المجلس الأعلى للإتصالات و تكنولوجيا المعلومات
Supreme Council of Information & Communication Technology

STRATEGIC SECTOR REVIEW

FINAL REPORT

The Supreme Council of Information & Communication Technology "ictQATAR"

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1 Executive Summary

1.1 Contribution of the Telecommunications Sector to Qatar's Economy

- **The telecom sector in Qatar has grown strongly in the past five years** at an average rate of 17 percent a year, slightly slower than the country's average annual growth rate of 19 percent.
- **The telecom sector could make a greater contribution to the economy.** The telecom sector is already a pillar of Qatar's economy, corresponding to around 1.5 percent of total GDP. However this sector in comparable benchmarked countries represents an average 2.3 percent of GDP.
- **Measures are in hand to strengthen the sector's role in the economy**. ictQATAR, with other key industry stakeholders, is taking several initiatives to boost both supply and demand for telecom services, including monitoring the ICT progress in the Health and Education sectors and establishing a National Broadband Network. Such initiatives will enable the sector to play a bigger part in achieving the country's 2030 vision of a diversified economy.

1.2 Analysis of the telecommunications sector's performance since liberalization

This section reviews the development of the sector since the market was opened to competition taking into account five key industry objectives: encouraging competition, increasing customers benefits, health of the industry, investment levels and availability of services.

1.2.1 Encouraging Competition

- **Competition in the mobile sector has developed strongly** as its two operators have brought international best practices and innovative products to the market. By December 2010, the second operator had gained around 25 percent of mobile market revenues, indicating the success of its entry.
- **Competition in the fixed sector since liberalization has been negligible.** A second fixed license was not issued until April 2010, also to Vodafone Qatar. However, Qtel retains 99.9% subscriber share in fixed markets indicating a lack of any significant competition.
- **Competition in the fixed market is also impeded by constraints on access to**

infrastructure and network rollout. Operators' difficulties in accessing civil infrastructure and obtaining rights of way is affecting competition in the fixed market. ictQATAR, along with the operators and other Government institutions, is working to expedite access to these critical network elements.

1.2.2 Increasing customers benefits

- **Qatar has one of the highest mobile penetration rates in the world.** It reached a SIM penetration of around 158 percent in December 2010.
- **Prices of international and national mobile phone calls have fallen since 2009,** by 44 and 35 percent respectively. Innovation, including new offers for different segments as well as new services, has also increased significantly: customers can now choose from a variety of offers.
- **Quality of service indicators have improved since 2010** but remain not fully compliant with most of the parameters defined by ictQATAR in the public fixed and mobile licenses.
- **The fixed sector in Qatar offers high availability of fixed voice services**. **However, broadband services remain underdeveloped compared to international benchmarks**. Despite strong growth in broadband penetration in the last couple of years, only half of the households in Qatar have Broadband services and speeds remain quite low: around 90 percent of customers (business and residential) subscribe to speeds of 1 Mbps or lower.
- **Residential broadband prices are low compared to other GCC countries,** at app. QR 280/month (4 Mbps connection), although at least as twice as high as the EU15 average of app. QR 120/month.
- **Business broadband prices are in line with other GCC countries** at app. QR 900/month, but these prices are over four times as high as the EU15 average of app. QR 210/month.
- **High costs of international connectivity contribute to high broadband prices in Qatar.** However, the arrival of additional international capacity from Gulf Bridge International is expected to drive broadband prices lower.
- **Despite improvements in quality of service in the fixed sector since 2009, there is still room for improvement**. The incumbent fixed operator complies with only 20 out of the 30 service quality indicators used in this market.

1.2.3 Health of the industry

- **The sector remains healthy by international standards, but revenue growth is slowing down.** The EBITDA margin continued to fall from 52 percent in 2009 to 48 percent in 2010. Though still high compared to European countries, these margins are low compared to GCC markets.

- **Further substantial price declines in voice services may affect the future health of the industry and its development, given the sector's dependence on voice revenues.** However, ictQATAR observes that mobile national voice prices have increased by 16 percent (Qtel off-peak) and 25 percent for Vodafone Qatar since the beginning of 2010.

- **Mobile data and broadband represent two growth opportunities for Qatar's telecoms sector.** The share of mobile data in total mobile revenues is 18 percent in Qatar compared to 28 percent in other benchmarked countries, and the share of broadband services in total fixed revenues is 17 percent in Qatar, compared to the OECD countries' average of 36 percent.

1.2.4 Investment levels

- **Qatar's telecom investment levels are increasing strongly.** Over the past three years, investment in the mobile sector increased by 190 percent and in the fixed sector by 105 percent.

1.2.5 Availability of services

- **Basic telecom service availability in Qatar is good.** Qatar enjoys widespread coverage of fixed voice services as well as mobile 2G and 3G telecom services, including voice and data services.

- **The Qatari mobile telecom market has adopted the latest technologies** available in data products, handsets, applications, and infrastructure. However, the fixed sector has some way to go to implement networks deploying fiber to the home (FTTH), considered to be the fixed network technology of the future.

1.3 Final conclusions

- **Conclusion 1**
  No introduction of a third mobile operator in the coming year. However, ictQATAR will closely monitor the market (especially price and quality of service levels) for mobile telecommunications services to assess whether competition is moving forward and will conduct a new assessment within a year from now to decide whether to

introduce another licensed mobile operator into the market.

- **Conclusion 2**
  Maintain the current tariff approval requirement as it is an integral part of the operators' obligations and required by law in Qatar. However, ictQATAR will revise its internal tariff approval process to make it more efficient.

- **Conclusion 3**
  Publish quality of service results periodically on ictQATAR's website, so customers can have a transparent view of service quality in Qatar.

- **Conclusion 4**
  Continue ictQATAR's support to Qtel and Vodafone Qatar in gaining access to rights of way and civil infrastructure, so they can roll out their networks faster.

- **Conclusion 5**
  Implementation of the QNBN initiative by the State of Qatar in cooperation with existing telecommunications networks and service providers but not in competition with them.

- **Conclusion 6**
  Investigate and start procedures for the introduction of a new fixed service-based provider in Qatar within one year to improve competition in the fixed market.

2 Introduction

2.1 Strategic Sector Review Purpose and Process

Qatar's telecommunications sector began to liberalize in 2006 following commitments made by the State of Qatar to open the sector to competition. The enactment of the Telecommunications Law 34 of 2006 (Telecommunications Law) was quickly followed by the issuance of new public mobile and fixed licenses in 2007 and 2010.

In the Competition Policy Chapter of the Telecommunications Law of 2006, Articles 40.1 and 40.2 state that ictQatar shall review the state of competition in telecom markets and update policy and related regulations accordingly. In accordance with this mandate, ictQATAR instigated this Strategic Sector Review (**SSR**) to assess the current state of competition in the telecom sector, monitor developments since the start of liberalization, and recommend policies to promote sustainable future development in the telecommunications sector. This SSR does not intend to provide an exhaustive analysis of all telecommunications markets but gives an accurate overview of the sector using a benchmarking methodology to review the market development so far.

ictQATAR has carried out the SSR in four distinct phases:

- **First phase: data collection.** As a first step, ictQATAR gathered relevant data concerning the telecom markets from Qatar, several peer countries, and international organizations for comparison. Most of this data was collected from June to November 2010.
- **Second phase: market assessment.** In this phase, ictQATAR assessed the markets based on the data collected. This phase was largely completed between October and December 2010. It concluded with publication of a consultation document, in which ictQATAR showed the results of its assessment and its preliminary policy recommendations.

- **Third phase: consultation.** In this phase, operators and other industry stakeholders had the opportunity to express their views and comments on ictQATAR's findings and preliminary policy recommendations. This process ended on 20 April 2011, when the responses from industry stakeholders were received.

- **Fourth phase: final conclusions.** This fourth phase involved analysis of consultation responses from five industry stakeholders: Qtel, Vodafone Qatar, Saudi Telecom Company (STC), Friendi and AT&T. The submissions from all respondents were incorporated in the final policy conclusions presented in this document, which formally concludes the Strategic Sector Review.

2.2 Purpose of this Document and Structure

This document, which is largely based on the public consultation document published by ictQATAR in March 2011, has two main purposes. First, it takes into account new information received from the consultation respondents for consideration in the SSR and, secondly, it publishes ictQATAR's final conclusions for the telecommunications market in Qatar based on the SSR.

The document comprises four sections:

- Section One is an executive summary of the sector review and the main conclusions and decisions taken by ictQATAR .

- Section Two gives a macroeconomic perspective on the contribution of the telecom sector to Qatar's economy. It analyzes the sector's impact and its potential as a force for generating economic diversification in Qatar.

- Section Three reviews the telecom sector's progress since liberalization against the key sector objectives defined in Qatar's Telecommunications Law. This section also compares the telecom sectors in Qatar and other countries to give an international perspective on the Qatari telecom sector's development.

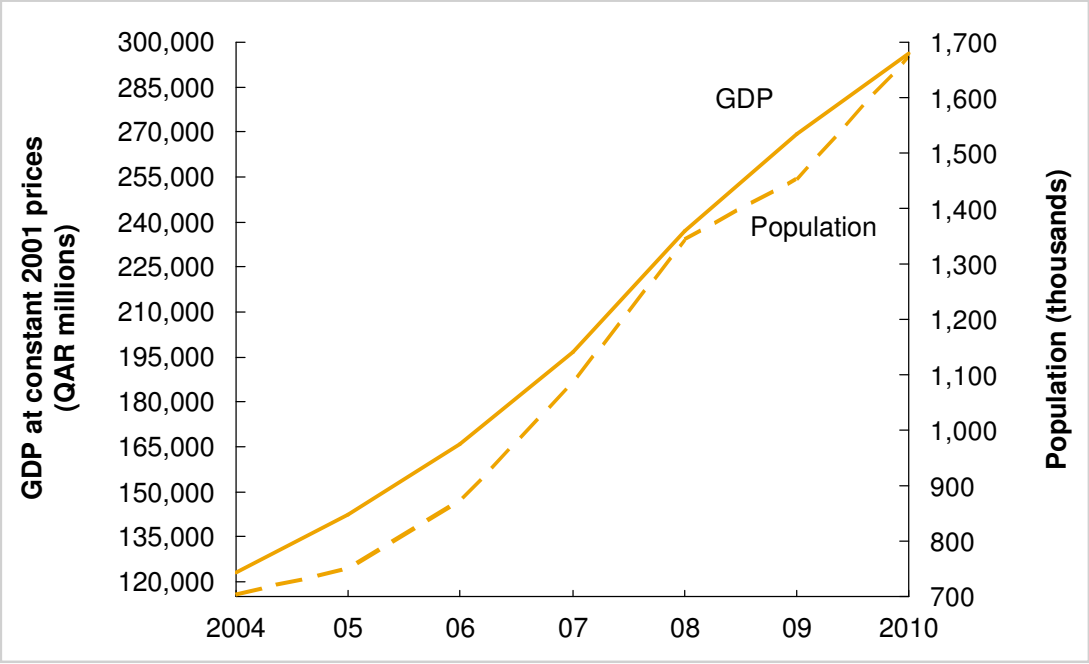
- Section Four presents ictQATAR's final conclusions and decisions.

3 Telecommunications Sector's Contribution to Qatar's Economy

During the past five years, Qatar's economy has experienced growth averaging 18 percent a year. This significant growth has been supported by the country's large exports of oil and gas, which amounted to QAR 165 billion in 2009 or approximately 46 percent of total GDP. Strong growth in Qatar's GDP has been accompanied by a substantial increase in the country's population as Exhibit 1 shows. This increased from 744,000 in 2004 to an estimated 1.68 million in 2010, of which approximately 60 percent are low-skill workers[1]. These particular features of Qatar's economy heavily influence the development of the telecom sector, as shown in Sections 3.1 and 3.2.

EXHIBIT 1

Evolution of GDP and population in Qatar, 2004-2010



SOURCE: Qatar Statistics Authority, International Monetary Fund

The telecom sector in Qatar has also experienced significant growth during the past five

[1] Qatar Statistics Authority, Qatar Information Exchange.

years, which encompasses the beginning of market liberalization in 2006 and the arrival of a second public mobile operator in June 2009. Over the period, ictQATAR has put in place a regulatory framework with policies and decisions to facilitate competition in respect of service provision, wholesale access, telecommunications infrastructure, numbering, and spectrum availability, allocation and assignment.

The sector remains dominated by the mobile telecom services market, as this is the only market where much liberalization has so far occurred. The relatively small role played by fixed services compared to international benchmarks may explain why Qatar's telecom industry has made a weaker contribution to GDP and employment than it could have done. Slow development of fixed services is likely to affect the development of adjacent industries (e.g., content and media, healthcare, retail, banking, and insurance) and, consequently, the potential for the Qatari economy to diversify.

ictQATAR has already started to implement ICT initiatives key to the economy's future, with the support of the Qatari Government. These include the Qatar National Broadband Network (QNBN), which is expected to increase government investment in the industry and extend the reach of the fixed telecom sector in the broader economy.

ictQATAR is aware that the telecom sector and its infrastructure represent "new highways" for Qatar and that their development has a multiplier effect on the economy as a whole. Therefore ictQATAR is fully committed to developing the sector so that it continues to play a leading role in enabling the country to achieve its 2030 vision of economic diversification.

3.1 Regulatory Framework

ictQATAR was created pursuant to Decree Law 36 of 2004, and mandated to develop a regulatory framework that constitutes the basis for creating a competitive ICT sector in the country. Telecommunications Law 34 of 2006 is the main legal instrument creating the regulatory framework and it empowers ictQatar to implement the framework. Licensed telecommunications service providers operate market activities within the boundaries of the regulatory framework, which includes Executive By-Law 1 of 2009, and the requirements of their Licenses to provide public fixed and mobile telecommunications networks and services.

Regulatory decisions and policies pursuant to the regulatory framework have been developed and implemented in key areas such as licensing, infrastructure access, interconnection arrangements, numbering, service tariff filing, spectrum management, competition policy, consumer protection, and the importation of technical equipment. These are facilitating the development and liberalization of the sector.

The regulatory framework provides for wholesale access to existing network infrastructure

through unbundling, ducts and network facilities. This is one incentive that could attract new operators to enter the fixed and mobile telecom markets because the access arrangements are designed to allow operators to enter the markets without having to build a complete network of their own, thus reducing their investment costs and time to market. Exhibit 2 provides a brief overview of the legal and regulatory provisions currently in place in Qatar for the fixed and mobile markets. Qatar's regulatory framework has provided a strong pillar supporting the evolution of the country's telecom sector, as explained in the following section.

