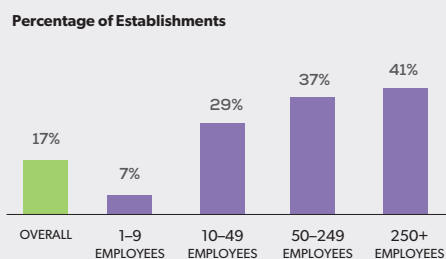
Source: Business Establishment ICT Survey, 2015; Business establishments that have a documented policy on allowing employees to access office network using personal devices and the establishments that do not have any policy for or against using personal devices (laptops/tablets or mobile phones) for official purposes n=296

Figure 50
VICTIMS OF CYBER THREATS AT WORK, AT EMPLOYEE LEVEL



Source: Business Establishment ICT Survey, 2015; n=1,093

Figure 51
SAFE BROWSING TRAINING, BY BUSINESS SIZE



Source: Business Establishment ICT Survey, 2015; n=1,093

threats to police and one-third of the business establishments to (Q-CERT).

About 9 percent of establishments with 1–9 employees and 3 percent of establishments with 10–49 employees reported that they are not aware of whom to contact in case of such online threats. It should also be noted that all of the establishments with (50+) employees know whom to contact in such cases.

In addition to the use of security solutions and reporting online threats to the concerned parties, the business establishments surveyed also train their employees on safe browsing to reduce security risks. About one-sixth of the business establishments in Qatar reported having provided training to their employees on safe browsing. This proportion increases with an increase in the size of the business establishment (see Figure 51).

BUSINESS SATISFACTION WITH ICT

Key Findings

- Satisfaction with Internet services has increased since 2012 and now stands at 54% on Internet speed, 44% on value for money, and 38% on cost.
- Businesses were least satisfied with the cost of IT products and services (31% satisfied) and the availability of desired telecom services (33% satisfied).
- More than 70% of the businesses that have used Hukoomi services reported being very satisfied with existing e-government services.
- Less than 1% of businesses that have used Hukoomi services reported dissatisfaction.
- Two key areas where businesses expect government support are improvement of ICT infrastructure (54%) and development of ICT skills (37%).

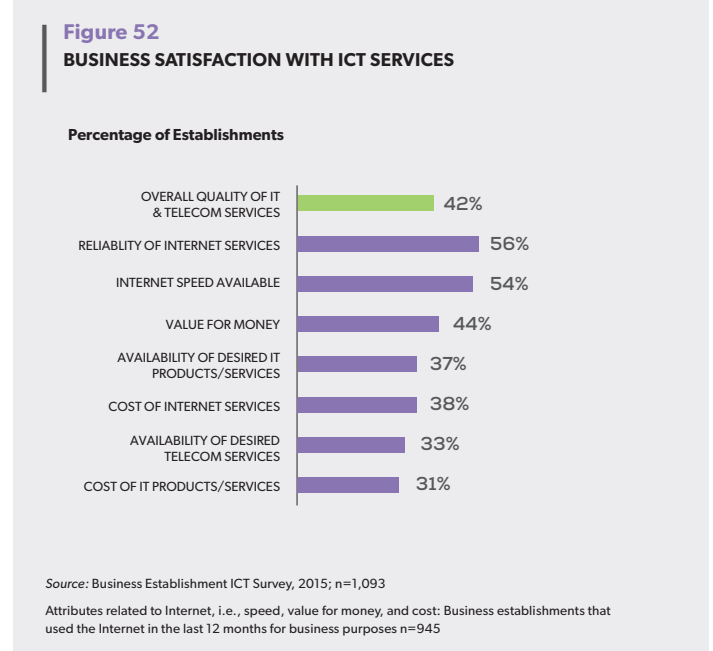
Business establishments in Qatar are supported by an ICT environment that has consistently improved over the past decade. This section examines how business establishments perceive that ICT environment and looks at how satisfied they are with ICT services available in Qatar as well as the support expected from the Qatari government.

Since 2012, there has been strong growth in the high-speed fixed broadband uptake among establishments with 1–9 employees (from 2% in 2012 to 50% in 2015) and establishments with 10–49 employees (from 7% in 2012 to 49% in 2015) (see Figure 20).

In line with the growing penetration of broadband connections of higher speeds, at least half of the respondents reported being satisfied with the speed and reliability of Internet services provided in Qatar.

Business establishments were least satisfied with the cost of IT products and services (only 31% satisfied), the availability of desired telecom services (33% satisfied), and the cost of Internet services (38% satisfied) (see Figure 52).

