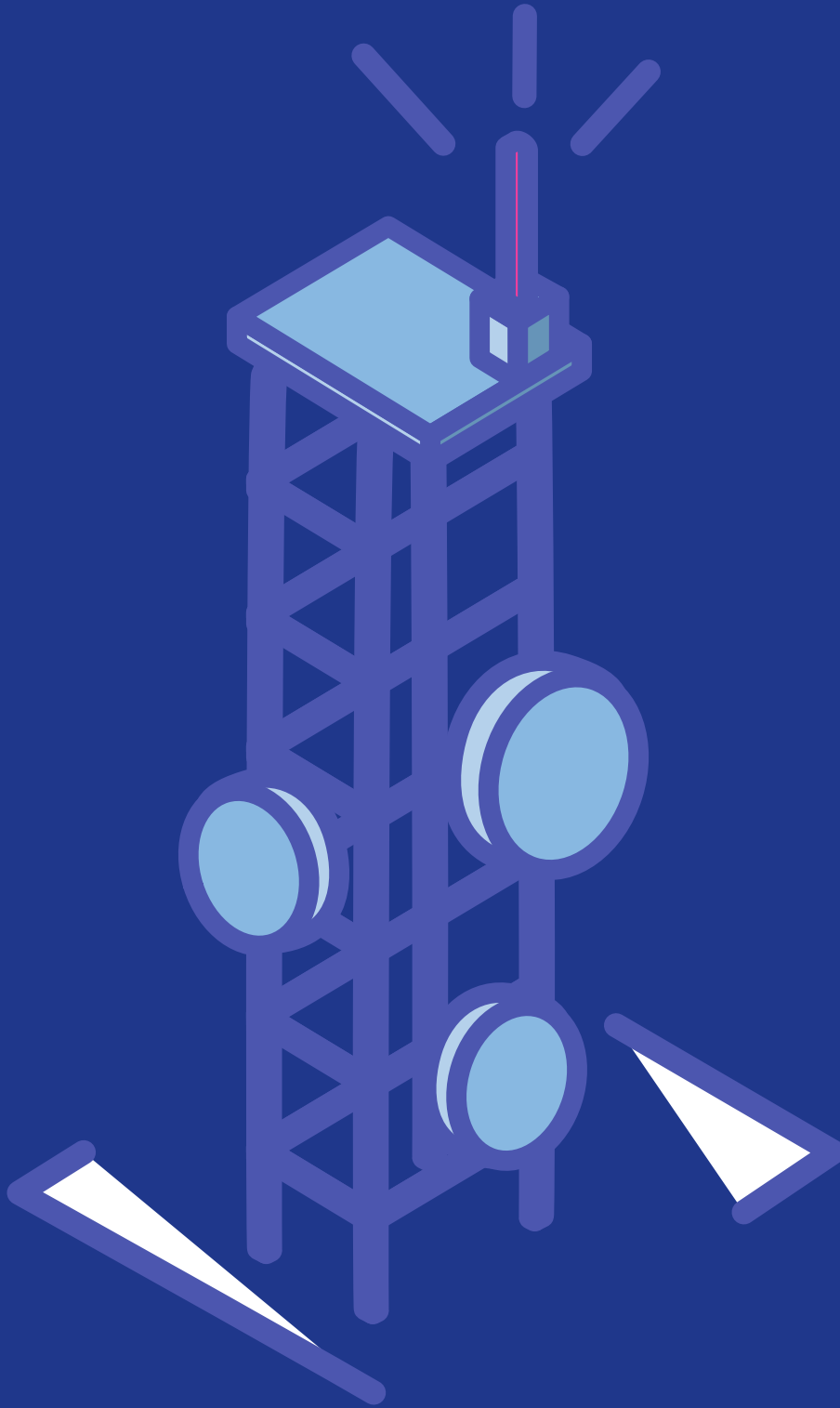




Kiribati

National ICT Policy 2019



Government of Kiribati

Minister's Foreword

Information and Communication Technologies (ICTs) have a profound impact upon our lives. They are a fundamental necessity for economic progress. They help us to grow our economies, and create new jobs and businesses and tourism opportunities. They promote our economic and social well-being. They also underpin growth and improvements in other important parts of our lives, such as security, health and education.

Our national policies, the Government manifesto and our 20-year vision for our country KV20, assert the priorities and importance of information and communication technologies as enabling infrastructure for our goals and aspirations.

The unique geography of Kiribati, with its low-lying coral atolls and widely scattered population, presents substantial technical and financial challenges to our service providers. We are grateful to the financial backers of these companies, and to our development partners, especially the World Bank, the Asia Development Bank and the governments of Australia and New Zealand, who are creating innovative solutions and assisting us with finance and technical support in meeting the challenges of the barriers of distance. They are helping to bring us closer together as a nation with the technologies of the twenty-first century.

Our first National ICT Policy in 2011 paved the way for many important changes in the way our communications services are provided. Substantial progress has been made in creating a competitive market, passing enabling legislation, privatising our national telephone company, radically improving the quality of services and initiating innovative financing solutions for extending network coverage to our Outer Islands.

However, much work remains to be done if we are to achieve our goal of universal, affordable, equitable and reliable mobile phone and Internet services available to everyone in our country. At the time I write this, over 30% of our population still has no access to mobile phone services. This policy recognises this need and gives priority to filling the gaps in our service coverage. It also maps out our plan to develop a digital economy in line with the broader objectives of the KV20.

We recognise and intend to exploit the untapped potential of information technologies to transform our government services, making them more user-friendly, more effective, more efficient, more dependable and more readily accessible to our entire population through an e-Government project.

We are also encouraging the use of innovative new technologies such as blockchain,

artificial intelligence (AI), big data analytics, the Internet of Things (IoT), 5G mobile services and mobile applications for education, health, finance and other sectors, which may help us to achieve our development goals. We also recognise how the use of electronic or digital commerce (e-Commerce) has grown in parallel with the increasing use of the Internet, allowing buyers and sellers to transact in a more efficient way.

In our consultations with stakeholders about the way forward from here, there have been many useful contributions identifying ways in which ICT connectivity could be improved in order to support the broader objective of the KV20. In particular, improved ICT services will support other sectoral priorities like investment in tourism, fisheries, trade and e-Commerce. Stakeholder contributions have highlighted some of the areas where we will need more safeguards as we become more dependent on ICT – such as protection of children, cyber threats and cyber-crime. The growing digital economy also creates a need for our law to recognise electronic transactions as evidence in judicial proceedings.

This National ICT Policy 2019 recognises and draws together the ICT projects that are already going forward, and the needs we have now recognised. It establishes a new set of goals going forward. Many of these goals cross the boundaries amongst government ministries and other entities and will require significant collaborative efforts to bring them about.

I would like to thank all the development partners, Government Ministries, the private sector and members of civil society who have contributed towards to development of this Policy. I also wish to thank the World Bank for the financial and technical support towards the preparation of this National ICT Policy.

I now invite you all to embrace this Policy, which is the result of our joint efforts; and to work together to help us to achieve the goals in this Policy so that we can reap the benefits available to us through ICT for our nation.

Te Mauri (Health), Te Raoi (Peace) ao Te Tabomoa (Prosperity).

A handwritten signature in black ink, appearing to read 'Willie Tokataake', with a large, sweeping flourish above it.

Hon Willie Tokataake MP

*Minister of Information, Communication,
Transport and Tourism Development*

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1. Introduction

The Cabinet of the former Government of Kiribati approved the original version of this policy in April 2011. The reforms identified in that policy are now well under way. This updated policy takes account of events since then and looks forward for the next five years. Many parts of the 2011 policy statement are still relevant and those elements are incorporated in this updated version. The core policies approved in 2011 are continued and new policies and goals have been introduced to cover an extended range of services.

