

**Communications
Regulatory Authority**
State of Qatar

**هيئة تنظيم
الاتصالات**
دولة قطر



2018
ANNUAL REPORT

Communications
Regulatory Authority
State of Qatar

هيئة تنظيم
الاتصالات
دولة قطر

2018

ANNUAL REPORT



His Highness

Sheikh Tamim Bin Hamad Al Thani

Emir of the State of Qatar



His Highness

Sheikh Hamad Bin Khalifa Al Thani

Father Emir

Table of Content

MINISTER'S MESSAGE	06
PRESIDENT'S MESSAGE	08
INTRODUCTION	12
CRA NUMBERS AT A GLANCE	16
EMBRACING TECHNICAL INNOVATION	28
MEETING CUSTOMER DEMANDS	50
SHAPING A COMPETITIVE SECTOR	58
A DISTINGUISHED PROGRAM OF EVENTS AND AWARDS IN 2018	66
UNLEASHING THE POTENTIAL OF QATAR'S TELECOM SECTOR	72





H.E. JASSIM SAIF AHMED AL SULAITI
MINISTER OF TRANSPORT AND
COMMUNICATIONS

Minister's Message

Working Together for a Smartly Connected Qatar

One of the most illustrious years since its inception, 2018 saw the Communications Regulatory Authority (CRA) sparing no efforts in delivering the highest standard of regulatory services to all stakeholders – telecommunication consumers, service providers, and the wider industry. We administer a regulatory framework that exceeds international standards for consistency and transparency, one that furthers the Qatar National Vision 2030 goal of a connected digital economy for the State of Qatar.

The telecom sector in Qatar is in excellent health. A fixed line network covers almost the entire country, and a fiber optic network covers 90 percent of Qatar's households. Consumers are benefiting from internet connection speeds that are, on average, the highest in the region. Exceptional digital and internet penetration rates are helping to push Qatar to the top in global social media penetration.


International accolades continue to reward these accomplishments. Qatar has achieved a ranking of second in the world on the Global Mobile Engagement Index and the first among Arab countries. Consistently outstanding achievements put Qatar on the cusp of becoming one of the world's first 'smart nations'.

Fostering a dynamic service delivery environment to facilitate the efforts of service providers to introduce new technologies to Qatar is at the heart of our program of works. In 2018, these efforts saw formal testing of pre-standard networks for 5G technology, and work to deploy standard commercial networks, begin. Both service providers have now begun to test and deploy 5G networks, putting Qatar in the lead globally, for the full roll out of the next generation of technology. This major achievement has highlighted the value of joining efforts with industry players to build a smartly connected Qatar.

The availability of advanced network services and high-speed internet in Qatar means the need for secure telecom networks is more important than ever. Consumers and business users are aware of nascent cyber threats and rightfully demand that service providers secure their networks.

With the support of strategic partners, we will continue to expand our reach across all communities in Qatar through cyber safety awareness programs, to encourage society to embrace responsible and ethical online behaviors. We also expect to see cybersecurity measures evolving to meet the requirements for a secure 5G network.

Looking ahead to a busy 2019, we are in the process of establishing a robust Quality of Service Framework that will ensure that the services provided to telecom consumers in Qatar continue to be among the best in the world.



Expansions to the Automated Spectrum Monitoring System and the Automated Frequency Management System will begin in earnest in 2019. The two systems are key for us to manage and monitor the use of radio spectrum in Qatar, especially for sectors such as oil and gas, aviation, maritime, and infrastructure development.

These initiatives will boost the overall performance of government entities through the use of advanced and innovative technologies, and benefit both the economy and our communities.

I would like to thank CRA's employees and management team for their many noteworthy individual contributions and continuing commitment, and to all stakeholders for collaborating with us to accomplish our objectives. We anticipate another successful year ahead, where we build on the momentum generated in the last few years and continue to nurture investment, innovations, and new business models in the telecom market.



H.E. MOHAMMED ALI AL-MANNAI
PRESIDENT OF COMMUNICATIONS
REGULATORY AUTHORITY

President's Message

Advancing the Evolution of Qatar's Telecom Services

For 2018, we are proud to report outstanding performance of its mandate and remarkable achievements that will greatly benefit the sector in the long-term and in turn our valued telecom consumers.

We play a crucial role in Qatar's national development agenda, with regulatory responsibility over the nation's key ICT sector, which includes the telecommunications and postal sectors. As levers of growth and innovation, each constitutes a key contributor to the Qatar National Vision 2030 of a diversified digital economy for Qatar and we aim to deliver the necessary support to enable their strategic contribution to the nation's development. The growth of diverse areas in the telecom sector continues to exceed expectations, and such a positive development will enhance the consumer experience through the availability of smart, high quality services.

In terms of revenue and market share, 2018 was another stable year for the telecom sector. In keeping with Qatar's objective to achieve economic diversification, our program continues to foster opportunities for the ICT sector to make an even greater impact on the country's gross domestic product (GDP).

Consistent with our mandate to support fair market competition, during 2018 we undertook consultations with service providers and stakeholders on areas of concern relating to

regulations and competition practices. Amended orders were introduced for allowing the fixed number portability, an important facility that supports fair competition by encouraging consumers' choice in respect of service providers. We also published retail tariff instructions for individually licensed service providers, which apply to fixed and mobile services offered across the different telecom segments. Reflecting on our numerous achievements in 2018, our considerable efforts towards improved infrastructure and network modernization have shown encouraging results in the area of next generation technology. In mid-2018, both mobile service providers began to test and deploy 5G networks. We are continuing to support the service providers to roll out the 5G network so that consumers can benefit from these innovative commercial services in the near future. Having achieved outstanding internet and digital penetration rates in Qatar, we will continue to focus on the availability of integrated smart technology, ahead of the 2022 FIFA World Cup. Providing fast connectivity and interactive experiences will be crucial to offering a unique event experience for visitors.

A smooth transition to Internet Protocol Version 6 (IPv6), which we are currently managing, will enable higher internet security and enhance the availability of a robust connectivity across Qatar. The transition is also vital for the roll out of advanced next generation technologies for smart living and smart cities. With a digitally savvy population highly responsive to the capabilities of a robust mobile network, we see boundless opportunities ahead for Qatari firms to make the natural transition to an Internet of Things (IoT) that uses existing mobile infrastructure to introduce new platforms and efficiencies to Qatari society.

The deployment of 5G technology will greatly encourage the further evolution and expansion of IoT services, and will allow more IoT devices to come online.

Another exciting opportunity exists in the form of cloud technology, which offers several benefits; one being reducing capital expenditure on infrastructure. Our leadership believes there is room for this technology to be more widely exploited by small and medium size businesses. Facilitating access for new technologies demands the efficient utilization of the country's spectrum resources, which we are effectively managing to meet the high demand for spectrum services by service providers.

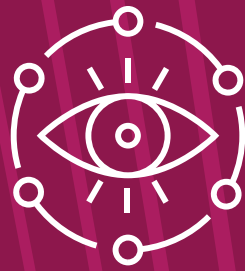
An impressive 29 percent growth in internationalized domain names is the result of our ongoing brand awareness and publicity campaigns. We will continue to enhance the corporate image of the country code top level domain .qa and (قطر) and build awareness among businesses and individuals that choosing a Qatar-specific domain to establish their online presence, offers the greatest opportunity to proudly identify as being uniquely Qatar. Bolstering our efforts to improve consumer experiences, we have begun to implement a comprehensive complaint management system to manage telecom-related consumer complaints. We have connected the system with the CRA website, Arsel mobile app, email, and social media, to directly capture consumer complaints and inquiries and manage them through an integrated complaint handling process. By adopting a comprehensive and integrated approach, we are confident of improving the consumer experience while continuing to monitor service provider performance. Educating consumers on how to use the complaint

management system was part of our outreach programs to engage consumers in 2018.

Strengthening cooperation with service providers and a wide range of stakeholders in the ICT industry, both in Qatar and globally remains an important objective. In 2018, we made important contributions at international forums including Telecom World 2018 in South Africa, where our leadership introduced a number of exceptional Qatari technology innovations to an international platform. We will continue to build on our partnerships with key international stakeholders and industry leaders with a view to being able to adopt sound and informed regulatory instruments and policies in line with international best practices. Effectively regulating the postal sector will continue to be an important area from a consumer protection perspective. In 2019, we will continue to develop regulatory instruments in preparation for our future regulatory role. These will take into account the current growth in ecommerce, and will cover international couriers and their role in ecommerce.

I extend my sincere appreciation to the Minister, all the CRA Departments, the service providers, and stakeholders for their enduring support, hard work, and commitment to excellence in their work. I trust we will continue our important work in the spirit of cooperation and mutual trust to ensure a telecom sector that drives the economic and social development of Qatar.

Vision



**Qatar - a smart connected nation,
enabled through effective and innovative
ICT and postal regulation.**

Mission



To enable the development of a digital society and the postal sector for the social and economic benefit of Qatar, through a forward looking, transparent, and consistent regulatory framework.



To foster sustainable competition to promote a fair market place and improve customer experience through the ubiquitous availability of smart, innovative, and high quality services.



To continue building our institutional capabilities through investing in and developing our staff, expertise, and resources.

Introduction

A prolific and triumphant 2018 saw CRA industriously delivering on our mandate to ensure the telecom, ICT, and postal sectors are competitive, efficient, and responsive to the national development agenda.

We continue to successfully implement programs that enable the growth of diverse areas in the telecom sector, and improve the consumer experience through the availability of smart, high quality services - goals that are embedded on the pillars of the Qatar National Vision 2030.

During the year under review, major policy updates saw us grant Ooredoo and Vodafone temporary spectrum licenses on a non-commercial, non-exclusive basis to trial and demonstrate the 5G mobile network, using 100 MHz for each operator on the 3.5 GHz frequency band.

A new Retail Tariff Instruction (RTI) issued in November 2018 allows for the introduction of new tariffs and promotions targeting specific sectors or customer segments. For fixed line services, non-dominant service providers like Vodafone Qatar and Qatar National Broadband Network (QNBN) will have lower obligations than the dominant service provider, Ooredoo. The approach was chosen by CRA as a regulatory best practice to encourage the competition in the fixed market. An extension of the term of the license of Vodafone Qatar for the provision of public mobile telecommunications networks and services was approved, for forty years.

We also approved the provision of internet services on board aircraft at all altitudes, through an amendment to the Class License for the Provision of Public Telecommunications Services On-Board Aircraft. This effectively puts in place gate-to-gate internet connectivity on board aircraft. Consistent with its consultative approach in its regulatory activities, we conducted rigorous public consultations with service providers, stakeholders, and other interested parties during the policy development. In keeping with global technical standards, restrictions remains in place for mobile voice, data, and SMS services on board aircraft flying below 3,000 meters.

Wholesale charges for access to ducts and interconnection of the networks were also consulted with the service providers and set for the years 2018, 2019 and 2020 aligning the new approved wholesale charges aligned with the international benchmark. During 2018, we sourced, analyzed and consolidated a database of all the CRA regulatory instruments currently in force. Importantly, the database will be used to extract obligations from all the valid Instruments which shall be used in the development of a compliance and enforcement framework. This work is expected to be completed in 2019. World Consumer Rights Day 2018 on 15 March 2018 was an important occasion for us to assume the role of educator to consumers, to raise awareness of their rights and responsibilities in using telecom services. We also published various consumer awareness alerts throughout the year, including advising consumers on ways to avoid unexpectedly high roaming bill and data charges during international travels, as well as how to protect themselves from fraudulent activity.

These exemplary efforts led to a significant decrease in consumer grievances and we view this as a positive achievement in the areas of consumer protection. Coinciding with World Postal Day on 09 October 2018, we successfully brought together international, regional, and local stakeholders for the first high-level international forum for the postal sector. The issues and challenges in regulating postal services from a consumer protection perspective came under focus.

The Projects and Plans 2019 section of the report outlines the advanced initiatives moving forward, including the development of a telecommunications master plan to support and meet the Qatar National Vision 2030 goals. We will continue our leadership of the 5G consortium of service providers, government, and non-government entities for the rollout of the 5G network across Qatar. We will also continue to manage the transition to Internet Protocol version 6 (IPv6) in Qatar. Raising awareness of the internationalized domain under .قطر TLD (Top Level Domain) was a key focus of our social media campaigns in 2018 and a key success was the significant growth in internationalized domain names.

These and other notable successes of 2018 will serve to embolden us to amplify our future efforts to continue delivering the highest standard of regulatory services. The Courts of Qatar have confirmed also, while dismissing cases against CRA decisions, that the approach taken by the CRA in developing regulations is transparent, fair, and always bearing in mind the interest of the public. To date our activities and programs have helped steer the telecom sector on its journey along the path of achieving the Qatar National Vision 2030 goal of developing into a sustainable digital society. We will keep focusing on regulation that creates new opportunities for service providers to offer better and more innovative services that meet clear performance obligations. Balancing those with effective consumer protective efforts will see Qatar's telecom sector remain in the lead both in the region and globally.

