

The Council of Ministers

Resolution No. (29) of the year 2016 Promulgating the Fourth National Telecommunications Plan

After perusal of,

Legislative Decree No. (48) of the year 2002 promulgating the Telecommunications Law, and particularly Article 15(a) thereof,

And based on the recommendation of the Minister of Transportation and Telecommunications, after his consultation with the Telecommunications Regulatory Authority,

And after approval of the Council of Ministers,

Determines the following:

The First Article

The attached Fourth National Telecommunications Plan is approved and shall take effect for three years from the date of its publication.

The Second Article

This Resolution and the attached Fourth National Telecommunications Plan shall be published in the Official Gazette, and the Minister of Transportation and Telecommunications shall monitor their implementation, and they shall take effect on the day following their publication.

Khalifa Bin Salman Al Khalifa

Prime Minister

Issued on: 8 May 2016

FOURTH NATIONAL TELECOMMUNICATIONS PLAN

1 Introduction

1. This National Telecommunications Plan has been adopted by the Government of the Kingdom of Bahrain (Government) in conformity with Article 15 of the Telecommunications Law, as promulgated by Legislative Decree No. 48 of 2002 (Telecommunications Law), which requires the Minister responsible for the telecommunications industry to publish periodically a National Telecommunications Plan with the approval of the Council of Ministers and published in the Official Gazette. Published plans must encompass both the strategic plan for the sector and the general policy of Government toward the telecommunications sector.
2. This is the fourth National Telecommunications Plan (Plan) to be issued since the promulgation of the Telecommunications Law. It sets out Government's strategic plan and general policy for the telecommunications sector of the Kingdom of Bahrain, covering the three-year period commencing from the date of its publication.
3. The Telecommunications Law requires the Telecommunications Regulatory Authority (Authority) to act "*in a manner that is consistent with the objectives of the National Plan for telecommunications; provided that this shall not be construed to derogate from the independence of the Authority in accordance with the provisions of this Law.*"
4. Accordingly, the provisions of this Plan that are described as Government Policy, together with the required actions, have the legal status defined in the Telecommunications Law.

2 Government's Vision for the Sector

5. The telecommunications sector is an important engine for Bahrain's economic growth and diversification as well as social cohesion. An efficient telecommunications sector, with first class infrastructure, used to provide leading-edge services and respond to the needs of consumers and businesses, is vital for increasing productivity and supporting the growth of new sectors of the economy. This includes an energetic digital services sector. A robust telecommunications platform, as part of a dynamic Information and Communications Technology (ICT) eco-system, will also enhance the ability of the Kingdom and its citizens to achieve a range of societal objectives, including improvements in health care, education and the ability of citizens to communicate with governmental bodies.
6. Since liberalisation commenced in 2002, the Kingdom has been at the forefront of telecommunications sector reform in the region. This has benefited the Kingdom and its citizens substantially: prices have fallen as consumer choice has increased, many new innovative telecommunications services have been launched and new online services and applications have been made available to Bahraini consumers.
7. Consumer demand for telecommunications services is continuing to evolve as innovative applications and content become available online. Many of these are high-bandwidth applications which demand increasing amounts of network capacity. At the same time, the new online business models that are being introduced by content and applications providers are being used by consumers as complements to, and in some cases as substitutes for, the voice and messaging services offered by traditional telecommunications licensees.
8. Countries around the world are responding to these developments by prioritising investment in new high-speed infrastructure. They also are taking steps to ensure that legislative, policy and regulatory frameworks reflect the new reality and evolving architecture of a converged ICT eco-system that depends on the availability of advanced fixed and mobile telecommunications networks. Policy makers are also placing a new emphasis on the training and development of "local talent" — skilled ICT professionals, applications and content developers and internet entrepreneurs.
9. It is essential that Bahrain remains at the forefront of these digital developments, within the region and globally. The Plan has been prepared with the aim of achieving this overarching goal.