Supporting Progress Towards UN SDGs



Each of the measures in this policy directly supports Kiribati's progress towards achievement of the 17 United Nations' Sustainable Development Goals (SDGs) agreed at the UN Sustainable Development Summit in New York in September 2015.

Links to other Government Policies

This policy explicitly recognises the Government's manifesto and the Kiribati Vision for 20 years known as KV20, as well as national sector policies like the Trade Policy Framework (TPF), and the Fisheries Policy. It links the development of ICT services in these sectors to the broader national strategies and developments goals.

Realising and exploring ICT full potentials



The policy addresses the introduction of e-Government; the development of ICT services on all islands; national internet security; and managing ICT reform at the national level. ICT developments will also support tourism, fisheries industries and inclusive trade through the development of an enabling environment for e-Commerce. The policy also looks into a broader range of CT matters, including radio and television broadcasting, disaster risk management, safety of life at sea and new legislation for cyber security and privacy.

The Government of Kiribati recognises the critical role of telecommunications in Kiribati's economic development. Telecommunications is a key ingredient in connecting people to each other and provides vital services that underpin economic and social wellbeing. Consequently, the Government is committed to fostering the development and use of affordable, reliable telecommunication services in the interests of all of the people of Kiribati.

The Government affirms the need for affordable and reliable telecommunication services as a fundamental input for enhanced economic growth and development, particularly in the underserved and remote areas of Kiribati.

International experience, particularly in developing countries, shows that

telecommunications are an essential input for other sectors, and for the creation of wealth and jobs. This National ICT policy is focused on creating a robust, stable, market-driven telecommunications sector, which the Government believes will create a favourable environment that is attractive to private investors and will lead to increased telecommunications infrastructure investment and services development. The Government acknowledges that a key element of a sustainable market is having tariffs that reflect the actual efficient costs of providing the services.

The Government also recognizes, that there are remote and underserved areas in Kiribati where the provision of services is not commercially viable and where innovative financing mechanisms are needed to increase access to voice and Internet services. The Government's goal is to achieve equal access to services across all of Kiribati including the Outer Islands. Improving connectivity for the Outer Islands is a central component of the Government's plans for the sector as envisaged in the KV20.

2. Links to Other Government Policies

The achievement of many of the goals in the Kiribati Development Plan, reflected in the KV20 and the Government Manifesto, will be supported by the availability of efficient modern telecommunication infrastructure and systems spanning the entire country. For example, good telecommunication services can enhance the quality and effectiveness of the public delivery of services such as health and education.

The Government and the private sector in Kiribati have limited budgets. Hence, it is critical that every dollar is spent wisely and in a way that delivers the greatest benefit for the people of Kiribati. The Government believes that ensuring appropriate co-ordination and information sharing between Government departments and the private sector will enhance investment outcomes.

2.1 Kiribati's 20 Year Vision (KV20)

The KV20 is a long-term development planning framework for Kiribati which aims to transform the country into a wealthier, healthier, more peaceful and secure environment to live in during the 20-year timeframe 2016 to 2036, and is recognised as the guiding framework for this policy.

The KV20 fosters alignment between the policy areas of respective Ministries and provides a basis for government, stakeholders, donors and development partners to further collaborate to realise transformative development that will maximise the returns from the country's natural, human and cultural capital.

2.1.1 Pillar 3: Infrastructure for Development

As recognised by Pillar 3 of the KV20, improving ICT access and development will play an important role by facilitating connectivity and accessibility to economic infrastructure. Improving the national ICT infrastructure will support and enhance other drivers of growth. The National ICT Policy and regulatory framework provide a sustainable foundation for private sector participation in the ICT industry to foster improved ICT connectivity. Government is committed to improving this sector. It is anticipated that the three targets for service coverage in the KV20 will be met well before the 2036 end-year of the KV20 timeframe. (As a point of reference, mobile telephone service is currently available to nearly 70% of the Kiribati population.)

KV20
service coverage targets



80%
mobile telephone service



100%
Internet Service



90%
broadband services

2.2 Government Manifesto

As stipulated under section 15 of the Government Manifesto, Information, and Communications Technology (ICT) is recognised as a vital part of the social and economic development, and one whose absence may hinder the desired improvements.



- Develop ICT On All Islands**
- Manage ICT Reforms**
- Capacity building of IT (ICT) local experts**
- National Internet Security**
- Use of e-Government**

Government Manifesto ICT Development Objectives

The Government expects that fulfilling these ICT development objectives will help in leading Kiribati to become a wealthy, healthy and peaceful nation in accordance with its 20-year Vision, KV20.

2.3 ICT for Trade and e-Commerce

The Government through its Trade Policy Framework (TPF) and Draft Investment Policy Framework recognizes how the use of information and communication technology (ICTs) in commercial activities serves to enhance trade and investment. For example, trade is enhanced by simplifying and modernising customs procedures through the implementation of ASYCUDA, which harmonises processes and reduces delays, bottlenecks and red tape costs. This National ICT Policy is consistent with the Trade Policy Framework and the draft investment Policy.

2.4 Other Policy and Strategic Plan Linkages

The policies and strategies of several other Ministries and Agencies are impacted by and linked to this National ICT Policy. For example, this policy recognises Education, Health, Police service and National Disaster Management as described in Section 8:

Development and Strategies. International conventions such as the International Maritime Organisation's Safety of Life at Sea for Marine sector and the International Telecommunication Union's programmes for protecting the rights of children and child protection on-line are also linked to this policy.

3. Importance of the ICT Sector

The United Nations recognises ICT development as a key enabler of other sectors, that will help them to achieve the UN's Sustainable Development Goals (SDGs).

Telecommunication services help to overcome the barriers of long distance and isolation, which are particularly challenging for Kiribati. Telecommunication helps to bring together people and families from village to village, from island to island, and to connect to the world. Unfortunately, the current lack of effective telecommunication services for the Outer Islands means that many families are unable to stay in effective contact with loved ones who have travelled to other parts of Kiribati or internationally, often in search of work.

The availability of telecommunication services is a vital contributor to economic development. A World Bank study in 2009 by Christine Zhen Wei Qiang and others shows that in developing countries 10% increases in service penetration can lead to GDP growth of 0.73% for fixed lines, 0.81% for mobiles, 1.12% for Internet and 1.38% for broadband. Kiribati is now developing 3G and 4G mobile services, which will deliver mobile voice and broadband, across the country, with the prospects of substantially more than 10% penetration increases, so there is a high expectation of substantial economic growth.

This is of vital significance for the whole country. In particular, bringing modern high-quality services at affordable prices to the Outer Islands could help to slow or even reverse the drift of population and mitigate the problems of overcrowding in South Tarawa.

Improved communications for the Outer Islands will support the development of tourism, agricultural production and the fishing industry, as well as improving policing, health and education services.

It is important that Kiribati embraces the information society, which is spreading

worldwide and rapidly guiding all economic and social activities. Businesses, particularly small and medium businesses, depend upon reliable communications infrastructure in order to grow and increase profitability. Reliable connectivity and the ability to engage in e-Commerce are vital paths to economic prosperity and business success.

Cross border supply of services has been positively impacted by ICT. The use of electronic or digital commerce (e-Commerce) has grown in parallel with the increasing use of the Internet, allowing buyers and sellers to transact more efficiently by eliminating barriers between market places. E-Commerce leverages advanced technologies to influence cross border trade. It can enable small and medium sized enterprises (SMEs) especially in small Island states like Kiribati, to access worldwide, business resources and reach new markets. The ability to electronically track and log transactions also serves to reduce corruption, which can result from interaction among import - export stakeholders. E-Commerce is therefore crucial to the business environment, as it leads to the integration of SMEs into the global economy.

Government ministries and island councils can benefit considerably from affordable and reliable telecommunications, which will assist them in providing services to their constituents and facilitating the growth of business and tourism.