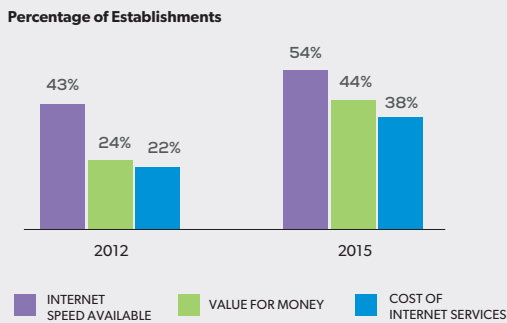
The satisfaction on all parameters measured is comparatively higher among establishments with 50+ employees. The low satisfaction on cost and value of Internet services among business establishments with 1–9 employees is most likely due to their lower



purchasing power and thus service is less affordable for them; the nature of their business is also a potential contributing factor.

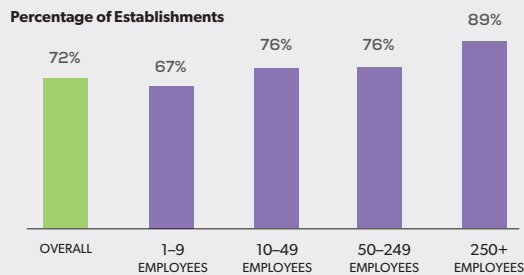
Overall, satisfaction with Internet services has increased from 2012 to 2015 and now stands at 54 percent on Internet speed, 44 percent on value for money, and 38 percent on cost of Internet services (see Figure 53).

Figure 53
SATISFACTION WITH INTERNET SERVICES, 2012 VS. 2015



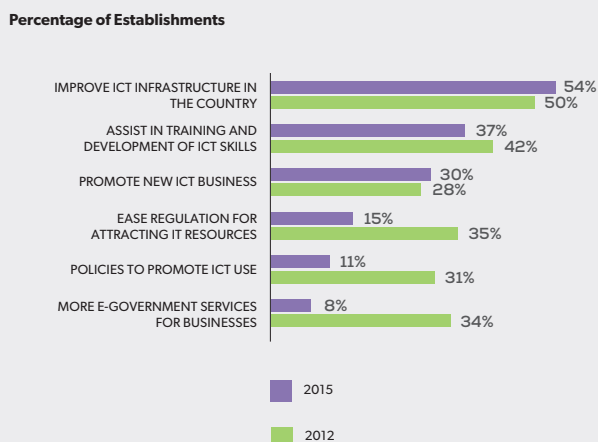
Sources: Business Establishment ICT Surveys, 2012 and 2015; Business establishments that used the Internet in the last 12 months for business purposes 2012 n=783 and 2015 n=945

Figure 54
SATISFACTION WITH HUKOOMI SERVICES



Source: Business Establishment ICT Survey, 2015; Business establishments that have used Hukoomi services n=727

Figure 55
AREAS OF EXPECTED GOVERNMENT SUPPORT, 2015 VS. 2012



Source: Business Establishment ICT Surveys, 2012 and 2015; 2012 n=928, 2015 n=1,093

More than 70 percent of the business establishments that have used Hukoomi services reported being very satisfied with the existing e-government services, and less than 1 percent reported dissatisfaction. The satisfaction is comparatively higher among the establishments with 250+ employees (see Figure 54).

When asked about specific parameters related to Hukoomi services, 67 percent of those who have used Hukoomi services reported they are satisfied with the convenience offered by these services, followed by the ease of accessing the services (61%), the number of services available (51%), and the Hukoomi contact center (48%).

AREAS OF GOVERNMENT SUPPORT

Satisfaction with ICT services among business establishments is expected to increase as a country's ICT infrastructure and business environment improve. Government plays a vital role in creating this infrastructure and environment.

When asked what areas government can support to enhance ICT adoption, the business establishments identified two key areas: ICT infrastructure and development of ICT skills.

One ICT enterprise interviewee said, "Government plays an important role in improving the basics to drive the ICT industry."

In 2015, 54 percent of the interviewed business establishments would like the government to improve the ICT infrastructure in the country to encourage adoption of ICT services, and 37 percent expect assistance in training and development of human resources for ICT-related skills, the top two areas cited in 2012 as well. However, expectations regarding easing regulation for attracting IT resources have decreased, from 35 percent in 2012 to 15 percent in 2015, as have expectations for policies to promote ICT use and more e-government services for businesses (see Figure 55).

Though providing more e-government services was among the top three areas of expected support in 2008 as well as in 2010, it moved down the priority ladder in 2012 and further down in 2015. This can be attributed to the many e-government services that have been introduced over this period. Still, among the business establishments requesting more e-government services, the majority of them want simplified e-services for visa services, a single window for all types of government-related payments in Qatar, and a channel for business promotions.