EXHIBIT 2

Qatar has a modern telecom regulatory framework

	Brief description	Fixed Laws/License Provisions	Mobile Laws/License Provisions
Industry structure	Mechanisms used by ictQATAR to ensure the entry and conduct of players in the market	• Second fixed entrant • VSAT licenses • Use of VoIP is legal • QNBN	• Second mobile entrant • Spectrum allocation • Numbering
Retail pricing	Obligations to ensure retail prices remain above costs as required under Qatar's telecom law	• Ensure retail prices are above costs (only for dominant service providers)	• Ensure retail prices are above costs (only for dominant service providers)
Infrastructure access	Policies regulating infrastructure access obligations and prices of wholesale service according to license obligations	• Wholesale access provisions exist for unbundling, ducts, and network facilities	• Site sharing
Customer access	Mechanisms aimed at facilitating customer access to operators	• Fixed number portability	• Mobile number portability
Performance targets	Quality-of-service standards as per license requirements for operators as a way to ensure service quality levels	• Quality of service requirements • Customer protection (complaints) procedures	• Quality of service requirements • Customer protection (complaints) procedures

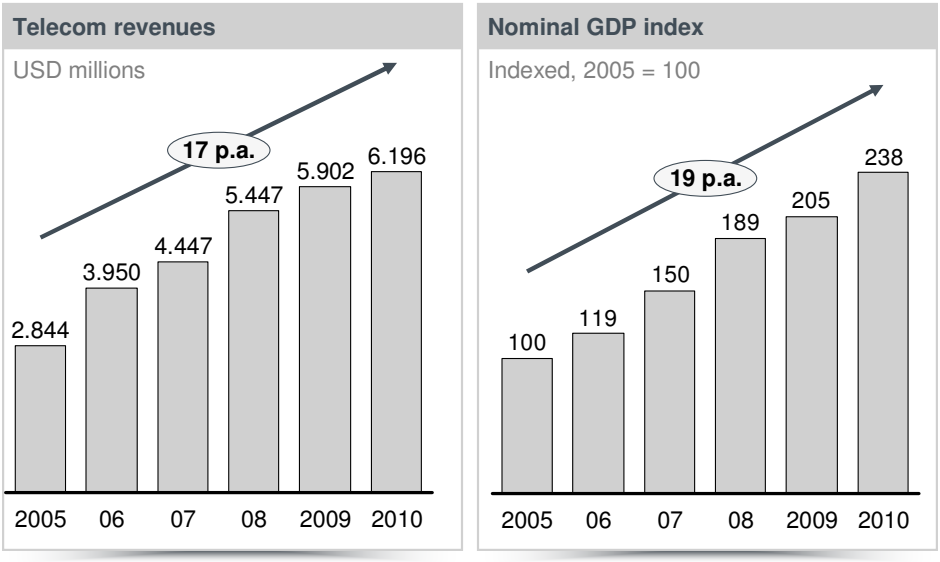
SOURCE: ictQATAR; Telecommunications By-Law; Telecommunications Law 1996

3.2 Industry Evolution

Since 2005, Qatar's telecom sector has grown at an annual average of 17 percent compared to annual GDP growth of 19 percent over the same period (Exhibit 3). This strong growth has been largely supported by simultaneous population growth in Qatar, as mentioned above.

EXHIBIT 3

Telecom sector revenues have grown faster than GDP



SOURCE: Qatar Statistics Authority; International Monetary Fund

In addition, Qatar has moved up 16 places on the World Economic Forum's Network Readiness Index, from 39th in 2006 to 25th in 2011 (Exhibit 4). Several factors have contributed to this progress, including:

- Government readiness: the government readiness indicator measures, among other things, successful government promotion of ICT and government efficiency. On this indicator, Qatar moved from 36th place in 2006 to 2nd in 2011.

- Market environment. On this indicator, which measures the "intensity of local [telecom] competition", Qatar progressed from 67th place in 2006 to 10th in 2011, due to the benefits of introducing liberalization and more competition, supported by a modern regulatory framework.

EXHIBIT 4

Qatar has improved its positioning in global ICT rankings

GCC countries
Improved
Declined

Network Readiness Index (2005 - 06)	
Country	Rank
US	1
Singapore	2
Denmark	3
Iceland	4
Finland	5
Canada	6
Taiwan	7
Sweden	8
Switzerland	9
UK	10
UAE	28
Qatar	39
Kuwait	46
Bahrain	49
Saudi Arabia	NA
Oman	NA

Network Readiness Index (2010 - 11)		
Country	Rank	
Sweden	1	↑
Singapore	2	
Finland	3	↑
Switzerland	4	↑
US	5	↓
Taiwan	6	↑
Denmark	7	↓
Canada	8	↓
Norway	9	↑
Korea	10	↑
UAE	24	↑
Qatar	25	↑
Bahrain	30	↑
Saudi Arabia	33	
Oman	41	
Kuwait	75	↓

Main factors that helped improve Qatar's ranking in the NRI

Government readiness
Large improvement from a ranking of 36 in 2006 to a ranking of 2 in 2011. This was led by strong scores in "Government success in ICT promotion" and "ICT use and government efficiency"

Market environment
The "Intensity of local [telecom] competition" changed from a ranking of 67 in 2006 to 10 in 2011

SOURCE: 2006 and 2011 World Economic Forum Global Information Technology Report

3.3 Sector's Contribution to the Economy

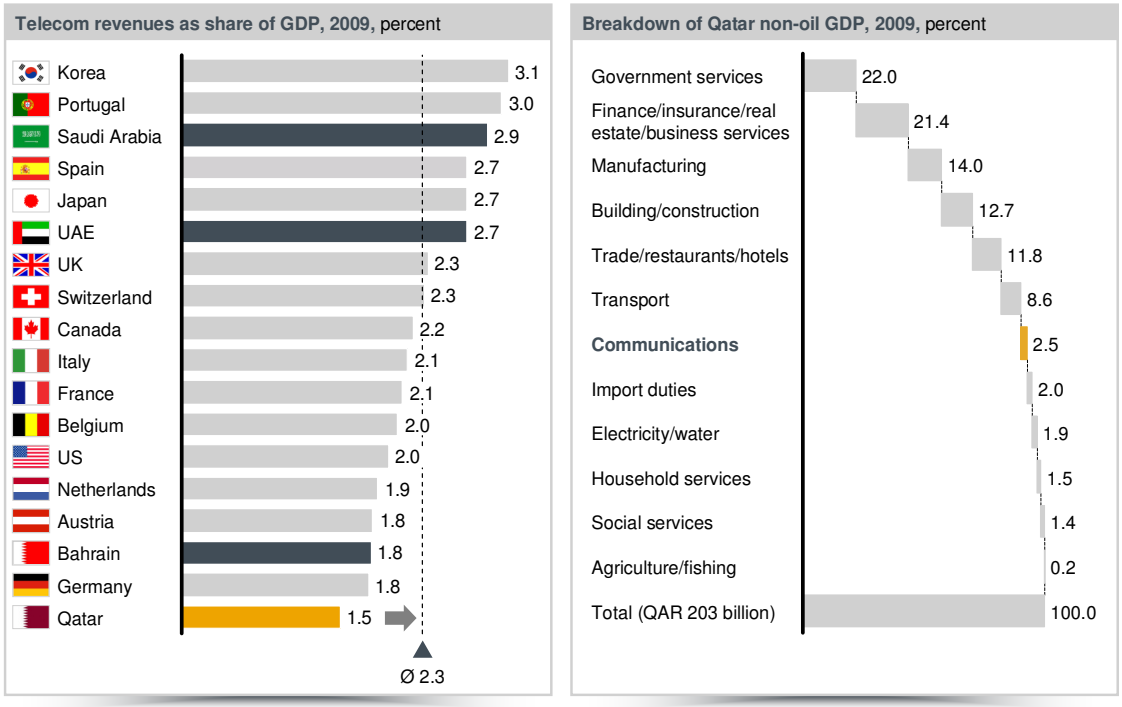
Qatar's telecom sector contributed 1.5 percent to Qatari GDP in 2009, a relatively low proportion compared to the international average of 2.3 percent (Exhibit 5), but explained by the dominant role of the oil and gas sector in the composition of Qatar's GDP. When the effects of the oil and gas sector on GDP are discounted, the telecom sector share of GDP increased to 2.5 percent in 2009, exactly the same as the average share of the telecom sector in GDP in EU15 countries in 1998, when the sector in these countries started to liberalize.

However, neighboring peer countries, such as Saudi Arabia and the UAE, with fairly similar

GDP compositions, have higher-than-average telecom revenues as a share of GDP, at 2.9 percent and 2.7 percent[2] respectively, implying there is a more substantial role for the telecom industry to play in Qatar's GDP.

EXHIBIT 5

Telecom revenues as a percentage of GDP



NOTE: ictQATAR used founding OECD countries, Japan, Korea, and GCC countries for benchmarking wherever data was available and relevant

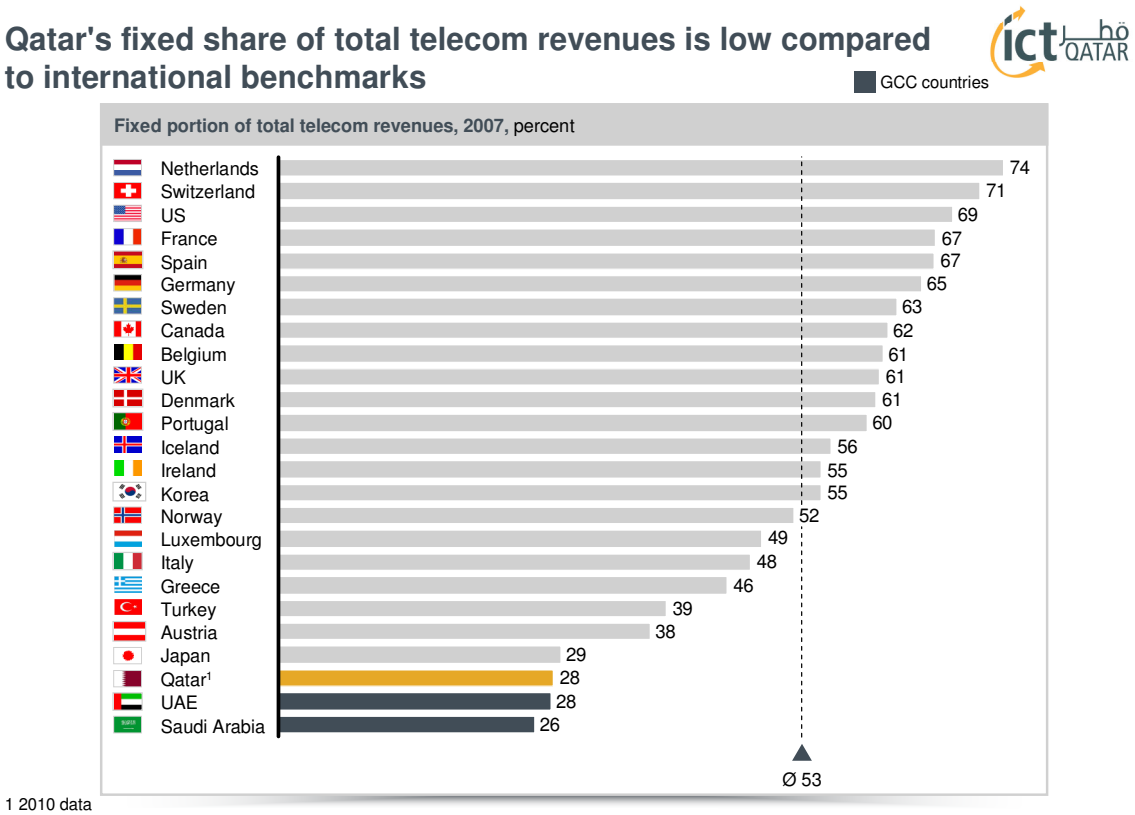
SOURCE: Pyramid Report 2009; Arab Advisors Group; Qatar Statistics Authority; Qatar Information Exchange; Bulletin of Transport & Communications Statistics

One reason for the comparatively low contribution of the telecom sector to GDP in Qatar could be the relatively small part played by the fixed market in the telecom sector overall. Exhibit 6 shows that the share of fixed telecom revenue in total industry revenues in Qatar was around 28 percent in 2009, compared with an international average of 53 percent. One possible reason is that most low-skill laborers are heavy users of mobile services, but other reasons may be the limited competition in fixed telecom and a low uptake of fixed data services in the business segment in Qatar. This implies an opportunity to grow the fixed sector in Qatar to international standards and to enlarge the sector's impact in many

[2] Assumes reporting methodologies for Saudi Arabia and UAE are in line with Pyramid Report 2009 calculations

adjacent industries at the same time.

EXHIBIT 6



1 2010 data
NOTE: ictQATAR used founding OECD countries, Japan, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: OECD; WCIS; Telegeography; CITC

3.4 ICT Initiatives

As stated above, ictQATAR believes that it is imperative to foster the telecom sector's participation in the economy. The telecom sector represents the one of the major roads to achieving Qatar's diversification goals because its developmental impact extends beyond the telecom industry itself to adjacent industries (e.g., content and media, healthcare, retail, banking, and insurance) and the economy as a whole. ictQATAR is therefore fully committed to developing the sector so that it continues to play a leading role in enabling Qatar to achieve its 2030 vision of economic diversification.

To that end, ictQATAR, with the support of the government and various other stake-holders, such as the Supreme Council of Health, Hamad Medical Corporation, Vodafone Qatar, Qtel, and the Qatar Foundation, is undertaking several initiatives to boost the sector's contribution to the economy. These can be divided into initiatives that drive

demand for ICT services and those that will boost supply.

3.4.1 Demand Initiatives

Organizations across the Qatari economy have been working hand in hand with ictQATAR and other government agencies to introduce initiatives that, among other things, will boost demand for telecom services.

3.4.1.1 ICT in Education and Training

In recent years, much work has been done to integrate ICT into all aspects of education and training, whether in schools, universities, government, or business. Qatar has achieved significant success in this regard, and continues to work toward universal ICT literacy as it continues to evolve as an information society.

The availability of PCs to support teaching, learning, and management in primary and secondary schools has improved, with the mean number of PCs per hundred students rising from 12.8 in 2008 to 15.5 in 2010. Personal computers are now increasingly being made available beyond computer laboratories, and are being placed within school libraries. In 2010, 98 percent of primary and secondary schools were connected to the Internet. In addition, 100 percent of post-secondary institutions had Internet access as of 2010. Significant efforts are also underway to train teachers in online technology, and 71 percent had completed ICT-related training by 2010.

The national e-Education program is focused on further building ICT capabilities to enable students, teachers, and schools to realize their full potential and contribute to the development of a 21st-century education system in Qatar through several initiatives, including Knowledge Net.