Kiribati's development partners, especially the World Bank, ADB, and Australia and New Zealand governments, are playing an important role in financing the development of communication services in Kiribati through various forms of assistance. These include providing technical assistance, capacity building and funding projects where the commercial returns are insufficient to attract private investment. Financing such social investment can however yield high rates of return in terms of the value realised through economic growth.

4. The International Telecommunication Union's ICT Development Index

The International Telecommunication Union (ITU) has devised an ICT Development Index (IDI)[1]. The IDI is a composite index that combines 11 indicators into one benchmark measure that can be used to monitor and compare developments in ICTs between countries and over time. The main objectives of the IDI are to measure:

- *the level and evolution over time of ICT developments within countries and of their experience relative to other countries;*
- *progress in ICT development in both developed and developing countries;*
- *the digital divide, i.e. differences between countries in terms of their levels of ICT development; and the*
- *development potential of ICTs and the extent to which countries can make use of them to enhance growth and development in the context of available capabilities*

[1] Measuring the Information Society 2017, International Telecommunication Union.

and skills.

- Reaching the final stage, and maximizing the impact of ICTs, crucially depends on ICT skills.

ICT and other skills determine the effective use that is made of ICTs, and are critical to leveraging their full potential for social and economic development. Economic growth and development will remain below potential if economies are not capable of exploiting new technologies and reaping their benefits. The IDI therefore also includes proxy indicators concerned with capabilities within countries, which affect people's ability to use ICTs effectively. A single indicator cannot track progress in all three of these components of ICT development. The ITU has therefore developed a composite index, which seeks to capture the evolution of the information society as it goes through stages of development, taking into consideration technology convergence and the emergence of new technologies.

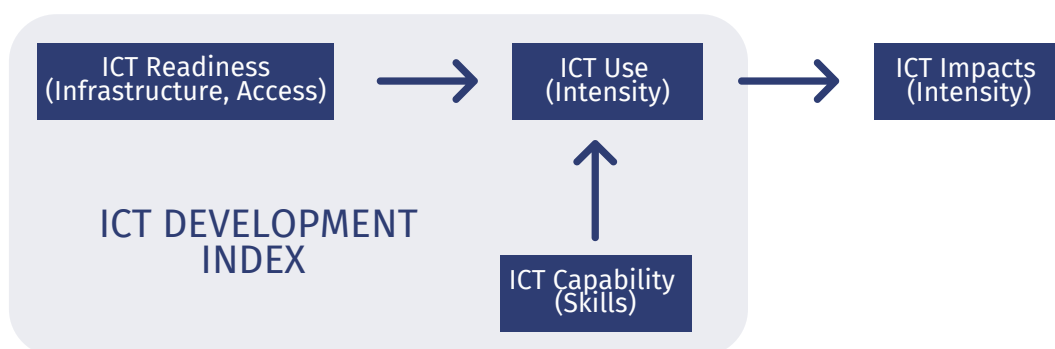


Figure 1: Components of the IDI

Based on this conceptual framework, the IDI is divided into the following three sub-indices, which are illustrated, with their component indicators in Figure 2.

- **Access sub-index:** This sub-index captures ICT readiness, and includes five infrastructure and access indicators (fixed-telephone subscriptions, mobile-cellular telephone subscriptions, international Internet bandwidth per Internet user, households with a computer, and households with Internet access);
- **Use sub-index:** This sub-index captures ICT intensity, and includes three intensity and usage indicators (individuals using the Internet, fixed-broadband subscriptions and mobile- broadband subscriptions);
- **Skills sub-index:** This sub-index seeks to capture capabilities or skills that are important for ICTs. It includes three proxy indicators (mean years of schooling, gross secondary enrolment, and gross tertiary enrolment). As these are proxy indicators, rather than directly measuring ICT-related skills, the skills sub- index is given less weight in the computation of the IDI than the other two sub-indices. Data for this sub-index is obtained from the United Nations Educational, Scientific and Cultural Organisation (UNESCO)'s Institute of Statistics (UIS).

ICT Access
1. Fixed-telephone subscriptions per 100 inhabitants
2. Mobile-cellular telephone subscriptions per 100 inhabitants
3. International Internet bandwidth (bit/s) per internet user
4. Percentage of households with a computer
5. Percentage of households with Internet access
ICT Use
6. Percentage of individuals using the Internet
7. Fixed-broadband subscriptions per 100 inhabitants
8. Active mobile-broadband subscriptions per 100 inhabitants
ICT Skills
9. Mean years of schooling
10. Secondary gross enrolment ratio
11. Tertiary gross enrolment ratio

Figure 2: IDI sub-index components as defined by the ITU

The IDI has been used to compare Kiribati with the Small Islands Developing States (SIDS) in the Pacific which are listed amongst the Least Developed Countries (LDCs), according to the UN system of classification. These comparisons are shown in Table 1

Noting that Kiribati's widely scattered islands make it possibly the most difficult and expensive country in the world in which to provide a comprehensive coverage of telecommunication services, it is no great surprise to find its IDI ranking for 2017 is number 154 out of a total of 176 countries. This is further emphasised by its sub-index rankings of 169 and 170 for access and use respectively.

However, there are some bright spots in this otherwise gloomy picture. The skills sub-index ranking of 117 out of 176 countries, represents a more educated population placing Kiribati well ahead of the other LDC SIDS in the Pacific. Kiribati's most spectacular performance in the IDI league table is the year on year (2016 to 2017) increase in the access sub-index, where Kiribati stands as number 12 in the whole world.

This suggests the prospect of a bright future for Kiribati's IDI and, more importantly, for its national ICT performance, built on the strong base of a well-educated population (by LDC standards) and the evidence of the effectiveness of the Government's policies and projects to improve coverage and access.

	Kiribati	Solomon	Vanuatu	Timor Leste
<i>2017 data (measured at the end of 2016)</i>				
Fixed telephone lines per 100 inhabitants	0.6	1.2	1.7	0.2
Mobile-cellular sub per 100 inhabitants	48.5	69.9	81.1	125
Fixed broadband sub per 100 inhabitants	0.1	0.2	1.7	0.1
Active mobile-broadband sub per 100 inhabitants	0.9	12.9	22.3	64.6
3G coverage (% of population)	60	72	80	96.5
LTE/WiMax coverage (% of population)	40	13.3	25	0
Mobile cellular prices (% GNI pc)	5.5	8.9	9.8	7.4
Fixed broadband prices (% GNI pc)	65.8	237.4	24.5	25.7
Mobile broadband prices 500 MB (% GNI pc)	5.3	6.3	3.3	5.2
Mobile broadband prices 1 GB (% GNI pc)	52.6*	15.8	16.5	6.6
Percentage of households with computer	7.3	7.4	22.6	16.2
Percentage of households with Internet access	6.9	8.5	29.5	23.9
Percentage of individuals using the Internet	13.7	11	24	25.2
Int'l Internet bandwidth per Internet user (kbits/s)	4.4	12	21.9	1.9
<i>IDI (sum of the three sub-indices shown below)</i>				
IDI rank 2017 (out of 176 countries)	154	157	141	122
IDI 2017	2.17	2.11	2.81	3.57
IDI rank 2016 (out of 176 countries)	155	154	136	127
IDI 2016	2.04	2.04	2.75	3.11
<i>IDI access sub-index</i>				
IDI access sub index rank 2017 (out of 176 countries)	169	152	133	129
IDI access sub index 2017	2.32	2.81	3.65	3.84
IDI access sub index rank 2016 (out of 176 countries)	170	150	132	128
IDI access sub index 2016	2.05	2.73	3.57	3.74
<i>IDI use sub-index</i>				
IDI Use sub index rank 2017 (out of 176 countries)	170	163	142	117
IDI Use sub index 2017	0.49	0.81	1.63	3
IDI Use sub index rank 2016 (out of 176 countries)	168	161	139	125
IDI Use sub index 2016	0.45	0.73	1.47	2.02
<i>IDI skills sub-index</i>				
IDI skills sub index rank 2017 (out of 176 countries)	117	144	142	129
IDI skills sub index 2017	5.2	3.33	3.47	4.14
IDI skills sub index rank 2016 (out of 176 countries)	116	143	135	130
IDI skills sub index 2016	5.18	3.27	3.65	4.01
GNI per capita nominal 2017 (US \$)	2780	1920	2920	1790

Notes

Figures in italics were estimated by the ITU *This figure is in doubt but was not used to calculate the IDI. Data entries with descriptors in italics were not used to calculate the IDI.