3 Overview of the Government's Strategic Plan and Policy for the Sector

10. Government considers that the telecommunications sector should continue to play a central role in attracting new investment to the Kingdom, promoting Bahrain as an ICT and business hub in the region and supporting the continued diversification and strengthening of the private sector in the Kingdom's economy, as part of an overall investment-friendly business environment. Government further recognises that Bahrain needs an energetic digital services sector to drive social and economic development and job creation, and to ensure that Bahrain attracts the talents of the future, driving digital exports across the region and beyond. Accordingly, the Plan identifies a series of measures that are designed to maintain Bahrain's pole position in the development of the telecommunications sector while at the same time advancing internet adoption more generally.
11. The Plan is supported by policies intended to ensure that Bahraini consumers have affordable, secure and robust access to ultra-high speed fixed and mobile broadband networks, offering converged access to IP-based interactive, multimedia, and rich communications services, as well as evolving services such as the internet of things (IoT) and machine-to-machine (M2M) communications.
12. Government further recognises that effective and sustainable competition plays an important role in delivering a strong and dynamic sector. In this regard, Government considers "sustainable competition" to mean an environment in which operators compete effectively on the basis of price and quality of service, while being able to invest sufficiently to support the deployment of new technologies and innovative services, with entry based on a long run business model rather than short run arbitrage opportunities.
13. At the same time, Government has concluded that there is a clear need to increase investment in, and the use of, ubiquitous ultra-high speed networks and associated cutting-edge technologies. The Plan reflects Government's desire to ensure that the ICT eco-system, with telecommunications as the backbone, is able to stimulate wider economic growth, consistent with the Kingdom of Bahrain's Economic Vision 2030 and the goal of becoming a 'Smart Kingdom', i.e., one that uses ICT to optimal effect for the benefit of consumers, business, Government and the environment.

14. In line with this vision, Government has determined that the following key policy objectives should be achieved by the end of the period covered by the Plan:

- a. 95% of all households and 100% of businesses and public radio communication stations in the Kingdom of Bahrain are able to access affordable, reliable and secure ultra-fast broadband services (defined as downstream data rates of at least 100 Mbit/s to households and symmetric data rates of at least 1 Gbit/s to businesses and radio sites). The remaining 5% of households shall have access to broadband Internet services using alternative access methods.
- b. Ubiquitous ultrafast broadband, consistent with the targets set out above, is supported through the deployment of a national fibre network, to which all retail service providers will have access on an equal, fair, reasonable and non-discriminatory basis, so as to allow competition to flourish in the provision of communications services, applications and online content.
- c. Strengthen the Kingdom of Bahrain's pioneering position and ensure the Kingdom is ranked within the top 20 countries globally in key international telecommunications indices.
- d. The Kingdom of Bahrain has adopted a clear spectrum policy plan for assignment of the appropriate bands through clearly identified processes in order to support the continued evolution of, and demand for, mobile data services.
- e. The foundations have been laid for the Kingdom of Bahrain to become, by 2018, a leading regional hub for internet businesses, content and applications, by establishing appropriate support and incentives to promote ICT investment as well as training programmes and capacity building to foster the development of a Bahraini knowledge base, talent and entrepreneurs in the internet space.
- f. An effective framework is in place to ensure that the telecommunications/ICT sector in the Kingdom of Bahrain has adopted international best practices with respect to national cybersecurity and cyber safety coordination, preparedness, and response by the relevant entities.

- g. There should be a high level of demand for services utilizing ubiquitous ultra-high speed networks, based on next-generation fixed and mobile infrastructure that fosters a converged internet eco-system. At the same time, citizens and residents should be able to access the content and applications of their choice, using the devices of their choosing so far as is technically feasible. Such content and applications should be delivered by telecommunications service providers without unreasonable discrimination.
- h. A comprehensive review of the Kingdom's legislative framework for the telecommunications sector shall be carried out to evaluate whether any modifications are necessary to address developments that have taken place in this rapidly evolving sector since the promulgation of the Telecommunications Law in 2002; and if so, the relevant modifications are adopted into law.

