THE Regulator

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OCTOBER - DECEMBER 2018

Revisiting Free to Air Broadcasting

ICT for industrialization

KISWAHILI SUPPLEMENT

Mawasiliano miaka mitatu Uongozi Awamu ya Tano

JAMHURI YA MUUNGANO WA TANZANIA

MAMLAKA YA MAWASILIANO TANZANIA

ISO 9001:2015 CERTIFIED

Mamlaka ya Mawasiliano Tanzania(TCRA) ni taasisi ya Serikali inayosimamia sekta ya mawasiliano. TCRA ilianzishwa chini ya Sheria ya Udhibiti wa Mawasiliano Tanzania Na 12 ya 2003. TCRA ina viwango vya ISO 9001:2015.

Maeneo yanayosimamiwa

Mitandao ya simu na intaneti, masafa ya mawasiliano,huduma za Posta na usafirishaji wa vipeto katika Jamhuri ya Muungano wa Tanzania na huduma za utangazaji (kama vile redio na televisheni) kwa Tanzania Bara tu. Zanzibar ina Tume inayosimamia utangazaji.

Kazi za TCRA

- Kutoa leseni, kuongeza muda wa leseni na kufuta leseni
- Kuweka viwango kwa bidhaa na huduma zinazosimamiwa
- Kuweka viwango vya kanuni na masharti ya kusambaza bidhaa na huduma zinazosimamiwa
- Kudhibiti viwango na bei
- Kufuatilia utendaji wa sekta ya mawasiliano kuhusiana na viwango vya uwekezaji; upatikanaji wa huduma, ubora na viwango vya huduma; gharama za huduma; ufanisi wa bidhaa na usambazaji wa huduma.
- Kufanikisha utatuzi wa malalamiko na migogoro baina ya watoa huduma na kati ya mtoa huduma na mtumiaji wa huduma.
- Kufanya kazi na kutekeleza majukumu mengine kwa mujibu wa sheria husika
- Kusambaza taarifa kuhusu mambo ambayo ni muhimu kwa ajili ya shughuli za Mamlaka.

TCRA na ustawi wa Watanzania

Katika kufanya kazi zake, Mamlaka inajitahidi kuendeleza ustawi wa jamii ya Tanzania kwa:-

- Kukuza ushindani unaofaa na ufanisi wa uchumi
- Kuendeleza upatikanaji wa huduma zilizodhibitiwa kwa watumiaji wote ikiwa ni pamoja na wenye kipato kidogo waliopo vijijini na wateja walio katika mazingira magumu.
- Kulinda maslahi ya watumiaji
- Kuendeleza elimu kwa wananchi kuhusu utambuzi na uelewa wa sekta zilizodhibitiwa ikiwa ni pamoja na haki na wajibu wa watumiaji;namna ambavyo malalamiko yanaweza kuwasilishwa na kutatuliwa na kuhusu majukumu, kazi na shughuli za Mamlaka.

The Regulator is published quarterly by the Tanzania Communications Regulatory Authority (TCRA), an independent Government agency established under the Tanzania Communications Regulatory Authority Act No. 12 of 2003 to regulate the electronic and postal sectors in Tanzania.

EDITORIAL BOARD

The Editor invites articles, contributions and comments in all areas of electronic and postal communications.

Contributors are invited to submit full-length articles, including figures and possible references, font size 12, single-spacing, up to four A4 pages.

Articles should be submitted to: The Editor, Regulator Magazine, TCRA, Tanzania Communications Regulatory Authority, Mawasiliano Towers, 20 Sam Nujoma Road, P. O. Box 474, 14414 Dar es Salaam.

Email: regulator.magazine@tcra.go.tz.

For more information and clarifications please contact the Editor on: regulator.magazine@tcra.go.tz

Letter from the Editor

This edition of the Regulator has coincided with the third anniversary of the Fifth Phase Government of the United Republic of Tanzania under President Dr. John Pombe Joseph Magufuli (November 2015 – November 2018).

These three years have witnessed a remarkable growth in Tanzania's communications sector and we have an article listing the gains made in the period.

The main agenda of the Fifth Phase Government is to transform Tanzania into a middle income country through industrialization. We discuss the potential of ICT as a force that drives industrialization.

Our coverage also includes the findings of four reports published in 2018 on the state of global mobile communications, gender gap in ICT and intenet use in least developed countries. The annual report by the International Telecommunication Union (ITU) on the information society report was published recently. We have reported its highlights.

We revisit the migration to Digital Terrestrial Television in Tanzania in the wake of TCRA's recent campaign to educate stakeholders on their right to view Free to Air (FTA) television channels without additional payments.

A recent visit to Rukwa region shows how farmers' education programmes by a local radio station have transformed Nkasi district into a zonal bread basket.