IMPACT OF ICT IN TRANSFORMING BUSINESSES

Key Findings

- Overall, 83% of businesses believe that ICT benefits their business.
- Business establishments with 1–9 employees are less likely to acknowledge the impact of ICT on their business than their larger counterparts.
- 62% of businesses using the Internet say they have better access to customers in newer geographies, compared with 15% of those not using the Internet.
- 41% of those using the Internet report faster delivery of products and services compared with 4% among those who don't use the Internet.
- Businesses with web presence said they have better access to new geographies (54%), improved quality of products and services (43%) and faster delivery of products and services (37%).

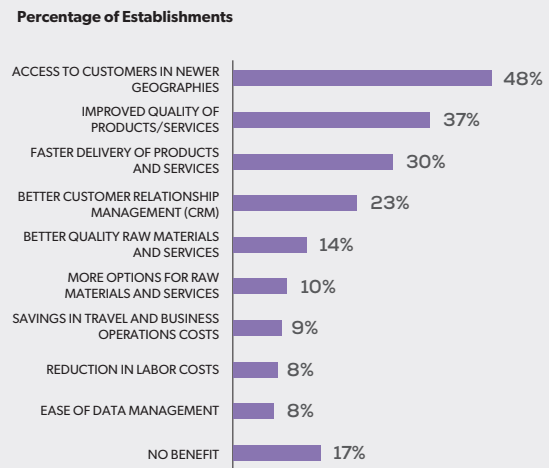
Digital business is top of mind for almost every business leader, with 92 percent of respondents to the Gartner CEO survey agreeing that digital business and technology change is relevant to the business.²⁸

The business establishments in Qatar reported receiving a number of benefits from the availability and use of IT and telecom services in Qatar, indicating how ICT is helping to transform businesses.

Overall, 83 percent of the business establishments believe that ICT benefits their business. Nearly half of the business establishments said that ICT helps them access customers in new geographies and expand their potential market. Improved quality of products and services was cited as a key benefit by 37 percent, followed by faster delivery (30%) and better customer relationships (23%) (see Figure 56).

The size of the business affects how respondents view the impact and benefits of ICT. The level of acknowledgment of ICT impact is lower among the business

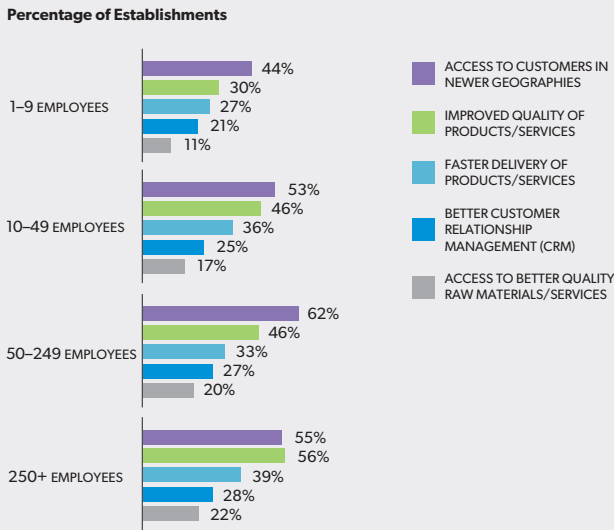
Figure 56
BUSINESS IMPACT OF ICT SERVICE AVAILABILITY AND USAGE



Source: Business Establishment ICT Survey, 2015; n=1,093

²⁸ Gartner, *Digital Business Transformation: Turning the Digital Dream Into Reality*.

Figure 57
IMPACT OF ICT SERVICES ON BUSINESSES, BY BUSINESS SIZE



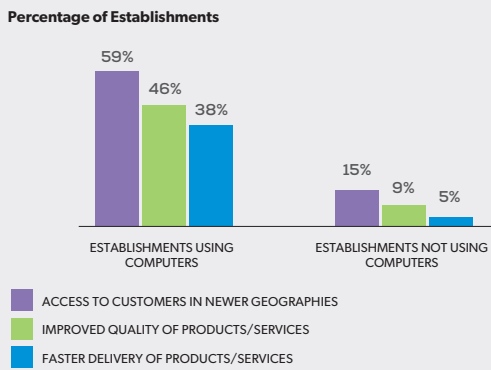
Source: Business Establishment ICT Survey, 2015; n=1,093

establishments with 1–9 employees when compared with remaining business segments. For example, the impact of ICT on access to customers in newer geographies is cited by 44 percent of businesses with 1–9 employees, compared with 53 percent of businesses with 10–49 employees, 62 percent of businesses with 50–249 employees, and 55 percent of businesses with more than 250 employees (see Figure 57).