4 Key Policies for the Telecommunications Sector Going Forward

(I) Delivery of Ubiquitous Ultrafast Broadband Infrastructure

15. In the third National Telecommunications Plan, Government identified the provision of access to ultrafast broadband services across the Kingdom to be imperative for both economic and social development. The plan called for the establishment of a National Broadband Network (NBN) based on fibre optic technology to deliver this capability, but did not specifically assign responsibility for deploying the NBN to any particular operator.
16. Although some progress has been made during the past three years, fibre coverage and take-up in Bahrain have not kept up with government aspirations, despite the advantages that the Kingdom enjoys as a result of its high population density and urbanisation.
17. The development of fibre-based national broadband network capable of delivering ultra-fast broadband to consumers and businesses across the Kingdom remains a core objective for Government. It is, moreover, a key development underpinning all of the policies established by this Plan. Government considers that it is realistic to set the following deployment and performance targets for the NBN to be achieved by the end of the period covered by this Plan:
 - a. For residential customers: ultra-fast broadband access enabling downstream data rates of a minimum 100 Mbit/s for 95% of households; and
 - b. For business customers and public radio communication stations: ultra-fast broadband access enabling symmetric and uncontended data rates of minimum 1 Gbit/s, with 100% coverage.
18. These deployment and performance targets should be viewed as a starting point for ultrafast fibre-based broadband delivery. The technologies and network architecture that are deployed in the deployment of the NBN must be "future proof" by ensuring that the network can be upgraded at minimal cost to deliver state-of-the-art performance in line with international benchmarks.
19. In the period covered by this Plan, Government intends to ensure that there is a clear line of responsibility and accountability for delivering the required and expected outcomes.

20. Government considers that a single NBN infrastructure to deliver ultra-fast broadband products and services is preferable and efficient for a country of the size, population distribution and topology of Bahrain. This single network will be owned by a separate legal entity, which shall be legally and functionally separated from the Incumbent Operator, Bahrain Telecommunications Company (Batelco), which will supply wholesale products and services to all licensed operators in the Kingdom on a non-discriminatory basis, and it will be awarded the right to deploy the NBN and to supply these wholesale products and services.
21. Government requires that the new entity be established as an independent legal entity formed by functionally separating the Incumbent Operator (i.e. Bahrain Telecommunications Company) into two legally and functionally separate entities. The new entity will be awarded separate telecommunications licenses for the establishment and operation of a national high-speed fixed broadband network and to provide wholesale products and services to licensed operators, such that the new entity incorporates the fixed network and wholesale business units, together with the appropriate systems and processes, while the other entity will incorporate the rest of the Incumbent Operator.
22. Government also recognises the importance of strengthening the existing regulatory framework to ensure that Other Licensed Operators (OLOs) are able to compete more effectively in the provision of services to end-user customers.
23. Government considers that functional separation of the Incumbent Operator into two legal entities will be beneficial to the industry by encouraging the new entity to be more independent and customer-focussed. Government expects functional separation of the Incumbent Operator will also promote transparency in the interactions between the new entity and the Incumbent Operator's retail operations and thereby facilitate regulatory oversight and enforcement.
24. *Accordingly, Government Policy in this area is as follows:*
- a. *The new entity shall have the right and responsibility to deploy and operate a ubiquitous ultra-fast national broadband network based on fibre optic technology, capable of delivering wholesale products and services that achieve the performance targets referenced in Paragraph 17 above by the end of the period covered by this Plan and, thereafter, state-of-the-art performance in line with industry best practices.*

- b. *The Incumbent Operator will be required to establish a new entity which requires adequate preparation and shall begin with the establishment and licensing of this entity in order for it to benefit from the exclusive right and responsibility to established, operate and maintain the NBN and provide offer wholesale products and services to licensed operators. Implementation of the new entity is mandatory in for it to benefit from the right to establish, operate and maintain the NBN.*
- c. *The new entity is to be efficiently resourced to deploy and operate the NBN and associated wholesale products and services. Furthermore, all appropriate components of the Incumbent Operator's wholesale access business are to be transferred to the new entity.*
- d. *The new entity will only provide wholesale products and services and it will provide these wholesale products and services exclusively to duly licensed operators within the Kingdom of Bahrain.*
- e. *The Authority, in cooperation with Government, shall develop a framework that:*
 - i. *aims to allow the new entity to recover efficiently incurred costs, including a fair return on its investment; and*
 - ii. *ensures that the new entity efficiently deploys the NBN infrastructure necessary for the provision of ultra-fast broadband products and services in accordance with the Government's established deployment and performance targets, including interim deployment targets to be set forth in the new entity's licence.*
- f. *As a condition of the rights accorded to the new entity in relation to NBN deployment and operation, strengthened regulatory safeguards must be adopted. These shall include, at a minimum, effective measures to ensure that the new entity delivers NBN-based wholesale products and services to the Incumbent Operator's retail business unit(s) and its competitors on an "equivalence of inputs" basis. That is, the new entity shall deliver wholesale products and services to the Incumbent Operator's retail business unit and its competitors in accordance with the same timescales and pursuant to the same terms and conditions, including everything related to price, service*

levels, information about product development and launch, and utilisation of systems and processes.