Table 1: IDI Data from measuring the Information Society 2017, ITU.

5. Accomplishments since 2011

Since the 2011 National ICT Policy was approved, a substantial number of reform measures has been implemented. A new regulatory framework has been set up and is working as intended (see items marked with * in the following list). Accomplishments since 2011 include:

- *Passing the new Communications Act (2013) to establish a new framework for an open competitive market, and the subsequent amendment of that Act in 2016 to address perceptible shortfalls realised during implementation and enforcement of the Act**.
- *Reform and commencement of the institutional strengthening of the telecommunications regulator's office. The Telecommunications Authority of Kiribati (TAK) is now reconstituted as the Communications Commission of Kiribati (CCK) in accordance with the Act. The Commission has also developed a comprehensive set of rules and operating procedures**.
- *Issue of a replacement operating licence to TSKL by CCK, in accordance with the Act, **
- *CCK has developed and issued Rules in accordance with the Act **
- *Institutional strengthening of the Ministry of Information and Communications, Transport and Tourism Development (MICTTD) through the establishment of a Telecommunications Policy Analyst*
- *Sale of the assets of Government-owned Telecom Services Kiribati Limited (TSKL) to Amalgamated Telecommunications Holdings Limited of Fiji, accompanied by transfer of the existing staff to the new company. The company is now known as Amalgamated Telecommunications Holdings Kiribati Limited (ATHKL or just ATH).*
- *Issue of an individual licence to ATHKL to operate a communications network and provide services.**
- *Increase in the number of mobile subscribers from about 12,000 to 51,000*
- *Launch of 3G mobile services in South Tarawa in 2013 and Kiritimati in 2014*
- *Launch of 4G mobile service in South Tarawa from the Bairiki site in 2013, at the same time as the launch of 3G service*
- *Issue of licenses to provide communications networks and services, and television and ISP services as follows**
 - *Consumer Protection Rules specifying procedures for addressing address consumer complains;*
 - *Type Approval Rules to set standards for telecommunication devices to be used in Kiribati,*
 - *Radiocommunication Rules,*
 - *Licensing Rules for Communications Networks and Services,*
 - *Universal Service Rules, National*
 - *National Numbering Rules based on 8-digit telephone numbers and*
 - *Interconnection Rules.*

- Approval by CCK of ATHKL’s interconnection offer, that became the basis of an interconnection agreement which has recently enabled interconnection between ATHKL and OceanLink’s networks*.
- Establishment by the Government in 2017 of a new company, BwebwerikiNET Ltd (BNL), which will be responsible for looking after submarine fibre optic cables running to Tarawa and Kiritimati Islands. BNL will also be taking care of the enhancement of the Government telecommunication infrastructure on the Outer Islands.
- Finalising a PPP arrangement at the beginning of 2018 under which the Government now owns the telecommunication infrastructure in the Outer Islands. The winner of a current tendering process will install and operate mobile and internet facilities based on an agreement with the newly established company BNL. The Government’s provision and ownership of these assets will enable those facilities to be shared amongst the commercial operators to provide mobile and Internet services in what would otherwise be commercially non-viable locations.
- Commencement of the Outer Island mobile and Internet roll out activities, with Island Councils agreeing to provide land space for building of huts and fences in conjunction with the PPP tender.
- Signing of an agreement between BNL and Southern Cross Cable Limited in 2017 for the provision of submarine cable and Internet capacity for Kiritimati.

6. Current Status of Telecommunications in Kiribati

6.1 Bridging the digital divide through universal, secure, affordable, reliable and accessible communications

6.1.1 Mobile Subscriber Numbers and Service Availability



The total number of mobile subscribers is now 51,000, which represents a penetration of 46 mobiles per 100 population. Back in 2014, the penetration was less than 11 mobiles per 100 population. Despite this dramatic increase, over 30% of the population still has no access to mobile service, so much work remains to be done in extending the coverage of the service to keep up the momentum in the ownership rate of mobile telephones. The 2G, 3G, and 4G mobile services are currently available in various parts of the country and service quality is now good. Both 2G and 3G services are now available in some of the outer islands. 4G services only cover the mainland, capital city South Tarawa at this stage, but 4G services, sometimes described as LTE, hold the potential for substantially faster Internet

services than those provided by 3G. The rest of the islands are being progressively covered under the Mobile Roll-out Project funded by the World Bank, although this is not yet fully funded. Where it is feasible to do so, priority will be given to improving mobile service coverage in areas important to the development of tourism. E-Commerce services and electronic banking cannot be established in Outer Island areas until Internet services are provided.

6.1.2 Prices



Following the privatisation of TSKL, mobile calling prices were extensively restructured. One of the main benefits of this restructuring was that the per minute price for calls is now uniform throughout the country, whereas previously there were higher charges for calls over greater distances, such as from South Tarawa to Kiritimati and the Outer Islands. For example, the price of calling between Tarawa and Kiritimati was 80c/min but is now reduced to the local call rate of 26c/min in peak traffic periods and 18c/min for off-peak calls. There were also significant international call price reductions to popular destinations. For example, calls to Australia and New Zealand were reduced from \$2.80 to \$1 per minute. There were some ups and downs for other call prices.

With OceanLink’s entry into the market as a competitor to ATH, there is now some competitive pressure on prices. For example, OceanLink is now charging only 15 cents per minute for calls between customers on the OceanLink network and off-peak rates of 12 cents per minute. This is very favourable compared with the ATH price for calls on its network of 26 cents per minute at peak periods and 18 cents per minute for off-peak calls.

Now that OceanLink has declared its pricing table for data use, there has been some downward price movements for data from both OceanLink and ATHKL.

ATHKL					VS	OCEAN LINK LIMITED			
Plan	Price	Data (MB)	Bonus (MB)	Valid for		Plan	Price	Data (MB)	Valid for
Daily	\$2	200	100	1 Day	Daily	\$2	300	1 Day	
	\$4	600				\$3	450		
Weekly	\$5	450	100	7 Days	Weekly	\$5	750	7 Days	
	\$6	800	100	7 Days		\$6	1024	7 Days	
	\$7	1000	300	7 Days		\$9	1536	7 Days	
Monthly	\$20	2800		1 Month	Monthly	\$15	2848	1 Month	
	\$30	4096		1 Month		\$19	3072	1 Month	
						\$30	5120	1 Month	

Table 2: Recent data plan prices for the two mobile operators.

6.1.3 Prices Comparisons Within the Pacific Region



Table 3 (below) shows prices for key services for the two mobile operators. It also shows the pre-pay rates for Vodafone Fiji for a comparison. OceanLink's on-net voice calling at 15 cents per minute is almost as low as rates in Fiji. ATH's on-net voice calling rate of 26 cents per minute is more than twice that of Vodafone Fiji (10.5-12.4 cents per minute when converted to AUD). Vodafone Fiji's customers are getting from 2 to 3 times as much data for their dollar compared to Kiribati rates (when the Fiji prices are converted to Australian dollar equivalents). It is still early days for competition in Kiribati, but this comparison indicates that competition is a healthy stimulus and that there is generally room for Kiribati prices (particularly those of ATH) to come down further.