The following pages cover all the key developments over 2018, as well as insights and a look ahead to an exciting 2019 for our teams.

Historical Timeline

2006

- Telecom law was issued

2004

- ictQATAR is established

2008

- Vodafone Qatar is issued Mobile License

2007

- Liberalized telecommunications sector
- Ooredoo is issued Fixed and Mobile Telecommunications Licenses

2012

- Passive Fixed Telecommunications Networks and Services License issued to QNBN
- Licenses were issued to RigNet Qatar W.L.L, QSAT Communications and Harris Salam to provide authorized Very Small Aperture Terminal (VSAT) Networks and Services

2010

- Vodafone Qatar is issued Fixed Telecommunications License

2014

- CRA was established
- Mobile Site Sharing Instruction is issued
- Regulatory Accounting System is issued to Ooredoo
- CRA shifted the focus to wholesale regulation
- Mobile Site Sharing Instruction is issued

2013

- A public satellite license is issued to communications satellite operator headquartered in Doha, Es'hailSat, to provide independent, high-quality, advanced satellite services to broadcasters, businesses and governments in the MENA region and beyond.
- National Broadband Plan is issued

2017

- Some provisions of the Telecommunications Law were amended to strengthen the enforcement powers of CRA
- Competition Framework is issued
- Completely synergize relationships via premier niche markets. Professionally cultivate one-to-one customer service with robust ideas. Dynamically innovate resource-leveling customer service for state of the art customer service.

2015

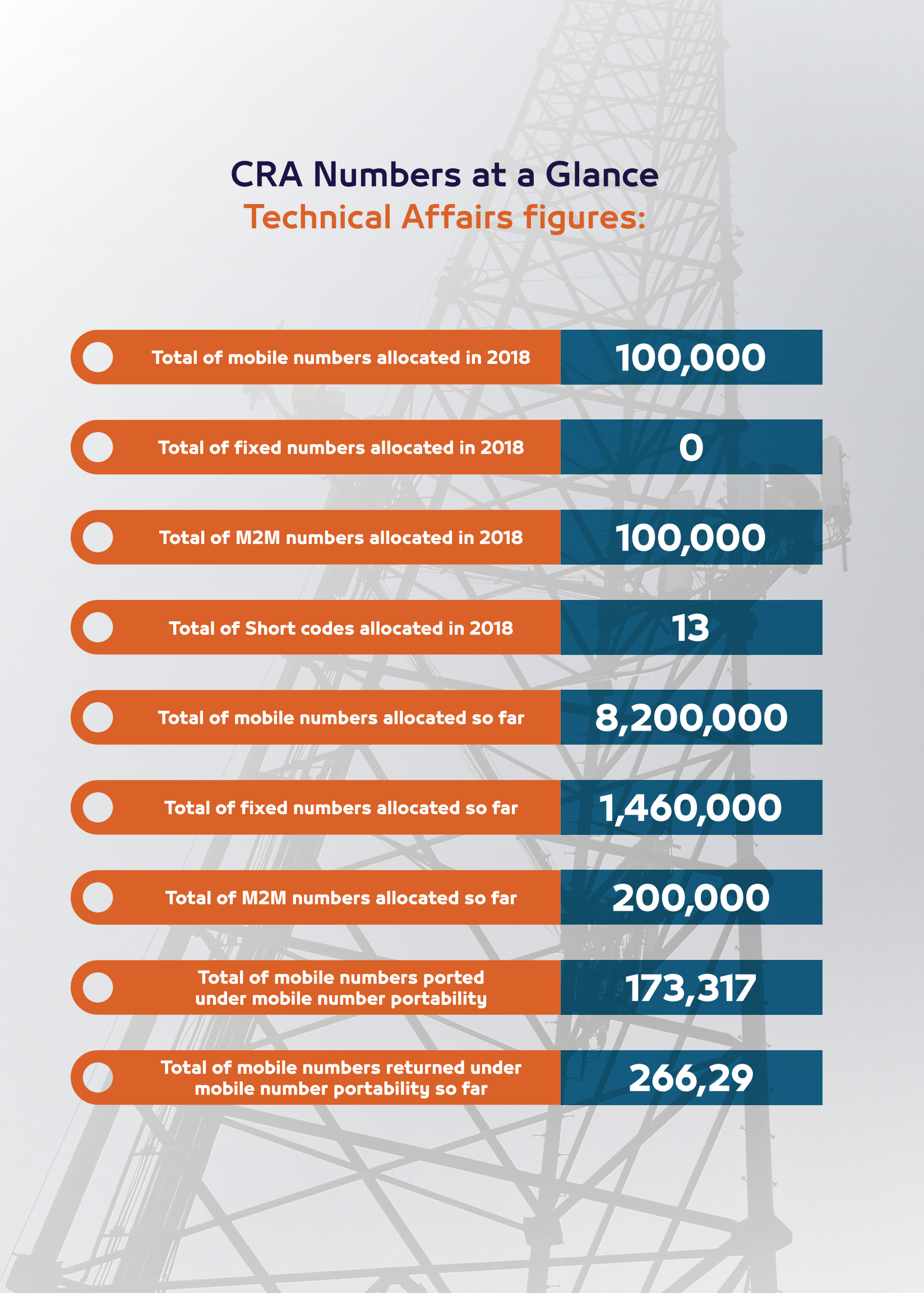
- Passive Civil Telecommunications Infrastructure Access Regulations is issued
- Wholesale Framework on Interconnection and Ducts is issued
- Retail Tariff Instruction is updated and issued

2018

- Es'hailSat launched its second satellite to support TV distribution
- Extension of mobile license from 20 years to 60 years was granted to Vodafone Qatar
- New Radio Spectrum Licenses were issued to Ooredoo and Vodafone Qatar that also consolidated the previously issued separate spectrum and frequency assignments
- CRA supported service providers in implementing and testing 5G networks
- The Minister of Transport and Communications has approved the amendment of the network rollout and coverage obligations of Ooredoo and Vodafone Qatar licenses for the provision of public mobile telecommunications networks and services
- CRA has issued decisions to grant the radio spectrum licenses to both Ooredoo and Vodafone Qatar for the deployment of the Fifth Generation (5G) commercial networks in Qatar.

CRA Numbers at a Glance

Technical Affairs figures:



Total of mobile numbers allocated in 2018	100,000
Total of fixed numbers allocated in 2018	0
Total of M2M numbers allocated in 2018	100,000
Total of Short codes allocated in 2018	13
Total of mobile numbers allocated so far	8,200,000
Total of fixed numbers allocated so far	1,460,000
Total of M2M numbers allocated so far	200,000
Total of mobile numbers ported under mobile number portability	173,317
Total of mobile numbers returned under mobile number portability so far	266,29

Qatari Domains

3,593

Total number of registered domains in 2018

Percentage growth of increase in domain registration compared to 2017

9.81%

Percentage of top 3 domain extensions that domains were registered during 2018 compared to all registered domains.

76.81%
.qa

12.59%
.com.qa

6.04%
قطر.

Tickets Handled by Call Center



327



Total
Number

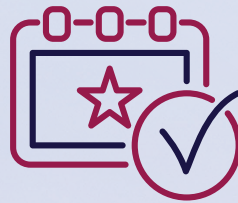
Tickets Handled by Support Team



597

Total
Number

326
Answered



579
Resolved

Infrastructure



Number of issued approvals for the requests of construction of new mobile sites in 2018



Percentage of increase in requests for approvals for the construction of new mobile sites in compared to 2017



Number of rejected requests of construction of new mobile sites



Total number of no objection requests that CRA has handled on Q-PRO system



Total number of applications that CRA has handled on Qatar Online Design Review System (Q-DRS)

Regulation Affairs & Competition Department figures

16



**Total number of
fixed Tariffs approved**

136



**Total number of
mobile Tariffs reviewed**

18



**Total number of
competition cases handled**



ANNUAL
REPORT
2018

**COMMUNICATIONS
REGULATORY
AUTHORITY**

20/21

Consumer Affairs figures

Total number of
complaints and
Inquiry received



- ◇ 1005 Complaint
- ◇ 4342 Inquiry
- ◇ 5347 Total Complaints and Inquiries

Number of invalid
complaints received



- ◇ 40% Complaint

Percentage allocation
for Mobile and Fixed
Line Complaints



- ◇ 68% Mobile Service Complaints
- ◇ 32% Fixed Line Service Complaints

Percentage of resolved complaints



92%

of the cases have been resolved

Percentages of top 3 complaints subjects of mobile services



47%

Billing/Charges Issues

11%

Mobile Service Disconnection

8%

Premium SMS Service

Percentages of top 3 complaints subjects of fixed-line services



35%

Fixed Line Service Disconnection

36%

Billing

15%

Delay in installation

Spectrum Management Department figures

Spectrum Assignment and Licensing

● **5044**

applications processed for station and network based radio frequency licenses (including new issuances, renewals, modifications and cancellations)

Spectrum Coordination

● **427**

Frequencies assigned in different radiocommunication systems

● **26 BR IFICs were examined and 466 letters have been prepared and sent to ITU/ Notifying Administrations.**

● **35**

Frequencies assigned for **16** VIP visits

● **55 letters have been sent on coordination of QATARSAT satellite networks with other administrations' satellite networks**

● **7
Major
Events**

supported by assigning the frequencies that meet their radiocommunication requirements:

● National Day Celebrations

● World Superbike Championship

● Grand Prix MotoGP

● 2018 Commercial Bank Qatar Masters Golf Tournament

● Katara Football Fan Zone (2018 World Cup)

● Qumra Film Festival (DFI)

● Senyar Festival (Katara)

e-Spectrum Services Portal

8625 Total number of applications received through portal

- **1447** New License Request
- **233** Cancellation Request
- **244** Modification Request
- **2210** Registration of equipment Request
- **3163** Renewal requests
- **144** Equipment write-off Request
- **1184** User Registration Request
- **727** Number of frequencies assigned (including re use)
- **1149** Number of Call sign assigned
- **74** Number of Licenses for Temporary Events

EMF Emission Copmplaints

4 EMF emission complaints have been handled by the EMF measurements team

Type Approval

● **1062** Type Approval certificates issued for Radio and Terminal Telecom Equipment (RTTE)

Import Authorization

● **310** import authorization approval were issued and received **22,382** customs clearance applications

● CRA conducted two routine inspections on **203** shops that are selling radio and telecommunication equipment and issued **75** violation notices for shops that were selling telecoms devices and equipment without having the required licenses

Spectrum Interference Cases

● **36** interference complaints were received in 2018.

35 have been investigated and resolved. Necessary actions are being taken to resolve the remaining case.

QoS Investigations

● **5** cases have been investigated and reported in 2018

Embracing Technical Innovation





MARKET TRENDS IN A COMPETITIVE TELECOM SECTOR FOR 2018

In 2018, we oversaw a buoyant telecommunications sector that achieved unprecedented momentum in technological innovation. A major accomplishment was the accelerated advances in the introduction of 5G (the 5th generation of mobile networks) to the State of Qatar.

Strong leadership by CRA generated overall positive performance for the telecom sector in 2018, which has been another exceptionally stable year in terms of revenues, market share, and subscriptions - across both the mobile and fixed markets.

Earlier investments in infrastructure improvement and network modernization are yielding dividends for the sector, as reflected in Qatar's higher than ever penetration and connection rates, on par with the world's best.

On the global stage, Qatar is recognized as one of the most network-ready nations; ranked 27th out of 139 countries in The World Economic Forum's Networked Readiness Index 2016, and in the top five for indicators of skills and government usage. The ranking reflects how well Qatar's economy is leveraging information and communication technologies to boost competitiveness.

Owing to our efforts to promote high levels of digital engagement, Qatar is ranked first among Arab countries for engagement with mobile services and applications and second in the world in the Global Mobile Engagement Index.

A Year of Innovation

In 2018, we were proud to play an enabling role in the efforts by the two mobile operators - Ooredoo and Vodafone - to launch 5G technology (fifth generation mobile telecommunications) to the market. Being one of the first countries to introduce the next wave of mobile technology once again puts Qatar at the forefront of the industry's future growth.

Forward thinking in early 2017 prompted us to take the lead ahead of other regulatory bodies in the region, and to hold early consultations with service providers and stakeholders in Qatar. These consultations proved valuable for us to identify future demand and required frequency bands for the deployment of 5G technology across the country.

As a responsible steward of public resources, one of our roles is to administer licensing arrangements that promote efficiency, innovation, and competition in Qatar's telecom industry. Managing access to spectrum to its highest value use is part of this role, and accordingly, we granted Ooredoo and Vodafone temporary spectrum licenses on a non-commercial, non-exclusive basis to trial and demonstrate the 5G mobile network, using 100 MHz for each operator on the 3.5 GHz frequency band.

