

PAPUA NEW GUINEA

DRAFT UNIVERSAL ACCESS AND SERVICE (UAS) POLICY

Version 6.0 June 2022

1. Introduction, Purpose

1.1 Introduction

This is the Universal Access and Service Policy (UAS Policy) of the Government of Papua New Guinea. It addresses the Government's objectives of achieving universal access to and utilization of Information and Communications Technologies (ICTs) and related telecommunications services and applications by all citizens, households, businesses, public institutions, and civil service organizations throughout PNG.

This UAS Policy builds upon and updates the provisions of the National Information and Communications Technology Act 2009 ("the Act") with respect to Universal Access and Service and provides a basis for any needed amendments to the Act in this area. It also guides the implementation actions of the Government, the Department of ICT, and NICTA with respect to national UAS objectives. UAS policies do not just cover connectivity, but also measures to ensure affordability and inclusion for all. UAS policies are the way governments have been effectively and collaboratively with the private sector, NGOs, the international community to achieve these goals and close access gaps. The UAS Policy is a key pillar to achieving the Government's digital transformation goals.

Information and communication technologies (ICTs) have had a transformational impact in today's world. Over the past two years as much of the economy, government, education, and health have moved online in response to the global pandemic. This revised UAS policy is the first step needed to accelerate internet access in PNG and help the GoPNG meet its Sustainable Development Goals, grow the economy, and help all people realise their potential.

The goal of this revised Universal Service & Access Policy is to act as catalyst for action to drive down the price of Internet access, expand coverage to the millions that remain unconnected, and build the inclusive foundation for a robust digital economy. This revised policy will modernise the UAS Policy and the Universal Access and Service Fund (UASF) mandate to build an inclusive and strong digital economy within PNG.

The GoPNG can meet these goals by adopting this revised universal access policy with a modern, ambitious UASF criteria: commit adequate resources— financial, political, and human — to the UASF to deliver on its mandate; and ensure transparency, accountability, and partnering with the private sector, civil society organisations, and the technical community.

The main objective here is to set targets that are ambitious but also inspirational. We will accomplish these goals by catalysing and accelerating innovation across multiple sectors and actors in the economy and re-imagine a better future by organizing public and private investments to achieve that future.

1.2 Policy Development Process

- This draft has been prepared following two workshops with NICTA and DICT representatives and taking account of the proceedings of the recent National ICT Summit. Its purpose is to

provide a baseline for establishing new policy objectives, mandates, and directions among all stakeholders.

- The finalized UAS Policy would be the basis for any new legislative provisions that may be required.
- The final UAS policy will also form the basis of the Government's Broadband Plan and with the revised Digital Economy policy.

1.3 Relationship to Other National Policies

The following related national and international policies and goals are also relevant to the UAS Policy objectives and implementation, and are hereby incorporated by reference:

- PNG Vision 2050
- Long Term Development Strategy 2010-2030
- National ICT Policy 2008
- National Broadband Policy 2013
- Digital Transformation Policy 2020
- Alotau Accord III (2017)
- APEC 2018 Chair's Era Kone Statement
- National Public Service Gender Equity & Social Inclusion (GESI) Policy 2018
- United Nations Sustainable Development Goals (SDGs)

1.5 Definitions of Terms

| | |
|--------|---|
| ICTs: | Information and Communications Technologies |
| UAS: | Universal Access and Service |
| NICTA: | The National Information and Communications Technology Agency |
| DICT: | The Department of Information and Communications Technology |
| GoPNG: | The Government of Papua New Guinea |
| NGO: | Non-Governmental Organization |
| 4G: | 4 th Generation cellular mobile network technology |
| MSMEs: | Medium, Small, and Micro Enterprises |
| PWDs: | Persons with Disabilities |

1.6 Status of Universal Access and Service in PNG

The UAS fund was established under Part V of the NICTA Act 2009 and its objective is to promote the long-term economic and social development of Papua New Guinea through ICT Services. It has its own UAS Fund with a separate Board that reports directly to the ICT Minister. As this policy is recommending a change in the governance model the definition, governance, and members of the UAS Board and the UAS Secretariat will be revised to align the responsibilities and authority with the new Governance model. The NICTA Act will be amended accordingly.

Currently, The UAS Fund has a five (5) year strategic plan (2018-2022) that provides guidance to programs and projects. The strategic plan contains four programs that address both the demand and supply sides of ICT services. The UAS projects are formulated through consultations with key stakeholders and in accordance with the PNG Vision 2050, PNG Development Strategic Plan 2010-2030, MTDP III 2018 – 2022, National Broadband Policy 2013, PNG ICT Road Map and Digital Transformation Policy.

Each year the UAS Fund is expected to implement projects aimed at reducing the coverage and usage gaps in Papua New Guinea. The current focus is on broadband (both mobile and fixed) to be made accessible to all citizens.