As a further comparison, the best current pre-pay deal in New Zealand, is from 2 Degrees Mobile, for unlimited calling within New Zealand for a monthly charge of \$NZ 12 (equivalent to \$AUD 11.50).

For broadband data, customers in Fiji can purchase 2 to 3 times as much data compared with Kiribati, so there is room here for substantial improvement. Note however, that Fiji has access to the international submarine cable network, whereas this is not yet the case for Kiribati.

Key Services	ATHKL	OCEAN LINK	PACIFIC RATE (Fiji)
Video Calling			FJD with AUD equivalent in ()
Voice call rate (within own network)	26 cents per min (peak) 18 cents per min (off-peak)	15 cents per min (peak) 12 cents per min (off-peak)	20 cents per min (peak) (12.4c AUD) 17 cents per min (off peak) (10.5 c AUD)
Voice call rate between networks	34 cents per min (peak) 26 cents per min (off-peak)	20 cents per min (peak) 15 cents per min (off-peak)	23-24 cents per min (peak) (14.2-14.8c AUD) 20-21 cents per min (off-peak) (12.4-13.0c AUD)
Voice call rate to Pacific region	\$1.00 to \$2.15 per min	nil	42-62 cents per min (28-41 cents per minute AUD)
Broadband Rates			
Daily rate	\$2 (200 MB) \$4 (600 MB)	\$1.00 (250 MB) \$3.00 (450 MB)	\$1.99 (450MB) (\$1.23 AUD) \$2.99 (800MB) (\$1.85 AUD)
Weekly rate	\$5 (450 MB) \$6 (800MB) \$7 (1000 MB)	\$5.00 (750MB) \$6.00 (1024MB) \$7.00 (1536MB)	\$5.99 (800MB) (\$3.70 AUD) \$7.99 (1536MB) (\$4.94 AUD)
Monthly rate	\$20 (2800MB) \$30 (4096 MB)	\$15.00 (2048MB) \$19.00 (3072MB) \$30.00 (5120MB)	\$25 (3072MB) (\$15.46 AUD) \$50 (15360MB) (\$30.93 AUD)

Table 3: Mobile operator prices in Kiribati, compared with those in Fiji

6.1.4 International Capacity and Diversity



International traffic has increased dramatically since ATH took over the business of TSKL. The current international link capacity of 414Mb/s is vastly greater than the 45Mb/s in TSKL days. The burgeoning demand is driven by the increased number of mobile subscribers and the rapid take-up of Internet services, driven by more affordable prices and the growth of participation in social media. It is anticipated that the current international link capacity of 414 MB/s will be insufficient to cater for the growing demand for very much longer. We also recognise that for security reasons it is highly desirable to have alternative (redundant) capacity on another system such as the proposed submarine cables, which will bring both security and the needed extra capacity.

6.1.5 Improving Access to Communication



In addition to expanding the coverage of mobile telephone networks and Internet services to cover the whole population, there is a need for village ICT hubs to enable communications access for people who cannot afford telephones, TVs and radios. The needs of disabled people with their special challenges in accessing communications also require recognition through appropriate responses and support.

6.2 Legislation

The Communications Act 2013 as amended by its Amendment in 2017 contains a number of measures that supported the first intended policy reforms of reforming the Regulator's Office, privatisation and opening of the markets to competition. Some parts of this legislation were stop-gap measures in the absence of other necessary support legislation. Such measures included rules for fair competition, cyber-crimes (including pornography), privacy and copyright. The only privacy rules in the existing legislation cover the protection of information about customers' usage of the telecommunication systems. More measures are needed to protect citizens' rights when their other personal data is stored in private or government databases.

It was understood at the time, that the stop-gap provisions would eventually be replaced with their own specific Acts, as is generally the practice in other countries. So far none of these replacement statutes have been developed, and the need for other laws such as an Electronic Transactions Act and more comprehensive data privacy provisions have become apparent. Kiribati lacks a legislative framework, to facilitate the effective utilisation of e-Commerce. There are no laws to validate the acceptability and legality of electronic documents and transactions. Similarly, there are no laws governing the electronic contracting, which is a necessary underpinning for electronic payments and electronic funds transfer transactions and there is no law that establishes electronic crimes as an offence.



6.3 Broadcasting

Broadcasting has recently become the responsibility of MICTTD, and with the general expansion of the telecommunication networks to the Outer Islands the utilisation of these networks to support the further development of sound broadcasting coverage and the possibility of a public service television service (perhaps using the IPTV or television over the Internet technology) need to be explored.

The private sector is examining the prospects for pay TV broadcasting with a focus on movies, sport and entertainment, but there remains a need for public service broadcasting with local news and events, Kiribati language and cultural content, also English language children's material to help them improve their language skills.

6.4 Education and Protection of Children

With the increasing availability of the Internet, it is vital that Kiribati children (and sometimes their parents as well) receive education about the dangers of the Internet and how to recognise and avoid them. Some good work on this is being done by the Police but this needs to be co-ordinated and institutionalised in the education system. Some useful materials have been developed for this purpose by the ITU, and arrangements need to be made to co-ordinate and take this further and to cover even the youngest of children, who may have exposure to the Internet.

IT user skills are being taught in high schools from Form 4 upwards, but the need for these to be taught in basic form at primary schools will become apparent as the Internet becomes more widely available across the country and in schools.

Teaching and knowledge of IT technology will need to become more widely available as Kiribati moves forward to leverage these technologies for the country's economic benefit.

6.5 Government Services

Remote access to financial services creates economic benefits for rural users, as telecommunication infrastructure and services spread across the country. ATH's mobile money service MPAISA is available wherever customers have 3G phones and are able to use them. Merchants who have access to the Internet are able to use the ANZ bank's EFTPOS service, and full-service Internet banking and a supporting mobile app are likely to be available in a few months' time for customers who have access to the Internet. Extension of the mobile networks, especially with 3G capability, and of the Internet will bring these services to the entire population of Kiribati.



6.6 Financial Services

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6.7 Safety of Life at Sea

Safety of life at sea is a major continuing concern for Kiribati. In MICTTD, the Marine Division's Maritime Transport Policy addresses such maritime safety concerns. However, that Policy will be constantly reviewed to ensure its successful implementation, with the maintenance of safety standards in the domestic shipping trades, a top priority. Modern telecommunication technologies can greatly improve overall safety and the chances of successful rescues when mishaps occur.

7. Policy Objectives for the ICT Sector

This National ICT policy is consistent with the aims and strategies of the Government's manifesto, its 20-year vision, (KV20) and the Kiribati Development Plan – namely, the pursuit of economic growth for Kiribati. It aims to improve the lives of citizens through further development of the economy and citizens' capabilities. Increased availability of affordable and reliable telecommunication services is a key input to economic growth, particularly for presently un-served and underserved remote areas of Kiribati as demonstrated in the previous sections. Reliable and affordable telecommunication is also the key to unlocking innovation in other sectors. For example, frontier technologies such as Blockchain, the Internet of Things, 5G mobile services and Artificial Intelligence (AI) are dependent upon efficient underlying communications and on the development of new innovative ideas to enhance efficiency.

Access to the widest possible range of telecommunication services, especially Internet connectivity, opens up many possibilities for improving the quality and scope of education in Kiribati. An important attribute of the Internet is its ability to provide distance-learning opportunities and to build bridges between teachers and students in remote-learning situations. The Government is committed to reducing the 'digital divide' between schools that have access to the Internet and those that do not. That also applies to the extension of health medical services to rural areas.

Similarly, as Internet penetration improves, the Government intends to develop a range



of e-Government services. Effective use of ICT by government will increase the ability of Kiribati people to access government services, participate in government initiatives and support the democratic process. The development of e-Government initiatives is part of this plan.