Empowering the operators to test the new technology in advance of launching the commercial service for their customers was an important step we took to support the deployment of standard commercial networks.

Ooredoo announced in May 2018, that it was the first operator in the world to launch a live 5G network on the 3.5 GHz spectrum band. Ooredoo was able to showcase the power and potential of 5G services for the 2022 FIFA World Cup, by demonstrating three futuristic "smart stadium" applications during the final of the Emir Cup in May 2018.

In August 2018, Vodafone Qatar announced that it had connected its first enterprise customer to a 5G network located at Qatar Science and Technology Park, marking the launch of the initial 5G network.

We recognize that the rollout of 5G mobile telecommunications technology services will mostly benefit service providers initially, but ultimately the technology will be of value to consumers when new services and applications supported by 5G become available. Such advances take us closer to the Qatar National Vision 2030 (QNV2030) goal for Qatar to evolve into a competitive, sustainable, knowledge-based information society.

The opportunities offered by Qatar's recent technological achievements and innovations will certainly result in increased demand for internet capacity in the near future. This demand will come from a range of sectors including education, transport, hydrocarbons, and government services – from both individuals and government. We look forwards to seeing how each sector will exploit these advances to deliver new goods and services to the market.

With the aim of developing a dynamic framework for forecasting future infrastructure needs and defining required sites and services area needs, we have commenced the development of a Telecom Master Plan, which will closely support and meet the goals of the QNV2030.

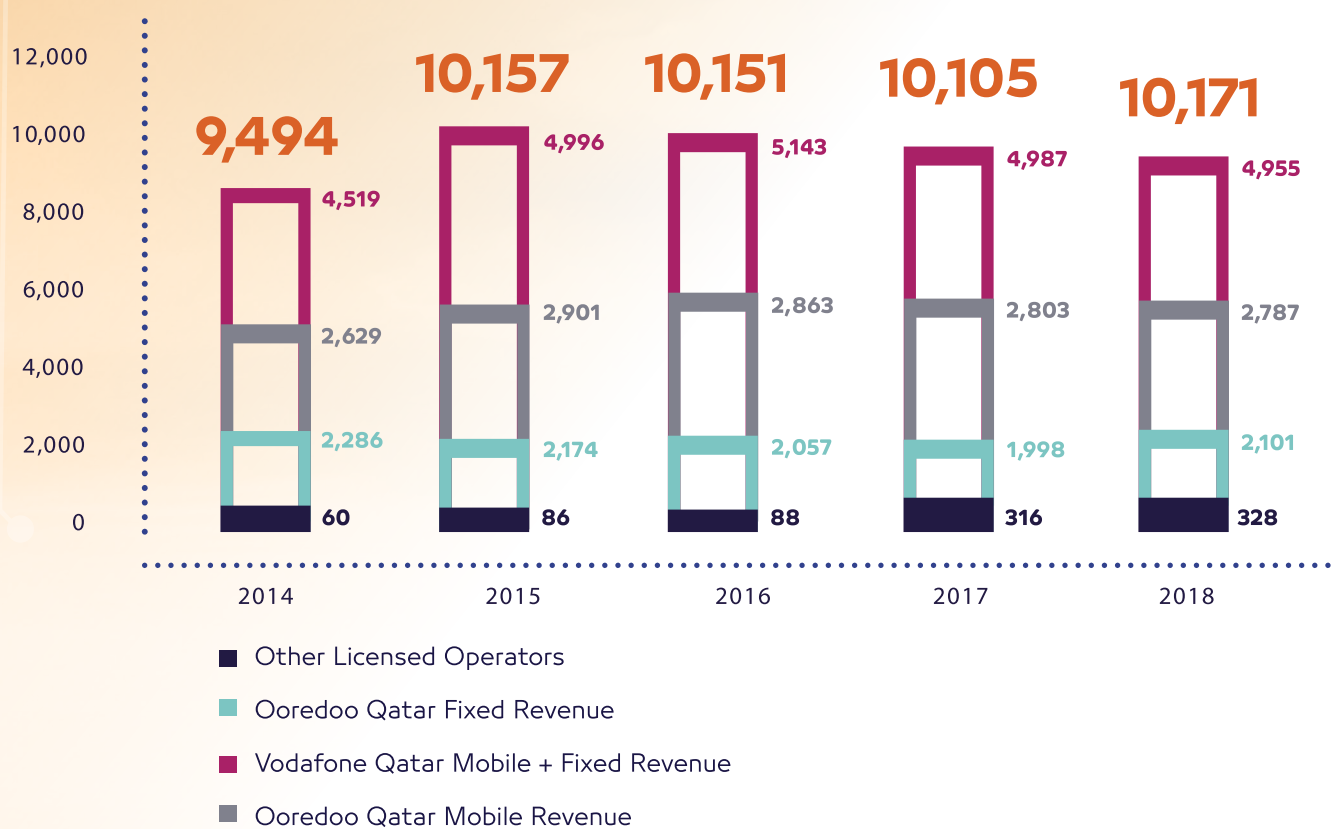
Market Indicators

In 2018, Qatar's overall telecom sector delivered revenues of QAR 10 billion, remaining stable for a fourth year, see Figure 1. The mobile telecom market in Qatar has now matured, responding well to our effective competition framework. Service providers have adapted well to this maturity in the market by diversifying their revenue streams into associated activities, and improving efficiency. Enhancing the quality and range of services available to consumers at competitive prices will also help to boost consumer satisfaction levels.





Figure 1.
Revenue of the overall
telecom sector in Qatar



Source: SPs' Financial Statements and CRA calculations

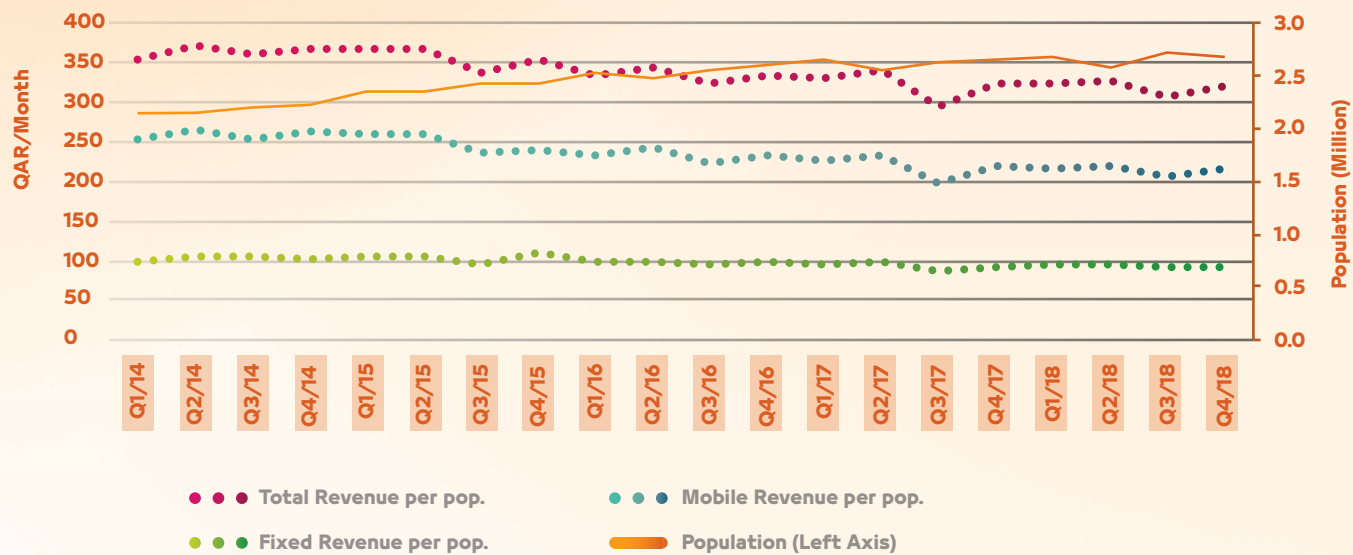
An interesting aspect of the telecommunication market in Qatar is the interaction with population growth that is an important contributing factor to market dynamics.

Figure 2 presents the development in population and the average monthly spending on telecommunication services per population in Qatar.

The fixed revenue per population has been very stable at QAR 96 to 110 per month, while the mobile revenue has been in the region of QAR 224 to 265 per month.

The reason that total sector revenue has been so stable during the last 4 years is that while population has increased, the average revenue per population has decreased almost proportionately. Another way to express this, is that it is quite likely that total telecom revenue would have decreased in Qatar, if population had not increased.

Figure 2.
Population and telecom revenue
per month per population

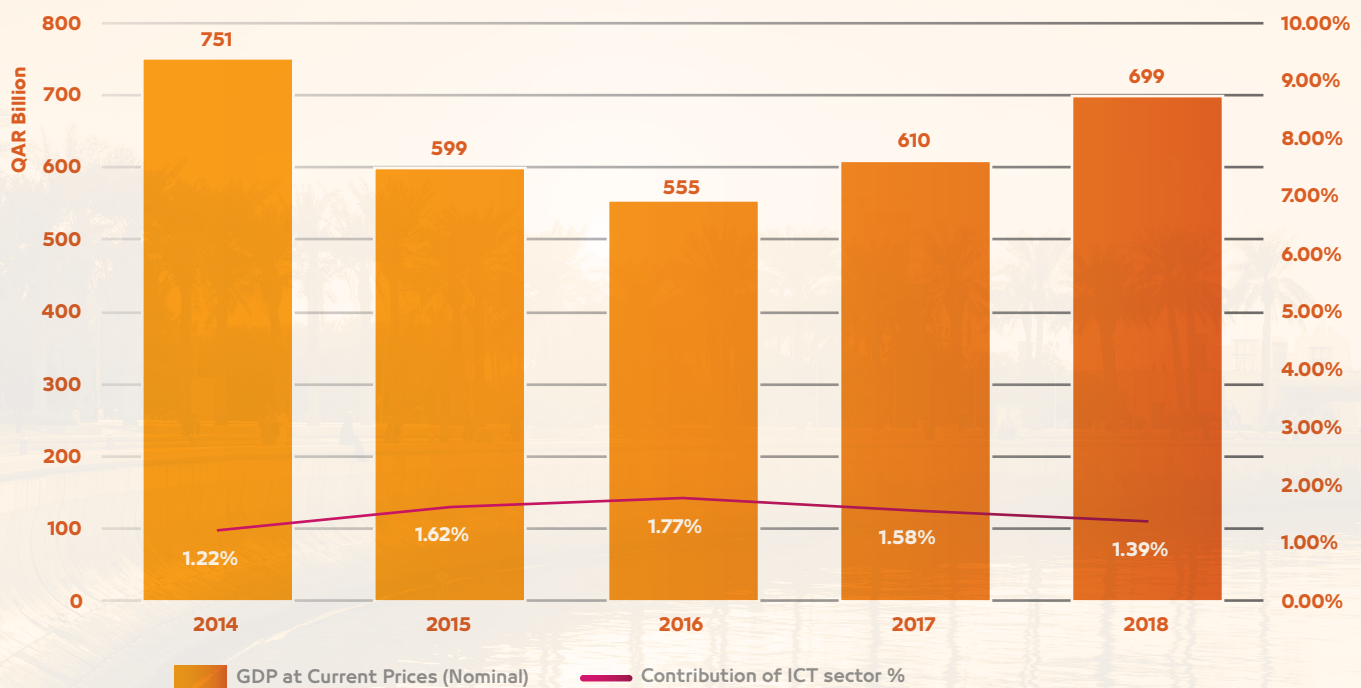


Source: MDPS, SPs' financial statements, and CRA calculations

The ICT sector's estimated contribution of 1.45% to Qatar's estimated GDP for 2018, see Figure 3, highlights the vital role for the telecom sector in Qatar's economic diversification. The revenue of Qatar's ICT industry was estimated to be around QAR 12.3 billion in 2018. We continuously seek to identify opportunities that support the industry's progression towards its growth targets.