- g. *During the transitional period leading up to the establishment of the new entity, the Authority, in coordination with Government, shall take the measures necessary to adopt, implement and enforce effective functional separation on a gradual basis together with associated equivalency safeguards. The Authority shall put in place effective mechanisms to monitor the compliance of the Incumbent Operator and the new entity with their respective regulatory and licensing obligations, including the new entity's obligation to deliver equivalence of inputs, and the new entity's obligation to meet NBN deployment and performance targets. The Authority shall carry out the necessary proceedings pursuant to its powers under the Telecommunications Law to ensure that the Incumbent Operator and/or the new entity, as the case may be, complies with these important obligations for the benefit of fair competition and consumer's right to choose.*
- h. *The range of wholesale products and services to be delivered and the manner of implementing the referenced obligations must reflect the reasonable requirements of all of the new entity's wholesale customers, as reviewed and approved by the Authority, after taking into account the views of the relevant governance bodies of the new entity and industry stakeholders.*
- i. *The Authority shall, in coordination with Government, and in consultation with industry stakeholders and the relevant governance bodies of the new entity, develop the plan and timetable for implementing functional separation of the Incumbent Operator. Additionally, Government and the Authority will take steps to promote take-up of both retail and wholesale fibre-based products and services in the Kingdom of Bahrain.*
- j. *In order to maintain a fair and transparent sector in the long-term, the new entity shall allow for additional investment by interested parties, including licensed operators in the Kingdom of Bahrain, after three years from the date of issuance of this Plan, and within guidelines established by the relevant entities.*

(II) Mobile Competition

25. Bahrain has a strong and competitive mobile sector. Prices in this sector are considered to be low compared to prevailing international prices and current coverage is already extensive. Therefore, Government considers that the priority for the period covered by this Plan should be to ensure that the sector continues to deliver significant customer benefits and that sustainable competition is safeguarded while maintaining high quality of service standards for mobile voice and data.
26. Government believes that the wider objectives set out in this Plan, namely the promotion of Bahrain as a regional business and ICT hub, can be achieved without the need for significant intervention in the mobile market. However, Government stresses the need for competition to be sustainable in the mobile market in light of current cost, demand, revenue and technology trends. There is a concern that the regulatory uncertainty regarding the scope for new entrants in the market may deter future investment by the three existing mobile licensees. On the other hand, there is a concern that the benefits of competition to consumers could be adversely affected if there were to be consolidation in the mobile sector.
27. The policies adopted in this area will therefore focus on ensuring that sustainable mobile competition is encouraged and maintained, and that valuable spectrum resources are assigned and utilised efficiently.
28. *Accordingly, Government Policy in this area is as follows:*
- a. *Given the current structure of the market, and subject to the exception set out in Paragraph 28(b), the Authority is not to issue an individual mobile telecommunications licence to any new applicants during the period covered by this Plan. This is because the level of competition in the market presently has been found to be effective. Furthermore, the introduction of the NBN over the period of this plan is likely to have a significant impact on the provision of mobile and fixed wireless services, which may increase uncertainty in the market. It is prudent, therefore, to remove regulatory uncertainty over this period by clarifying Government's policy in this regard during the period of this plan, thereby encouraging investment in NBN-based retail services.*
 - b. *If there are significant changes in the structure of the market, for example, as may be brought about by concentration in the market through mergers, or other developments, the Authority may at that time review the sector to*

assess whether the level of competition in the provision of mobile voice and data services is sufficiently robust. If, following a consultation with Government, the Authority concludes that additional entry would enhance the competitive environment over the long term, the Authority may award an individual mobile telecommunications licence to a new applicant, on the condition that the applicant does not already hold one of the existing individual mobile telecommunications licences.