January 18, 2019 is commmorated as African Postal Day and the theme is digitizatiion of the Post. There is a brief write up on how the Post can transform its operations through the use of digital technologies. Kenyan and South African initiatives are discussed.

FROM OUR ARCHIVES

Past copies of the Regulator can be accessed on the TCRA website - www.tcra.go.tz. Navigate to 'Publications and Statistics', - scroll down to The Regulator.

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COVER PHOTOGRAPH

The Minister for Works, Transport and Communications Engineer Isack Kamwelwe being briefed on TCRA's mobile spectrum monitoring and direction finding systems acquired by TCRA when he visited the Authority recently. Left is Director General, Eng. James M. Kilaba.

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TCRA Core Values

(a) **Professionalism**: We maintain the highest degree of professionalism and ethical standards and undertake our activities objectively to deliver quality services.

(b) **Respect**: We are an organization that values its Employees and respects its Customers.

(c) **Empowerment**: We believe in empowerment and effective delegation enabling Employees to make decisions and take challenges commensurate with their own levels of responsibility.

(d) **Innovation**: We encourage creativity and innovation leading to enhancement of our capacity in handling regulatory issues.

(e) **Integrity:** We believe in integrity and we are determined to treat Customers and each other with trust, confidentiality and honesty.

(f) **Accountability**:We are accountable, undertaking our duties fairly, with care and transparency.

(g) **Teamwork**: We benefit from teamwork, putting together diverse expertise to achieve success.

(h) **Efficiency:** We believe in providing our regulatory services in an efficient way and actively seek opportunities to improve our regulatory services.

(i) **Non-discrimination**: We believe in equal opportunity and treatment for our internal and external Stakeholders and do not discriminate against Gender, Religion, race, affiliation and origin.

Some of TCRA officers who participated in a Quality Management System (QMS) training in Bagamoyo recently.

Three years of laudable ICT sector achievements

There has been a remarkable growth in Tanzania's communications sector in the three years of the Fifth Phase Government under President Dr John Pombe Joseph Magufuli (November 2015 – November 2018).

Development in the sector includes, among others, the entry of more licenced service providers; an increase in subscribers and consumers of the services and a substantial increase in financial contributions to the Government;

The three years have also witnessed the review of the National Information and Communications Technology (ICT) Policy and sound management of the migration from analogue to Digital Terrestrial Television (DTT) broadcasting.

Other achievements include building the country's regulatory capacity through the acquisition of additional tools for TCRA, including mobile frequency monitoring stations; promoting the new addressing and postcode system which has facilitated physical access; commencement of the review of the National Postal Policy of 2003; review and publication of regulations under the Electronic and Postal Communications Act (EPOCA).

New licence categories have been introduced; SIM card registration has been enhanced and a new drive to protect and empower consumers has been launched.

Service providers have increased, new services have been introduced and entrepreneurship in pursuit of the new opportunities has grown. TCRA has a licencing framework consisting of four licence categories - Network Facilities licence (for installing and operating communications network), Network Service licence (for using networks to provide services), Application Services licence (for ICT applications) and Content Services licence (for broadcasting).

TCRA Director General Eng. James M. Kilaba

There are 23 network facilities licensees, 15 network service licencees, 83 applications service licences, 154 radio stations and 32 television stations. Licences have been granted to the national postal operator and 34 courier companies.

Regulations on online content services, which were published in March 2018 have led to the licencing of 211 online content services. TCRA licenced 88 blogs and weblogs, two online forums, 21 online radios and 90 online televisions between March and September 2018. The new regulations and the licencing of online content service providers have tamed the misuse of online media.

Mobile communications and Mobile Financial Services have contributed to financial inclusion. Most of mobile subscribers have mobile money accounts amounting to 22 million in total and a network of mobile money agents has spread throughout the country. These services use numbering resources, which are managed by TCRA.

TCRA plans, assigns and issues the short codes used in mobile financial transactions through mobile phones, banks, lotteries and other services. An example is *150*00# used

by Vodacom, *150*01# used by Tigo, *150*03# (CRDB Bank); *150*66# (NMB) and *150*07# used in TTCL pesa transactions.

During the three years of the Fifth Phase Government under President Dr John Pombe Magufuli, the number of mobile money accounts has increased by 20 per cent: from 17.4 to 21.9 million. The number of monthly mobile money transactions has doubled - from 131,165,020 to 262,279,668 in the period.

Mobile telephony subscriptions have grown by eight (8) per cent in the last three years – from 39,808,419 SIM cards in December 2015 to 42,961,449 in September 2018. Value Added Services (VAS) have contributed to this increase; since the mobile handset has become more than a mere communication tool.

The postal sector has experienced operational ups and downs. Although in general the volume of posted letters has continued to decline, mainly due to alternative electronic communication options, postal services customers increased in the period under review.