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

Qatar is working toward empowering all members of Qatar's society, particularly those with physical and societal impediments, to participate in its vibrant workforce through advancements in communications and technology. ictQATAR is implementing a one-year pilot project working with a range of stakeholders including the Ministry of Labor to test the virtual office environment (VOE) concept—providing the infrastructure, training, and support to allow effective work-from-home arrangements. Based on the result of this pilot effort, the Ministry of Labor will explore ways to update relevant labor laws and policies to allow for full-time e-work. Changes in laws and policies have already been implemented for enabling part-time e-work.

Mada, Qatar's Center for Assistive Technology, is collaborating with the Gulf Cooperation Council (GCC), the International Computer Driving License (ICDL), and other content providers to offer a range of learning materials that will address individual needs of people with disabilities.

3.4.1.2 Training Programmes For Capacity Building In The Use Of ICT

The Qatar national e-Learning Portal offers more than 3,000 free online courses to government employees, ICT professionals, and the unemployed in various fields, including business, information technology, human resources, and marketing. These courses also offer training for recent graduates, to assist them in making the transition from school to the workforce. The initiative supports businesses as well. It also enables small and medium enterprises (SMEs) to build in-house capabilities that they might not otherwise have the resources to develop.

In addition to ICT in the field of education, Qatar strives to ensure basic digital literacy for all its people. By 2010, 61 percent of government employees and more than 40 percent of nurses had completed IT training. Qatar aims to develop its population into digital citizens so that they can engage with ICT technologies, not only through access but also through evaluation and participation, making them active contributors to the economic, cultural, and civic life of Qatar.

3.4.1.3 E-Health

Qatar recently unveiled its National Health Strategy 2011–2016, which builds off the Qatar National Vision 2030 and Qatar's National Development Strategy 2011–2016. Qatar National Vision 2030 commits to providing a comprehensive, world-class healthcare system to ensure a population that is healthy, both physically and mentally. The Supreme Council of Health, as the highest authority in healthcare in the State of Qatar, will guide reforms to ensure that the highest international standards of healthcare are met.

The e-Health program is designed to improve overall health in Qatar and deliver the highest quality healthcare by providing the public, patients, and clinicians with appropriate and timely information. The program will use modern information technologies to improve the management and delivery of services. The program's anticipated outcomes include improved quality of care and improved efficiency of processes throughout the healthcare system.

Key initiatives of SHC and HMC include creating a healthcare data warehouse information system to improve management and planning; implementing a high-speed national healthcare network; defining IT standards for the healthcare field to ensure interoperability of systems; developing an advanced electronic health record for all patients in Qatar; deploying

interoperable image-sharing platforms; developing an e-health portal that provides users with health information and services that will empower them to make informed healthcare decisions; and providing ICT training for medical professionals.

Through a recent affiliation agreement with Qatar Foundation's Sidra Medical and Research Center, Weill Cornell Medical College (WCMC-Q) in Qatar will be the primary clinical partner for Qatar's newest academic health center. The 450-bed hospital, which is scheduled to open in 2012, will allow WCMC-Q students to learn the best patient care, using Sidra's advanced technologies, such as robotics, computer-aided surgery and diagnostics, digital imaging, and electronic patient records. Shared expertise, information, and resources are helping WCMC-Q to develop a critical mass in research and avoid redundant efforts. Furthermore, this agreement is contributing to the transfer of knowledge and technologies among workers in Qatar.

Qatar has quickly become a regional hub for robotic surgery with the official opening of Qatar Robotic Surgery Center (QRSC) in April 2010. QRSC develops new surgical technologies and, in partnership with Hamad Medical Corporation (HMC), serves as a training center for doctors and nurses who seek to enhance their knowledge of robotic and minimally invasive surgery.

As of 2010, nearly half (49 percent) of patient data is stored electronically by health organizations. High-priority tasks performed by healthcare professionals on the Internet in 2010 included communicating with colleagues or other health professionals (70 percent), and searching for work-related information (68 percent).

3.4.1.4 E-government

Supporting e-government initiatives by launching a countrywide e-government program in 2006 to increase efficiency, reduce costs, and accelerate interactions with the government while making government services more accessible to citizens. The e-government program is well advanced: by the end of 2008, it offered more than 300 information services and 60 transaction services online.

All these initiatives show the commitment of the Qatari government and ictQATAR to making the benefits of ICT accessible to Qatari citizens and residents as well as fostering demand for telecom services, outcomes that are expected to increase the population's welfare.

3.4.2 Supply Initiatives

ictQATAR has also recently promoted the establishment of the Qatar National Broadband Network (QNBN) to ensure that the supply of fixed telecom services will be able to meet expected customer demand. The QNBN, an independent company from ictQATAR, was assigned substantial resources for the purpose of rolling out a high-speed broadband network in Qatar. The intention is that QNBN will roll out a national passive broadband network with the aim of offering fiber-to-the-home (FTTH) coverage to approximately 95 percent of the households by 2015. The objective of QNBN is to significantly enhance development of the fixed sector and demand for innovative telecommunications services.

4 Strategic Sector Review (SSR)

The SSR team assessed the Qatari telecommunications market's performance from 2006 to 2010 by measuring its progress towards achieving the 13 objectives[3] specified in the Telecommunications Law, grouped into five broad categories as follows:

1. To encourage competition
2. To increase customer benefits
3. To support the health of the industry
4. To create sustainable investment
5. To encourage ubiquitous services.

Our analysis shows the sector has partially achieved most of its objectives. However, the mobile sector accounts for the lion's share of these achievements while the fixed sector has remained a de facto monopoly. The industry is currently healthy, with EBITDA margins of around 48 percent and with growth opportunities in both the fixed and mobile broadband areas. However, revenue growth has slowed considerably. Margins, which were very high before liberalization began, are also on a downward trend and could continue to decrease if there are further declines in national and international call prices.

Sections 4.1 to 4.5 describe our findings in more detail. Each of the subsections below centers on one of the five objectives and has a fixed and mobile element.

4.1 Encouraging Competition

[3] Article 2 of the Telecommunications Law of Qatar defined the following sector objectives:
1. Promoting the telecom sector in order to consolidate national, social, and economic development
2. Enhancing the telecom sector's performance in the State of Qatar by encouraging competition and fostering use of telecom services
3. Encouraging the introduction of advanced and innovative information and telecom technologies to meet the needs of customers and the public
4. Increasing customers' benefits and safeguarding their interests
5. Encouraging sustainable investment in the telecom sector
6. Relying, where possible, on market forces to safeguard the interests of customers and the public
7. Identifying and addressing anticompetitive practices in the telecom sector
8. Establishing a fair, objective, and transparent licensing regime for service providers
9. Establishing a fair regime that meets the requirements of the competitive marketplace by implementing an interconnection between service providers and all procedures related thereto
10. Promoting universal service
11. Establishing an effective approval regime for telecom equipment
12. Ensuring that the regulation of the telecom sector remains in line with international rules and
13. Ensuring the orderly development and regulation of the telecom sector.

Competition has significantly increased in the mobile sector. However, there is still no competition in the fixed market, where Qtel remains the strongest operator despite the issue of the second public fixed license to Vodafone Qatar in April 2010. In addition, it appears that the country's two operators are not yet unlocking potential synergies between their networks.

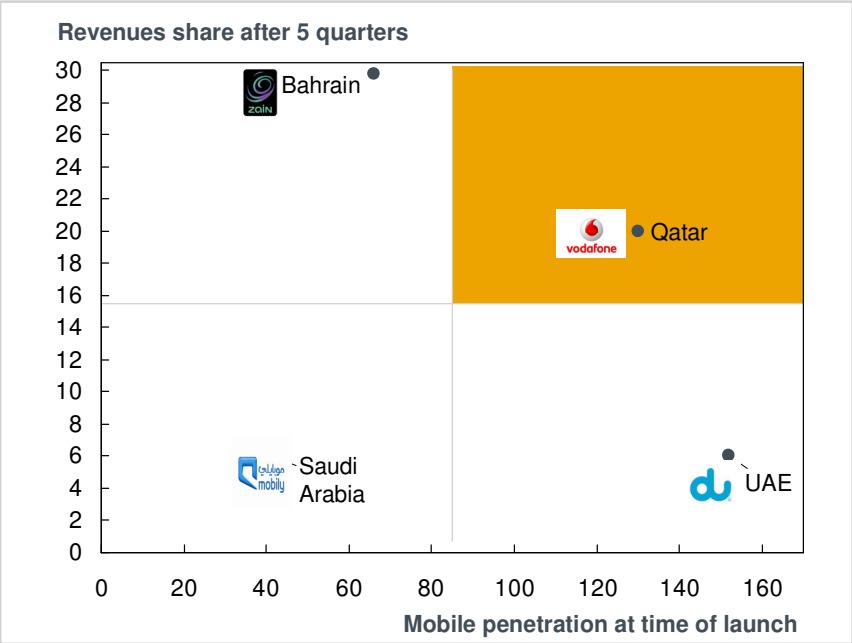
4.1.1 Competition in the Mobile Sector

The Qatari mobile market is now served by two operators with substantial international experience. They bring skilled people and innovative products to the sector. Qtel has operations in more than 16 countries and 66 million subscribers; Vodafone has operations in more than 40 countries and 341 million customers worldwide. Vodafone Qatar received its public mobile license on 29 June 2008 and launched its commercial services in July 2009. It has made significant progress in its first five quarters of operation, despite high numbers of subscribers already in Qatar's mobile markets at the time of its launch. By the end of December 2010, Vodafone had achieved a 24 percent share of mobile revenues by acquiring 711,000 mobile customers. Vodafone achieved these levels of penetration by targeting the previously "underserved" market segment of so-called "blue-collar workers" with tailored pricing and promotions, especially on international calls.

Vodafone's success is shown by comparing the impact of other second- and third-mobile entrants in the GCC. Exhibit 7 displays Vodafone's comparatively high market share in Qatar.

EXHIBIT 7

Revenues 5th quarter after launch vs. mobile market penetration at time of launch

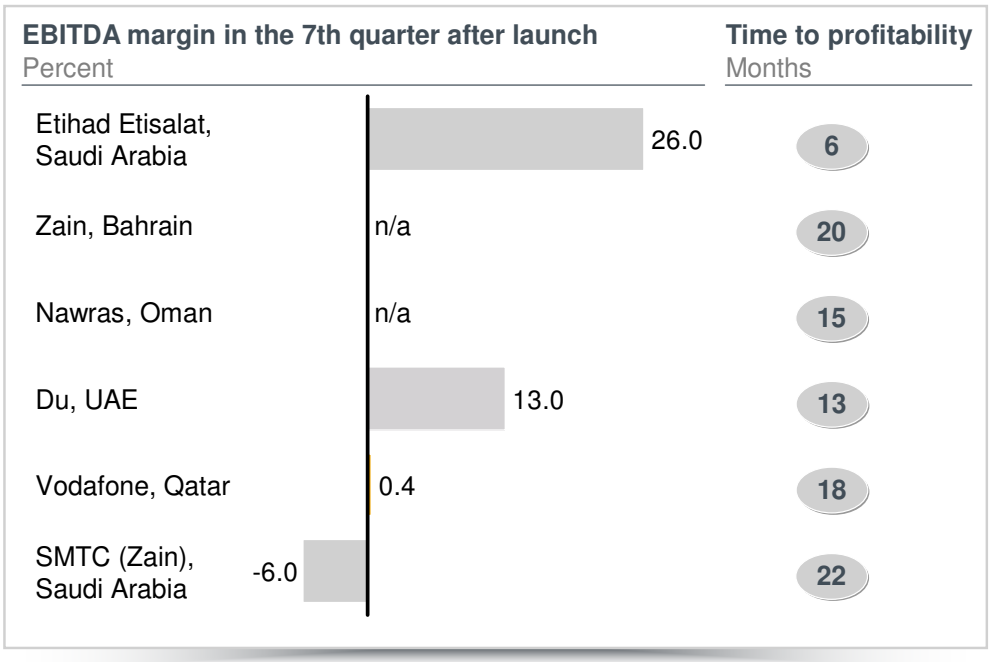


SOURCE: WCIS; company annual report; regulators web sites; wireless matrix

In addition, Vodafone published a positive EBITDA margin of QAR 1 million in the quarter ending in December 2010 (Exhibit 8), approximately 18 months after the launch of its services.

EXHIBIT 8

EBITDA margin in 7th quarter after launch and number of months taken to achieve profitability for a set of telecom players



SOURCE: WCIS; multiple annual reports; Zawya

4.1.2 Competition in the Fixed Sector

Qatar's second public fixed license was issued to Vodafone Qatar on 29 April 2010, nearly two years after Vodafone Qatar received its public mobile license. Some 99 percent of fixed subscriptions, principally fixed voice and broadband, currently belong to Qtel. There has so far, been little competition in the fixed sector, the exception being some competition at The Pearl Development, where Vodafone has started to offer broadband Internet services by accessing the development's fixed infrastructure and using its own mobile infrastructure.

4.1.3 Site Sharing and Rights of Way

Site sharing between operators and awarding rights-of-way to help operators position critical infrastructure in optimal locations are two key facilitators of a competitive telecom market in both mobile and fixed services. Qatar's operators cite limits on their rights-of-way to existing public and private infrastructure, which impede development of the fixed network in Qatar, as one of the main reasons competition in the country's fixed sector is so

underdeveloped.

Site sharing and rights-of-way provide critical benefits for the operators, including reducing capital and operating expenditures. In almost all cases, these cost savings are accompanied by faster deployment, reduced harm to the environment, and better aesthetics. It is important to note that these benefits are passed on to customers, who can expect to gain higher quality of services as well as the lower prices enabled by savings on investment.

The Telecommunications Law and Executive By-Law include provisions covering access to property, site sharing, and rights-of-way. Service providers are entitled to co-locate their equipment on existing sites, such as central offices, land, roof tops, mast sites, towers, ducts, and poles, where co-location is technically and economically feasible. They are required to obtain the consent of the property owner and/or the relevant government entity and are given assistance from ictQATAR when necessary to obtain such approvals.

Following determinations made by ictQatar on access to indoor sites and co-location, Qtel and Vodafone signed indoor and outdoor site sharing agreements in 2009. There have been some obstacles in the way of outdoor site sharing for mobile phone towers. Due to technical and other concerns, some duplicate towers on single sites have been built. By mid-October 2010, a limited number of indoor and outdoor sites in Qatar were shared. Exhibit 9 shows examples of site sharing in Europe, where there is a more developed telecom sector, and where operators in some circumstances are able to share all their civil works, poles, and energy systems. This is the case for Vodafone and Wind in Italy, and for O_2 and Vodafone in the UK. Other operators are sharing fewer sites, among them Telecom Italia and Hutchinson in Italy as well as Orange, 3UK, and T-Mobile in the UK. However, it should be noted that successful site sharing is not ubiquitous in Europe and the practice has yet to be implemented in many European countries. It occurs most often between two market entrants and, at this stage, there is only one market entrant in Qatar - Vodafone. Qatar's two licensed service providers have not finalized agreements for sharing ducts and other civil infrastructure with third parties.