Figure 3.
**Qatar's nominal GDP in current prices
and the ICT sector's contribution**



Source: MDPS and CRA estimates for 2018



ANNUAL
REPORT
2018

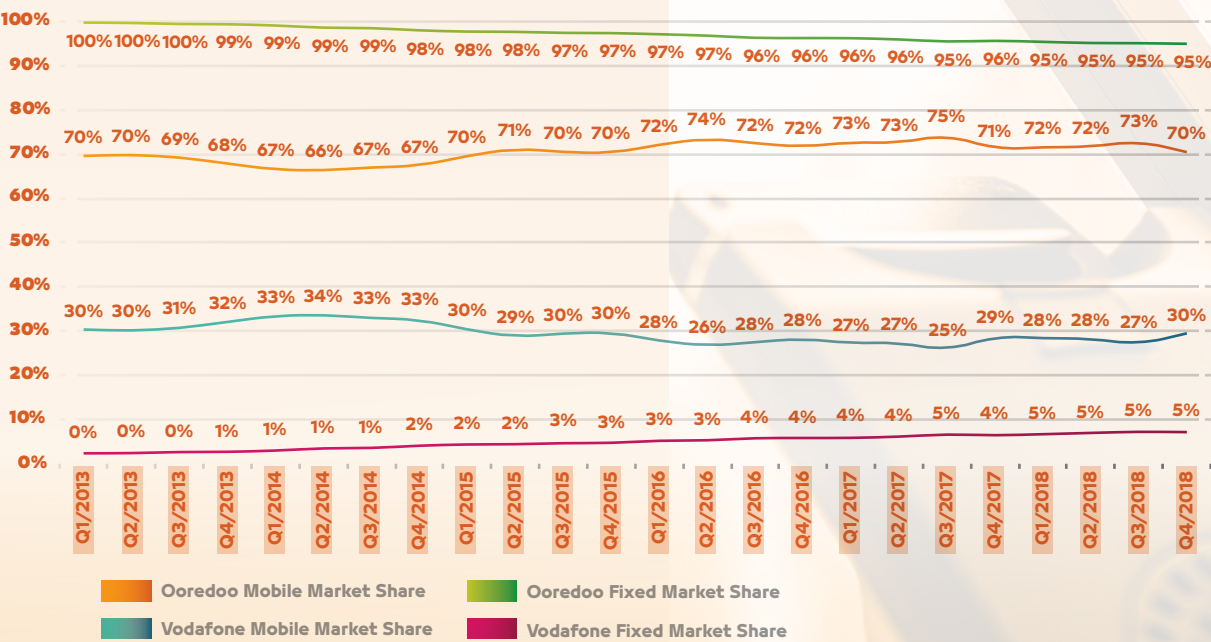
COMMUNICATIONS
REGULATORY
AUTHORITY

34/35

Service Providers' Revenues and Performance

Our telecom service providers in Qatar are fully supported by the transparent and flexible regulatory framework we have put in place. In terms of revenue market share, Ooredoo continues to have the highest share of the fixed market at 93%, while Vodafone continues to provide healthy competition in the mobile market, presently holding a share of 30%, see Figure 4.

Figure 4.
Market shares for fixed and mobile markets in Qatar



Source: SPs' financial statements and CRA calculations

Ooredoo Qatar reported revenue of QAR 7.7 billion in 2018 and earnings before interest, tax, depreciation, and amortization (EBITDA) rate of 53% for 2018, see Figure 5. Ooredoo's profit margin was 26% for 2018 and was influenced by certain one-off income items. In Q4 2018, Ooredoo reported a blended Average Revenue Per User (ARPU) of QAR 114, see Figure 6. Lower revenue from handset sales and lower mobile voice and roaming revenues were partially offset by strong performance in corporate ICT sales, following multiple new product launches. One of the innovative new products was the Fleet Management Services in Qatar, a web-based platform for organizations to track their vehicle fleets and staff and touted as a good example of an Internet of Things solution (IoT or the interconnection of many devices using internet protocols) for businesses.

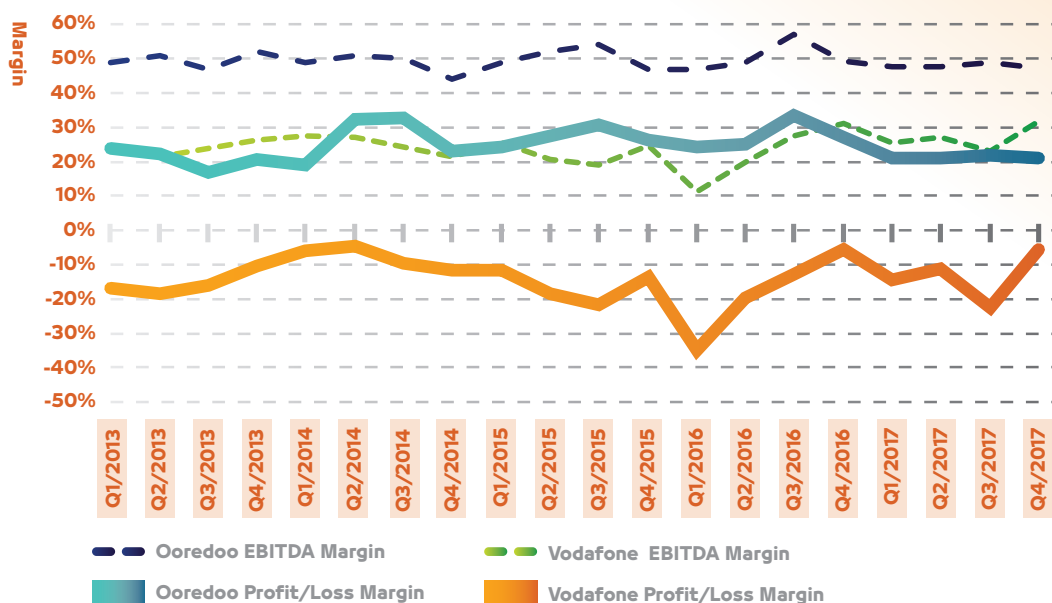
Vodafone Qatar delivered a substantial improvement in its financial performance during 2018. The company reported mobile and fixed revenue for 2018 of QAR 2.1 billion, compared to QAR 2.0 billion last year, and EBITDA rate of 28% for 2018, see Figure 5. The increased revenue was driven by an increase in postpaid subscribers and equipment revenue., Growth in postpaid customers is attributed to the popularity of Vodafone Qatar's FLEX, Red, and Enterprise postpaid plans. As a result, the average ARPU for 2018 was 105 compared to 100 for 2017, see Figure 6. The profit margin was 8% for 2018 compared to a loss margin of 5% for 2017. This was mainly a result of a license extension benefit of QAR 319 million and QAR 55 million due to a general increase in profitability. Vodafone Qatar has proposed a cash dividend of 5% per share for 2018 totaling QAR 211 million, subject to shareholder approval on March 4, 2019.





Figure 5.

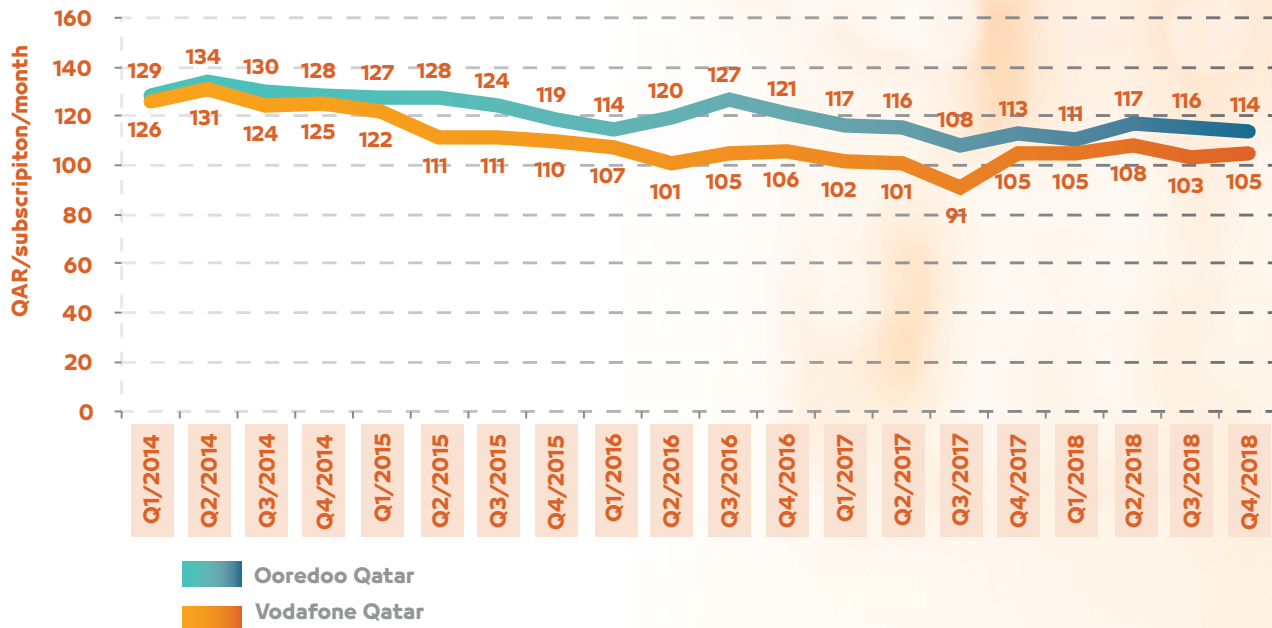
EBITDA margin and profit margin for Ooredoo and Vodafone Qatar



Source: SPs' financial statements

Figure 6.

Blended mobile ARPU for Ooredoo and Vodafone Qatar



Source: SPs' financial statements and CRA calculations

In March 2018, Qatar Foundation completed its acquisition of the Vodafone Europe's 23% stake in Vodafone Qatar, who will continue to operate under the brand name in Qatar and receive technical support under a Partner Market agreement.

Vodafone Qatar's license, originally granted for 20 years, has been extended for an additional 40 years until 2068, resulting in an amortization benefit of QAR 80 million per quarter, equaling QAR 319 million for 2018.

The extension was prompted by our evaluation that reducing the annual amortization costs would boost Vodafone Qatar's potential profitability in the foreseeable future.



FACILITATING A COMPETITIVE TELECOM SECTOR

Competitive pressure on the two service providers is expected to grow in the long term as the development of new technologies such as 5G, continues. Dynamic future growth requires that we periodically review regulatory conditions to confirm they have kept pace with service providers' needs in a competitive market. One such area is interconnection, essential for consumers subscribed to different networks to communicate with each other. Facilitating access to interconnection services at a fair price requires us to implement appropriate charges for service providers to gain access to each other's wholesale products. In July 2018, after a consultative process and a thorough review, we introduced revised wholesale charges for interconnection services for the period 2018 to 2020. The adjusted charges are comparable to international benchmarks and on par with the leading markets in the region.

We are confident that the charges are at the appropriate level to promote competition among service providers in the telecom sector.

Enhancing the network performance of both operators and monitoring service quality on a regular basis will remain one of our key priorities in the coming years. A robust Quality of Service Framework, that will ensure the services provided to consumers in Qatar are among the best in the world, is under development.

Telecom Indicators

Our intensified efforts to support the QNV2030 objective of achieving a digital transformation are borne out by the telecom indicators for 2018. Our achievements are reflected in a well-developed telecom market, with high levels of internet use and smartphone ownership, as well as fast mobile and fiber-based internet connection speeds.

Penetration Rates

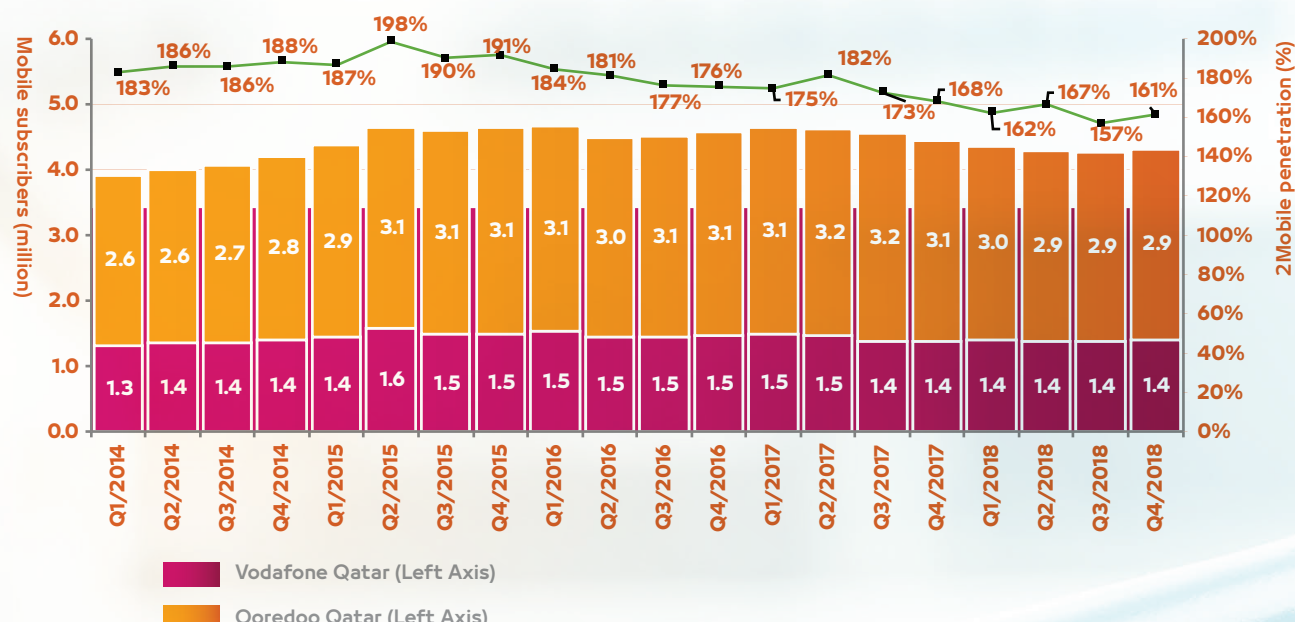
Impactful efforts are showing results in the form of exceptionally high mobile and smartphone penetration rates in Qatar, which compare well in the region and are on par with the highest in the world. These achievements are attributable to a strong national vision for telecoms development, thorough planning on both state and municipal level, and the supportive regulatory framework we have developed, one that balances regulation and investment incentives.