7.1 Twelve Guiding Principles

The twelve guiding principles which underpin the objectives of this National ICT Policy

- | | | |
|--|--|---|
| <p>1  UNIVERSAL
availability
of services</p> | <p>3  FINANCIAL SUPPORT
(justified by benefits)
for uneconomic essential
services</p> | <p>5  NON-DISCRIMINATION all
services available to all
people on same price,
terms and conditions</p> |
| <p>2  OPEN &
COMPETITIVE
markets</p> | <p>4  morden, independent &
proportionate
REGULATION
now largely established</p> | <p>6  TECHNOLOGY NEUTRALITY
licenses base on services
provided & not the
technologies employed</p> |
| <p>7  enabling
CYBER SECURITY
awareness &
protection</p> | <p>9  making OPTIMAL USE
of scarce
RESOURCES</p> | <p>11  promoting the
development and use of
ICT applications for socio-
economic development</p> |
| <p>8  facillitating
effective
nationwide
DISASTER RISK
MANAGEMENT</p> | <p>10  FACILITATING
efficient delivery
of PUBLIC SERVICE</p> | <p>12  promoting the
development and use of
ICT applications for socio-
economic development</p> |

These principles form the basis of the specific goals and objectives described below.

7.2 Specific Goals and Objectives

Bridging the digital divide through universal, secure, affordable, reliable and accessible communications.

i) UNIVERSAL ACCESS

Voice and high-speed Internet services (minimum 6 to 8 Mb/s) to be available in every village across the whole of Kiribati, with priority given (where possible) to areas of significance and value in promoting tourism.

ii) UNIFORM PRICING

The prices that each operator offers its customers to be the same throughout Kiribati. Calls between islands to be priced the same as local calls. Each operator sets their own prices, but the intent of this goal is that people living in the Outer Islands shall have have

services at the same prices as those offered in South Tarawa.

iii) AFFORDABLE PRICING

The prices of services in Kiribati to be at least comparable with those in other island countries, with a longer-term target of achieving prices comparable with those in developed countries.

iv) UNIFORM QUALITY

The quality of services offered to be the same throughout the country. This includes the quality of voice calls and speed, latency and reliability of Internet services.

v) SECURE & FAST INTERNATIONAL COMMUNICATIONS

To have at least two high-quality low-latency traffic routes between Kiribati and

the rest of the world. The initial goal is to provide redundant routes linking South Tarawa and Kiritimati to the rest of the world, but the longer-term aim is to have redundant traffic links between each of the Outer Islands and one or other of these two traffic hubs.

vi) COMMUNITY ICT HUB IN EVERY VILLAGE

Community ICT hubs (sometimes known as telecentres) to be established in every village with access to Internet café, satellite or Internet streamed television, payphone, facilities for the disabled, and community charging facilities for portable and handheld devices.

vii) ACCESS TO ICT SERVICES FOR DISABLED PERSONS

Establish operator requirements for providing devices and software that will enable disabled persons to access ICT services. Such devices also to be provided in all telecentres, which will also be designed for easy wheelchair access. Establish a fund that will be used to subsidise the cost of appropriate devices.

viii) IXPs ESTABLISHED

Internet exchange Points (IXPs) to be established in Tarawa (and possibly Kiritimati) so that local traffic can pass between all Internet service providers' networks without having to go overseas and loop back.

ix) ESTABLISH A KIRIBATI COMPUTER EMERGENCY RESPONSE TEAM (CERT)

The Kiribati CERT will become part of a regional network of CERTs sharing information that will inform and assist government and private sector Internet users, in the event of cyber-attacks, and help to limit the spread of malware such as scams, computer viruses, trojans,

worms and botnets.

x) REMOVE BARRIERS TO MARKET ENTRY

Administrative arrangements to be regularly reviewed and revised, with the aim of identifying and removing any remaining impediments to market entry by would-be competitors in providing telecommunication and IT services.

Supporting Legislation

xi) COMPREHENSIVE CYBER LAW ESTABLISHED

Comprehensive cyber-law established to make sure Kiribati does not become a haven for cyber-criminals, and to provide legal safeguards for users of electronic transactions and databases. Will cover crimes such as computer hacking and the use of the Internet for fraud and theft.

xii) DATA PROTECTION AND PRIVACY LAW ESTABLISHED

This will give citizens the right to know: who holds their personal data; what data is held; the purposes for which data is held; and the rights to see that data upon request, and to have that data corrected if there are any errors. This will also protect and assist citizens to assert their rights in respect of information and photos that are posted on-line without their consent.

xiii) ELECTRONIC TRANSACTIONS LAW ESTABLISHED

This law is required to enable electronic transactions to be recognised as contracts and admissible as evidence in court proceedings.

xiv) REVIEW OF THE EVIDENCE ACT

The Evidence Act will require amendment to support the new Electronic Transactions Law by enabling electronic records to be admissible in court proceedings.

Broadcasting

xv) UNIVERSAL COVERAGE FOR TV & SOUND BROADCASTING

Nation-wide free sound broadcasting and television to be established using terrestrial broadcasting and/or Internet streaming.

Education & Protection of Children

xvi) PROGRAMME ESTABLISHED TO PROTECT CHILDREN FROM DANGER ON THE INTERNET

Program of education to be introduced in schools to teach children how to safely use the Internet.

xvii) INTERNET IN EVERY SCHOOL

Internet connection and suitable computer equipment to be established in every high school and then junior secondary and primary schools throughout Kiribati.

xviii) ICT INCLUDED IN SCHOOL CURRICULA

Teaching ICT skills and technology to be introduced to school curricula at primary, junior high and high school levels.

Government Services

xix) E-GOVERNMENT NETWORK AND DATA CENTRE ESTABLISHED

Internet connectivity established for all government offices wherever they may be. Ministries and agencies offer e-Government services to all citizens so that they can find information and transact services with the Government from wherever they live.

xx) E-APPLICATIONS

The Government will promote and encourage the development of

e-Applications in major sectors such as health, education and agriculture, land, civil registration, licensing authorities and among others. There will be a special focus on mobile phone based applications development using the existing and new data in government databases.

xxi) NATIONAL DISASTER MANAGEMENT NETWORK ESTABLISHED

Each Outer Island Group to have a secure reliable means of communication, that is independent of the public telecommunications network, with the National Disaster Management Office (NDMO) in South Tarawa and internationally.

xxii) EARLY WARNING SYSTEM ESTABLISHED

An early warning system for national disasters to be established, using the texting capability of the mobile phone systems.

xxiii) INTERNET CONNECTIVITY AT ALL GOVERNMENT AGENCIES

Internet connection and suitable computer equipment to be established in every Government agency in the outer islands such as health clinics, police station operations and emergency communications, schools and communities throughout Kiribati.

xxiv) ICT SKILLS TRAINING ACROSS THE ICT SECTOR IN GOVERNMENT

Access to training courses in ICT skills to be established for government ICT employees.

xxv) EXPLORE FRONTIER TECHNOLOGY

Encourage and promote the use of new innovative applications that leverage the potential of frontier technologies such as Blockchain, Internet of Things (IoT),

Artificial Intelligence (AI) (including Deep Learning), Big Data, 5G mobile services and others for social and economic benefits.

Financial Services

xxvi) INTERNET BANKING ESTABLISHED

Establish Internet banking so that all customers can make payments, check

account balances and make international transfers wherever they may be. (Note that EFTPOS services are already potentially available to any merchant with an Internet connection.)

xxvii) UNIVERSAL COVERAGE OF MOBILE SERVICES

Mobile money and similar services to be available throughout Kiribati.

8. Development and Strategies

This section details the main current strategies and plans as the next steps to achieving the goals detailed in the previous section.

8.1 Outer Islands Project

- Progress the project that will provide Government-owned infrastructure (through BwebwerikiNet Ltd (BNL)) on the Outer Islands for the delivery of mobile and Internet services.
- Implement the PPP arrangement with the winner of the tender to provide these services.