PROJECTS

Projects are implemented through the established government procurement processes and guidelines. To date the UAS fund has implemented a number of project since its inception in 2012 which include (1) 59 telephony towers in selected remote areas, (2) 120 upgrade towers (upgrade from 2G to 3G/4G), (3) 8 teacher's colleges, (4) 5 top-up and secondary schools, (5) 100 piggery farmers and (6) two local communities for broadband access. The project summary is shown in the table below.

| Year | Projects | Status | Beneficiaries |
|------|--|---------------|---|
| 2021 | <ol style="list-style-type: none"> 1. Mobile Broadband 2. Fixed Broadband 3. Broadcasting – TV (A2D) | In progress | 750,000 |
| 2020 | Community Broadband—See below These projects include Computer Labs for schools, broadband connectivity for health centers, and broadband connectivity for agricultural centers | In progress | 10, 0000 community members |
| 2019 | Connect the School--Partnership with ITU under their GIGA project- Partnership with School <ul style="list-style-type: none"> · Provide e-library, Internet access · 5 x schools (selected) · Most via VSAT (Satellite) | 70% completed | 6000- student/staff/surrounding communities |
| 2018 | Connect the Farmers Project 3 x Project Sites - Jiwaka | Completed | 600 + famers/students |
| 2017 | Connect the Schools Project 8x teachers colleges | Completed | 8- teachers colleges |

| Community Broadband Projects-2020 | Brief Detail | Status | Beneficiaries | Estimated Cost |
|-----------------------------------|--------------------------------|-------------|---------------|----------------|
| Community Network in | · Located outside Port Moresby | In progress | 5000 | K300,000 |

| | | | | |
|---------------------------------------|---|-------------|------|----------|
| partnership with the Internet Society | <ul style="list-style-type: none"> · Targeting a local community. To provide internet access · A Pilot project | | | |
| Community Learning Center | <ul style="list-style-type: none"> · Located outside Port Moresby · Partnership with local entrepreneur · Provide learning platform for the local community · A pilot project | In progress | 4000 | K400,000 |

Going forward, the UAS fund will continue to strive for efficient implementation of ICT projects in 2022 and beyond. Access to Broadband services is a priority and in particular the mobile broadband. The focus now is on the provision of mobile broadband to the uncovered areas as well as encouraging the demand and uptake on the usage of the services.

Partnership and enabling policies are the keys to development and therefore the UAS Fund will endeavor to forge strong and effective partnership with other relevant government and developing agencies to provide access to broadband service in PNG. For example, in 2020, NICTA partnered with the Internet Society (ISOC) on a series of community networks in a coastal village in the Gaba Gaba area. ISOC provided technical training to NICTA staff on the design, deployment, and equipment requirements/specifications for these community networks and NICTA was responsible for all other aspects of the project along with efforts to upskill the local community through the Internet.

2. Vision, Objectives

2.1 Guiding Vision

The Vision of the Government of Papua New Guinea is to transform the nation to become a fully modern, prosperous, and integrated digital/information age economy and society. This will mean that all citizens will have the ability to access and utilize advanced, high-quality information and communication technology (ICT) services, devices, applications, and resources. These capabilities will be robustly available and affordable throughout the country and will be adapted to the needs and goals of all groups in society, including women, persons with disabilities, and those living in remote areas. All citizens and businesses will enjoy opportunities to improve their digital literacy, along with the ability to take advantage of digital financial services, education and training, social networking, and e-entertainment, among many other benefits. The growing ICT-based industry will offer diverse services, applications, and information to the public, and will support increasing levels of employment, income, and skills in the digital economy. The PNG Government will adopt policies and practices that take maximum advantage of digital resources within government operations, and which enable citizens to have access to on-line government services wherever possible. The Government will also promote widespread adoption of advanced technology platforms and services in the education, health, agriculture, and other public service sectors. The Government will make enhancing cyber-security a top priority, for all public agencies and for citizens and businesses.

2.2 Key UAS Objectives

The key Objectives of UAS Policy in PNG, in keeping with the above Vision, include the following:

- Accessibility: ICT networks, services, facilities, equipment, and applications should be as widely accessible as possible to all citizens, businesses, and organizations, in all locations throughout the country. Such Access means that users can obtain and connect to the full range of networks and services in locations and via technical means that are appropriate and convenient to their locations, needs, and capabilities.

ICT networks should be extended to all population centres, with particular focus to rural and remote areas of PNG and services and facilities should include provision for access and connectivity by individuals, households, small businesses, public and government institutions, including in public locations and remote rural areas.

Provisions should be made for persons with various types of disabilities and specific needs to have convenient and appropriate access to ICTs which accommodates their specific requirements.

- Availability: A wide range of ICT services should be always available to all users. These include both fixed connections to homes, businesses, and public buildings, as well as mobile connectivity that can be obtained throughout the country, in both populated areas, along roads, and in the countryside.

Mobile signals should be high quality and reliable in all locations. Networks and services should be adequately maintained, and faults repaired with a minimum of delay regardless of location.

Customer service support for services, equipment, and applications must be fully available to all users at reasonable times and at minimal cost, including at physical customer service offices or via telephone or on-line contact.

- Affordability: All elements required for ICT connectivity and use must be affordable to citizens and businesses of all incomes and economic conditions regardless of where they live. There should be basic, full-featured devices, services, and applications provided at low prices for those with lowest incomes, while higher-end products and services may be sold at market rates.

Where necessary, subsidies, incentives, and even free services should be available with support from Government, NGOs and/or private industry. No citizen should be excluded from accessing and utilizing essential ICT services and facilities based on an inability to afford such essential resources.