EXHIBIT 9

Site sharing arrangements are used extensively in Europe

Country	Operators	Date	Sites shared
Italy	Vodafone/Wind	2009	Complete sharing of civil works, poles, and energy systems
	TI/Hutchinson	2009	2,000 mobile sites
Spain	O2/Vodafone	2007	2,200 mobile sites
	Telefónica/Yoigo	2007	5-year nationwide agreement
Sweden	Telenor/Tele2	2009	Planned shared rollout of LTE
UK	O2/Vodafone	2009	Sharing of all new 2G and 3G sites
	Orange/3UK/ T-Mobile	2010	15,000 sites

SOURCE: Press releases; Vodafone; McKinsey analysis

Some identified obstacles in the way of implementing site sharing include a lack of building permits, lengthy and opaque processes for obtaining permission to use government land, the choice of cost sharing methodology, and legal issues concerning co-tenancy and subleasing. In addition, operators currently face very high rents for sites in Qatar, usually two to three times higher than European rents for comparable sites. However, there are indications in the market that site sharing is starting to take off as operators recognize the potential savings it offers. They are streamlining their processes and joint working arrangements to ensure Qatar has the best and most efficient mobile network possible. Additionally, the Ministry of Municipality and Urban Planning has also indicated to both operators that it will require more site sharing and camouflaging to avoid duplication of towers and unsightly infrastructure at a site.

ictQATAR has a clear understanding of the obstacles facing infrastructure sharing and will continue to closely monitor developments on this and assist where necessary. ictQATAR also confirms the industry is on track to initiate more site sharing in the near future.

4.2 Increasing Customer Benefits

Before assessing the benefits of competition to the Qatari market, it is important to keep in mind what a typical liberalization process entails. Telecom markets undertaking liberalization usually go through three phases before reaching an established state of competition.

1. **Phase 1 – Pre-competition**

   During this phase there is usually only one operator exercising a monopoly in the telecom market. Compared to markets with established competition, this phase is characterized by higher prices, lower quality of service, low innovation, and less than optimal availability of services.

2. **Phase 2 – Start of competition**

   During this phase, a second operator typically enters the market and starts deploying its network. The newly deployed network usually has lower quality of service – mostly indicated by network quality metrics such as the dropped calls rate – for a variety of reasons, including setbacks in setting up a completely new network and interference between the new entrant and the incumbent's networks. In this phase, the second operator typically focuses on voice services, using pricing tactics to gain customers and penetrate underserved and less profitable segments. Innovation by both operators increases during this phase and the second operator slowly starts to gain higher-value customers.

3. **Phase 3 – Established competition**

   During this phase, prices more or less stabilize, the second operator's average revenues per user increase as it becomes established in high-value market segments, and innovation continues to rise. Quality of service from the second operator usually starts to improve as the second operator has an almost fully deployed network and both operators have become used to the presence of the other's network, so interference is less frequent. Additionally, the second operator starts targeting the highest-value customers by entering additional market segments, such as data services. Realizing this, the incumbent seeks to improve its quality of service to retain its most valuable customers, usually resulting in increased investment and better customer service overall.

The Qatari mobile market is currently in phase two of the typical liberalization process and displays all the benefits and shortfalls of this phase, more or less. Customer benefits in the mobile sector have notably increased since the entry of the second operator.

However, the fixed sector has not yet seen any competition, as it is currently in phase 1. Although 99 percent of households have fixed line coverage, broadband usage and speeds remain low, while broadband prices for both residential and business customers are high by international standards.

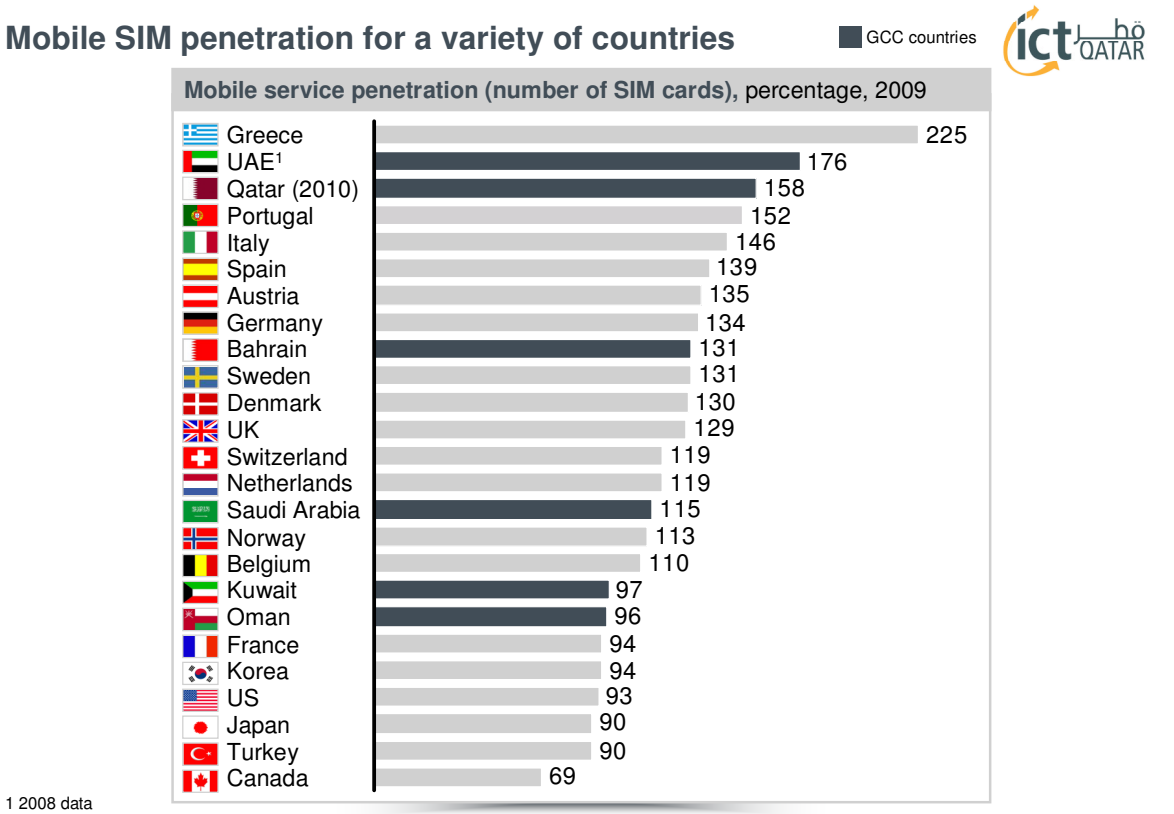
4.2.1 Mobile Customer Benefits

Competition in the mobile sector has begun to benefit customers in terms of greater service availability, price reductions, and innovation. However, quality of service remains an issue in Qatar.

4.2.1.1 Service Availability

Mobile services are readily available in Qatar and mobile penetration rates are among the highest in the world. The market is fairly saturated: with 158 percent penetration in 2010 as measured by active SIM cards per capita, Qatar is the third most deeply penetrated market among the countries shown in Exhibit 10. While similar to market penetration in the UAE, mobile penetration in Qatar far exceeds that in other GCC countries.

EXHIBIT 10



1 2008 data
NOTE: ictQATAR used founding OECD countries, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: Merrill Lynch Wireless Matrix Q1 2010; Arab Advisors Group; ITU; Qatar's ICT landscape 2011

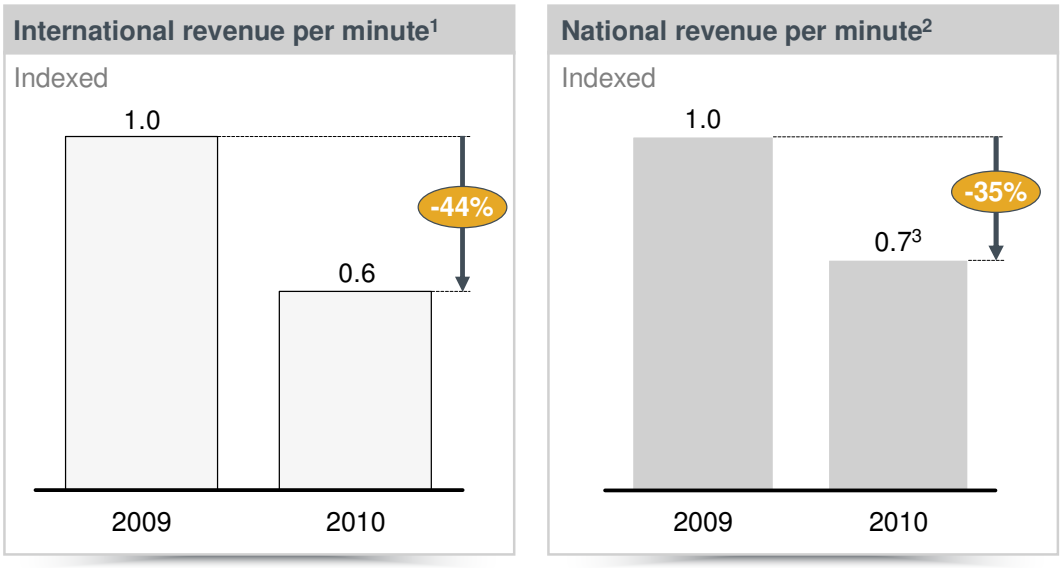
Penetration grew from 110 percent at the end of 2008 to 158 percent in 2010 probably as a result of "double SIMing", since many end-users bought a second SIM card to benefit from the promotions of both operators. In addition, operators have extended penetration in additional market segments of the population, such as blue-collar workers.

4.2.1.2 Prices and Innovation

Consumers are enjoying large declines in call prices on both international and national calls. Since the onset of competition, international voice call revenue per minute (RPM) has fallen by 44 percent and national call RPM has fallen by 35 percent (Exhibit 11). However, in the last few months, Qtel and Vodafone Qatar have increased national calling prices by 16% (off-peak) and 25% respectively, possibly indicating a worrying reversal of the downward price trend.

EXHIBIT 11

Evolution of national and international prices in the past 2 years

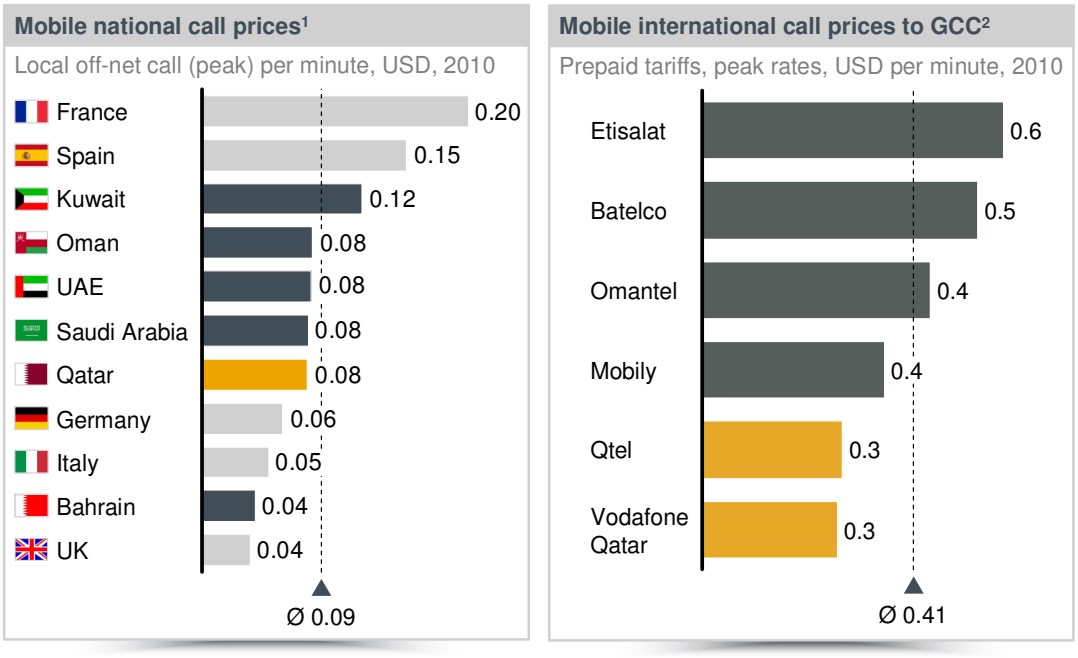


1 All international revenues divided by all international minutes
2 Qtel mobile to mobile on-net, fixed to mobile, and Vodafone on-net and off-net calls
3 Includes Vodafone promotion of free on-net minutes. When taking this promotion out, price becomes USD 16 cents/minute
4 H1 2010
SOURCE: Operators' data

Prices in Qatar are now in line with most international benchmarks, especially for mobile national calls. The average off-network (peak) call price per minute is USD 0.08, as it is in most GCC countries (Exhibit 12).

EXHIBIT 12

National and international call prices for a variety of countries



1 Consumer postpaid plan of incumbent considered; except Kuwait (Wataniya)
2 Incumbent's current tariffs
NOTE: ictQATAR used founding OECD countries, Japan, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: Teligen; operators' web sites; 2009 Qtel annual report

In a similar way, innovation in the mobile market has increased considerably since liberalization started in the telecom market in Qatar, as indicated by the significant increase in the number of different products available to customers. For example, the number of prepaid plans available in the market has gone from one in 2006 to four in 2010.

The market has also seen innovation in the form of new offers, such as Vodafone and Qtel's money transfer services, which allow customers to do international banking transactions using their mobile phones, or Qtel's new prepay top-up method, which includes a facility using Facebook.

4.2.1.3 Quality of Service

Mobile quality of service has been mixed since the launch of competition. Both Qtel and Vodafone are largely but still not fully compliant (Exhibit 13). Vodafone Qatar and Qtel point out that the Quality of Service parameters are very strictly defined, making them challenging for operators to meet in the early stages of their operations. Vodafone Qatar mentions in

particular that problems facing the rollout of its mobile network affect its performance on quality of service parameters because they make it overly reliant on temporary base stations. These temporary base stations need to be maintained more frequently than permanent stations, which in turn affects the quality of service to the customer.