As of 2018, Qatar has a 94 percent digital penetration rate and 100 percent internet penetration rate. Its smartphone adaption rate of 95 percent is the second highest in the MENA region (Source: Report from the Ministry of Transport and Communications on the Safer Internet Day- SID 2018, February 2018).

The mobile market has stabilized. As of the end of 2018, Qatar had a mobile penetration rate of 161%, see Figure 7. The total number of subscriptions to mobile services decreased marginally from 4.5 to 4.3 million between 2017 and 2018 which is a sign of the market maturing.

Figure 7.

Mobile subscriptions and mobile penetration rates

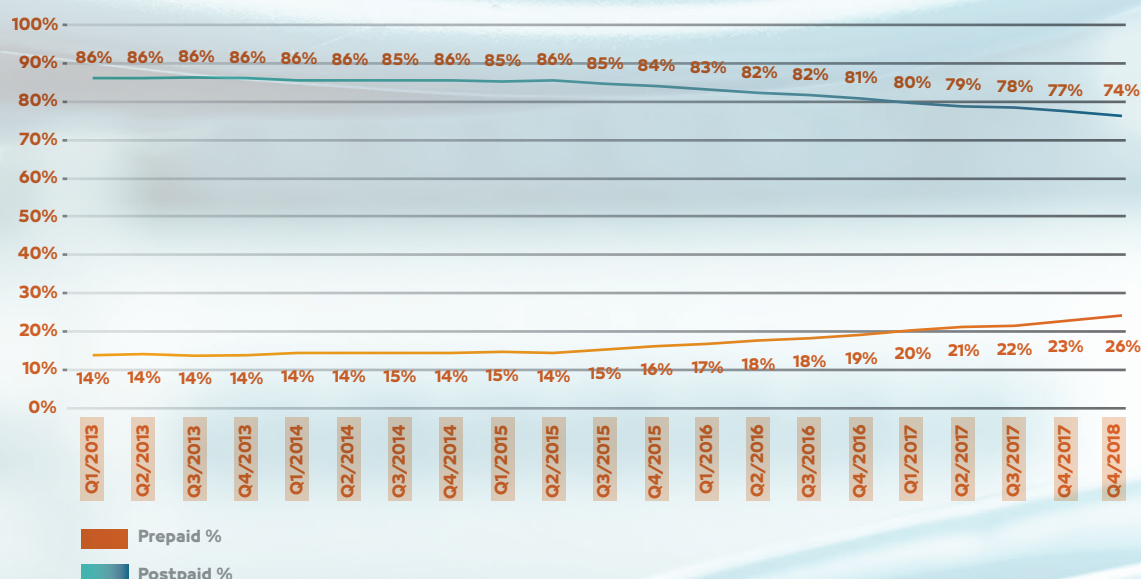


Source: SPs' financial statements and CRA calculations

Another sign of the mobile market maturing is that the share of postpaid plans has increased steadily during the last years to reach 26% at the end of 2018, see Figure 8.

Figure 8.

Share of postpaid and prepaid mobile subscriptions in Qatar



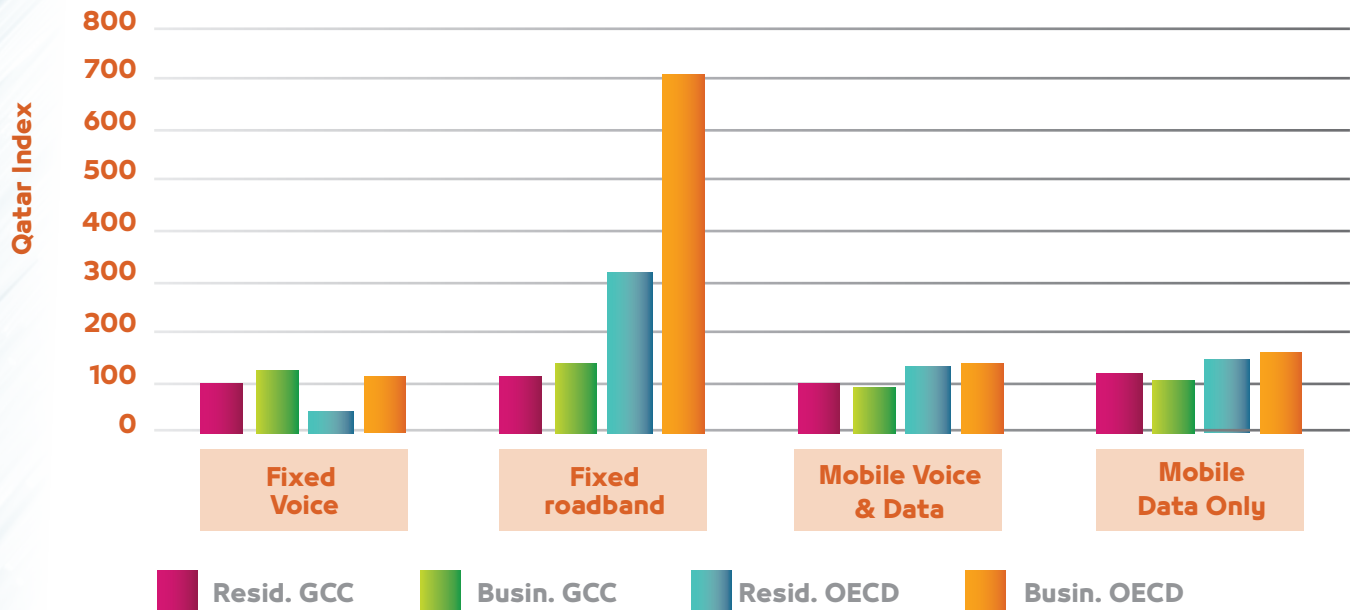
Source: SPs' financial statements and CRA calculations



Telecommunication Prices

CRA carried out a Price Benchmarking Study in November 2018. The Teligen division of Strategy Analytics conducted the study. Teligen has also conducted the previous price benchmarking studies for AREGNET, the Arabic cooperation council for telecommunication regulators. The study was based on the four 2017 OECD ICT price baskets for Fixed Voice, Fixed Broadband, Mobile Voice & Broadband and Mobile Data Only.

Figure 9.
Price Benchmarking
Study November 2018



GCC & OECD = Index 100

Source: Teligen and CRA calculations

In Figure 9, the averages for each of the OECD defined baskets are compared for Qatar to the GCC and the OECD in USD. The GCC and OECD average is equal to 100. This means that if the Qatar index is above 100 then prices are higher in Qatar than in the GCC or OECD. It is quite apparent that prices for fixed broadband do not compare well to the OECD as prices are 3 times higher for residential and 7 times higher for business.

The price levels reflect that there is quite intense competition in mobile markets, where Vodafone Qatar has been innovative and was the first to introduce Flex cards, where the customers buy points that can be used completely flexible to either national or international calls and SMS and for local data. As for the fixed markets, the CRA is working to improve competition in order to reduce price levels, especially for the business segment. For prices in USD/PPP, prices in Qatar are 10% lower compared to GCC and 85-100% higher compared to OECD.

Technology and Infrastructure Development

Both network operators offer 4G LTE Advanced (4G+) mobile internet services, and Ooredoo was one of the world's first service providers to launch 4.5G Pro services. Mobile internet data use is currently dominating the mobile telecoms market, accounting for over 60% of telecom providers' revenues.

Positive recognition for Qatar's high penetration of mobile internet is reflected in regional and international indices such as the GSMA Mobile Connectivity Index, where Qatar has moved into the 'Leaders' group for mobile internet connectivity in the MENA region.

The fastest internet service currently available in Qatar is Ooredoo's fiber network, which covers almost the entire country - 99 percent of households are now served by a fiber optic network. An exceptional household penetration rate of close to 100 percent qualifies Qatar as one of the world leaders in the rollout of Fiber to the Home/Building (FTTH/B).

Business adaptation of Ooredoo's broadband services has risen by 30%. With increased implementation, access has become easier and more affordable for small and medium enterprises.

While Ooredoo owns the copper duct network already in place throughout Qatar, and is using it to install fiber networks, Vodafone continues to work with the Qatar National Broadband Network (QNBN) to bring its own fiber services to the market. QNBN was granted a 25-year license in 2012 to help develop broadband capabilities by focusing on passive fiber infrastructure.

High-speed mobile and fiber-based internet connections continue to benefit telecom consumers. Qatar's peak internet connection speeds are the fastest in the MENA region and the seventh fastest in the world overall, according to the Q1 2017 State of the Internet Report by telecommunications analysis firm, Akamai Technologies. Such an accolade illustrates how quickly and effectively the nation has developed its internet infrastructure. Qatar's peak 2017 speeds of 107.7Mbps represented an increase of 21 percent over its 2016 numbers, while its average connection speed of 13.7Mbps represented an impressive 64 percent increase over the country's 2017 average. In the mobile market, Qatar achieved the second highest average mobile connection speeds, at 13.6 Mbps.

High levels of consumer satisfaction, driven by the availability of such high-speed services will, in the medium term, help to further stimulate competition among service providers to offer even greater efficiency and innovation. With a population highly responsive to the capabilities of a robust mobile network, we firmly believe that Qatari firms are well placed to now make the natural transition to the Internet of Things (IoT) in 2019 and beyond, to build off preexisting mobile infrastructure and introduce new platforms and efficiencies to Qatari society.



Meeting Customer Demands





A SERVICE-ORIENTED REGULATOR

Prioritizing our valued customers – individuals, government entities, and businesses – means ensuring they have access to a broad range of innovative telecommunications services.

In 2018, we remained actively engaged with consumers and stakeholders to make sure our programs are best serving their service needs and to keep a finger firmly on the pulse of Qatar's dynamic telecom market.

We leveraged every opportunity to connect with the wider community this year, fulfilling our commitment to focus on issues that may impact service quality for consumers. Keeping consumers informed of their own rights and their responsibilities in using telecom services, and those of service providers, was a recurring theme in many of our activities.

Close monitoring of the quality of telecom services has always been our priority, and we use internationally accepted tools such as the Business Satisfaction Survey and the forthcoming Quality of Service Project, with a view to identifying improvements that will enhance the consumer experience.

Engagement with all stakeholders continued to be our priority in 2018, not only to safeguard the public interest and tackle consumer concerns, but also to ensure we remain responsive to the needs of industry in our regulatory approach, ensuring a transparent and flexible yet consistent framework that promotes competition in the market.

Supporting service providers to access the state resources they need to deliver these services, which include the Qatar Domain Registry and the duct management system, is therefore vital.

A productive 2018 saw us roll out a full program of activities across the State of Qatar, including:

- Facilitating service providers' access to State resources (including the Qatar Domains Registry)
- Complaints Resolution
- Facilitating service providers' access to State resources (including the Qatar Domains Registry)
- Complaints Resolution
- Consumer Awareness
- Managing Non-Compliance

Each of our activities, whether the provision of education and advice to consumers; facilitation of access to resources by service providers; or regulations and notices, communicated a vital aspect of our priorities. That is – our efforts to ensure a fair balance between the rights and responsibilities of consumers and those of service providers.

Maintaining this balance between consumer rights and the needs of service providers is the key to allowing fair competition to thrive in the market.

FACILITATING ACCESS TO THE MOST VALUED STATE RESOURCES

Qatar Domains Registry

Promoting and managing the Qatar Domains Registry, a database of all registered domain names, is one of our core competencies. Appreciating the importance of having the right domain name to establish a brand identity, we are pioneering the use of domain names in Arabic.

Qatar is among the first countries in the world to offer domain names (used as internet addresses by companies and individuals) in Arabic, similar to '.com'. Qatar domains available through approved registrars are: .qa, .com.qa, .net.qa, .name.qa, and Arabic قطر. Choosing a Qatar-specific domain to establish an online presence offers businesses and individuals the opportunity to identify as being uniquely Qatari and extend their reach in the Arab-speaking world and globally.

Stimulating creativity and innovation in domain names and internet services boosts our ongoing efforts to shape Qatar into a digitally inclusive society.