- Utilisation: Citizens, businesses, and organizations must be able utilize ICT facilities and services effectively and appropriately, and such utilization should be measurable and ensured across all geographic and demographic groups. Provision of ICT access that is available and affordable, according to the above definitions, but which is nevertheless not widely utilized by a given population or target group, will be considered an insufficient outcome of any UAS program or project.

Providers of such services must take steps to ensure that prospective users obtain the necessary awareness, skills, capabilities, and incentives to adopt and incorporate ICTs in their lives and operations.

- Meaningful Connectivity: This concept, which is being embraced by organizations such as the ITU, the Broadband Commission, the World Bank, as well as the UN Economic and Social Commission for Asia and the Pacific (ESCAP), and governments around the world, encompasses a new standard that measures connectivity according to four dimensions. These dimensions should be met to ensure that everyone, not only, has Internet access, but also access that is useful and equitable Internet to all. The concept of Meaningful Connectivity seeks to raise the bar for Internet access by setting the following minimum thresholds for internet access:

- Regular Internet use
- An appropriate device, i.e., access to a smartphone
- Enough data, which is translated as an unlimited broadband connection at home or a place of work or study
- A fast and reliable connection with the minimum threshold: 4G mobile connectivity

A fast and reliable connection is one that supports applications like streaming videos online, in addition to web browsing. Meaningful connectivity requires that all users, including those in rural areas have access to sufficient network transmission connectivity and speed, sufficient data utilization caps at reasonable prices, and the ability to connect as frequently as needed to

incorporate advanced ICTs in their lives. Adopting the meaningful connectivity baseline goals will allow the PNG Government to set targets that guarantee enough speed, enough data, with an adequate device, and sufficient regularity and reliability for Internet and Broadband to be an important part of every citizen's life. It will also allow the GoPNG to meet the goals set forward by the Broadband Commission, the ITU, and the UN ESCAP.¹

The benefit of adopting the Meaningful Connectivity target is that it provides a way to guide the gradual implementation of our policy actions and the regular review of broadband policy targets. The value of this tool is in easy measuring and tracking progress over time on how well PNG is doing in meeting the Meaningful Connectivity goals over time. It does this by providing easy to measure outputs and statistical data.

2.3 Policy and Regulatory Principles

Policies, regulations, programs, projects, and other initiatives that seek to advance ICT Universal Access and Service shall adhere to the following fundamental Principles:

- Market orientation: Wherever possible, the private market will be the preferred source of supply, service, investment, development, and innovation in the ICT sector in PNG.
- Competition: Competitive mechanisms will be the preferred approach for awarding public contracts, subsidies, and programs wherever possible, and fully competitive markets for all ICT products and services will be promoted at all times.
- Transparency: All actions, initiatives, and decisions by Government and NICTA shall be done in a transparent manner, with the criteria, processes, funding sources, and roles of various stakeholders disclosed and available for public scrutiny.
- Consultations & Inclusion: Both DICT and NICTA will conduct public consultations relating to all significant policy and regulatory decisions, ensuring that all stakeholders have the opportunity to contribute their views and have their views and interests are considered in decision making processes.
- Accessibility: All actions, initiatives, and decisions by Government, DICT, and NICTA shall be done in a way that that makes it easier for persons with disabilities, indigenous populations, and other disadvantaged communities to gain access. This accessibility policy has been enshrined in the GoPNG's GESI Policy of 2018. The GoPNG is aware of the need to address the socio-cultural norms and beliefs that discourage women and people with disabilities from using ICTs or pursuing ICT-related careers.

¹ The Broadband Commission and the UN use a "1 for 2" threshold for affordable Internet, which posits that mobile data is affordable in a country if one gigabyte can be purchased for less than 2% of the country's monthly GNI per capita.

3. UAS Focus Areas

This section identifies and describes the key Focus Areas for UAS development objectives, policy, financial support, programs, projects, and initiatives by the Government, toward the shared goals of universal access and service in ICTs.

3.1 Network and Service Coverage and Access

The primary requirement for Universal Access and Service is to ensure that advanced telecommunications networks and services are accessible and available in all geographic areas and for all communities, with particular emphasis on rural areas that currently do not have access. The technology of digital network transmission and connectivity continues to evolve rapidly, with new standards, wider options, and more efficient systems constantly being introduced and upgraded. The overriding goal of the Government is to promote universal coverage of the most advanced and effective networks throughout the country, and for the services provided to be sustainable and affordable to all citizens. The GoPNG understands that in many communities the lack of power is an issue and will work to ensure that the lack of power does not preclude the building or operation of networks in rural areas. The Government has already been working to liberalise regulations and policies that promote access to existing physical infrastructure, including cross-sectoral policies to access ducts, poles, or other passive infrastructure belonging to energy and other utilities. The Recent Digital Government Legislation adds “Dig one policies” to the list of required actions agencies and departments must take whenever they are opening up roads. These policies aim to coordinate civil works between different government agencies, international organisations, and utility companies to increase the amount of fibre being laid reducing the cost of network build-out. NICTA will also work on regulations that streamline permitting requirements, such as rights-of-way, which help reduce infrastructure deployment times and costs.