8.2 East Micronesia and Kiritimati Submarine Cables

- Implement the projects for the construction of international submarine fibre-optic cables linking Tarawa and Kiritimati to the global submarine cable network. The East Micronesia Submarine Cable (EMSC) will link Tarawa and Nauru to an international gateway on Pohnpei Island in the Federated States of Micronesia or Guam. Kiritimati will have a spur on the Southern Cross NEXT cable.
- The new company, BwebwerikiNET Ltd (BNL), established in 2017 will own these facilities on behalf of the Government of Kiribati.

8.3 E-Government Project and Government ICT

- Establishment of Government Network (GWAN)
- Establishment of a government data centre and disaster recovery solution
- Develop ICT applications for socio-economic development, over and beyond the development of supporting infrastructure for those applications
- Provide beneficial ICT applications such as e-Governance, e-Health, e-Education and e-Agriculture, among others
- Exploit the untapped potential of information technologies to transform our government services, making them more user-friendly, more effective, more efficient, more dependable and more readily accessible to the entire population of Kiribati.



- Explore innovative new technologies such as Blockchain, artificial intelligence (AI), big data analytics, deep learning, the internet of Things (IoT), 5G mobile services and mobile applications for education, health, finance and other sectors assisting national development goals.
- Develop an e-Government Master Plan that will set out the roadmap for e-Government implementation for the next 5 years
- Establish the office of the Government Chief Information Officer
- Restructure the ICT workforce in all of Government so that limited human resources are fully utilized to support the e-Government initiative. Capacity building opportunities to be encouraged for ICT officers
- Standardise Government hardware, software and procurement processes to achieve enhanced levels of efficiency, cost-effectiveness and reliability in Government systems.

8.4 Cyber Security and Cyber Safety

- Establish a new cyber law based on the model law developed by the International Telecommunication Union (ITU) for Pacific Island countries. This will strengthen the legal framework in Kiribati to meet the highest regional and international standards with regards to protection of fundamental rights, criminalization, investigation, electronic evidence and international cooperation. This proposal is supported by the Police. A skeleton/model law produced by the ITU specifically for Pacific Island countries has been provided to them and to the Attorney General's Office.
- Establish a Kiribati Computer Emergency Response Team (CERT)
- The Ministry will work with other agencies, including the Police and the Ministry of Education, to bring the level of knowledge about cyber security and ways to protect the children, citizens and businesses of Kiribati against cyber threats to the highest levels.



8.5 Communication for National Disaster Management

- Set up communications independent of the public telecommunication system for each island group to be able to communicate with the National Disaster Management Centre. The Ministry will work with relevant players to establish a robust communication system for use during disaster.
- The Ministry of Information, Communication, Transport and Tourism Development will become a member of the National Disaster Committee.

8.6 Radio and Television (via broadcasting or access to online streaming services)

- Commence planning for nationwide access to sound radio and television programmes via broadcasting and/or on-line streaming services to community ICT hubs.

- Government will provide a rational and comprehensive framework to govern the establishment, ownership, control, management and delivery of information, entertainment and educational services to the citizen of Kiribati through provision of efficient and reliable public service sound radio and television.
- The Government will encourage public broadcasting, private broadcasting and community broadcasting using communication services developed in conjunction with the telecommunication networks to serve the whole of Kiribati.
- Digital terrestrial TV will be preferred over analogue TV to comply with the Broadcasting and TV guidelines of the International Telecommunication Union (ITU). This does not mean that end users are obliged to have digital TV screen to access digital TV since conversion boxes are available in the market. Internet streaming will be used to deliver broadcast material in areas of low population density.
- The broadcasting services will emphasise local content, visualizing the country's cultural events and other important and entertaining local programmes, in addition to overseas content.

8.7 E-Commerce

- Government will enact electronic transaction legislation to facilitate electronic transactions and the broader objectives of e-Commerce;
- Develop and adopt data protection and privacy policies and law in accordance with international best practice;
- Review the Evidence Act to create provisions specifying the actions, which amount to search, and which amount to seizure of electronic data, to ensure consistency with the larger body of the law of evidence and international best practices, also to permit the use of electronic records as evidence for judicial purposes;
- Educate consumers about electronic commerce in order to enhance the decision-making process on e-Commerce and to promote awareness of the consumer protection framework that will apply to online services.
- Promote the use of e-Commerce by the business community, taking into consideration their current low levels of awareness, access and usage of ICT.
- Government will promote payments made online and e-Money services. Government will press for mobile money services to be introduced in rural areas for those who have no bank accounts. Government will promote awareness amongst vendors, users and service providers of the need for compliance with banking laws and approval to operate e-Commerce services.



8.8 ICT in Education - e-Learning

Government will utilize ICT in education - to extend e-Learning applications and tools to schools in a more efficient and effective way. Applications will include the ongoing education and upskilling of teachers as well as the education of students. Introducing ICT in the school curriculum is encouraged to allow more students and teachers to understand current ICT developments through academic studies. Students will also benefit from access to the enormous range of on-line courses and remote study opportunities.

Activities will include:

- Developing e-learning applications
- Developing the skills of the teachers
- Introducing more comprehensive ICT instruction throughout the school curricula ranging from basic skills to advanced ICT courses

8.9 E-Health Care Services

Government will promote online medical services.

8.9.1 Joint Medical Records Database



A common medical records database will facilitate on-line exchange of data, such as patient histories, lab test results and x-rays between clinics, including those on outer islands, and central hospitals and clinics, including those on outer islands. This will bring better reporting and more accurate information, and support for health clinic nurses.

8.9.2 Remote Consultancy and Support



The e-Health system will include diagnostic support for health clinics, which may reduce the need for patients to travel to a major centre for specialised diagnoses. There is also the possibility for Kiribati doctors to access the diagnostic skills of top quality specialist consultants in other countries.

8.9.3 Stock Inventory, Medical Supplies, and Vaccines



The system will also provide better inventory management and distribution of medical supplies, including vaccines, maintaining the availability of non-expired essential supplies and minimising waste.

8.10 E-Policing Services

In conjunction with the Police and through the e-Government project, the Ministry will support exchanging of information utilizing ICT for efficiency of recording purposes and extending crime prevention and other civil services to the outer islands.

E-policing applications utilising a centralised database will be developed.

8.11 Skills and Capacity Development for ICT

The Government will ensure proper skills development across the ICT sector. It will develop a Human Resource Development Plan to help the sector to grow. It will collaborate with academic institutions to bridge the gap between academic curricula and what is required in the field.

9. Implementation of the 2019 ICT Policy

In order to ensure that the ICT Policy is implemented in an effective and efficient manner, an inclusive, participatory approach, which incorporates input from all stakeholders, will be adopted.

Members of the public and private sector will participate in the implementation of the ICT Policy in the same manner in which they informed its development.

An ICT Committee will be formed to oversee the implementation of the policy. The MICTTD will play a leadership role in coordinating, the projects described in the Policy and will monitor and regularly report on the achievement of its goals. The Committee will work in close collaboration with other key Ministries including Ministry of Commerce, Industry & Cooperatives (MCIC), Ministry of Education (MOE), Ministry of Health & services (MOH), Ministry of Internal Affairs (MIA) and OB, the Office of Te Beretitenti.

The private sector organisations and other umbrella organisations such as KCCI, and participants in the ICT market will also play a vital role in successfully implementing this policy. Partnerships with regional and international organisations such as the World Bank, ADB, Commonwealth Secretariat, and the International Telecommunication Union will be equally important.

The identified projects will be implemented progressively, with progress monitored and regularly reported.

10. Conclusion

The ongoing development and improvement of the nation's IT and telecommunications systems has a vital part to play in growing the national economy and improving the health and well-being of the citizens of Kiribati.