EXHIBIT 13

Mobile quality of service indicators – obligation performance

Parameter	Measure	Performance[1] Qtel Mar 2010-Mar 2011	Performance[1] Vodafone Jul - Sep 2010[2]
• Network call setup success rate	• Network **10% busiest part call setup success** rate at busy hour	✗	Unchanged
• Network dropped call rate	• Network 10% busiest **part dropped call rate** at busy hour	✗	✓
• Network quality	• Percentage of network with adequate call setup and dropped call rates	✗	✗
• Billing correctness complaints	• Percentage of users who issue bill complaint	✓	✗
• Time to resolve billing complaints	• Within 15 working days	✓	Unchanged
	• Within 25 working days	✓	Unchanged
• Network availability	• Percentage of time when 80% of radio capacity is operational	✓	✓
		4 improved 3 worsened	2 improved 2 worsened 3 unchanged

1 Taken by comparing prior to current operator's QoS reports
2 Network call setup success rate complaints are based on customer complaints received by ictQATAR and not on Vodafone Qatar reports.
SOURCE: Operators' Quality of Service Reports

However, it is important to note that similar trends have been observed in other markets during the first year of liberalization. Typically, some of the metrics, especially those related to network quality, deteriorate due to the interference of the incumbent's network with the freshly installed second operator's network. These metrics generally start improving one or two years after the start of competition.

4.2.2 Fixed Customer Benefits

Qatar's fixed market is characterized by very high availability of voice services covering 99 percent of the households. However, in data services the fixed market remains underdeveloped by international standards. Penetration of broadband and broadband speeds

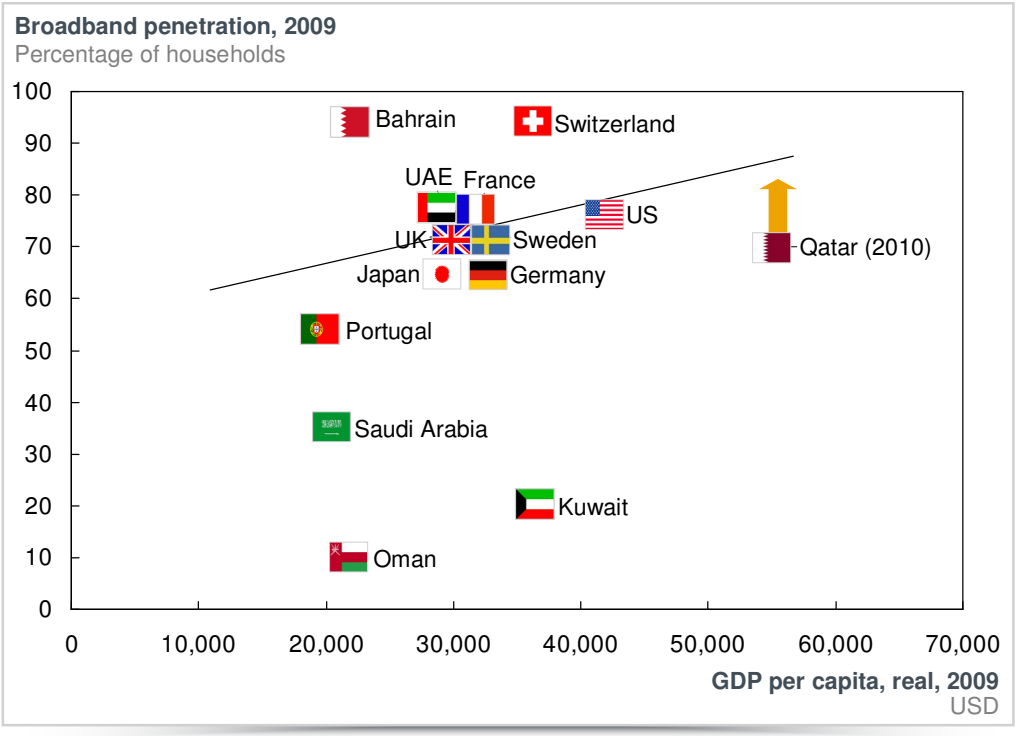
remain low in Qatar, and the costs of services – including residential broadband, fixed broadband, and leased lines – are significantly higher than in peer countries. Moreover, although most of its quality of service indicators improved in the past year, Qtel remains non-compliant with some quality of service requirements. Vodafone Qatar has not yet reported quality of service indicators for its fixed services.

4.2.2.1 Broadband Availability

Qatar's broadband penetration rate of 70 percent, as reported in 2010, is low compared to international benchmarks, especially given its relatively high GDP per capita (Exhibit 14).

EXHIBIT 14

Broadband penetration vs. GDP per capita

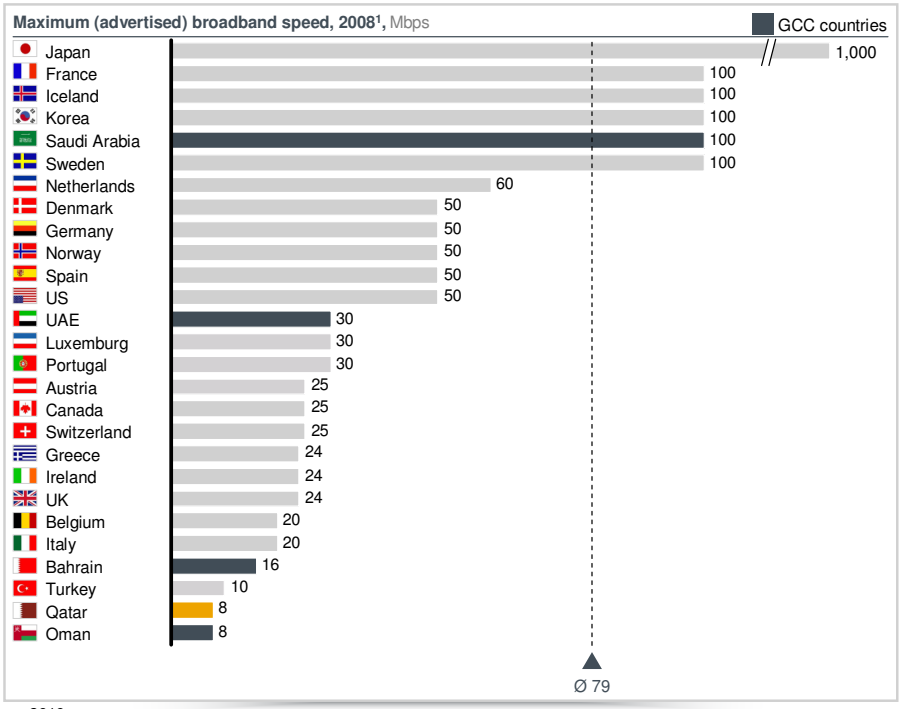


NOTE: ictQATAR used founding OECD countries, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: Pyramid Research; Arab Advisors Group Reports; Point Topic; EIU, Qatar's ICT Landscape 2011

Furthermore, broadband service choices for residential broadband customers are limited to 1 Mbps, 2 Mbps, 4 Mbps, and a maximum speed of 8 Mbps, well below the international benchmark average of 79 Mbps in 2008 (Exhibit 15). Around 90 percent of residential and business broadband subscribers remain on speeds equal or less than 1 Mbps.

EXHIBIT 15

Benchmarking of maximum broadband speed for a variety of countries



1 GCC data is from 2010
NOTE: ictQATAR used founding OECD countries, Japan, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: OECD broadband indicator; operator's Web sites

4.2.2.2 Prices and Innovation

Although residential and business broadband prices are in line with GCC benchmarks, they remain more than twice as high as the average prices in Europe. Qatar's average price for medium speed residential broadband (4 Mbps), at nearly QR 280 per month, is among the lowest in the GCC but more than double the EU15 average of around QR 120 per month (Exhibit 16). The average business broadband price in Qatar is QR 900 per month, in line with GCC benchmarks but over four times the EU15 average of QR 207 per month.

The high cost of international connectivity in Qatar is one factor behind these relatively high broadband prices. This cost should decline with the introduction of additional competition among providers of the international links. Telecom operators in Qatar mentioned high international connectivity costs as one of the key bottlenecks restricting development of the broadband industry and increasing the prices of broadband services to the final customer.

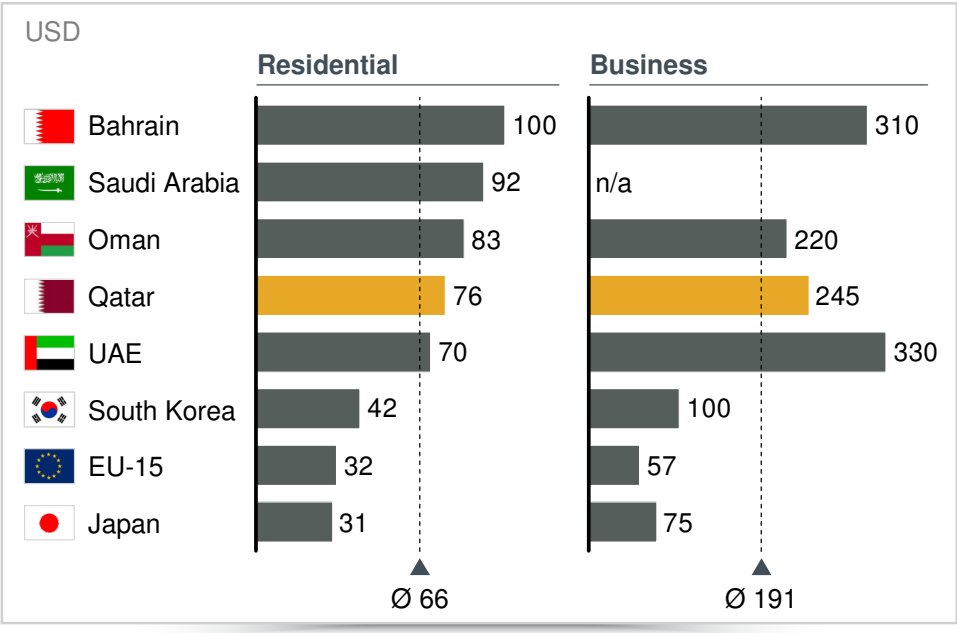
Innovation is low in the fixed broadband market: as noted above, around 90 percent of

customers subscribe to very low speeds (1 Mbps) and the highest speed advertised in the market is 8 Mbps.

EXHIBIT 16

Residential and business broadband prices

Medium-speed (1 - 4 Mbps) broadband services
USD/PPP per month, VAT included, 2010

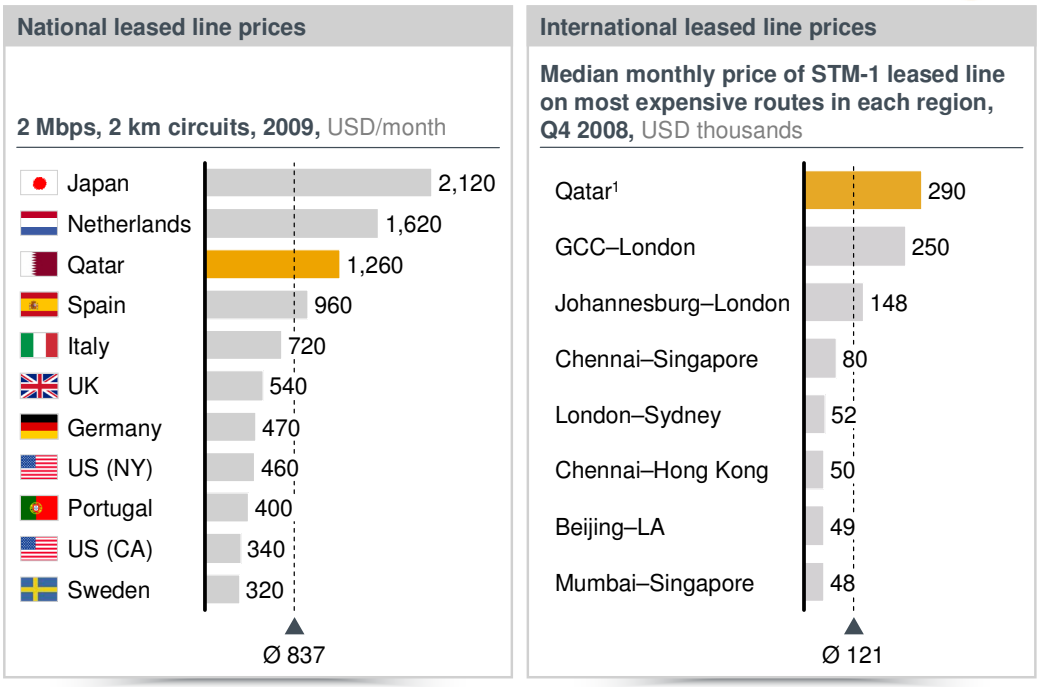


NOTE: ictQATAR used founding OECD countries, Japan, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: OECD broadband indicator; operators' web sites; Technology Policy Institute

Leased line prices in Qatar are also higher than international benchmarks. In 2009, the price for a basic leased line of 2 Mbps on 2 kilometer circuits in Qatar was USD 1,260 per month (app. QR 4,570), over USD 500 (app. QR 1,800) greater than the benchmark average of USD 731 (app. QR 2,650). The high prices are also seen in the international leased line market. The cost of a Synchronous Transport Module level 1 (SMT-1) international leased line in Qatar is around USD 290,000 (app. QR 1.0 million) compared to a benchmarked average of USD 121,000 (app. QR 440,000) (Exhibit 17).

EXHIBIT 17

Local and international leased line prices



1 International SMT-1 leased line price for Qatar taken from Qtel service tariffs application 101 published in ictQATAR's Web site. Price includes half circuit only, and no international destination is specified

NOTE: ictQATAR used founding OECD countries, Japan, Korea, and GCC countries for benchmarking wherever data was available and relevant

SOURCE: Progress Report on the Single European Electronic Communications Market (15th report); ictQATAR; Telegeography

4.2.2.3 Quality of Service

Quality of service for Qtel has on the whole improved in the fixed sector, with 26 quality metrics showing an improvement between October 2009 and September 2010 while five showed a decline. However, quality of service still needs to improve significantly since 20 of the 30 indicators monitored do not yet comply with the operator's license obligations (Exhibit 18). These indicators are only shown for Qtel as Vodafone Qatar has not yet filed a quality of service report for its fixed services.