This section highlights the main objectives under this Focus Area:

- Mobile broadband: Broadband wireless mobile services have become the predominant means of communication across all levels and segments of society. Access to high quality, reliable mobile broadband signals represent a basic necessity for participation in the information society. The Government through DICT and NICTA will continue to take steps, including through UAS Fund Projects and other programs, to close gaps in the coverage of mobile broadband services, and to ensure that networks are upgraded or built where necessary. Given the evolution of this technology, the Government considers that the minimum quality of service that should be provided in all locations is the equivalent of “4G” mobile service. This standard may change as the industry evolves.

Targets: By 2025: 70% population coverage of at least 4G-level mobile broadband signals; by 2027: 85% population coverage.

- Fixed broadband: Fixed broadband connections also represent an important component of ICT infrastructure, especially for businesses and institutions, but also for many households and other users. The Government will promote and support the continued expansion of fixed broadband networks and services to locations without such networks. This expansion will not be limited to traditional ISPs or networks but also include community or local based cooperatives or networks.

Targets: By 2025: 50% of towns with population greater than 2,500 will have fixed broadband network access available; by 2027: 65% of towns with > 2,500 population. By 2025 40% of towns with population less than 2,000 will have access to Internet services.

- Schools and Health Centers: For many schools and health centers in rural and remote areas obtaining access at these facilities remains problematical but this will change under this policy. Access to high quality, reliable mobile broadband signals represent a basic necessity for participation in the information society. As such all efforts will be made to ensure that the schools and health facilities have access to the Internet for learning and for remote health services.

Targets: By 2025: 70% of all schools and Health centers will have access to Broadband. By 2027: 85% of all schools and Health centers will have access to broadband.

- Public access facilities: For many users and communities, the option of obtaining access to ICTs at public facilities represents an additional benefit and affordable convenience. There are a range of potential options for such public connections, including libraries, post offices, local government offices, community centers, bus stations, airports, and commercial Internet cafés, among others. In addition, public WIFI transmission services are becoming a common option, which can allow for wireless connections in many areas, for less cost than using mobile data service. The Government through DICT and NICTA will explore these options, which may be funded as part of UAS Fund Projects, public-private partnerships, and Government or NGO initiatives.

Targets: By 2025: At least one public access ICT facility or public WIFI service available in 50% of towns with greater than 2,500 population; by 2027: public ICT facilities in 65% of towns with > 2,500 population.

Power Infrastructure: For many users and communities, especially those in rural and remote areas, reliable power infrastructure is a real hinderance for building networks and maintaining service. The Government through DICT and NICTA will continue to take steps, including through UAS Fund Projects and other programs, to close gaps in the coverage in rural and remote areas that lack adequate power by focusing on alternative options such as Solar, mini grids, off-grids, and low-power networks and solutions.

- Broadcasting: Traditional radio and television broadcasting remain a key component of the overall national ICT infrastructure and communications delivery networks and will continue to be supported and developed by the ICT Ministry. The Ministry will also continue to support community radio as another form of increasing access and information to the populace. NICTA will endeavor to enable expansion of broadcast licenses, efficient use of spectrum, including spectrum sharing to enhance connectivity efforts, and inclusive programming options in local languages and for local content.

Targets: By 2025: 90% of the population will be within reach of at least radio broadcasting signals, especially emergency communication broadcasts.

3.2 Affordable Devices

Access to ICT networks, services, and connectivity will have little or no value to potential users if they are unable to afford or own modern, multipurpose digital devices, which connect to, and utilize those networks and services. Today's "smart" digital devices are an essential piece of the broadband ICT ecosystem and serve as a lifeline and vital tool for people in virtual all facets of society. The highest-end, most sophisticated devices can be exorbitantly expensive for average citizens and small businesses and entrepreneurs, but there are many advanced device options available, which perform most of the necessary functions, for much lower cost. Still, even these devices, from basic smart phones to tablets and laptops, can be beyond the budget of reach of many consumers and organizations, even more so for people living in remote or rural areas and for local health clinics in these areas.

The UAS Policy aims to ensure that appropriate and fully functional devices can be made affordable to all who need them, via a combination of programs, partnerships, incentives, and other mechanisms. In particular, the Government will seek to promote the following objectives and targets:

- Affordable smart phones, handsets: The most ubiquitous and essential ICT device in the current era is the personal smart phone handset. Ideally, all users of ICTs should be able to possess and utilize an individual smart phone, although in many households these may be shared by several people. The Government through DICT and NICTA and through the UAS Fund, will work to promote income-based discounts, bulk purchases, and targeted subsidies to ensure that high quality devices are affordable to all, particularly those living in remote and rural areas, and for persons with disabilities. The goals here are to enable the GoPNG to meet the goals of meaningful Connectivity laid out in this policy.

Targets: By 2027, at least one smart phone or equivalent per household. Total penetration of smart phones > 80% of adult population.

- Devices for small businesses: Most small businesses, including individual entrepreneurs, are also increasingly dependent upon ICT connectivity and appropriate devices. Many business activities, from finance, banking, and payments, to sales, marketing, and customer relations, can now be conducted almost entirely via smart phones with mobile broadband connections. Other functions require personal computers, laptops, tablets, digital payment and scanning devices, and a variety of other equipment. The Government through DICT and NICTA will explore programs to extend affordable device options to qualified enterprises, through financing, partnerships, and other support mechanisms.