(III) Spectrum allotment/assignment and wireless infrastructure evolution

29. The demand for spectrum that can be used for the provision of mobile broadband services is growing at a rapid pace. Given the growing need for additional spectrum, it will be necessary for the Government to release and allocate new frequencies for use in offering mobile telecommunications services and for the Authority to allot and assign these frequencies pursuant to Article 42 of the Telecommunications Law as and when appropriate.
30. As demand for spectrum resources increases, so too does the need for infrastructure to support new radio frequency-based networks and services. The trend globally is to encourage the sharing of radio sites, towers and other passive infrastructure by mobile network operators. As of July 2015, there were 1590 masts in the Kingdom, out of which 187 sites were being shared by the licensees providing wireless services. The percentage of site sharing was thus only about 12 percent. The Government considers this level of sharing should be increased to enhance the efficient roll out of network infrastructure.
31. *Accordingly, Government Policy in this area is as follows:*
- a. *For the purpose of promoting sustainable growth in the mobile industry, the National Spectrum Planning Committee (the "Committee") shall, as a matter of priority, update the Spectrum Policy Plan and identify spectrum that should be allocated for commercial telecommunications services in line with the current Radio Regulations of the International Telecommunication Union. The Committee also shall coordinate the necessary plans to free up spectrum that is currently held by other entities.*
 - b. *The Authority, in consultation with the Government, shall ensure that the award of the required spectrum for commercial telecommunications services is in line with international best practices. The award shall be carried out in a manner, and pursuant to a timetable, that supports the efficient use of spectrum, the development of advanced mobile technologies, sustainable competition and Government's objectives for the sector, whilst taking into account the priority placed by Government on the roll-out and uptake of fibre services. Additionally, Government requires that Bahrain directly benefit financially from any spectrum award, at levels that properly reflect the value of this scarce national resource.*

- c. *Government further requires that all radio spectrum that has been allotted for commercial use be subject to review. The review and actions arising from it must ensure that radio spectrum is efficiently utilised, managed and valued, to the benefit of Bahrain.*
- d. *In accordance with Prime Ministerial Edict No. 45 of 2015, promulgating the Regulation concerning Public Radio Communications Stations, the Authority shall:*
 - i. *implement regulatory measures as necessary to optimise the efficient use of wireless infrastructure and to promote and encourage site and mast sharing amongst all commercial wireless networks where feasible;*
 - ii. *ensure compliance with the established procedures, requirements and technical rules for the construction, siting and design of radio communications stations and supporting structures.*
- e. *The Government will coordinate the activities of all relevant Government agencies in regard to securing sites in private and public developments that are necessary for new mast construction, to further facilitate the provision of advanced mobile services.*

(IV) National Security of Electronic Communications Networks and Services

32. The importance of preparedness, cooperation and coordination to secure telecommunications network infrastructure from cybersecurity threats was recognised in the third National Telecommunications Plan. Significant progress has been made over the past three years to respond to the growing cybersecurity threat affecting electronic communications.
33. Ensuring cybersecurity and cyber safety are important ongoing objectives for Government across all sectors. Indeed, as an international financial services hub, it is important for the Kingdom to align itself with the standards being put into place and the measures being adopted in other key markets to ensure that its critical telecommunications infrastructures are as secure and resilient as possible.
34. In light of the critical importance of the telecommunications sector to the Kingdom's digital economy and businesses, an inventory of all critical telecommunications infrastructure in Bahrain should be undertaken. The facilities thus identified should be evaluated to determine how they measure up against cybersecurity best practices globally, and any gaps should be addressed as a matter of priority. It is also important to ensure that all participants in the sector are – and remain – prepared to detect and respond to cyber incidents and breaches swiftly and effectively. To this end, processes should be developed to facilitate cooperation between and amongst licensees and with all relevant authorities. In addition, procedures should be established for the reporting of data breaches to the Authority and other relevant government entities by all licensees.
35. The cyber safety of consumers also requires attention to measures that can be taken to secure user devices and improve consumer awareness of online threats and how to deal with them.
36. *Accordingly, Government Policy in this area is as follows:*
- a. *The Authority, in cooperation with Government, shall identify the necessary regulatory measures to mitigate risks affecting public telecommunications networks, including the adoption of measures to ensure an appropriate level of resilience and integrity in line with international best practices and benchmarks.*