EXHIBIT 18

Fixed quality of service indicators – Qtel only

✓ Compliant/improved
✗ Noncompliant/worsened
M Monitoring
U Uncharged
n/a Not available

	Parameter	Measure	Obligation compliant[1]	Improvement[2] (2009 - 10)
Fixed voice	Supply time for initial telephone line connection	• Within 5 working days	✗	✓
		• Within 9 (5 + 4) working days	✗	✓
	Fault rate	• Faults/access line/year	✗	✓
	Fault repair time	• Faults fixed < 24 hours	✗	✓
		• Faults fixed < 72 hours	✗	✓
	Successful call ratio	• National calls	✓	✗
		• International calls	✓	✓
	Call setup time	• Mean value national calls (sec)	M	U
		• Mean value international calls (sec)	M	✗
	Bill correctness complaints	• Bill complaints/subscriber	✓	✓
	Time to resolve billing complaints	• Within 20 business days	✗	✓
		• Within 30 business days	✗	✓
	Availability of tel. exchange equipment	• In service time/total time	✓	U
	Availability of access network	• In service time/total time	✓	✗
Broad-band	Supply time for initial broadband line connection	• Within 10 working days	✓	✓
		• Within 15 (10+5) working days	✗	✓
	End-to-end network availability	• Time in service/total time	✓	✗
	Minimum access throughput	• Minimum access speed within 4 km	✓	U
	Fault rate	• Faults/access line/year	✗	✓
	Fault repair time	• Fixed within 24 hours	✗	✓
		• Fixed within 72 hours	✗	✓
	Customer service support	• Complaints/100 subscribers	✓	✓
	Bill correctness complaints	• Bill complaints/100 subscribers	✓	✗
	Time to resolve billing complaints	• Within 20 business days	✗	✓
		• Within 30 business days	✓	✓
	Network latency	• Round trip delay	✓	✓
	Bandwidth utilization	• Highest bandwidth utilization	✓	✓
Leased lines	Availability	• Minutes availability/total minutes	✓	✓
	Provisioning time	• Percentage of L.L. provided within client timeline	✓	n/a
	Mean time to repair (hours)	• (Total hours to repair faults/total L.L. faults reported)	✓	✓

1 2010 average
2 Measured from October 2009 to September 2010
SOURCE: Operators' Quality of Service Reports

4.3 Health of the Industry

The telecommunications industry in Qatar remains healthy after a period of strong revenue growth. However, quarterly revenue growth has slowed since the end of 2009. EBITDA margins have also been falling from their very high levels before liberalization in 2007. Although they remain well above those seen in more advanced telecom markets, they are below those observed in other GCC countries. Margins may fall further if there are more reductions in national and international call prices, potentially putting investments at risk.

Despite this risk, ictQATAR believes the telecom sector in Qatar has substantial opportunities for growth in mobile data and fixed broadband services.

4.3.1 State of the Sector

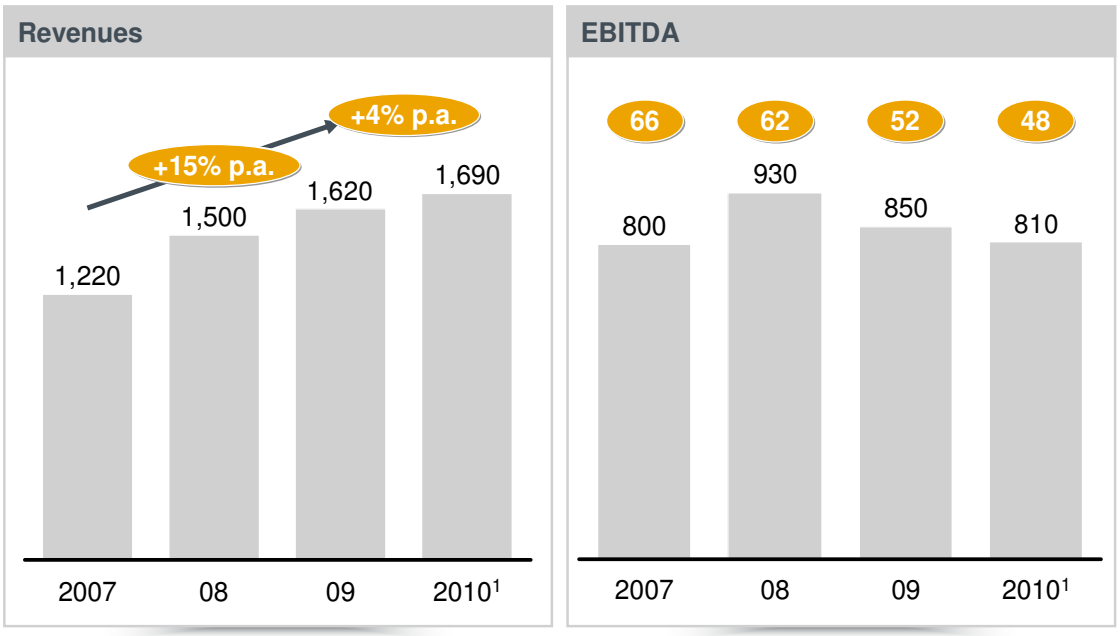
Revenue growth may have slowed and profit margins significantly reduced but the market remains healthy, with considerable profit margins that exceed European averages. Since the

start of competition, the market's revenue growth has slowed from 15 percent per annum between 2007 and 2009 to 4 percent per annum in 2010, and EBITDA margins have declined to 48 percent in 2010 from their very high preliberalization level of 66 percent in 2007 (Exhibit 19).

EXHIBIT 19

Evolution of Qatar's telecom revenues and EBITDA margins

Total industry, USD millions



1 Extrapolated from H1 2010

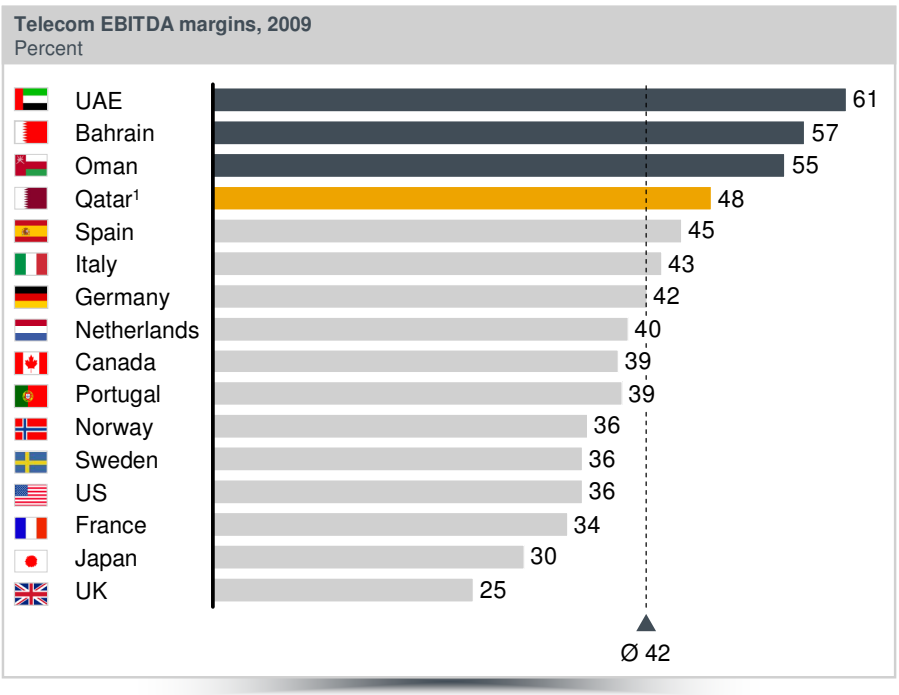
SOURCE: Qtel data request; Qtel annual reports; Arab Advisors Group

Although such declines are significant and prices in Qatar are below the GCC averages, EBITDA margins are still markedly higher than those seen in selected peer countries in 2009 (Exhibit 20). In 1997, when Europe's telecom sector was at a similar stage of liberalization, the average EBITDA margin for major European incumbents was substantially lower, at 43 percent. This was one year after the liberalization of the mobile industry in Europe and one

year before the fixed telecom market opened to competition[4].

EXHIBIT 20

Benchmarking of EBITDA margins of telecom markets for a variety of countries



1 2010 data
Note: ictQATAR used founding OECD countries, Japan, Korea, and the GCC countries for benchmarking wherever they were available and relevant
SOURCE: Bloomberg; Merrill Lynch Wireless Matrix and Wireline Matrix; Arab Advisors Group

4.3.2 Risks and Opportunities

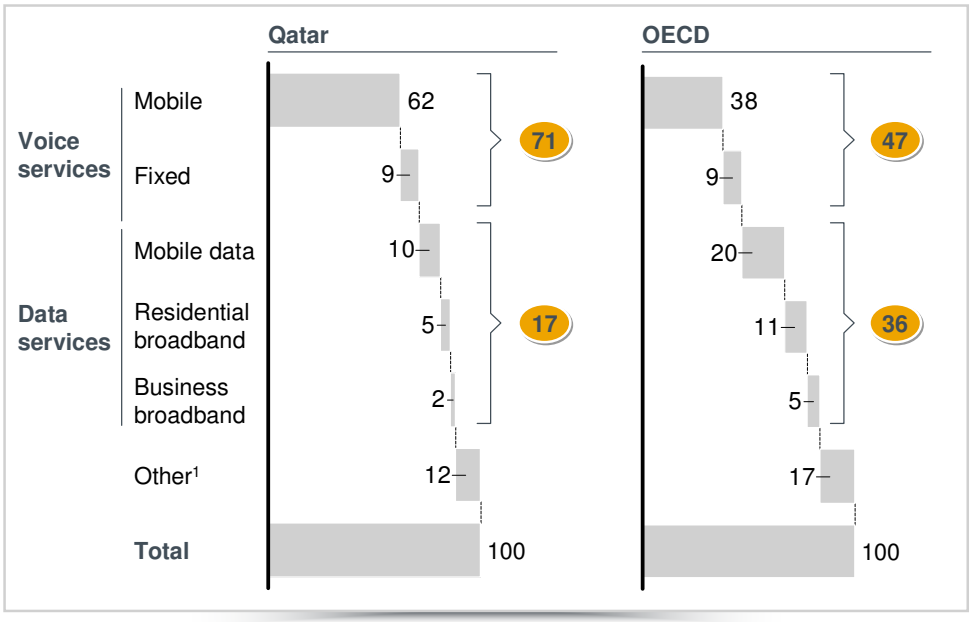
Qatar's telecom revenues are heavily skewed towards international voice services, where prices have declined considerably in the past two years. If this trend continues, margins will continue to decline. On the other hand, several market segments, in particular fixed and mobile data services, remain underdeveloped and could represent room for future industry growth (Exhibit 21). Currently these services represent 17 percent of the revenues in Qatar compared to 36 percent in OECD countries.

[4] EBITDA incumbent average includes fixed and mobile services for: British Telecom, Deutsche Telekom, France Telecom, Koninklijke PTT Nederland (KPN), Portugal Telecom, TeleDenmark, Telecom Italia, Telefónica, and Swisscom. Goldman Sachs, Pan-European Telecoms Report, August 1999.

EXHIBIT 21

Breakdown of telecom revenues for Qatar and for the average of OECD countries

Revenues breakdown, 2010, percent



1 Includes Internet data services, cable TV, calling card, discounts, and fixed value-added services
SOURCE: Pyramid research; Operators' data

4.3.2.1 Industry Risks

71 percent of industry revenues are currently generated by voice services, as shown in Exhibit 22. This makes the two operators highly vulnerable to any declines in call prices. As described above, national and international RPMs have declined by between 35 and 44 percent since the start of competition and could fall even further.

In addition, operators expressed their concern regarding their ability to plan and build mobile and fixed network infrastructure given the limited access they have to civil infrastructure and rights of way for new mobile sites and fixed roll-out. This will ultimately impede their ability to deploy efficient networks and limit their ability to compete in the future.

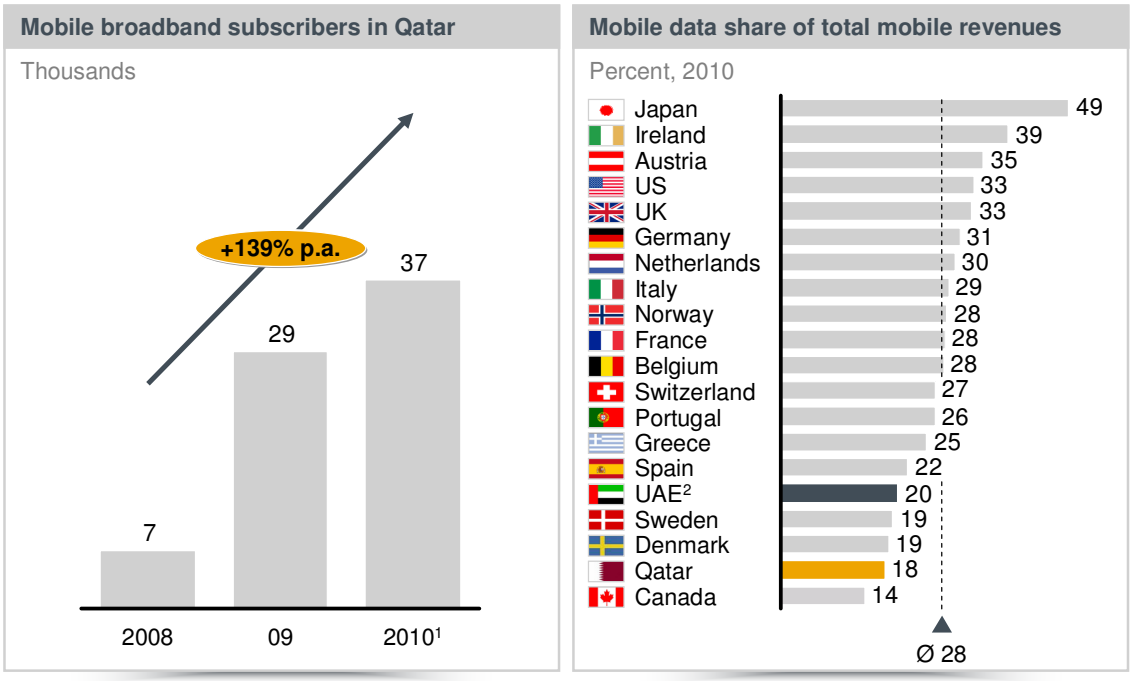
4.3.2.2 Industry Opportunities

Although growth in the voice area has slowed, there are other growth opportunities available to Qatari telecom operators that could promote industry health. One such

opportunity is the mobile data market. This has boomed in the past two years, with a 139 percent average annual increase in the number of mobile broadband subscribers since 2008. The market will continue to expand with the advent of new applications, such as social networking and mobile TV, and lower prices for mobile data handsets. A similar boom has occurred in the rest of the world. However, the share of mobile data revenues in total mobile revenues is still lower in Qatar than in developed nations, signaling room for further growth in the Qatari mobile data market (Exhibit 22).