Target: By 2027, 90% of designated, qualified small and micro enterprises will possess and utilize appropriate ICT devices in their business operations.

- Partnerships: To achieve the targets and outcomes of this Focus Area, the Government will explore and promote partnerships with qualified private sector providers of ICT devices as well as with civil society organizations and others who can ensure that these devices are within the reach of all people. Also, that these communities are taught how to use these devices. These partnerships and/or arrangements may include several types of incentives, public procurement

contracts, tax and other fiscal incentives, assistance to domestic manufacturers and distributors, and other possible public-private cooperation agreements.

3.3 ICT Business Development, Applications, Content, Utilization

The benefits of Universal Access to ICTs depend also upon development of ICT-based businesses and entrepreneurship in PNG, which take advantage of these technologies to create innovative applications and provide useful on-line content, expanding the nation's digital economy. It is especially important for medium, small, and micro enterprises (MSMEs) to have the resources and capabilities to access and deploy ICTs, and to integrate their activities with other digital platforms and functions, such as e-banking, e-payments, digital marketing, social networks, etc. The Government will take a lead in developing and promoting e-business opportunities in PNG, including establishment of ICT Business Incubation Centers, which will offer direct support to entrepreneurs, and will support partnerships and investments in innovative technology business models.

The growth of ICT business opportunities will also depend upon and complement the wider development of information content and applications available to end users, and their awareness and capability to utilize these technologies. In this respect, the Government will also undertake a range of initiatives and will support programs by the private sector, educational institutions, and civil society to encourage development of diverse, relevant, useful, and culturally and economically beneficial information content and applications, to promote meaningful connectivity and effective ICT utilization throughout PNG society.

These initiatives will address, among others, the following priority issues:

- Support for ICT Business Incubation and Support: PNG will benefit extensively from the development of its domestic ICT industry, including establishment of new, small businesses which deliver on-line applications, content, and e-services. The Government will provide support to allow national and local entrepreneurs, innovators, apps developers, and on-line businesses to flourish in the growing information and digital economy. This will include establishment and funding of ICT Business Incubation Centers, which will offer technical resources, training, start-up assistance, digital marketing portals, and other support for ICT entrepreneurs.
- Robust, public information content and applications: The benefits of ICTs for society derive from the scope, diversity, and freedom of information, entertainment, social media, and knowledge content and applications available. There should be a robust and diverse set of options for citizens of PNG to obtain current information, including news, government affairs, local events and activities, job opportunities, and a wealth of other resources. This will also include efforts to “stimulate local content production as well as the development of local language services and applications for an inclusive digital world. This policy will also include a series of incentives to local content developers, beginning with the inception, incubation, and marketing of the content or application. The GoPNG will also consider development of “rich and useful” content and applications to support the delivery of public services and creation of citizen engagement platforms to drive demand; similarly, such resources should be supported

by application programming interfaces that allow websites to be displayed in multiple languages, depending on the user's needs or preferences. There should be as few restrictions as possible, and broad incentives for content providers and applications developers to create, distribute, host, and market all forms of ICT-based resources. These can be supported, as necessary, through coordinated efforts to provide shared domestic hosting and caching of international applications via data warehouses and other facilities. The Government will work with suppliers to explore means of encouraging such options.

- Digital finance and payments: Digital finance technologies and applications, including mobile money, electronic banking, digital payments, and more, represent a fast-growing foundation to the modern economy. Adoption of these technologies can create important opportunities for both large and small businesses to improve performance and efficiency, as well as for consumers to expand their commercial and financial options. A variety of platforms, applications, and legal/contractual arrangements are necessary for effective operation of digital financial systems nationwide. The Government will continue to give high priority to developing appropriate regulations, partnerships, and incentives for universal availability of digital finance and payments throughout the economy.
- ICTs for Farmers: Farmers, and the agriculture sector as a whole, can benefit from the use of advanced ICT devices, sensors and other Internet of Things devices, software, and applications. The Government will support development of targeted initiatives aiming to increase connectivity, enable smart agriculture, and other relevant applications and services for farmers.
- ICT awareness, Digital skills and Digital Literacy: Nearly all ICT services, devices, and applications require that users learn new skills and understanding of how they are best utilized to their maximum benefit. The ITU and the Broadband Commission identify three basic levels of digital skills that are needed and classified them into three areas: Basic, intermediate, and Advanced.
 1. Basic skills are foundational for performing basic tasks, akin to traditional literacy and numeracy, and include familiarity with use of hardware, software, and basic online operations such as email or form completion.
 2. Intermediate skills enable critical evaluation of technology and content and currently may include work-related functions such as desktop publishing, digital graphic design, and digital marketing, although ongoing technical change will necessitate changes in what is considered an intermediate skill.
 3. Advanced skills are those required by professional ICT specialists, such as computer programming and network management, as well as broader abilities such as digital entrepreneurship.

The use of a cross-sectoral component such as digital skill-building creates beneficial ripple effects across entire economies, expanding economic opportunities and strengthening communications regardless of the industrial sector, geographic location, or population group. Many new users, who have not been previously exposed to these technologies – along with many existing users confronting increasingly complex options – require training and capacity building to support their adoption and beneficial use of Internet and smart devices and applications.