The ICT sector has seen many radical changes and improvements since the 2011 National ICT Policy. For example, the number of connected mobiles has increased from around 12,000 to over 51,000 and projects have been established to extend modern



communications to all the Outer Islands and to bring fast secure international communications through submarine cables to Tarawa and Kiritimati.

This 2019 National ICT Policy builds on what has already been accomplished and establishes twelve guiding principles and a list of 27 specific goals and objectives against which progress will be measured. Those objectives include bringing high quality voice and Internet communications and radio and television services, to every village, school and health clinic throughout Kiribati.

These policies recognise the rights of every citizen of Kiribati to have access to a full range of modern ICT, government, financial and broadcasting services, wherever they may live and whatever their circumstances, or disability. We know that some these aspirations will present big challenges, but in the end, everyone should have the opportunity to fully participate as citizens of the world in the 21st century.

11. Annex 1: Measurement and Evaluation Framework for NICT Policy Goals

Goals	Activities	Action by	Timeline	Measure(s)	Data from
1. Universal access	Attain universal availability of voice and data services.	All operators BwebwerikiNet Ltd (BNL), CCK, MICTTD	100% mobile coverage and Internet coverage within 5 years 6-8 Mb/s coverage 50% within 5 years and 100% in 8 years	% of pop with mobile coverage % of pop with Internet coverage % of pop with 6-8 Mb/s data coverage	Operators MICTTD surveys CCK
2. Uniform pricing (aim is to make sure that customers on the Outer Islands pay the same price for services as those in S Tarawa)	Regulate and monitor prices of voice and data services throughout Kiribati. Compare pricing with neighbouring and developed countries	All operators with "nationwide" services, CCK	Ongoing	By exception	Operators (monitored by CCK)
3. Affordable pricing	Compare pricing with neighbouring and developed countries	CCK	Comparable with other PICs in one year. Developed countries in 5 years.	By survey comparison	MICTTD surveys comparing with (a) other PICs and (b) developed countries e.g. Australia and NZ CCK
4. Uniform quality	Monitor quality of service and quality of experience	All operators with "nationwide" services, CCK	Ongoing	By exception	Operators (monitored by CCK)

Goals	Activities	Action by	Timeline	Measure(s)	Data from
5. Secure international communications	Submarine cable projects	BNL, MICTTD	S Tarawa within 2 years. Kiritimati in 4 years. Redundant links from all Outer Islands to national hubs within 10 years.	On completion	Operators MICTTD
6. Community ICT hub (telecentre) in every village	Establish community centre. Pilot installations initially. Solicit development partner support	Service providers Private investors Entrepreneurial start-ups Microfinance providers include DBK and village banks Island Councils (investment approval) MICTTD (facilitation) CCK	Within 5 years	Number of villages with a telecentre	Island Councils CCK
7. Access to ICT services for disabled persons	Needs analysis, MICTTD to establish a fund/subsidy to purchase equipment	Operators, Sponsors MICTTD, MWYSSA	Fund within one year	Fund established Operator support	Operators MICTTD, MWYSSA
8. IXP(s) established	Operators establish IXP, facilitated by MICTTD	Operators MICTTD, BNL	S Tarawa within one year Kiritimati within 3 years (if appropriate)	On completion	MICTTD, BNL
9. Establish a Kiribati Computer Emergency Response Team (CERT)	MICTTD to establish a CERT	MICTTD	Within one year	Kiribati CERT established	MICTTD

Goals	Activities	Action by	Timeline	Measure(s)	Data from
10. Remove barriers to market entry	Regular reporting from CCK to MICTTD Monitor barriers to market entry	CCK MICTTD, MCIC - Foreign Investment	Ongoing	By consultation and survey of affected parties	MICTTD, CCK, Complaints to CCK from existing and intending operators
11. Comprehensive cyber-law established	Establish new cyber law	MICTTD, CCK, OAG, Police	Within one year	On completion	MICTTD, OAG
12. Data Protection and Privacy Law established	Establish law on data protection and privacy	MICTTD, CCK, MCIC, OAG, Police	Within one year	On completion	MICTTD, OAG
13. Electronic Transaction Law established	Establish electronic transaction law	MCIC (ECC-member), OAG, Police, MICTTD	Within one year	On completion	MICTTD, OAG
14. Revise Evidence Act	Amend Act for electronic records to be recognised as evidence for judicial purposes	MCIC, OAG, Police	Within one year	On completion	MICTTD, OAG
15. Universal coverage for public service TV and sound broadcasting	Establish TV network and sound broadcasting	BPA, MICTTD, Service Providers	Start-up within one year. Full national coverage within 5 years	On establishment and % coverage thereafter	MICTTD
16. Programme established to protect children from danger on Internet	Awareness program conducted	MICTTD (Initiation), MOE, Police, MWYSSA	Start-up within 6 months. Reach 100% of schools within one year	Programme established and % of schools covered thereafter	MOE
17. Internet in every school	Internet connection, supply of computers, training of	MOE, CCK	Progressive over 5 years HS, JSS then primary	Percentage of schools connected and	MOE

Goals	Activities	Action by	Timeline	Measure(s)	Data from
	teachers. Solicit development partner support			equipped	
18. ICT user skills included in school curricula	Introduce new curriculum for ICT	MOE	Within 2 years	Already in HS curriculum. Upon establishment for JSS and primary	MOE
19. e-Government network and datacentre established	Establish CIO role- Government network initially in S Tarawa then extend throughout Kiribati. Datacenter development. Disaster recovery solution development Digitalization of the national databases. Establish e-Government portal and then progressive connect Ministries and agencies. Progressive deployment of applications for citizen access.	All Ministries	CIO and S Tarawa network within one year. National network within 5 years. App development ongoing.	Appointment of advisor, progress reports thereafter	MICTTD (ICT)
20. e-Applications	Encourage the establishment of e-Applications. Promote use of new innovative frontier technologies	All Ministries, CCK, KCCI - Service Providers, SOEs	Awareness program conducted on a quarterly basis	e-Application established	MICTTD (ICT)

Goals	Activities	Action by	Timeline	Measure(s)	Data from
21. National Disaster Management Network established	Establish clusters for disaster management network	NDMO (OB), MICTTD, CCK, BPA, TV, Mobile Operators	Establish within 6 months. 100% equipped within one year	Network establishment and % of island clusters/ disaster committees equipped	NDMO (OB), MICTTD, MET (OB)
22. Early Warning System for national disasters established	Establish national early warning system	CCK, MICTTD, MET (OB), BPA, TV, Mobile Operators	Establish within 12 months	On completion	Operators, MET (OB)
23. Internet connectivity at all government agencies	Establish connectivity at every health clinic, police services and schools.	Operators, MHMS, Police, Schools, MFMRD, MELAD (Agriculture), MIA, CCK	100% within 5 years	% of health clinics connected, % of police stations connected, % of other government agencies connected.	MHMS, Police, MIA, CCK
24. ICT skills across ICT sector in government	HR plan for Capacity building to ICT personnel	MICTTD, PSO, CCK	To conduct training on a quarterly basis depend on the availability of the budget	Number of training conducted Percentage of total ICT staff who have attended courses	MICTTD (ICT), CCK, PSO
25. Explore frontier technologies	Research by MICTTD and ICT Committee	All Ministries, SOEs, KCCI, CCK,	Feasibility studies within 5 years	Progress reports	All Ministries, SOEs

Goals	Activities	Action by	Timeline	Measure(s)	Data from
26. Internet banking established	Banking sector establishes internet banking	ANZ Bank	Internet banking launch within 6 months	EFTPOS is completed Launch of Internet Banking	ANZ Bank
27. Universal coverage of Mobile Money Service	Establish mobile money service	Service Providers	100% within 5 years	% of population with access to MMS	Service Providers