For example, while the number of posted items fell from 31,259,171 in 2015 to 10,121,388 in 2017; postal customers increased from 522,945 in 2015 to 545,160 in 2017. The national post office has diversified into other services other than the traditional letter and parcel.

On 16 June 2018 TCRA launched the Central Equipment Identity Register (CEIR); a shared electronic database of all equipment identification registers (EIRs) of all mobile service providers. It maintains the unique identification number of mobile devices – IMEIs.

Its objective is to manage mobile devices that are stolen, damaged, lost or non-compliant in the market. All mobile devices that are stolen, damaged or lost and are reported and those that are non-compliant are denied access to service from mobile service providers' network. The registry had by November 2018 managed to block a total of 1,675,277 IMEIs.

One of the functions of the Tanzania Communications Regulatory Authority as outlined in the Tanzania Communications Regulatory Authority Act and the Electronic and Postal Communications Act, (EPOCA) is to allocate, assign, issue, distribute, retrieve, suspend, cancel or otherwise modify distribution among users or licensees of any radio communication frequencies or frequencies channels.

The Radio frequency spectrum is a precious and vital resource on which electronic communications depends. In June 2018, TCRA auctioned spectrum in the 700 MHZ frequency. A total of US $ 20,005,000 was realized. To ensure that consumers benefit fully from access to mobile broadband services, TCRA included conditions to the licencees to expand broadband coverage to 90 per cent of the population by 2024. The proceeds have been contributed to the Government. The auction process has been hailed as exemplary in Africa.

TCRA and mobile services providers have launched a new system of registering SIM cards by capturing potential subscribers' biometric features using verifiable identity documents. The new system, which is linked to that of the National Identification Authority (NIDA), was piloted in Singida region and has spread to other parts of Tanzania. The objectives are to mitigate security concerns. Availability of subscriber data enables security bodies to investigate and resolve crimes including mobile fraud. Registration protects innocent consumers against crimes and anti social behaviour perpetrated through mobile phones. It also builds consumer confidence in mobile communications.

The Fifth Phase Government under President John Pombe Magufuli has resolved to transform Tanzania into an industrial and middle income economy. The communications sector plays a pivotal role in this strategy.

The Board of Directors, Management and Staff of the Tanzania Communications Regulatory Authority (TCRA) congratulate the President of the fifth phase government of the United Republic of Tanzania, His Excellency Dr John Pombe Joseph Magufuli for achievements made in the communications sector in the last three years – from November 2015 to November 2018. TCRA pays tribute to the President and the Government for successfully pushing Tanzania's industrialization agenda in the three years.

ICT in Tanzania's industrialization agenda

Eng. Prof. Justinian Anatory, Dean, School of Informatics, College of Informatics and Virtual Education, University of Dodoma

Abstract

Information and Communication Technology (ICT) is changing the world towards the fourth industrial revolution.

The fourth industrial revolution is characterized by a fusion of technologies that blur the lines between the physical, digital, and biological spheres. In this paper, the current status of ICT in Tanzania is articulated. Use of ICT in teaching and learning process and ICT as a technological force that drives industrialization are addressed. Positive implications of ICT, issues and challenges and what can be done to address challenges in ICT including lessons from China are articulated. It has been observed that the Tanzania optical fiber infrastructure is connected to nine borders and all districts. Mobile phone subscription is approaching 70%. Four per cent (4%) of households have computers. 60% of Tanzanians are using social networks. Three per cent (3%) of Tanzanians are connected to mobile broadband.

Four percent (4%) of Households are connected to the Internet. Two percent (0.2%) subscribe to fixed broadband Internet. Currently the ICT environment (political and regulatory, business and innovation and competition) in Tanzania is about 50%. However, looking at the networked readiness index, Tanzania is below average in many aspects; which needs some improvement. It has further been observed that ICT is a powerful mechanism in every aspect of education. The arrival of the fourth industrial revolution has the possibilities of multiple emerging technology breakthroughs in various fields. Finally, there are some possibilities of increasing industries such as telecommunications, software, hardware and IT solutions.

1.0. Introduction

According to the International Telecommunication Union (ITU), ICT refers to equipment and services related to broadcasting, computing, and telecommunications, all of which capture and display information electronically.

In recent years, the ICT industry has developed intensely worldwide because of a series of new technologies, applications, and equipment that have been invented and marketed rapidly. This development has strengthened ICT's role as an enabler for other industries. Telecoms' over-the-top (OTT) services, gaming, mobile platforms, and social mobile internet cloud (SMIC), wearables, big data, smart cities, e-health, and internet of things (IoT) concepts now define the industry structure. All of these new paradigms are fundamentally structured around four key technology areas, telecoms, hardware, software, and services. This paper has arranged this broad industry overview along those lines.