Support for such needs shall be taken into consideration and built into all ICT access and development projects.

3.4 Public Institutions, Government Services

Every public institution and government agency now deploys a range of technical devices, services, applications, and functions within its operations, and these are critical to effective public service performance. In keeping with its Digital Transformation Policy, the Government will devote resources and investments toward delivering high quality ICT equipment, connectivity, applications, and services throughout the PNG sector, in particular in the areas highlighted below:

- Education: ICT access, devices, and content are critical to modern education at all levels, a requirement which became even more essential during the isolation imposed by the Covid-19 pandemic. The Government will endeavor to supply all public educational institutions, Particular focus on schools in rural areas including students, teachers, and administrators, with fully functional, advanced ICT resources. This includes support for developing on-line and digital curriculum, and training for educators in development and use of ICT-based resources.

Targets: By 2027, 75% of primary schools, 85% of secondary schools, and 100% of university campuses will have fixed broadband connections sufficient for all on-campus connectivity needs; 50% of primary students, 70% of secondary students, and 100% of university students will have access.

- Health care: The health and medical sector has also extensively integrated digital technologies, and their role is central to modern effective health care, vastly more so in the context of the Covid-19 pandemic. The Government will promote the availability and adoption of advanced, specialized ICT-based equipment, services, and applications throughout the public health system in PNG. Technical resources should be available to doctors, nurses, clinicians, administrators, as well as all patients, regardless of location, economic or health status. The Government will commit all possible resources toward expanding access to and utilization of advanced ICTs in all health care facilities throughout the country, especially in rural areas:

Targets: By 2025: 75% of medical clinics, 100% of hospitals with broadband connectivity and digital services; by 2027: 90% of medical clinics digitally enabled.

- Local government offices: The Government's Digital Transformation Policy aims to enable adoption of advanced ICTs within public service operations at all levels. The need is greatest at the level of local government units, particularly in smaller towns and remote areas. As part of its Universal Access and Service strategies, the Government through DICT and NICTA will support bringing connectivity, equipment, applications, and skills development projects to local government administrations wherever they are needed.

Targets: By 2027: 90% of local government units have broadband connections and digital services.

- Disaster and Emergency Services: ICT networks and services can play an essential role during natural disasters and emergencies, including situations precipitated by weather, climate, accidents, civil unrest, security threats, and similar events, including the current Covid-19 pandemic. In these situations, timely communication and accurate information are critical to preventing harm and safeguarding people and property. The Government will devote priority resources toward establishing and reinforcing emergency communications networks and facilities, with emphasis on remote regions. The UAS Fund will develop specialized projects to identify and invest in emergency communications infrastructure, facilities, and services, as well as information systems and training for emergency officials.

Target: By 2027: 90% of the population is covered by emergency communications facilities and services.

3.5 Gender and Social Inclusion

As in many countries, in PNG there are significant disparities in access to and utilization of ICTs for certain segments of society. In particular, women and persons with disabilities tend to be significantly less likely to own phone, access the Internet and on-line services, and integrate ICT functions in their daily lives. People with disabilities also generally face significant barriers to ICT access and use. Certain other marginalized groups, such as the elderly, and those who don't speak or read common languages, may also be largely left out of the digital world.

The Government seeks to remedy these digital gaps within PNG society. It will increase the focus on ensuring equitable access and promoting inclusive technology awareness and use throughout all of the components of this Policy. Specifically, the following measures will be undertaken:

- Data collection and monitoring: NICTA in cooperation with the Government Statistician shall be responsible to collect data and report on gender, Persons with Disabilities (PWD), and other significant disparities in subscribership and utilization of ICTs on an annual basis.
- Consultations and engagement: GoPNG will initiate ongoing public consultations with representatives of women's organizations, of people with disabilities, and of other identified disadvantaged groups, to provide information and perspective regarding these groups' needs, and input to various GoPNG programs and decisions.
- UAS Fund Projects: All UAS Fund Projects must include provisions requiring operators and contractors to provide plans for reducing access disparities among target groups within the covered geographic areas, including clear methods for measuring and defining such disparities, as part of their project implementation agreements.
- Licensed operators: Any new licenses or amendments to existing licenses shall include provision requiring licensees to develop and implement plans, including data collection and measurement methods, to reduce access disparities among target groups.
- Programs and initiatives: The Government will develop, and support programs and initiatives specifically designed to increase awareness, skills, opportunity, and capabilities with respect to

ICT utilization by women, girls, PWDs and other disadvantaged groups.

Targets: By 2027: Achieve gender equity in ICT access and use, as indicated by no more than 5% disparity between men and women in NICTA surveys; at least 70% of identified people with disabilities have access to and utilize ICTs.

4. Universal Access and Service Fund

The Universal Access and Service Fund was established pursuant to the 2009 National ICT Act (Part V), “to promote the long-term economic and social development of Papua New Guinea by funding approved UAS Projects.” The parameters, management, financing, and activities of the UAS Fund are defined in that portion of the Act and in the accompanying UAS Regulations adopted by NICTA. This section highlights elements of these existing legislative and regulatory provisions, while addressing potential revisions to improve the effectiveness of the UAS Fund.