Business establishments that use computers and the Internet and have a web presence view the impact of ICT services on their business and on business transformation very differently from those who don't use these technologies.

In terms of the business impact of ICT service availability and usage, access to customers in newer geographies is cited by 59 percent of establishments using computers, compared to 15 percent for those not using computers. Improved quality of products and services (46%) and faster delivery of products and services (38%) are cited by establishments using computers, compared with 9 percent and 5 percent of establishments not using computers, respectively (see Figure 58).

Figure 58
IMPACT OF ICT SERVICES ON BUSINESSES, COMPUTER USERS VS. NON-USERS



Source: Business Establishment ICT Survey, Business establishments using computers n=985, business establishments not using computers n=108

Similarly, stark differences on the business impact of ICT service availability and usage are also reported between business establishments using the Internet and those not using the Internet. A higher proportion of establishments using the Internet—62 percent—perceive having better access to customers in newer geographies, compared with 15 percent of establishments not using the Internet. Improved quality of products and services is cited by 49 percent of establishments using the Internet, compared with 10 percent not using the Internet. And 41 percent of establishments using the Internet report faster delivery

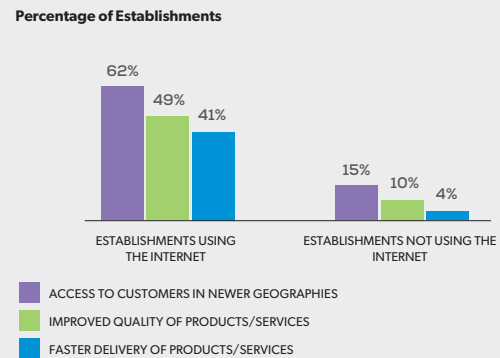
of products and services compared with the 4 percent who don't use the Internet (see Figure 59).

And in terms of web presence, a higher proportion of business establishments with web presence perceive having better access to new geographies (54%), improved quality of products and services (43%), and faster delivery of products and services (37%) than the perception of those establishments without a web presence (See Figure 60).

The degree of ICT usage among the business establishments can also be looked at based on two parameters: speed of Internet connection and proportion of employees using the Internet routinely. Common benefits such as access to customers in newer geographies, improved quality of products and services, and faster delivery to clients are acknowledged by medium to heavy ICT users. And there are other benefits of ICT that are acknowledged only by business establishments with a high degree of ICT usage. Such benefits include access to better talent, ease of data management, savings in business operation cost, reduction in waste, and improvement in accounts management, among others.

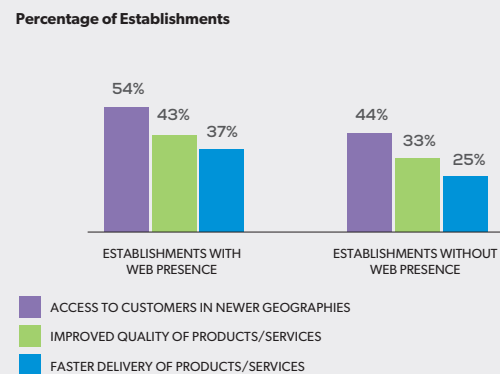
Thus, the degree of ICT usage among businesses increases the perceived impact of ICT on these businesses. In general, the business establishments with medium to high ICT usage have improved in areas related to customer service and customer acquisition. But those business establishments that have adopted ICT at the core of their business operations have been able to transform their business establishments across functions including procurement, accounts, data management, and human resources in addition to customer-oriented benefits.

Figure 59
IMPACT OF ICT SERVICES ON BUSINESSES, INTERNET USERS VS. NON-USERS



Source: Business Establishment ICT Survey, 2015; Business establishments using the Internet n=945, business establishments not using the Internet n=148

Figure 60
IMPACT OF ICT SERVICES ON BUSINESSES, BY WEB PRESENCE



Source: Business Establishment ICT Survey, 2015; Business establishments with web presence n=606, business establishments without web presence n=487

CONCLUSION

This robust study of business establishments and ICT enterprises demonstrates two important points—ICT is transforming businesses in Qatar and it is helping to fuel the growth and diversification of Qatar’s economy. The revenue of the ICT industry has seen a CAGR of about 15.4 percent during the 2012–2014 period, with further growth expected in the future.

The role of the government cannot be underestimated—ICT providers feel that government projects are a key driver for the growth of the ICT industry in Qatar.