- b. *The Authority shall work with relevant government entities, such as the national Computer Emergency Response Team (CERT), and industry stakeholders to ensure that the sector is adequately prepared to respond to breaches affecting licensed operators. Furthermore, the Authority shall ensure that rules are in place requiring the prompt reporting of data breaches by all telecommunications licensees to the Authority and relevant government authorities.*
- c. *The Authority shall ensure that licensed operators comply with their National Security obligations as per Articles 78 and 79 of the Telecommunications Law.*
- d. *The Authority shall, after taking into account the views of the relevant entities and experts:*
 - i. *adopt regulatory measures which ensure that providers of public telecommunications networks and services take reasonable steps to mitigate the rising cyber-risks associated with the use of telecommunications devices and services;*
 - ii. *coordinate with relevant stakeholders to improve cybersafety by taking steps to improve consumer awareness of online threats and how to deal with them.*
- e. *Government, in coordination with the Authority, will promote cooperation amongst all Government stakeholders to ensure a coordinated approach to cybersecurity across all industries and sectors that rely on critical telecommunications infrastructure and services.*

(V) International Connectivity

37. Given the geographic position and population size of Bahrain, having sufficient international connectivity, across different routes, is of critical importance. The inability of Bahraini telecommunications operators and internet service providers to access redundant and resilient international capacity at reasonable prices represents a key impediment to the Kingdom's ability to develop as a regional business and ICT hub and meet the core policy objectives set out in this Plan.
38. Two interrelated issues need to be addressed in this regard. The first issue is the state of international connectivity to and from Bahrain, including the ability of licensees to access such international connectivity. The second issue relates to the state of the arrangements for internet peering in the Kingdom and specifically, the future role of the Bahrain Internet Exchange (BIX) as an internet exchange point.
39. Although it appears that there is a reasonable degree of choice and capacity on international routes, there is evidence that licensees other than the Incumbent Operator are having difficulty accessing cable landing stations directly and are experiencing unreasonably high costs to obtain international connectivity.
40. The establishment of BIX in 2003 contributed to the development of a connection mechanism between holders of internet service licences in the Kingdom by facilitating peering relationships between them, as was intended by Article 41 of the Telecommunications Law. However, there is evidence that bilateral peering arrangements have emerged over the past decade, and it is therefore appropriate for Government to reassess the need for and the role of the exchange.
41. *Accordingly, Government Policy in this area is as follows:*
- a. *The Authority shall undertake a review of the entire supply chain of international capacity, including the provision of cross-border dark fibre, and shall adopt measures it deems necessary for the efficient functioning of the relevant markets.*
 - b. *The Authority shall conduct a review of the effectiveness of current regulation relating to the ability of licensed operators to access international capacity at cable landing stations in Bahrain. As part of this, the Authority shall adopt effective interim measures to minimise the anti-competitive impacts of any bottlenecks.*

- c. *Government, in coordination with the Authority, will review the continued need for BIX and its role going forward, with a view to making the most efficient and effective use of Government resources.*

- d. *The Authority shall take the measures that are necessary to ensure that local peering arrangements between internet service providers are in place, and that local internet traffic remains within the Kingdom. The Authority shall monitor these arrangements to ensure that they are utilised to maximise the amount of internet traffic that remains within Bahrain.*

(VI) Access to Internet Applications and Services

42. Government wishes to ensure that a converged ICT eco-system of both fixed and mobile services is promoted, so as to allow consumers of telecommunications services to have access to lawful content and applications of their choice, using the devices of their choosing, so far as is technically feasible. To this end, it is important that the Authority establish clear guidelines to ensure that the delivery of lawful content and applications is not subject to unreasonable discrimination by telecommunications operators.
43. Currently, limited roll-out and take-up of fibre services have restricted the wider adoption and development of locally originated and hosted online content and applications, thereby slowing down the process for the development of the so-called 'Internet of Things', as well as of cloud technology and other developments necessary for a 'Smart Kingdom'. As already noted, Government will therefore prioritise, as a core policy, the deployment of a fibre-based NBN to enable advancements in this area. Complementary policies that promote non-discriminatory access to internet content and applications via both fixed and mobile broadband services will contribute to the development of the internet eco-system and promote user take-up.
44. *Accordingly, Government Policy in this area is as follows:*
- a. *The Authority shall introduce and enforce measures where necessary to prevent the blocking or throttling of lawful content by licensed operators, subject to their legitimate and reasonable traffic management requirements.*
 - b. *The Authority shall aim to ensure that end-customers enjoy a good quality of access to lawful content and, if necessary, may take the measures necessary to ensure that licensed operators provide adequate network capacity to deliver a good quality of experience for customers, within clear and transparent terms that are set out in their contracts with end-customers.*
 - c. *The Authority shall take any measures necessary to prevent unfair discrimination by licensed operators in the delivery of online content and applications.*