In 2018, we launched a campaign to raise awareness of Qatar-specific domains under قطر TLD (Top Level Domain), and the internationalized domain name قطر and enhance the publicity and visibility of the Domain Name Extension. The result of the campaign was an impressive achievement in numbers since 1 January 2018:

2,396

domains registered

8,00

domains renewed

Transparent and fair domain name registration services are offered by Qatar's 16 accredited registrars, including domain name registration, transfer, cancellation, renewal, and updating of information. Only government and educational organizations can register directly with us.

Growing use of Qatar domain names will see demand for these services increase and we continue to review expressions of interest through the formal registrar accreditation process. We are committed to extending all necessary support to the registrars, our valued partners in amplifying the online presence of Qatar domains.

Currently accredited registrars

- Ooredoo
- MarkMonitor
- W3infotech
- Marcaria
- Qatar Electronic Publishing & Trading (QEPT)
- CPS Datensysteme
- Abu-Ghazaleh Intellectual Property (AGIP)
- Domain monster.com (MeshDigital)
- Comsuda dba ename.qa
- Safenames
- IPmirror
- InternetX
- Ascio
- Instra
- EPAG
- United-Domains AG

Competing rights for the same domain name may well arise, given the value of this commodity, especially with respect to trademarks and intellectual propriety. These disputes can be resolved through the Domain Name Dispute Resolution Service that we have introduced. Where a dispute cannot be resolved, either party can file a formal complaint with the Qatar Domains Registry, which will be handled by CRA.

The dispute resolution service offers an easier and more economical alternative to litigation for domain holders and affected parties. Successful resolution of eight domain name disputes has since the beginning of 2018 has been a key achievement.

QATAR'S TELECOM INFRASTRUCTURE

Duct Management System

Facilitating service providers' access to Qatar's underground telecom civil infrastructure requires us to prudently assess and manage requirements. Access to the duct management system may be required in instances where service providers are laying fiber cable for the roll out of their networks. Transparency in the holistic assessment process is part of our efforts to ensure sustainable competition between service providers and fair access to ducts.

In 2018, we continued to receive requests for this service from Vodafone and Ooredoo.

Mobile Sites

We are also responsible for conducting technical reviews of applications from service providers for mobile sites. Table 1 shows the status of applications during 2018:

Overview of Applications for Mobile Sites

Operator	No. of Applications	Approved	Rejected
Ooredoo	70	65	5
Vodafone Qatar	80	73	7
Total Qatar	150	138	12

Gauging Consumer Satisfaction

Consumer satisfaction with telecom services in Qatar is regularly measured to give us the tools to identify areas of service delivery that can be improved. Valuable insights into consumers' priorities and concerns have led to positive changes since the first CRA Consumer Satisfaction Survey in 2014.

Extensive in scope, the survey encourages consumers to reflect on their service experiences and rate their satisfaction with features such as pricing and rate plans, and network coverage. Actionable measures to enhance telecom services are extracted from consumer responses and comments.

Planning and preparation for the next survey, in 2019, is underway. Service areas that impact the consumer experience such as network coverage, network availability, voice quality and clarity, call drop rate, data services, ease of activation, mobile number portability, and internet speed will be covered.

Sharing the findings has shown us that service providers are keen to work with us to improve on areas of concern. Gains from the survey therefore not only include enhanced cooperation with stakeholders but better positions us to address consumer challenges and concerns through an informed approach.

Overall satisfaction levels in Qatar are slightly higher than the global average, previous surveys have found. New initiatives directly arising from survey findings includes the more efficient complaint management system we developed to address consumer needs for improved complaints resolution.

CUSTOMER SUPPORT

The new Complaints Management System

Our consumer protection mandate empowers us to resolve complaints lodged by consumers against their service providers, whether it is a billing, service disconnection, or other service complaint. We also resolve disputes arising between the two service providers.

We have made it easier for consumers to escalate a complaint they are unable to resolve with their service provider by putting in place a comprehensive and seamless complaints management system.

A Tool to Monitor Service Delivery

The complaints management system is also a powerful tool for us to monitor the performance of service providers.

Analyzing complaints' data pinpoints consumer areas of concerns that are recurring. We can then address these areas through our targeted awareness campaigns across social media platforms and in newspapers.

The findings are a basis to engage with the service providers to find appropriate and attainable solutions to the challenges they face. We value our role in supporting service providers to maintain a high-quality service to Qatar's telecoms customers.

An Innovative Tool that Gives Consumers a Voice – CRA’s Arsel App

Arsel is our award-winning interactive mobile app, a tool for consumers to provide direct feedback to us about telecom services in Qatar, we anticipate that the app will be a tool to:

- Create a direct channel of communication between CRA and telecoms consumers, allowing us to maintain their interests through up to date sector regulations.
- Facilitate our work with the service providers to improve the quality of services across the country using the data collected through the app.

The Arsel app has a range of helpful features:

○ **allows consumers to give feedback on the quality of services**

○ **gives consumers access to an online network coverage map showcasing other consumers’ experiences, updated every two days**

○ **enables consumers to test the internet speed of their mobile devices using the Arsel app**

With the app being directly linked to our Complaint Management System (outlined above), users can also lodge complaints against service providers using accurate, location-based information. They can follow up on their complaints, provide relevant documents, and receive updates.

Building Consumer Awareness

Raising consumer awareness of their rights and responsibilities goes hand in hand with our consumer protection role and, in 2018, we continued to be attentive in this respect. We conducted awareness campaigns, outreach events, and ensured the continual accessibility of our website, thereby ensuring wider recognition of our role in protecting consumer rights.

We continue to welcome direct communication with telecoms consumers, and they can contact us through multiple communication channels:



Through email
(consumervoice@cra.gov.qa)



Our 24/7 hotline
number (103)



Our Arsel mobile app



Tweeting directly to
@CRAqatar



Using the CRA online
complaint form



Visiting our headquarters
at Al Nassr Tower B,
Al Corniche Street.

In keeping with these aims, social media awareness campaigns has proved an important tool to address issues matters of importance to telecoms consumers, which in 2018 included roaming, data usage, scam calls, and consumer rights and obligations.

Deterring Non-Compliance

We are mandated to minimize anti-competitive practice in the telecom market in Qatar – which extends to protecting consumers against unlicensed shops or vendors.

In April 2018, CRA technical inspectors conducted random inspections of shops selling telecom devices and equipment. Of the 78 outlets visited, we issued 35 non-compliance notices to shops for selling such items without the required license(s), and in some cases the selling of illegal equipment.

All residents are empowered to request an inspection if they suspect a business is selling or using unauthorized radio and telecoms devices and/or equipment within Qatar.

Increasing Awareness of CRA's Vital Role

Advertising campaigns with a wide reach are increasing awareness about our role and mandate for assisting telecoms consumers in Qatar. An ongoing campaign in 2018 has included advertisements in malls and on public transportation infrastructure across Qatar, such as City Center Shopping Mall, Karwa double decker buses, and MUPIs (advertising light boxes) on selected streets. The campaign has been highlighting our hotline 103, and .qa domain registration services. We have erected awareness posters in service provider outlets. We also increased visibility through our own television commercial.

Looking Ahead to Coming Years

Innovative new tools will be introduced in 2019 to ensure telecoms consumers in Qatar continue having access to a broad range of innovative and high-quality services. These additional initiatives include the Quality of Service Project, roll out of the CRA Mobile Application and Quality of Service Platform, and the Business Satisfaction Survey.

Shaping A Competitive Sector







Enhancing the Regulatory Framework through Inclusive Consultations

Effective regulation of the telecom sector is an important pillar in ensuring continued growth, competitive prices, better quality of service, higher penetration, and more rapid technological innovation by the industry.

To ensure that the legislative framework enables the sector to thrive and remain responsive to industry needs and consumer-focused, we subject all policy and regulations to continual review. Our review was performed through a consultative process, which is an important imperative when developing or refining legislative instruments. Eliciting industry views before introducing or amending licensing and legislative arrangements helps us to shape an efficient and competitive sector and minimizes the need for frequent regulatory intervention.

In 2018, we undertook consultations with both service providers and stakeholders on areas of concern relating to regulations and competition practices. We published the outcomes, with a view to maintaining competitive pricing.

In 2018, we revised a number of key sector regulations leading to the issuance of a new retail tariff instructions and of new guidelines for the cost accounting and accounting separation of Ooredoo. We also set wholesale charges for access to ducts and interconnection services for the years 2018, 2019 and 2020.

A policy update welcomed by the airline industry was our approval of an amendment to the Class License of aircraft operators registered in Qatar. Our decision saw Qatar become the first country in the MENA region to approve gate-to-gate Internet connectivity onboard aircraft through the approval of internet service onboard aircraft at all altitudes.

Strengthening the Regulatory and Compliance Monitoring Functions of the CRA

Enhanced executive powers and a stronger regulatory and compliance monitoring role over the telecom sector for CRA under the amended Telecommunications Law (No. 17 of 2017), implemented as of October 2017, ensures that our contribution to Qatar's digital evolution continues to be strengthened.

The amended law transfers all ictQATAR's General Secretariat functions and clarifies our regulatory functions. His Excellency the Minister of Transport and Communications has the power to issue the executive regulations, while we can issue technical regulations, decisions and orders, codes and instructions, and the circulars required to implement the provisions of the sectoral legislation.

The law also establishes a financial penalties committee which gives us enforcement powers over Qatar's seven licensed service providers in case of violations of the regulatory or licensing framework.

Under the amended Telecommunications Law, we have specific objectives and powers to ensure the prices and charges of service providers are efficiently cost-based and appropriately applied to products and services offered at a wholesale or retail level. Service providers are also subject to any related regulations, rules, orders, notices, decisions, directions and instructions, as well as telecommunications licenses issued to them.

During 2018 the CRA sourced, analyzed and consolidated an up to date database of all CRA regulatory instruments both current and those no longer in force. The Instruments date back to 2004 when the predecessor to the CRA, the ictQATAR, was established.

The database has a summary description and status of each Instrument in terms of its validity, publication on the CRA website and Gazette and availability in both English and Arabic. It also states whether or not such Instrument

contains CRA and/or Service Providers' obligations, among others. The documents are grouped per Department (Unit), Section and then subject area. The List currently comprises 413 documents, of which 111 are CRA key regulatory instruments currently in force.

The database is easily accessible by all relevant CRA staff in order to have an up to date one-stop-shop for all the CRA regulatory instruments. Importantly, the database will also be used to extract obligations from all the valid regulatory instruments which shall be used in the development of a compliance and enforcement framework. The database shall be continuously updated in order to incorporate developments in the Applicable Regulatory Framework.

Fairly Reviewing Tariffs and Pricing

On November 26, 2018, after three rounds of consultation with the Service Providers, we issued a new Retail Tariff Instruction (RTI). The new RTI aims to provide all mobile service providers with more flexibility, as it allows the introduction of new tariffs and promotions targeting specific sectors or customer segments without providing justifications to CRA. For example, education sector, retired customers, etc. could be offered specific tariffs or promotions. However, service providers are required to publish these tariffs and promotions on their respective websites.

For fixed line services, non-dominant service providers like Vodafone Qatar and Qatar National Broadband Network (QNBNet) will have lower obligations than the dominant service provider Ooredoo (95% share of the fixed market). This approach has been chosen by CRA as a regulatory best practice to encourage the competition in the fixed market. For mobile services, service providers are required to submit their tariffs for our review so we can ensure that tariffs are clear and understandable by the customers. We strongly believe this approach

ensures transparency and responsiveness to market conditions. Amongst others, we issued various Orders on their tariffs related to fiber broadband services, balancing the introduction of advanced services (i.e. higher speeds) with the rights of the customers to not be subject to compulsory migration to unrequested services.

Regulatory Accounting Systems

Ooredoo is designated as a dominant service provider (DSP) in the telecom sector in Qatar, and therefore subject to specific provisions, obligations, and remedies - which extends to its costing and accounting. The Regulatory Accounting System (RAS) implemented by Ooredoo, which relates to its charges, cost calculation, and requirements for accounting separation, must be consistent with the methodology and guidelines we have set out.

The DSP must submit an audited version of the RAS to us for approval. Through this process, we can obtain key information from Ooredoo to ensure the service provider is complying with its licensing obligations. This may include reasonable and practicable measures necessary to adapt its business practices and processes to facilitate competition, as directed by us.

On December 6, 2018, after two rounds of consultation, we issued new guidelines for the RAS, applicable from the RAS of the financial year 2019. Main relevant changes compared to the previous guidelines include the structure of the RAS which will be by relevant markets as defined by the CRA, more stringent requirements to ensure non (economic/technical)-discrimination, more detailed guidelines for developing an Activity Based Costing (ABC), new reporting requirements, audit standards based on Properly Prepared In Accordance (PPIA) with the methodology approved by the CRA, publication of Audit Opinion of an independent auditor, along with CRA's Order assessing the RAS.