4.1 UAS Fund Structure and Management

In its current form under the Act, the UAS Fund consists of a separate Board, and a Secretariat jointly run by DICT and NICTA, with financial and operational management under the responsibility of NICTA, subject to approvals and oversight by both the UAS Board and the Minister. This arrangement requires that NICTA devote substantial resources to all aspects of managing and implementing the UAS Fund mandate, while at the same time depending upon the timely intervention and approval of the Board and Minister.

The Government recognizes that under the present structure, there may be inefficiencies, delays, improper incentives, and/or other challenges which can inhibit the effective operation of the Fund and achievement of its goals. As such, this policy is advising a change in the Governance of the UAS Board and the UAS Secretariat. Alongside this revised UAS Policy, it is appropriate to consider structural changes to the Fund, to encompass new and expanded participation in its planning and activities, to take account of a wider scope of experience and viewpoints, and to be more accountable to all ICT sector stakeholders.

As such, NICTA and DICT are recommending a new governance structure for the UAS Fund, Board and Secretariat. NICTA and DICT are recommending that the UAS Fund Board and Secretariat will remain institutionally linked to NICTA, but the Staff shall become a semi-autonomous division within NICTA, with separate management, personnel, and operating budget from NICTA. This separation from NICTA will allow the staff and management of the UAS Fund greater autonomy, and allow the staff, Board, and Secretariat to be more accountable to all ICT sector stakeholders.

4.2 Financing of the UAS Fund

The provisions of the 2009 NICT Act (Part V, Div. 4), and associated NICTA Regulations, with regard to Fund financing remain in force, subject to potential clarification, modification, or revision as described in this section.

- Mandatory UAS Levy contributions from Licensees: As indicated in Section 107 of the Act, NICTA is empowered to levy charges on licensed operators for contributions to the Fund, and operators are required to cooperate with NICTA by providing relevant information and paying the designated amounts
- Determination of Levy amount: Under the current Act, NICTA shall determine the amount of the Levy on an annual basis as a percentage of operator net revenues, subject to procedures and a maximum percentage to be set in the Regulations. Section 107(2)(a) also states that the Levy shall be set “to achieve the desired level of funding for the Universal Access and Service Fund for that year as advised to NICTA by the UAS Board.” For clarification, under this Policy, NICTA and the UAS Board are **not** required to prepare a *pro forma* budget or operating plan for a given Fund fiscal year in order to determine the “desired level of funding.”

For further clarity, any UAS Fund Levy in the amount of 2% of net revenues or below shall be considered **presumptively reasonable** for purposes of financing any given year’s UAS Fund Projects. Any proposed Levy amount above 2%, however, shall require a budget forecast demonstrating the need for such an amount, and approval by the UAS Fund Board, subject to limitations and procedures in the Regulations.

- Collection and enforcement of contributions: As stated in section 107, operators **are obligated** to make the designated Levy contribution payments, and these may be recovered via the courts, and/or from other moneys owed. In addition, NICTA shall be authorized to impose appropriate penalties and sanctions upon operators for non-payment or late payment of required UAS Fund Levies, including, *inter alia*: fines and surcharges; withholding of authorizations, license renewals, or approvals for other NICTA requirements; disqualification from competing for UAS Projects; surrender or modification of existing UAS Project contracts and payments; and such other sanctions as NICTA may prescribe in the Regulations. NICTA may also publicize the fact that operators have failed to pay their obligations.
- Pay or Play option: NICTA may introduce and exercise a “Pay or Play” option for licensed operators to undertake approved UAS Projects in lieu of, and for the same value as, their required financial contribution to the UAS Fund. This option, if established by NICTA, shall define terms and conditions whereby operators may choose the “play” option, to invest directly in infrastructure and other capital projects. In these cases, NICTA will evaluate the costs of projects, ensure that they meet the requirements for UAS Fund Project eligibility, and certify the operator’s compliance. Such projects may, in this instance, be exempt from the requirement for competitive bids.
- Other sources of financing: The UAS Fund may receive funding from various other sources, including from the Government budget, international donors, private contributions, and grants.

All such funds shall be used toward the same goals and projects as operator contributions, unless specifically earmarked for certain target activities. Any contributions from other sources shall not reduce the obligations of licensed operators to pay their full required Levy amounts.

4.3 UAS Fund Objectives, Projects

This section elaborates on provisions of the 2008 NICT Act and Regulations which define objectives, procedures, criteria, and other elements of the implementation of the UAS Fund mandate. The Act is in the process of being revised.²

- **Objectives:** The general Objective of the UAS Fund is “to promote the long-term economic and social development of Papua New Guinea by funding approved UAS Projects that will encourage the development of ICT infrastructure and improve the availability of ICT services within Papua New Guinea, including in rural communities.” The Fund Board and Secretariat shall seek to achieve this goal by allocating Fund resources toward Projects and activities which address the target outcomes of the different UAS Focus Areas defined under section 3 of this Policy. The Board shall determine annually, based on the analysis and recommendation of the Secretariat, the specific target objectives and related funding allocations for the use of Fund resources among these various Focus Areas.
- **UAS Projects:** The ICT Act (Part V, Div. 5), and the associated Regulations, also prescribe the general procedures and criteria for developing proposed UAS Projects, and for awarding such Projects and their funding via competitive selection processes. There may be more efficient, effective, and timely options for developing and awarding such Projects, and for otherwise utilizing UAS Fund resources.