In terms of the impact ICT has had on businesses, an overwhelming majority of businesses believe they have benefitted from ICT, with nearly half saying that ICT helps them access customers in new geographies and expand their potential market. Improved quality of products and services was cited as a key benefit, followed by faster delivery and better customer relationships. In addition, online activities, including use of online marketing and customer support, e-banking, social media, and e-government services, have shown growth. In particular, the Internet activities that have shown the greatest progress are marketing products and services online and providing online customer service.

Following the ICT infrastructure improvements in Qatar in the past years—such as the expansion of the fiber network and mobile network upgrades to 4G—many positives can be observed in computer and Internet penetration. Since 2008, use of the Internet for business activities has grown significantly. At the time of the survey, 93 percent of business establishments surveyed connected to the Internet are using fixed broadband connections, with more than 60 percent of broadband users connected through fiber-to-the-business (FTTB).

The supply of ICT professionals is also growing, now comprising 3 percent of the total number of people employed in Qatar’s business establishments. The number of ICT professionals has grown at a CAGR of nearly 10 percent since 2012. The wholesale and retail trade, construction, and information and communications sectors have the highest numbers of ICT professionals. Not surprisingly, although the information and communications sector forms a very small proportion of businesses in terms of both employee base and number of establishments, it comprises 10 percent of the total number of ICT professionals.

Opportunities

The report identifies e-commerce as the biggest opportunity for growth. Although many business establishments continue to use the traditional methods of doing business, the *UNCTAD B2C E-Commerce Index 2016* shows Qatar has made great progress, jumping 47 positions since 2014. This index measures the readiness of countries to engage in online commerce and is composed of four indicators: Internet use penetration, secure servers per one million inhabitants, credit card penetration, and a postal reliability score.

Thus, while this landscape survey shows that overall about 12 percent of business establishments surveyed reported receiving and 8 percent reported placing orders over the Internet, the use of e-commerce varies by industry segment, with the highest proportion of business establishments receiving and placing orders over the Internet in the construction and transportation and storage sectors. In addition, among business establishments that receive orders over the Internet, nearly one-third are using payment gateways for receiving payments such as those offered by Qatar's banks, PayPal, and CashU. Qatar's ecosystem is becoming ripe for major progress in the future.

Qatar's government has launched several initiatives to leverage Qatar's potential in e-commerce. *Qatar National e-Commerce Roadmap 2015* was published as a blueprint for moving forward with an aggressive e-commerce effort, including developing a national payment gateway solution. In addition, the government has announced its intention to open postal services and delivery to competition. It is also expediting the release of Qbuy, an information portal designed to increase consumer trust in online purchasing. Merchants will be encouraged to list themselves on the portal and comply with the stated legal procedures for conducting commerce online.

Challenges

In spite of the progress made and the opportunities identified, key challenges to businesses' use of ICT and to the growth of the ICT industry remain.

On the supply side, the number of skilled technical employees available does not meet the demand, with this lack of skilled manpower in Qatar reported as a challenge by 14 percent of ICT enterprises. In addition, low R&D investment by ICT enterprises inhibits innovation and further industry growth.

On the demand side, there is lower ICT penetration among businesses with 1–9 employees, which comprise a large proportion of all businesses in Qatar. Internet and computer penetration is low in the manufacturing and wholesale and retail sectors, which in turn inhibits e-commerce. Web presence and use of mobile applications have a great deal of room to grow, with nearly two-thirds of the businesses reporting they do not have a web presence. And even among businesses with 50–250+ employees, about one-fourth still do not have a web presence.

Awareness of advanced and emerging ICTs is high, yet usage is still in the nascent stage. The qualitative research shows that lack of knowledge about the return on investment of these technologies is the key barrier to adoption. The use of cloud computing, for example, remains low with about 3 percent of business establishments in Qatar adopting cloud computing.

And in terms of security, only 15 percent of the businesses surveyed have a documented ICT security policy—necessary to protect information assets and to recover from any potential incident. A significant number of businesses, however, are aware of the ICT security threats, and almost three-quarters of businesses reported using one or more security software solutions. In addition, one-third of business establishments that faced an online threat in the past 12 months didn't report it to the concerned authorities. Creating more awareness about online threats and whom to contact will help alleviate this issue.

To enhance the maturity of information security in Qatar, the Ministry of Transport and Communications has moved forward with several key initiatives. These include issuing cyber security policies and standards, conducting training programs, and implementing a compliance program. An Online Vulnerability Scanning Service (OVSS) platform was launched to enable organizations to conduct a vulnerability assessment of their systems. In addition, MOTC has provided a dedicated hotline for businesses and the public to report incidents and help resolve them.

In looking at the overall ICT environment, as mentioned above, the government is viewed as a key driver in the continued progress of the ICT industry in Qatar. However, ICT providers cite government policies and the complex registration process, and import and customs clearance issues as inhibitors to the growth of the sector. Qatar's government is currently looking at simplifying these procedures to drive growth in the future.