EXHIBIT 22

Mobile data subscribers and share of total mobile revenues



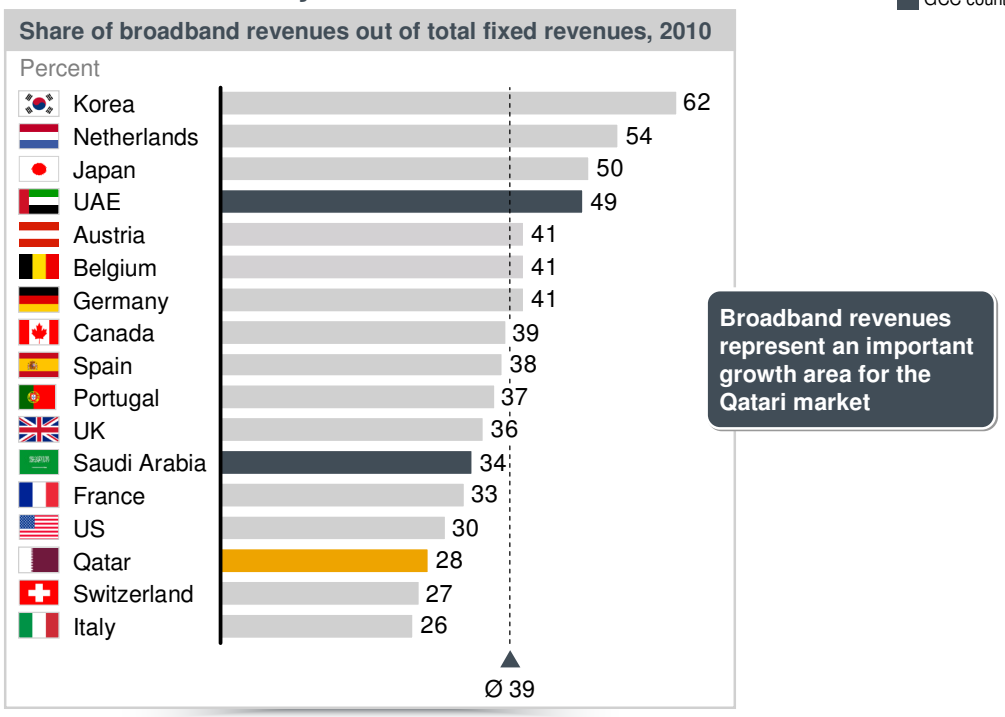
1 Annualized figure 2 Etisalat only
NOTE: ictQATAR used founding OECD countries, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: Operators' data; Pyramid research

Broadband represents a second growth opportunity, this time in the fixed sector. As shown in Exhibit 23, the share of broadband in total fixed telecom revenues in Qatar is not only lower than the OECD average but also lower than in peer GCC nations such as the UAE and Saudi Arabia, where broadband revenues account for 49 and 34 percent of the countries' 2010 total fixed revenues respectively (Exhibit 24); Qatar's total broadband revenues account for only 28 percent of its total fixed revenues, mainly because of the high price of broadband services and the lack of competition in this market. These factors limit

service uptake in both the residential and business segments.

EXHIBIT 23

Benchmarking of broadband revenues as a percentage of total fixed revenues for a variety of countries



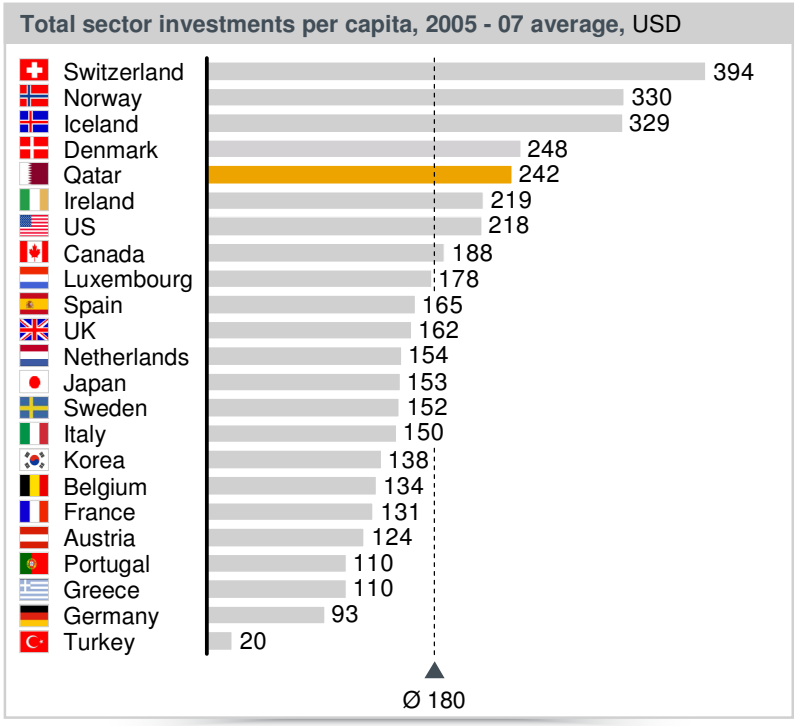
NOTE: ictQATAR used founding OECD countries, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: Pyramid Report Q1 2010; operators' financial reports

4.4 Investment Levels

Telecommunications investments in Qatar have sharply increased since 2006 and Qatar is now near the top of the OECD league table in investments per capita (Exhibit 24). This rise has been fueled mainly by a threefold increase in mobile market investments as a consequence of the start of liberalization, the increased competition in the sector and population growth.

EXHIBIT 24

Benchmarking of telecom investments per capita for a variety of countries



NOTE: ictQATAR used founding OECD countries, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: OECD; Arab Advisors Qatar Telecom Market Landscape, April 2010

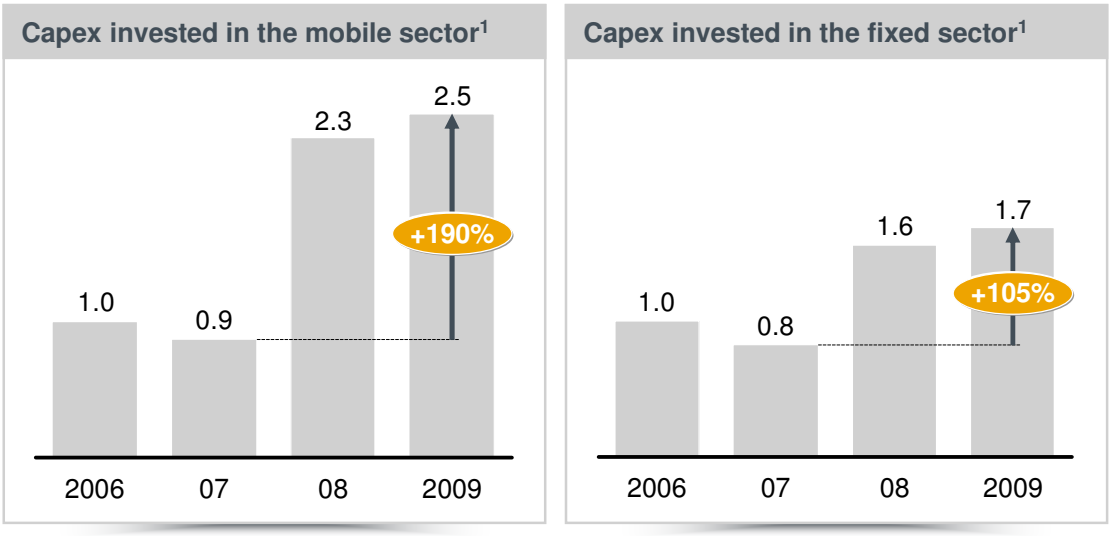
4.4.1 Mobile Investments

Mobile investments in Qatar have increased by 190 percent between 2007 and 2009, mainly driven by Vodafone's need to set up its network in the two years since its market entry and additional investments in network upgrades by Qtel (Exhibit 25).

EXHIBIT 25

Capex investments in the fixed and mobile sectors in Qatar

Index



1 Excludes licenses and property
SOURCE: Arab Advisors Qatar Telecom Market Landscape, April 2010; operators' data

4.4.2 Fixed Investments

Capital expenditures have also increased in the fixed sector, although not at the same pace as in the mobile sector. Fixed sector capex investments increased by 105 percent between 2007 and 2009 (Exhibit 25).

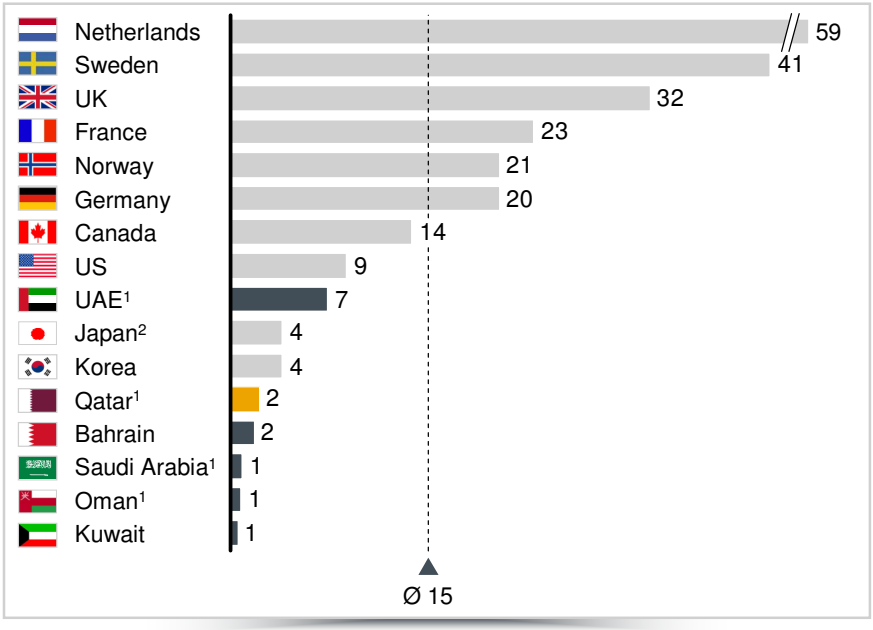
Qatar is in line with its GCC peers in terms of international connectivity speeds, measured in kbps per capita, but significantly lags Europe and the United States on this measure (Exhibit 26). However, international connectivity speeds and capacity in Qatar are likely to improve significantly given current investments by the government in two landmark projects. First is the Eshail Satellite (USD 300 million), expected to be launched in 2012 in response to Qatar's demand for content applications that are growing in popularity elsewhere in the Middle East and North Africa, such as video broadcasting, enterprise communications, and government services. Second is the Gulf Bridge International (USD 445 million), a submarine fiber cable project that will provide extra capacity for international connectivity to telecom

operators and Internet service providers in Qatar and the Gulf region. This project will become operational in 2011.

EXHIBIT 26

Benchmarking of per capita international data capacity for a variety of countries

Kbps per capita, 2006 - 07 averages



1 2006 - 09 averages
2 2006 - 08 averages
NOTE: ictQATAR used founding OECD countries, Korea, and GCC countries for benchmarking wherever data was available and relevant
SOURCE: ITU

4.5 Availability of Services

Telecommunications services are widely available in Qatar with mobile voice/data and fixed services covering a very large share of the population.

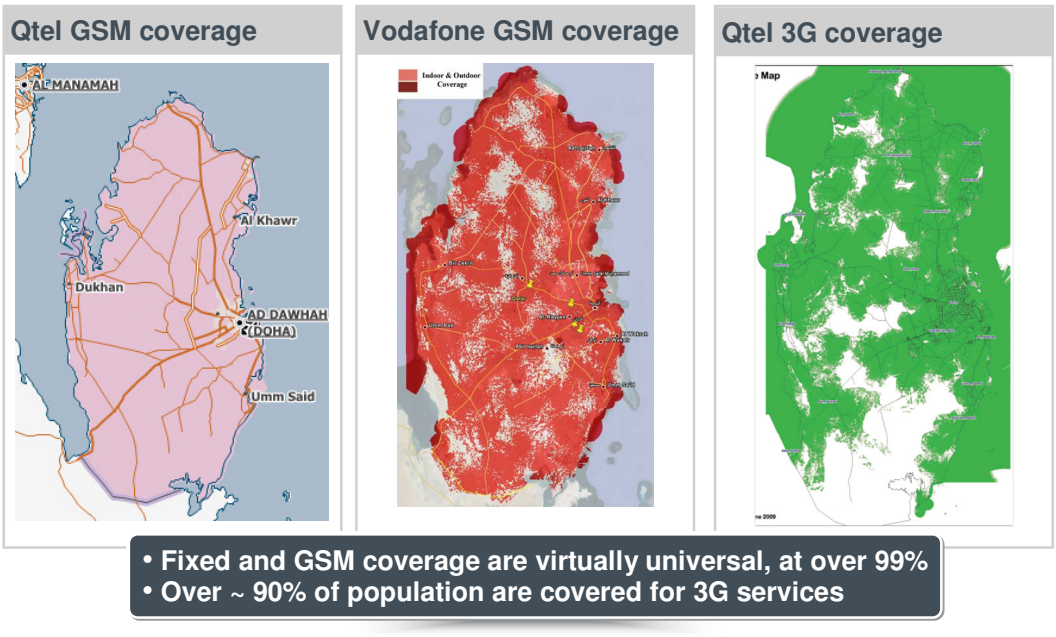
4.5.1 Service Coverage

Qatar has a very high fixed and mobile coverage, reflecting its highly concentrated population. Mobile and fixed voice and broadband services cover 99 percent of the country's population, and 3G services more than 90 percent (Exhibit 27). Almost anyone who wants a fixed or mobile connection in Qatar can have one.

EXHIBIT 27

Fixed and mobile network coverage in Qatar

Area network coverage



SOURCE: GSM World; World Trade Press; Qtel Web site; ictQATAR; Vodafone Web site

4.5.2 Future Products and Technologies

Qatari mobile operators have been improving their services by bringing some of the latest products and technologies into the national mobile market. These include:

- Mobile data products: broadband/dongle, hot spots, and roaming mobile Internet
- Mobile handsets: iPhone 4, BlackBerry, Samsung Galaxy
- Mobile applications/products: navigation/tracking, mobile TV, bulk SMS, money transfers, and music streaming

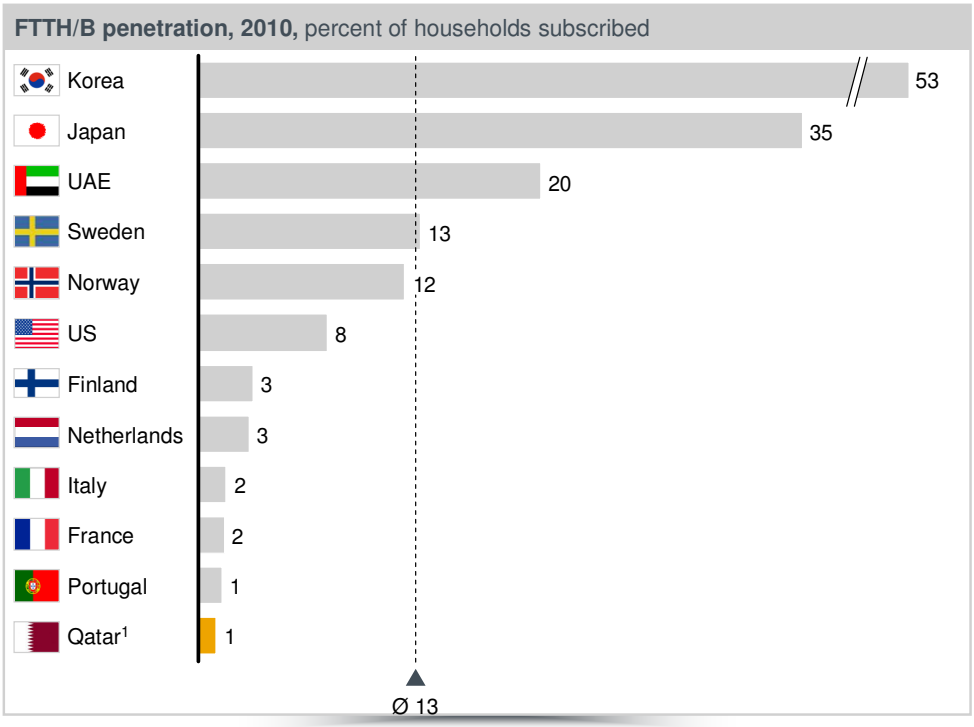
Regarding future technologies, operators are planning to introduce Long-Term Evolution (LTE) to the Qatari telecom market as soon as 2012.