- d. *Government will promote the widespread availability of public internet hotspots, particularly in public service areas, tourist attractions and other suitable locations.*

(VII) Developing Bahrain as a Regional ICT Hub

45. Government has a specific target for Bahrain to remain among the top countries globally and regionally according to key international ICT indices, which shall play a significant role in recognising the Kingdom's economy as 'future proof'. Strength in the ICT sector is necessary if the Kingdom of Bahrain is to be able to attract investment into the country and become a regional business and ICT hub.
46. To achieve these aims, the Kingdom needs to build capacity and scale within the ICT sector. The development of the ICT sector in Bahrain will not be possible or effective without the availability of the necessary skilled human capital. Government and the Authority will work with academia and the private sector to support, develop, train and retain entrepreneurs and talent within the Kingdom.
47. Finally, Government will consider ways in which to promote the development of local content, applications and hosting within the Kingdom. This will include encouraging greater coordination amongst all organisations and agencies that have responsibilities affecting developments in this important area.
48. *Accordingly, Government Policy in this area is as follows:*
 - a. *Government will undertake relevant initiatives that promote the development of the local ICT sector as a whole, and the telecommunications industry in particular, as a key component to the wider economic development in Bahrain and essential for achieving the Economic Vision 2030 objectives.*
 - b. *Government and the Authority, in coordination with the relevant entities, shall identify and address obstacles in the telecommunications/ICT sector to attracting leading global content and service providers to the Kingdom of Bahrain.*
 - c. *Government, the Authority and all relevant stakeholders shall identify and implement the necessary initiatives to achieve substantial local hosting of Bahraini websites and content.*

- d. *Government will explore greater coordination between the various organisations with the remit to promote the development, hosting and use of local content and applications in order to achieve greater cooperation and communication between businesses, governmental agencies and consumers in this area.*
- e. *Government will foster the development of Bahraini human capital in the telecommunications sector to ensure that the right skills are available to develop the sector further. For this purpose, Government will ensure that the necessary funding programmes are in place for the creation of academic and training programmes specialising in the telecommunications sector.*
- f. *As a benchmark for evaluating the success of this Plan, Government will closely monitor Bahrain's ranking against key international telecommunications / ICT indices, in order to ensure that the Kingdom is ranked amongst the top 20 countries globally by the end of 2018.*
- g. *The Authority shall promote, develop and implement initiatives aimed at the protection, education and increased awareness of consumers in relation to their rights and responsibilities.*
- h. *Government will lead coordination with the rest of the GCC and put forth initiatives which will support the development of the telecommunications sectors and the digital economy of the region.*

(VIII) Review of the Telecommunications Law

49. The Telecommunications Law was promulgated in 2002, at a time when the internet was in its infancy and the proliferation of online applications and mobile video streaming had not yet begun. Although the Telecommunications Law has served its purpose well and proven to be relatively flexible, a number of areas have been identified in which the existing legislation may require updating to reflect industry developments. Such developments include, for example, growing convergence within the telecommunications sector, blurring the lines between electronic communications and so-called over-the-top services and providers and Government's strategic direction with regards to the national telecommunications infrastructure.

50. *Accordingly, Government Policy in this area is as follows:*

- a. *Government, in coordination with the Authority, will undertake a review of the existing provisions of the Telecommunications Law in line with international best practice, and will also consider the need to update the legislation and related legal instruments to address industry developments.*

5 Implementation

51. Government has identified a number of detailed action steps that will be implemented over the next three years in order to achieve the policy objectives set out in this Plan. Government recognises that its plan for the sector is ambitious. The complex and dynamic nature of the ICT sector makes forward-planning all the more challenging and will require the combined efforts of all stakeholders to achieve the objectives of the Plan.

52. Government intends to work closely with industry participants and other relevant stakeholders and organisations during the implementation phase to deliver on the policy priorities that have been identified for the sector. This collaboration – particularly in the area of NBN deployment – aims to benefit all licensees as well as Bahraini consumers and enterprises, while at the same time ensuring that Bahrain retains its position at the forefront of digital developments in the region and globally.