APPENDIX

RESEARCH METHODOLOGY

Both quantitative and qualitative research were conducted for this study: a survey of business establishments in Qatar, a survey of ICT providers in Qatar, and focus groups with business executives and industry experts. The following provides more detail into this research methodology.

Business Establishment ICT Survey 2015

This project was outsourced to AMRB, a market research firm in the MENA region, which conducted a large-scale study of 1,093 businesses spread across industry sectors, size, business ownership, and geographical location in order to objectively measure how the ICT sector is developing and how ICT is transforming businesses in Qatar. Between March 2015 and May 2015, face-to-face interviews were conducted with senior employees of these establishments.

Establishments responding to the survey were those registered and running operations in Qatar—national or foreign companies, private and government/mixed business establishments.²⁹

For the purpose of alignment with the Ministry of Development Planning and Statistics (MDPS) approach and publications, data was captured at a single

business establishment level. This method is in line with UNCTAD guidelines and MDPS data availability at the business establishment level.

The target respondents³⁰ for this research included senior employees who were:

- Aware of ICT usage within the business establishment
- Aware of basic profiling details of the business establishment
- Decision makers/strong influencers for ICT purchase

The most common profiles that met the above criteria were:

- IT manager/CIO/IT head
- Purchase manager/General manager/Director/Administration Manager

²⁹ Government establishments are those businesses that are completely owned by the State. It excludes ministries and government departments. Mixed are those with at least some capital contribution by the State and remain private.

³⁰ UNCTAD, *Manual for Production of Statistics on the Information Economy*, (2009, Revised Edition) p. 142: Target respondent is defined as “a decision maker with major responsibility for IT-related issues in the enterprise (the IT manager or a senior professional in the IT department). In any case the respondent should not be someone with responsibilities only in accounting.”

Face-to-face interviews were conducted with the respondents meeting the criteria specified above; interviews were conducted using programmed scripts on tablets (computer-assisted personal interviewing—CAPI). A letter from the ministry explaining the purpose and nature of the study and identifying AMRB as its research partner was sent in advance. Respondents were encouraged to refer to/consult their colleagues and provide the most accurate possible data for the survey, particularly in establishments with 50 or more employees, where information relating to diverse topics was difficult to elicit from one person.

This sample provides findings at a confidence level of 95 percent and ± 3 percent margin of error at an overall level.

In order to have appropriate representation, the sample was spread across

- Main economic activity (sector of operation)
- Size of the business establishment (number of employees)
- Ownership of business
- Geographical location

Sampling plan was adopted to ensure adequate sample coverage among all of the above categories through pre-defined quotas. At the same time, parity was maintained with international standards, UNCTAD requirements, and the business establishment census databases from MDPS. Industry classifications were followed using ISIC Rev.4³¹ in alignment with the 2015 MDPS business establishment census.

Given the nature of such businesses, the need for ICT is expected to be limited or low in retail establishments having up to 4 employees and performing “other service activities” as per ISIC Rev.4. Hence, these segments, which include small shops and outlets, barber shops/beauty salons, massage parlors, laundry and cleaning services, etc., were excluded from the research.

The sample distribution is presented in tables 1, 2, 3, and 4.

Table 1
SAMPLE DISTRIBUTION BY MAIN ECONOMIC ACTIVITY—2015

Serial Number	Main Economic Activity	(ISIC Rev.4) Class	Proportion in Sample
1	Agriculture, forestry, and fishing	01–03	2%
2	Mining and quarrying	05–09	2%
3	Manufacturing	10–33	8%
4	Electricity, gas, water supply, and waste management	35–39	1%
5	Construction	41–43	9%
6	Wholesale and retail trade; repair of motor vehicles	45–47	28%
7	Transportation and storage	49–53	7%
8	Accommodation and food service activities	55–56	5%
9	Information and communication	58–59	6%
10	Financial and insurance activities	64–66	3%
11	Real estate activities	68	2%
12	Professional, scientific, and technical activities	69–75	7%
13	Administrative and support service activities	77–82	11%
14	Education	85	5%
15	Human health and social work activities	86–88	3%
16	Arts, entertainment, and recreation	90–93	3%
Total number of businesses			1,093

Table 2
SAMPLE DISTRIBUTION BY SIZE OF ESTABLISHMENT—2015

Serial Number	Number of Employees	Sample size
1	(1–9)	27%
2	(10–49)	45%
3	(50–249)	19%
4	(250+)	10%
Total number of businesses		1,093

³¹ Per International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4, United Nations.