In contrast, the fixed sector has not taken up new technology as fast as the mobile sector. Exhibit 28 shows that the number of subscribers with access to fiber technology, currently

considered the most technically advanced in the fixed sector, is very low in Qatar compared to benchmarked countries. However, this situation may be changing. Qtel recently announced a strategic alliance with Chinese equipment vendor Huawei to roll out a next-generation high-speed broadband access network primarily based on Fiber-to-the-Home (FTTH) with Gigabit Passive Optical Network (GPON) technology[5].

EXHIBIT 28

Fiber subscription in Qatar lags behind peer countries



NOTE: ictQATAR used founding OECD countries, Japan, Korea, and GCC countries for benchmarking wherever data was available and relevant
1 Qatar's penetration rate is based on 2,500 fiber subscriptions reported
Source: FTTH Council September 2010, ITU

[5] Gulf Times, Roll-Out for Qatar's New Fibre Network, September 29, 2010.

5 Strategic Sector Review - Conclusions

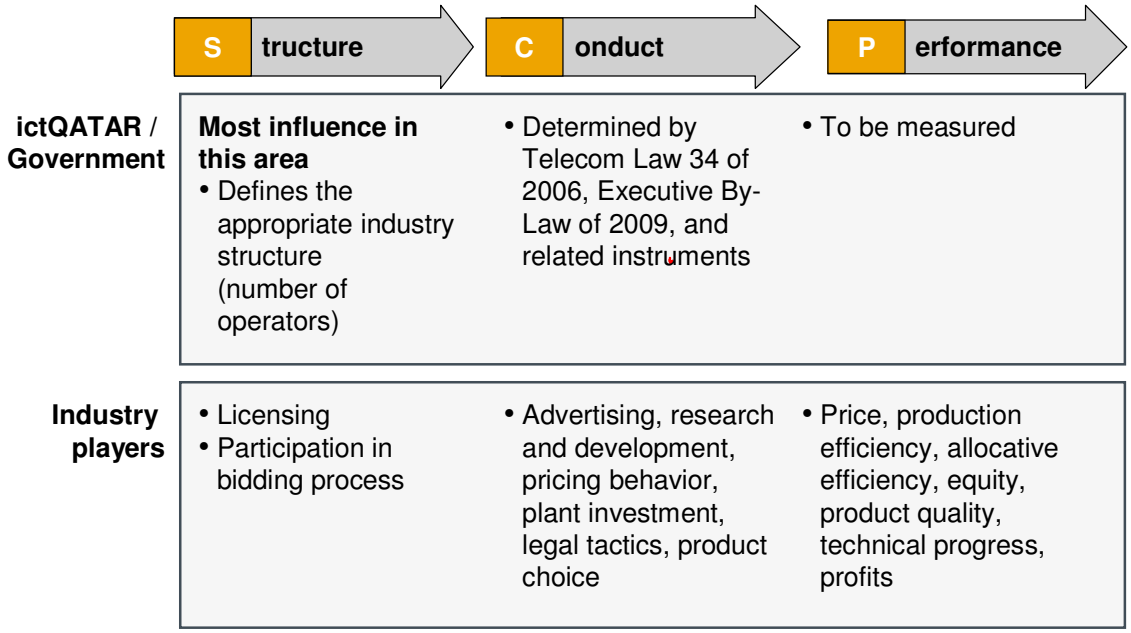
This section provides the conclusions of the Strategic Sector Review. The conclusions incorporate perspectives received from industry stakeholders who replied to our consultation request of February 20, 2011. We believe implementing these conclusions over the next 6-12 months will guarantee continued successful development of the telecommunications sector in Qatar.

It is important to remind industry stakeholders of the roles of the State of Qatar and ictQATAR, and the extent of their influence on the industry's structure, conduct and performance (exhibit 29). The State of Qatar and ictQATAR can influence the structure of the market by defining the number of players that will participate in the sector and the basis of competition among them. Under infrastructure-based competition, new players may enter the market by building their own infrastructure, while under service-based competition, new players may compete using the incumbent's network infrastructure to deliver bitstream and resale type services. The State of Qatar and ictQATAR can also influence, but to a lesser extent, the competitive conduct and performance of players by settling disputes between operators and ensuring the appropriate protection of consumers.

Telecom operators become part of the industry structure by acquiring operating licenses, and they shape the conduct of competition by determining prices, quality of service, product offerings, new technology uptake and branding, and also by advertising their services. The conduct of competition in turn determines the performance levels of the industry indicated by profitability and investments.

EXHIBIT 29

ictQATAR's role in the telecommunications industry



Source: ictQATAR

5.1 Conclusions - Mobile Market

The mobile market in Qatar has enjoyed the expected benefits of competition to a significant extent since Vodafone Qatar started operations in mid-2009. Prices for mobile services have fallen, customers have gained from more innovation in the market, and the second operator has captured around 25% share of the market revenues. Against this background, and taking into account concerns raised by the operators during the consultation process, ictQATAR believes that the main decisions of the SSR relate to the possible entry of a new mobile player, the price approval process, improvement in the quality of services, and facilitating access to property. Spectrum policy, which is also important for the mobile sector, was recently addressed in a separate consultation process. Therefore these conclusions will not address spectrum policy to avoid duplicating work and potentially confusing industry stakeholders. IctQATAR feels that, at this stage, there is little need to review other policies already in place.

Drawing on its assessment of the mobile market and the industry stakeholders' responses to the SSR consultation, ictQATAR's conclusions are as follows:.

- **Conclusion 1**
  No introduction of a third mobile operator in the coming year. However, ictQATAR will closely monitor the market (especially price and quality of service levels) for mobile telecommunications services to assess whether competition is moving forward and will conduct a new assessment within a year from now to decide whether to introduce another mobile licensed operator into the market. This conclusion is supported by the following arguments:

  – Introducing a third operator now could threaten the financial health of the existing operators as well as the overall industry, while providing no substantial additional consumer benefits at this time.

  – Vodafone has not had enough time to establish its business, especially in the postpaid market.

  – Expected benefits from competition, such as reduced prices, improved availability, and more customer choice, are already beginning to be captured in Qatar. However, ictQATAR needs to monitor prices in the light of recent rises in national call prices introduced by both Qtel and Vodafone Qatar.

  – Key quality of service indicators are moving in the right direction. However, the mobile market in Qatar still needs consistently to improve its quality of service.

- **Conclusion 2**
  Maintain the current tariff approval requirement as it is an integral part of the operators' obligations and required by law in Qatar.
  ictQATAR is aware, that the swift approval of tariffs is important for a vibrant market place and has committed considerable resources for this. Therefore around a third of tariff approval requests are approved within 2 days and half of the submitted tariff approval requests are approved within a week. Around 80% of tariff approval requests are prepared according to the regulatory framework and can be approved by ictQATAR. However, ictQATAR will revise its internal tariff approval process to make it more efficient.

  – ictQATAR will continue to monitor prices closely to ensure they remain above costs.

  – Responses to the consultation highlighted important process bottlenecks that operators face in the current tariff approval process.

- **Conclusion 3**
  Publish quality of service results periodically on ictQATAR's website.

  – Quality of service remains an issue for the mobile industry as a whole, with operators struggling to fulfill all quality of service indicators set out in their licences.

- **Conclusion 4**
  Continue ictQATAR's support to Qtel and Vodafone Qatar in gaining access to rights of way and civil infrastructure, so they can roll out their networks faster.

  – ictQATAR is already working with the Ministry of Municipality and Urban Planning (MMUP) to accelerate the processes for gaining access to civil infrastructure and rights of way.

  – Commercial negotiations for infrastructure sharing are encouraged and already underway, with the support of ictQATAR. The regulatory authority will continue to assist operators in case of a dispute or request for access or interconnection determination.

5.2 Conclusions - Fixed Market

Competition in Qatar's fixed market is barely apparent since Vodafone Qatar received its fixed license in April 2010. Vodafone has started to provide fixed services at The Pearl Qatar area only. Consequently, at present, Qtel still has most of the fixed broadband subscribers and all of the fixed voice subscribers in Qatar. ictQATAR believes the main policy decisions raised by this situation concern stimulating competition in the fixed sector. At this stage, we feel there is little need to review other policies and legal requirements concerning rollout that are already in place.

Based on its assessment of the fixed market and responses received from industry stakeholders in the SSR consultation, ictQATAR believes that it should implement the following conclusions in order to stimulate competition in the fixed market:

- **Conclusion 5**
  Implementation of the QNBN initiative by the State of Qatar in cooperation with existing telecommunications networks and service providers but not in competition with them.

  – The QNBN will create more infrastructure-based supply at the passive layer of the

network, and will facilitate further service-based competition by licensed operators at the network's retail level.

- The QNBN will deliver wider network coverage and bring state-of-the-art FTTH networks to 95 percent of Qatar's households. This will be critical to achieving Qatar's goal of offering a broadband connection to everyone.

- **Conclusion 6**
  Investigate and start procedures for the introduction of a new fixed service-based provider in Qatar within one year to improve competition in the fixed market.

  - A new fixed service provider will encourage competition in the market, especially in the business sector, and improve customer benefits in the short term.

  - This new operator will also foster the development of new fixed services and encourage investments.

6 Definitions

The words and expressions used in this consultation document shall have the meanings set out below. If the definition of a word is not covered below, please refer to the Telecommunications Executive By-Law of the State of Qatar, 2009, Chapter 1, Article 1, and the Telecommunications Law of Qatar, 2006, Chapter 1, Article 1, for a formal definition.

Active subscribers: SIM cards that have been used in the past 90 days. An individual may have multiple SIM cards.

Average revenue per user (ARPU): measures the average monthly revenue generated by each customer.

Broadband penetration: is understood as fixed broadband penetration only.

Carrier pre-selection (CPS): is a mechanism that allows end users to select in advance alternative communications providers to carry their calls without having to dial a prefix or install any special equipment at their premises. The end user subscribes to the services of one or more CPS operators (CPSOs) and chooses the type of calls (e.g., all national calls) to be carried by them. The end user may have a direct retail relationship with the CPSO or may purchase the service via a CPS reseller. The end user is billed for these calls by the CPSO or CPS reseller.

Carrier select (CS): the process whereby a telephone subscriber whose telephone line is maintained by one company, usually a former monopoly provider, can choose to have some of their calls automatically routed across a different telephone company's network by entering a special code or using special equipment.

Earnings before interest taxes depreciation and amortization (EBITDA): an approximate measure of a company's operating cash flow based on data from the company's income statement. The EBITDA margin is calculated as the ratio of earnings to total revenue before interest expenses, taxes, depreciation, and amortization have been deducted from the earnings figure.

Gulf Cooperation Council (GCC): the countries represented in the Gulf Cooperation Council are: Bahrain, Kuwait, Qatar, Oman, Saudi Arabia, and the UAE.

Gross domestic product (GDP): the market value of all final goods and services produced within the borders of a single country within a year.

Megabits per second (Mbps): a measure of the information-carrying capacity of a circuit, i.e., its data transfer rate, expressed in millions of bits per second.

Network readiness index (NRI): published every year by the Global Information Technology Report of the World Economic Forum, the NRI identifies the most relevant factors facilitating ICT readiness in 133 countries and ranks the countries accordingly, allowing comparison.

Organisation for Economic Co-operation and Development (OECD): the Organisation for Economic Co-operation and Development is an international economic organization founded in 1961 to stimulate economic progress and world trade. It has 33 members, all of them developed countries.

Postpaid mobile subscriber: refers to a mobile subscriber subject to contractual agreement between the subscriber and the service provider.

Prepaid mobile subscriber: refers to a mobile subscriber who is not subject to monthly fee or contract.

Qatar National Broadband Network (QNBN): the high-speed national broadband network that the Government of Qatar is planning to build.

Revenue per minute (RPM): measures the actual revenue per minute of a telecom company. It is obtained by dividing the company's total voice revenues over a given period by the total number of minutes consumed by customers over the period.

Rights of way: permission given to a service provider to deploy telecom infrastructure on land belonging to another party, to facilitate telecom infrastructure deployment.

Site sharing: process allowing mobile telecom operators to share their civil infrastructure with the objective of reducing operators' deployment costs and giving them access to prime transmission sites.

Synchronous Transport Module Level 1 (STM-1): transmission standard used within fiber optic cables with capacity of 155 megabits per second

Total sector revenues: operators' revenues earned from offering fixed or mobile services in Qatar. National operators' revenues earned abroad are excluded from this calculation.

Value-added tax (VAT): a consumption tax levied at the end of each stage of production based on the value added to the product within each stage.

Worldwide Interoperability for Microwave Access (WiMAX): refers to a set of telecom technologies that provide broadband wireless access to the carrier network based upon the harmonized IEEE 802.16/ETSI HiperMAN standard.

Workforce: total number of people of working age employed or actively seeking employment within a specific industry.

Very small aperture terminal (VSAT): VSATs provide interactive or receive-only telecommunications to end user premises, generally via geostationary satellites. VSAT-based systems are used extensively to provide last-mile connectivity in remote areas or areas where other technologies cannot provide services. VSAT services can be classified as one-way services, which are mostly direct-to-home (DTH) television services, and two-way services, which include normal voice, fax, and data connectivity, access to Internet services and the WWW, and the provision of connectivity to cellular networks so that mobile GSM services can remain active even in remote areas.