Access and Interconnection Charges

Consistent with the vital objective of ensuring a competitive sector, on 8 May 2018, we issued an order to Ooredoo and Vodafone Qatar revising the wholesale service charges – regulated by the Access and Interconnection Framework which we administer. These are the prices one service provider charges another, to access its network. Given the role of these services in enabling competition, we followed a fully consultative process with the service providers and reviewed all the responses received.

Importantly, wholesale services facilitate interconnection, which allows users of one network service provider to communicate with the users of another network and access services provided by other networks. To enable interconnection services, service providers are required to integrate and connect their network, equipment, and service with each other, so their services can communicate. This includes fixed and mobile termination, and interconnection links. The revised charges we have issued are applicable to wholesale services for the years 2018, 2019, and 2020.

National Numbering Plan

With Qatar's population growing to nearly 2.7 million in 2018 and businesses expanding, there is high demand for mobile and fixed line phone numbers. We ensure that numbers are available for anticipated new network services by managing the implementation of Qatar's National Number Plan (NNP), a long-term framework for all current telecom services and new numbers for future use.

Automating the numbering resource management functions is one of our innovations in this area. The centralized CRA Numbering Management System is used by the licensed service providers for functions such as numbering block allocations, reservations, and reporting.

Promoting Consumer Freedom through Fixed Number Portability

Empowering telecom consumers in Qatar by encouraging choice in respect of service providers supports fair competition in the sector. Fixed number portability supports this goal by enabling telecom consumers to retain their existing fixed number when switching to a different service provider.

The Amended Orders for Fixed Number Portability came into effect on 9 May 2018. A ruling in terms of Article (1) of the amended Telecommunications Law was issued on 14 August 2018. Telecommunications Law was issued on 14 August 2018.

Facts about WHOIS:

- A source of information on domains and their owners. WHOIS data is managed by independent ICANN-accredited registrars.

What is the General Data Protection Regulation?

- GDPR regulates the availability of the personal information collected by domain name registrars.

Is compliance with the GDPR important?

- Yes – to ensure full access to WHOIS data, Qatar-based entities must comply with its data protection principles. Penalties apply for non-compliance.

Complying with International Data Protection Principles (WHOIS)

As Qatar expands its role in the international business arena, we remain vigilant about compliance with international regulations. We therefore published the Terms and Conditions Notice for the Domain Name 'WHOIS', to comply with the new General Data Protection Regulation (GDPR) on 30 July 2018.

WHOIS is a query and response protocol commonly used to search databases and identify the information associated with a domain and its owner. This may be a name, an address, or other contact details, and is known as "WHOIS data". The data is often useful when investigating cyber threats or crimes. The new GDPR, which came into effect in the European Union (EU) on 25 May 2018, saw access to WHOIS data becoming more restricted. The event also inadvertently saw millions of unsolicited emails being sent around the world notifying customers of updated privacy policies.

The GDPR has an extended extra-territorial reach, applying to companies outside of the EU as well, to the extent they are monitoring activities or offering goods and services to persons physically in the EU, regardless of their citizenship status.

Certain Qatari entities who offer services and products that rely on WHOIS data may therefore need to be comply with the data protection requirements. Following due consideration of the intent and provisions of the GDPR, we published the Domain Name WHOIS Terms and Conditions Notice to comply with the GDPR on 30 July 2018.

Licensing

On 15 March 2018, the original 20-year term of Vodafone Qatar's public mobile license was extended to 60 years. An amendment of Annexure G of the public fixed license, which sets out the coverage obligations, was also issued.

In response to comments received during a public consultation we conducted, on 5 April 2018, we amended the Class License for the Provision of Public Telecommunications Services On-Board Aircraft. The amendment removes the restriction on Internet services provided on-board aircraft flying below an altitude of 3,000 meters above sea level but remains in place for mobile services for voice, data, and SMS services on-board aircraft flying below 3,000 meters.

On December 30, 2018 the President of the Communications Regulatory Authority issued Decision Numbers (5) and (6) of 2018 Issuing the new Radio Spectrum Licenses to Ooredoo and Vodafone Qatar respectively. Attached to these Decisions are the respective new Radio Spectrum Licenses for Ooredoo and Vodafone Qatar that revoke and replace all the prior existing Radio Spectrum Licenses, authorizations and permissions granted to Ooredoo and Vodafone Qatar. The new licenses also consolidate all the previously issued separate spectrum and frequency assignments for easier management of the existing and future assignments. The original grant and expiry dates of the individual spectrum assignments have been maintained in these new licenses.

Regulations and Policies Forthcoming in 2019

- Mobile sites regulations are currently under service provider consultation, and publication is planned in 2019.
- CRA is currently performing a Strategic Sector Review of the four ICT sectors under its regulatory oversight. The Review will form an important basis for the CRA's strategic focus areas for the coming 3 to 5 years.

A Distinguished Program of Events and Awards in 2018





Fostering the Spirit of Cooperation – CRA’s Local Activities and Events in 2018

Throughout 2018, we engaged in a busy program of educational activities, outreach events, and campaigns to connect with consumers and spread awareness of our initiatives that are designed to enrich their service experience.

Through industry workshops, we were able to strengthen cooperation with service providers and sector stakeholders.

World Consumer Rights Day 2018

World Consumer Rights Day 2018 on 15 March 2018 was an opportunity for us to communicate directly with telecom consumers about their rights and responsibilities in using telecom services in Qatar. We organized a three-day public outreach event to educate consumers on issues such as roaming, spam, and scam calls. Consumers from all communities in Qatar attended and had the opportunity to learn more about our accessible complaints resolution process and to put it into practice by directly lodging complaints against telecom service providers at the event.

World Postal Day 2018

Our first high-level international forum for the postal sector coincided with World Postal Day on 09 October 2018. Influential international, regional, and local stakeholders used the forum for rigorous discussions of the issues and challenges in regulating the postal sector and consumer protection. We viewed the event as a chance for collaboration and dialogue between international regulators, industry, and other stakeholders.

The event came at an opportune time for us, as we are in the process of finalizing the regulations for the postal sector in Qatar. We recently conducted a short bilingual survey (in Arabic and English) using social media platforms to get consumers’ feedback on their experience of the postal services provided by Q-Post and private

couriers. We firmly believe that a thorough understanding of consumers’ concerns better positions us to exercise our regulatory mandate over the postal sector and maintain quality of service assurance from service providers. In keeping with our mandate, the new regulations will also cover international couriers and their role in developing ecommerce from a consumer protection perspective.

Raising the Profile of Qatar Domain Names

We successfully conducted an online media campaign between 21 May 2018 and 3 June 2018, to enhance the visibility of Qatar domains under the Internationalized Domain Name.قطر TLD (Top Level Domain). The campaign aimed to encourage businesses and individuals to use the domain names that distinguish their brands as uniquely Qatari and thereby access new markets locally, regionally, and internationally. The success of the campaign was visible in the high numbers of domain registrations as of the end of 2018.

Raising Awareness of Consumer Matters

With an ever-increasing range of services and packages offered by service providers in Qatar, we are aware that the service terms and conditions can often seem complex and overwhelming to the average consumer. User-friendly tips to assist consumers to make informed decisions when using telecoms services are part of how we nurture consumer trust.

In 2018, we identified a number of important areas of service and used a series of alerts and reminders through social media to advise consumers:

Roaming

In June 2018, and again in August 2018 - coinciding with the summer vacation season – we issued alerts advising ways to avoid roaming bill ‘shocks’ while traveling outside of Qatar. The alerts highlighted the consumer’s responsibility in understanding the terms and conditions of their specific roaming packages and services, the cost, and the process of monitoring usage.

Positive results showed in 2018, when the volume of complaints from consumers related to roaming decreased compared to previous years, when we have typically seen an increase in complaints following the holiday season

Data Packages

In June 2018, we issued an alert to increase awareness of consumer rights and responsibilities in terms of data usage while roaming. This advice also applies to local data usage. This is one of the means we use to remind consumers of their responsibilities in using telecom services, which is to be fully aware of the related terms and conditions of their local data package and their data allowance. This includes the ‘fair usage policy’ which may apply to a consumer’s subscription.

Protection of Personal Information

We continue to caution consumers about sharing their personal details, to avoid the risk of fraudulent activity.

We are aware - through our 103 hotline, various media reports, and from social media activity - of an increase in the number of scam calls from international numbers and through apps such as IMO, Viber, and WhatsApp. A significant number of consumers reported receiving scam calls from people claiming to represent their telecom service provider, asking for private details such as QID numbers, bank account details, passwords and PIN codes. We periodically issue alerts to consumers to be aware of such calls.

Qatar Innovation on Show at the IPv6 Stakeholder Workshop

Fulfilling its leadership role in the adoption of Internet Protocol version 6 (IPv6), we convened a taskforce meeting on IPv6 with stakeholders and the Réseaux IP Européens Network Co-ordination Center (RIPE NCC). The meeting was attended by representatives of 16 government and private entities including Ooredoo, Vodafone Qatar, Qatar National Bank, KAHRAMAA, the Ministry of Interior, and Carnegie Mellon University, Qatar.

IPv6 is the most recent version of the Internet Protocol (IP). The aim of the IPv6 Stakeholders Taskforce is to oversee the development of the IP Internet domain in Qatar. The IPv6 National Implementation Strategy provides a framework for the adoption of the system in Qatar, to enable end user entities to progressively change to IPv6.

During the meeting, RIPE NCC representatives discussed the steps for a successful and smooth transition to IPv6, including a security mitigation plan, IPv6 addressing and allocation, and KPI measurement.

The best innovations showcased at the workshop were proudly Qatari projects. Representatives from Qatar University shared an advanced IPv6 implementation project while officials representing MEEZA (a Qatar Foundation joint venture) presented a pioneering IPv6 transition project for smart services in Musheireb City.

The transition from IPv4 to IPv6 enables higher Internet security and enhances the availability of a robust connectivity across Qatar and the roll out of advanced next generation technologies for smart living and smart cities such as the Internet of Things and ecommerce.

User-friendly tips to assist consumers to make informed decisions when using telecoms services are part of how we nurture consumer trust. In 2018, we identified a number of important areas of service and used a series of alerts and reminders through social media to advise consumers:

Supporting Industry to Implement the New Retail Instruction

On 19 July 2018, we brought service providers together for a workshop on the Retail Tariff Instruction issued on 12 July 2018 for Individually Licensed Service Providers. The workshop offered guidance for the implementation of the instruction, which sets out the rules and process of approval for retail tariffs, applicable to permanent and promotional offers extended by service providers. The rules are aimed at protecting the interests of telecom consumers.

Excelling on a Global Stage – CRA Participation in International Activities

International forums and conferences gives us a valuable platform to strengthen ties with our counterparts and other industry stakeholders globally. Active participation in industry bodies such as the International Telecommunication Union (ITU) offers the opportunity to share Qatar's successes on a global stage while benefitting from sharing ideas and experiences on some of the more complex future issues for telecom regulators and the sector.

ITU Telecom World 2018

His Excellency Mohammed Ali Al-Mannai, President of the CRA, led a high-level Qatari delegation to attend Telecom World 2018 in South Africa from 10 to 13 September 2018. Telecom World is an annual global event organized by the ITU, which focuses on technologies, innovations, ideas, policies, and regulations to bridge the digital divide.

With innovation leaders from 94 countries in attendance, Qatar used the event as a platform to advance its digital transformation and to bring Qatari technological innovations to an international platform. It was also a networking opportunity where the Qatar delegation shared its initiatives and learned about best practices in areas such as smart cities and the latest innovations in sustainable urban living.

Internet Governance Forum 2018

We participated in the 13th Annual Meeting of the Internet Governance Forum (IGF 2018), organized by the United Nations and hosted by the Government of France on the theme Internet of Trust in Paris from 12 to 14 November 2018.

The IGF is an inclusive, global platform that brings together stakeholders to discuss public policy issues related to key elements of internet governance. The IGF 2018 gathered over 2,200 participants from 140 countries, with thousands more participating online.

The forum addressed some of the most critical current Internet policy issues, clustered into eight core themes: cybersecurity, trust and privacy; digital inclusion and accessibility; emerging technologies; evolution of internet governance; human rights, gender and youth; development, innovation and economic issues; media and content; and technical and operational topics.

Global Symposium for Regulators

We participated in the 18th Global Symposium for Regulators (GSR) in Geneva, Switzerland. The theme of the symposium was New Regulatory Frontiers, and included participation from more than 600 professionals from around the world. GSR was an opportunity to exchange ideas and experiences with other regulators, policy and decision makers, industry experts and stakeholders around the world, which will help the ICT sector evolve in Qatar.

Promotion of Excellence in the Sector through CRA Awards

Qatar IT Business Awards 2018

As an effort to encourage homegrown digital innovation, the MoTC recognized 14 IT businesses in the Qatar IT Business Awards 2018, an initiative to support and enhance Qatar's IT sector.