Table 3
SAMPLE DISTRIBUTION BY GEOGRAPHICAL LOCATION (MUNICIPALITY)—2015

Serial Number	Geographical Location (Municipality)	Sample size
1	Doha	60%
2	Al Rayyan	15%
3	Al Wakra	8%
4	Umm Stal	2%
5	Al Khor and Thakira	4%
6	Al Shamal	3%
7	Al Dayyan	4%
8	Al Shahaniya	3%
Total number of businesses		1,093

Table 4
SAMPLE DISTRIBUTION BY OWNERSHIP OF BUSINESS ESTABLISHMENTS—2015

Serial Number	Geographical Location (Municipality)	Sample size
1	Privately owned	97%
2	Government owned/Mixed	3%
Total number of businesses		1,093

In order to represent the total number of business establishments, the sample data was weighted based on size of the business establishment (number of employees) and main economic activity performed.

ICT Enterprise Directory Screening 2015 and ICT Enterprise Directory Survey 2015

In addition to the primary interviews with business establishments in Qatar that use ICT, other ICT supply-related key information was collected from the ICT enterprises that provide products and services in Qatar.

AMRB conducted extensive research that identified close to 550 ICT enterprises in Qatar.

ICT Enterprise Directory Screening 2015, a short telephone survey, was conducted between March 2015 and May 2015 with 419 of these ICT providers to understand their basic profiles. From these 419 ICT enterprises, 300 were selected based on their geographical presence, number of employees in Qatar, and annual revenue in Qatar.

ICT Enterprise Directory Survey 2015, a detailed face-to-face survey, was conducted with the 300 selected ICT enterprises to understand their business operations in detail.

The distribution is shown in Table 5.

Table 5
SAMPLE DISTRIBUTION AMONG ICT ENTERPRISES—2015

Serial Number	Survey Name	Sample Size (Number of ICT enterprises)
1	ICT Business Directory Screening 2015 (Short telephone interview with ICT enterprises)	419
2	ICT Business Directory Survey 2015 (Detailed face-to-face interview with 300 ICT enterprises shortlisted from the 419 telephone interviews)	300

International Benchmarking

The following countries were selected for benchmarking purposes.

Table 6
COUNTRIES SELECTED FOR INTERNATIONAL BENCHMARKING

Serial Number	Country	Rationale for selection
1	Australia	Developed countries with high GDP and particularly advanced in terms of ICT uptake
2	United Kingdom (UK)	
3	Japan	
5	Germany	
6	France	
7	Singapore	
8	Estonia	
9	Ireland	
10	Kingdom of Saudi Arabia (KSA)	Regional peers
11	United Arab Emirates (UAE)	
12	Egypt	
13	Oman	
14	EU-15	To enable a comprehensive comparison with European countries

Notes:

The data sources are mentioned below each figure. While most findings are based on surveys, AMRB estimates as well as external sources are also referenced to yield a more complete picture of the ICT-related business landscape in Qatar.

Percentages shown in the report are mostly presented up to 0 decimal place, and some may not add up to 100 percent due to rounding.

Analysis excludes don't know/refusals unless otherwise specified.

Business Establishment ICT Survey 2015 data has been weighted on key factors to achieve a representative sample.

The "n" represents unweighted sample size achieved in the specified group.

Some of the figures may not exactly match the data published in Qatar's ICT Observatory portal (<https://ictobservatory.gov.qa/>) due to the rounding adjustment of outliers and consideration of refusals in the analysis.

LIST OF DEFINITIONS AND ABBREVIATIONS

Definitions

Definitions in this study are aligned with the Ministry of Development Planning and Statistics, UNCTAD, and ITU as much as possible.

Blue-collar workers: Manual laborers or workers who perform work involving repetitive operations with their hands, physical skill, and energy.

Broadband: Technologies at speeds of at least 256 Kbit/s, in one or both directions. Broadband can be fixed or mobile.

Business establishment: An enterprise or part of an enterprise that is situated in a single location and in which only a single (non-ancillary) productive activity is carried out or in which the principal productive activity accounts for most of the value added. Excludes government departments/ministries (government bodies engaged in administrative or service activities, such as ministries, public schools, public health centers, and hospitals) and diplomatic/international/regional establishments (engaged in diplomatic or consulate activities on behalf of other countries, or establishments belonging to regional or international organizations).

Computer penetration among business establishments: Proportion of business establishments that used computers during the last 12 months. A computer may be a desktop, laptop/notebook, or tablet computer. Use can be at the business premises or elsewhere.

Computer penetration among employees: Proportion of employees who routinely used a computer during the last 12 months. "Routinely" is defined as at least once a week.