Therefore, the Working Group convened subject to Section 4.1 above will conduct a study and analysis of the current UAS Project procedures and will include in its report recommendations to the Minister for any modifications which will help ensure that the Fund’s mandate and operations are implemented in the most effective manner possible. In conducting this review, the Working Group shall consider, *inter alia*, the following issues:

- What Focus Areas should be included in Project design?
- What criteria and procedures should apply to designing Projects, especially those which address issues other than Network infrastructure and services?
- What entities should be eligible to apply for and implement Projects?
- Should there be options for awarding Projects on a non-competitive basis in some cases?

² DICT is in the process of revising the 2008 ICT Policy and also the 2008 ICT Legislation and this new legislation will supersede the 2008 National ICT Act.

5. Other UAS Policy, Regulatory Imperatives

This section highlights other policies and regulatory imperatives that the Government and NICTA will continue to implement, modify, and/or introduce, which can support achievement of UAS objectives.

- Licensing:
NICTA will continue to consider License applications to increase market competition and expand network deployment and access, with particular focus in rural and remote areas. This may include specific licenses for Community-based networks to provide ICT services in remote areas not reached by existing operators. It will also include licenses for community radio or other efforts to expand connectivity and the spread of content in local languages.
- Spectrum:
NICTA will review and update its Spectrum allocation and assignment policies to ensure that licensees have adequate spectrum to provide high-quality connectivity within all areas of PNG. NICTA will also review the possibility of spectrum sharing to allow unused licensed spectrum to be used by other licensed providers, such as small community operators, who will provide connectivity to remote and rural areas of the country. NICTA will also review the availability of current unlicensed spectrum and decide whether this amount is sufficient or needs to be expanded.
- Infrastructure Sharing:
NICTA will review the question of introducing infrastructure sharing regulations among network operators, to help minimize investment costs and expand deployment, where feasible. Infrastructure sharing is mandatory for networks that are built with funding from the UAS Fund, and NICTA will continue to enforce such sharing.
- Effective Competition:
NICTA will continue to establish and implement regulations to ensure that competition in the telecommunications sector is robust, fair, and effective, and leads to greater access and affordability for end-users.
- Digital Entrepreneurship:
The Government of PNG will promote and support development of opportunities for digital entrepreneurship, including through ICT Business Incubation Centers and related initiative and programs.
- Digital Government:
The Government will implement all elements of the proposed Digital Government law, adapting procedures and functions to digital platforms, and improving public services and access for citizens and businesses at all levels.

6. Oversight, Monitoring, and Evaluation

The success of this policy and any UAS project is whether there were any clear, measurable objectives and whether you were able to successfully measure progress against these objectives and achieve your goals. In addition to transparently disbursing funds in support of UAS targeted projects, it is also particularly important to evaluate whether such spending is an effective and efficient use of collected funds. As this is a critical evaluation and monitoring tool to judge the success of the UAS funded projects, this policy will adopt a mandatory reporting and evaluation on an annual basis. Projects will be evaluated both on the evaluation of the overall policy, and on an evaluation of individual UAS supported projects. In all cases, the establishment of clear goals and/or milestones lays the groundwork for later impact evaluation.

Reporting will be strengthened from the current reporting requirements to include more detailed information to include amounts spent, results achieved and a series of objectives that the projects is measured by. This will not only be for future projects but to the best of the ability also include current projects as well.

UAS-funded projects should be designed to have specific implementation milestones and goals that must be met, and clear criteria against which success can be measured. Funding recipients should be able to substantiate that they have met goals that may include not only connectivity, but adoption, price levels, variety of services available, or services available to disadvantaged populations. The goals of reporting requirements should be to enable all stakeholders to assess project progress or success, and also to serve as a motivation for the funding recipient to commit appropriate resources to meet the project goals.

These M&E goals will be closely aligned with the new UAS Governance model. The lead agency under this model as regards the Governance of UAS projects will have the lead authoritative role of managing and implementing the UAS Fund. However, despite which Agency or Department is leading the effort it will likely require a collaborative approach between all relevant agencies. Since this is one of the key critical tasks that the UAS Board is responsible for the M&E responsibilities would require that a team of people whose day-to-day responsibilities are to develop, implement, oversee, monitor, and report on UAS Fund activities.

- Reporting, accounting, audits: All UAS Projects shall be subject to annual reporting requirements, which detail the degree of compliance with construction and operation mandates, and related financial and accounting audits. These may incorporate a progress assessment, analysis of any unexpected circumstances, financial statements, and any other relevant analysis, particularly in cases of deviation from initial project plans.
- Monitoring and evaluation requirements: NICTA and the Department of ICT shall provide annual Monitoring and Evaluation reports, which demonstrate the degree of progress toward the objectives of this Policy, the impacts of expanded Universal Access and Service on the population and the economy, and any barriers, constraints, or challenges confronted.

- Review and updates of Policy: This Policy shall be subject to review and updating on the 5-year anniversary of its adoption, based on progress made, challenges encountered, and changes in the ICT industry and national economy.