The 2018 awards recognized businesses in fields of future importance to Qatar's IT sector, which will boost the sector's contribution to Qatar's social and economic development.

Unleashing The Potential of Qatar's Telecom Sector





CRA Projects and Plans for 2019

A vibrant, competitive telecom sector that remains on a growth trajectory will continue to be the impetus for our work in 2019, strongly evident in all our strategic initiatives and current programs. Over the next year, we will continue to build on the successes of 2018 and previous years, by delivering our current initiatives, and refining our areas of focus where needed through new projects in order to fulfil our mandate.

A competitive and innovative telecom and IT sector will accelerate Qatar's progress towards becoming a knowledge-based information society. Through our programs to monitor the rollout of high-quality infrastructure and new generation technologies that are widely accessible, we are building a solid foundation for Qatar's digital future - as a smart, connected nation.

We are proud of the results of our ongoing work to promote and nurture homegrown innovation to meet our society's future digital needs. We will continue to showcase these on a global stage through participation in international forums in future.

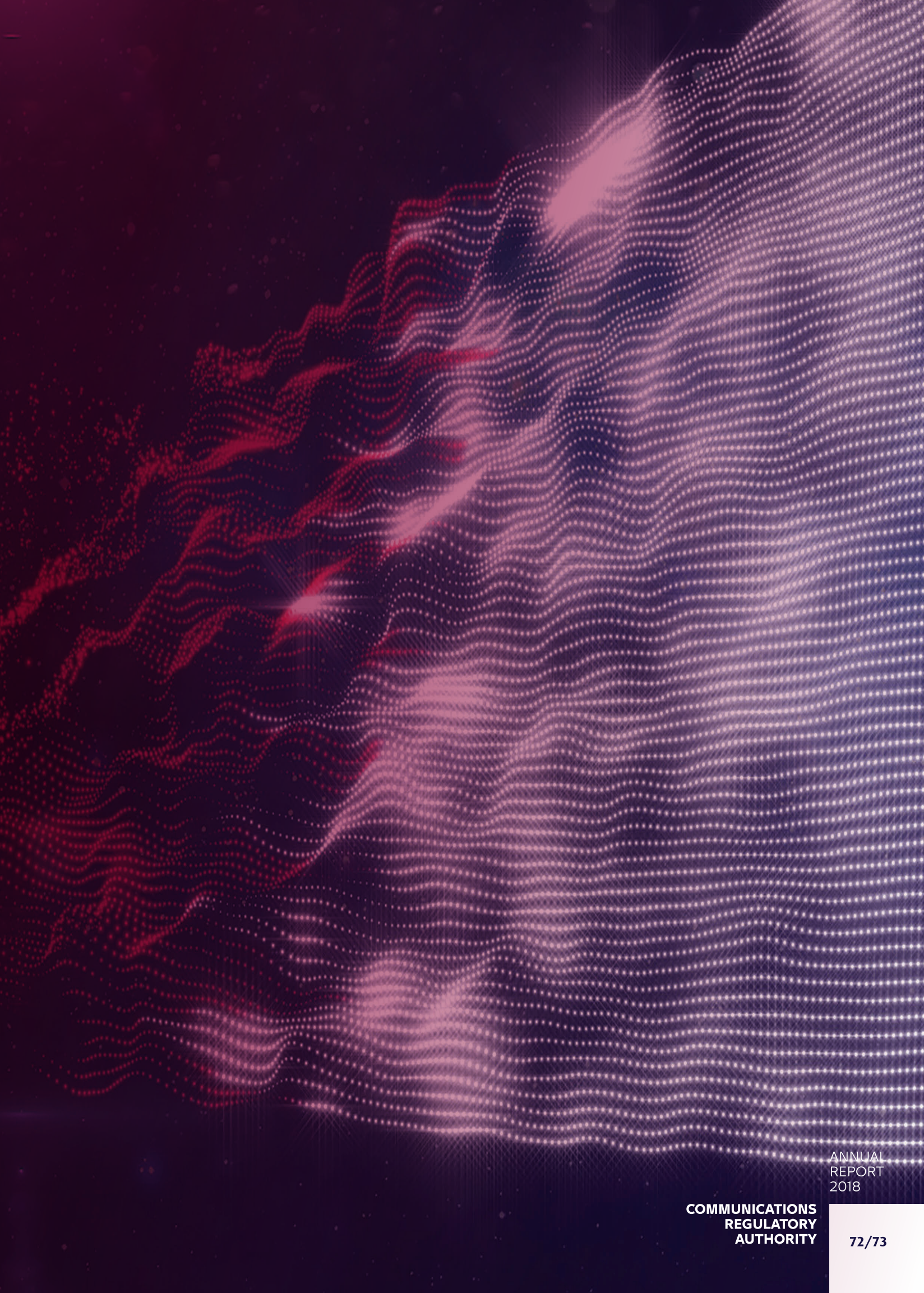
In 2019, we will roll out key new initiatives to support our commitment to create new opportunities for innovation in the sector, in keeping with the Qatar National Vision 2030 for a digitally connected nation.

Planning for Future Needs - Telecom Master Plan

The fast-pace of the sector's development and high penetration rates demands a long-term plan to ensure that the quality of service keeps pace with the innovative services introduced by service providers. With the same foresight that has delivered the successes we have achieved to date, we are developing a telecommunications master plan to support and meet the Qatar National Vision 2030 goals. The master plan will be essential for forecasting infrastructure needs, and defining required sites and service area needs.

A Key National Resource – Managing Spectrum for the Long Term

Planned enhancements to spectrum services will be implemented in 2019. Both the Automated Spectrum Monitoring System (ASMS) and the Automated Frequency Management System (AFMS) will undergo expansions. These two systems are extremely vital for us to manage and monitor the legitimate use of radio spectrum in Qatar, especially for key sectors such as oil and gas, aviation, maritime, and infrastructure development.



Augmenting the Quality of Radio Services - ASMS Phase 2

The Automated Spectrum Monitoring System (ASMS) and Automated Frequency Management System (AFMS) enables us to achieve the highest quality of radio services. These systems identify and eliminate sources of interference that degrade public or private telecommunication networks.

Our team of experts monitor the systems, which are coordinated through the upgraded National Monitoring Center (NMC), which accesses, monitors, and controls servers in four fixed monitoring stations and two mobile monitoring stations across the country.

The system automates around 180 different workflows of spectrum allocation, assignment, and licensing in support of the updated Spectrum Licensing Framework and Spectrum Fee Policy.

Digitization for Optimizing Processes

Optimizing existing applications for spectrum users will now be easier as we have fully digitized the process through our portal, which has become the main interface for all applicants:

<https://e-spectrum.cra.gov.qa>.

The two systems constitute part of the key infrastructure to improve the overall performance of government entities through the use of advanced and innovative technologies which benefit the economy and the community.

In 2019, we will implement an expansion plan that includes integration of two new hybrid sites in Al Khor and Al Wakra and upgrading the TDOA site at West Bay. We eagerly anticipate the benefits of the project, which will also play a key role in Qatar's hosting of the FIFA World

Cup in 2022, leading to marked improvements in the monitoring, direction finding, and geolocation capabilities of the system over the entire frequency band up to 40 GHz. Three fully automated mobile monitoring systems and 13 TDOA sensors will be deployed around Qatar to enhance the monitoring reach of the National Monitoring Center.

The vital expansion works will commence by December 2018 and be completed by the end of 2021.

The ASMS expansion plan includes the integration of two new hybrid sites in Al Khor and Al Wakra and upgrading the time difference of arrival (TDOA) site at West Bay. Three fully automated mobile monitoring systems and 13 TDOA sensors will be deployed around Qatar to continuously enhance the monitoring reach of the National Monitoring Center.

With a keen focus on Qatar's preparations to host the FIFA World Cup in 2022, we look forward, with the project, to improve its monitoring, direction finding, and geolocation capabilities of the system over the entire frequency band up to 40 GHz. The expansion project will commence by December 2018 and will be completed by the end of 2021.

State-of-the-Art Drone Detection System

A state-of-the-art Automated Drone Detection System (ADDS) to detect and track radio controlled drones and their remote controllers is also planned to be added to the ASMS by mid-2019. The system will have real time automatic detection and classification of drones and will provide tracking in a search region of up to 4 kilometers. The system will be vital for detecting any drone activities during major events.

Enhancing e-Services - AFMS System Upgrade

We will introduce advanced new features and functions to the AFMS system after the second phase, which includes single-sign-on (Identity Provider) in the e-Services portal, and full automation of certain licensing processes (including aircraft station licensing, amateur station-basic etc.).

Keeping Apace with Market Changes - Reviewing the Spectrum Fees

Since implementing the spectrum fees schedule, and after introducing new frequency bands for international mobile telecommunications (IMT) applications, we are aware of the importance of reviewing the spectrum fees applicable to some services/systems and revising them to reflect their true cost and value.

Introducing KPIs to Ensure Quality of Service

Our consumer-focused approach will continue to inform our approach to monitoring the network performance of mobile service providers, Ooredoo and Vodafone, on a regular basis in 2019 and going forward. We are in the process of establishing a robust Quality of Service Framework so that we can ensure that the services provided to telecom consumers in Qatar are among the best in the world.

Key Performance Indicators will apply to services offered to consumers such as voice calls, short message service (SMS), and data service. We are confident that these new measures will allow us to ensure the highest levels of consumer satisfaction with telecom services.

A Lifesaving Initiative: HMC Early Warning System for Ambulance Vehicles

We are fully supportive of deploying advanced technologies that may potentially save lives. We have had discussions with Hamad Medical Corporation (HMC) representatives regarding the necessary approvals for a new Early Warning System to be deployed in HMC ambulances. By transmitting very short warning message alerts through FM Broadcast Transmitters, the system will allow its ambulance crews to alert surrounding drivers of their approach earlier than alerting through the lights and sirens on the ambulance.

In 2019, we will continue to coordinate with the relevant authorities to ensure smooth installation and operation of this solution.

Smart Cities Framework

The concept of a smart city, taking shape in new developments such as Lusail City, is important for Qatar's long-term development and is closely aligned with the Qatar National Vision 2030 for a high standard of living for its residents. We have a lead role in ensuring the infrastructure and regulatory framework is in place for new technologies such as 5G and the Internet of Things. A smart cities framework is under development, and will be beneficial for us to provide guidance to all stakeholders and to set achievable strategic goals.

The Future of Smart Living - Class License for Home Automation/Mesh Networks

The future of digital technology in Qatar will see telecom users having access to state-of-art services that introduce innovation in all areas of their lives. Recognizing that this future is rapidly becoming a reality, we intend to develop a class license for Radio and Telecommunications Terminal Equipment (RTTE) used in smart homes to encourage dealers and users to import and install such type of devices.

A mesh network connects all devices which carry a signal on a network to connect with each other, to provide wider and more reliable coverage. We anticipate the wide use of such networks in smart homes using automated home systems where multiple devices such as the smart television, phone, computer, and thermostat, are connected to the same network.

5G Consortium Strategy

This year has been an exciting one for the advancement of 5G technology in Qatar. We are playing an active role by leading a consortium for the rollout of the 5G network, which includes service providers, government, and non-government entities. In 2019, we will continue to encourage the industry to join capabilities and work together, in support of our efforts to: Create awareness of 5G technical services and facilities; Ensure adoption and full implementation by 2020, with the aim of full rollout and accessibility by 2022; and Provide a platform for the development of smart cities and services.

Strategic Sector Review

We are currently undertaking a comprehensive and in-depth review of the ICT sectors we regulate, which will enable us to fully comprehend the needs of the sectors and to establish the main pillars of our regulatory role going forward.

The review includes engaging stakeholders and determining how the team at CRA can best support Qatar's ambitious digital agenda for the coming years. The process will include a full assessment of the Applicable Regulatory Framework for the CRA and one approach we are already considering is adopting different strategies targeted at each of the different sectors. We expect to conclude this strategic review in the fall of 2019.

Moving Forward

We are progressively advancing towards the realization of the goals in our five-year strategic plan for 2018 to 2022. These outcome-oriented goals are closely aligned to the objectives of the Qatar National Vision for 2030 and the National ICT Plan.

The unprecedented opportunities presented by Qatar hosting the 2022 FIFA World Cup will continue to drive many of our programs. Integrated, smart technology will play an important role in ensuring this event, which will place Qatar center stage in the media and the world of sports globally, is a resounding success. Equally important is addressing any technology and service challenges which may arise, both in terms of the consumer experience and service provider needs.

One of our aims in 2019 is to work closely with all service providers to ensure our readiness to meet these challenges. We will continue to rely on the support and commitment of stakeholders in both the private and public sectors in 2019.

We thank our readers for their interest in the programs, projects, and orders we have successfully implemented during 2018. We look forward to delivering the initiatives we have planned for 2019 and beyond.



www.cra.gov.qa