Cloud computing: A model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (example: networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

Digital media: Any content including text, graphics, audio, and video that can be transmitted over the Internet. It includes mainly books, newspapers, other digitally printed material, films, audio-visuals, recorded media, and video games.

Enterprise: An institutional unit in its capacity as a producer of goods and services.

Fixed broadband: Technologies at speeds of at least 256 Kbit/s, in one or both directions, such as DSL, cable modem, high-speed leased lines, fiber-to-the-home, power line, satellite, fixed wireless, wireless local area network (WLAN) and Worldwide Interoperability for Microwave Access (WiMAX).

Geographical presence: The direct presence and/or presence through dealers or representatives of a company.

High-speed Internet/broadband: Internet connection with speed of 10 Mbps or more.

ICT enterprises: Those involved in any information or communications products or services—manufacturing, wholesale, or retail—excluding small electronics shops.

ICT professionals: ICT-related technical employees working in any establishment in any sector (including ICT enterprises).

ICT workforce: The sum of all the permanent employees (including both technical and non-technical) working only in ICT enterprises.

Individual Internet plans: Subscription plans intended for individuals and households.

Internet penetration among business establishments: Proportion of business establishments that used the Internet for business purposes during the last 12 months.

Internet penetration among employees: Proportion of employees who routinely used the Internet at work during the last 12 months. “Routinely” is defined as at least once a week.

Mainstream individuals: Those who occupy a housing unit that is intended for year-round and not seasonal or migratory use. The occupants may be a single family or any other group of related or unrelated people who share living arrangements.

Mobile broadband: Technologies at speeds of at least 256 Kbit/s, in one or both directions, such as wideband code division multiple access (W-CDMA); high-speed downlink packet access (HSDPA), complemented by high-speed uplink packet access (HSUPA); CDMA2000 1xEV-DO and CDMA 2000 1xEV-DV. Access can be via any device (handheld computer, laptop, or mobile phone, etc.).

Patents: Exclusive license given by the government to the holder for any process, design, or new invention for a designated period of time.

Placing orders over the Internet: Orders placed via the Internet whether or not payment was made online. They include orders placed via websites, specialized Internet marketplaces, extranets, electronic data interchange (EDI) over the Internet, Internet-enabled mobile phones and e-mail, but exclude WhatsApp and Instagram. Orders placed exclude orders that were cancelled or not completed.

Qatar (10 or more employees): Business establishments having 10 or more employees in Qatar, which includes those having 10–49 employees, 50–249 employees, or 250 or more employees.

Receiving orders over the Internet: Orders received via the Internet whether or not payment was made online. They include orders received via websites, specialized Internet marketplaces, extranets, EDI over the Internet, Internet-enabled mobile phones and e-mail, but exclude WhatsApp and Instagram. They also include orders received over the Internet on behalf of other organizations—and orders received over the Internet by other organizations on behalf of the business. Orders received exclude orders that were cancelled or not completed.

R&D activity: Any creative or investigative activities that a business chooses to conduct with the intention of making a discovery that can either lead to the development of new products or services or procedures, or to the improvement of existing products or services or procedures.

Technical employees: Employees engaged in information and communications technology design, manufacturing, installations, operations, maintenance, business development/sale, support work, and technical consulting.

Top 2 box score on a 7-point scale: Satisfaction was recorded on a 7-point scale, and the top 2 box score was used for calculating degree of satisfaction; scores of 6 or 7 on a 7-point scale indicated high satisfaction.

Web presence: A website, homepage, or presence on any other website (including a related business) where the business has control over the content. It excludes inclusion in an online directory and any other web pages where the business does not have control over the content of the page.

Abbreviations

B2B: business-to-business

B2C: business-to-consumer

BYOD: bring your own device

CAPI: computer-assisted personal interviewing

CAGR: compound annual growth rate

CDMA: code division multiple access

CR: company registration

DSL: digital subscriber line

EDI: electronic data interchange

ERP: enterprise resource planning

EUROSTAT: the statistical office of the European Union

HSDPA: high-speed downlink packet access

HSUPA: high-speed uplink packet access

ICT: information and communications technology

ISDN: integrated services digital network

ISIC: International Standard Industrial Classification

IT: information technology

ITU: International Telecommunication Union

LAN: local area network

M2M: machine-to-machine

MDPS: Ministry of Development Planning and Statistics (formerly QSA)

OECD: Organization of Economic Co-operation and Development

Q-CERT: Qatar Computer Emergency Response Team

WAN: wide area network

WLAN: wireless local area network

WiMAX: Worldwide Interoperability for Microwave Access

W-CDMA: wideband code division multiple access