This paper will delve on how ICT can foster industrialization and socio-economic development in Tanzania. In section two, current status of ICT sector in Tanzania is narrated. Current implementation of National ICT broadband infrastructure is explained as well as discussing the current status of ICT subscription in Tanzania. Use of ICT in teaching and learning process is discussed in section three. Section four explains ICT as a technological force that drives industrialization. Internet of things, automation and innovation, big data' and analytics and advanced robotics are explained. Positive implications of ICT are described in section five. Issues and challenges of ICT are narrated in section six. Section seven is concerned with industrialization in China which is taken as a model.

2.0 Status of ICT Sector in Tanzania

2.1 National ICT broadband backbone

The telecommunication industry in Tanzania has experienced enormous changes in the past decade. In Tanzania like other developing countries lack of ICT infrastructure in both urban and rural areas, which limited access to ICT services, has necessitated the intervention of the Tanzania Government which has built the National ICT Broadband Backbone

(NICTBB) infrastructure.

The Optic Fibre Cable has been extended to nine border points of Sirari, Namanga and Horohoro (Kenya); Mtukula (Uganda); Rusumo (Rwanda); Kabanga and Manyovu (Burundi); Kasumulo (Malawi); and Tunduma (Zambia); with a view to fulfill the Government's commitment to connect the landlocked countries to International submarine cables landing in Dar es Salaam (currently SEACOM and EASSY) and thereby making Tanzania a hub of ICT infrastructure and ICT solutions within the region. Service providers in different countries have already connected to NICTBB.

2.2 Current status of ICT Subscription in Tanzania

Fig. 1 shows the number of mobile subscribers in Tanzania from 2011 to 2016. It can be observed that the mobile subscribers increased from 40% to about 65% from 2011 to 2016 respectively. This increase is attributed to a number of interventions by the Government by having a good regulatory framework. There is good competition in the market. Fig. 2 shows the percentage of households with personal computers. It can be observed that the percentage of households with personal computers in Tanzania increased from 2.5% to 4% from 2011 to 2013 respectively. However the percentage of households with personal computers in 2016 is about 3.7%. The use of social networks (twitter, face book, etc) increased from 51% to 62% in 2011 and 2014 respectively decreasing to 60% in 2016.

The trends from 2011 to 2016 can be observed in fig. 3. These trends might be attributed to the awareness of technology and penetration of mobile networks in Tanzania. Figures 4,5 and 6 show mobile broadband subscription, households with Internet access and fixed broadband Internet subscription respectively. It can be observed that the mobile broadband subscription increased from 0.1% in 2012 to 3.7% in 2014 and decreased to 3% in 2016. General trends of ICT in Tanzania are guided by the networked readiness

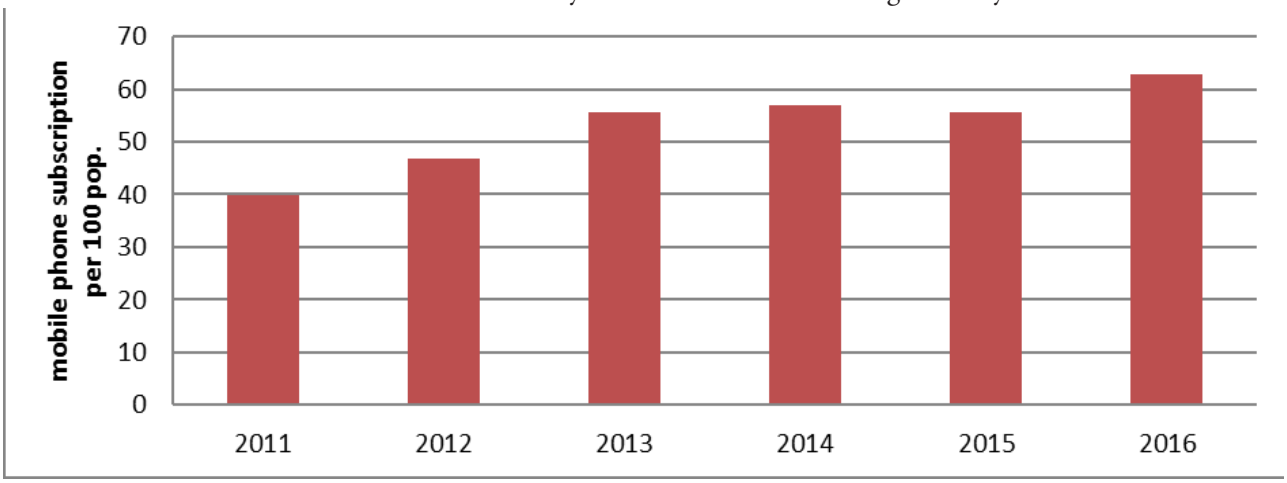


Fig. 1: Mobile Phone subscription per 100 populations [3-9]

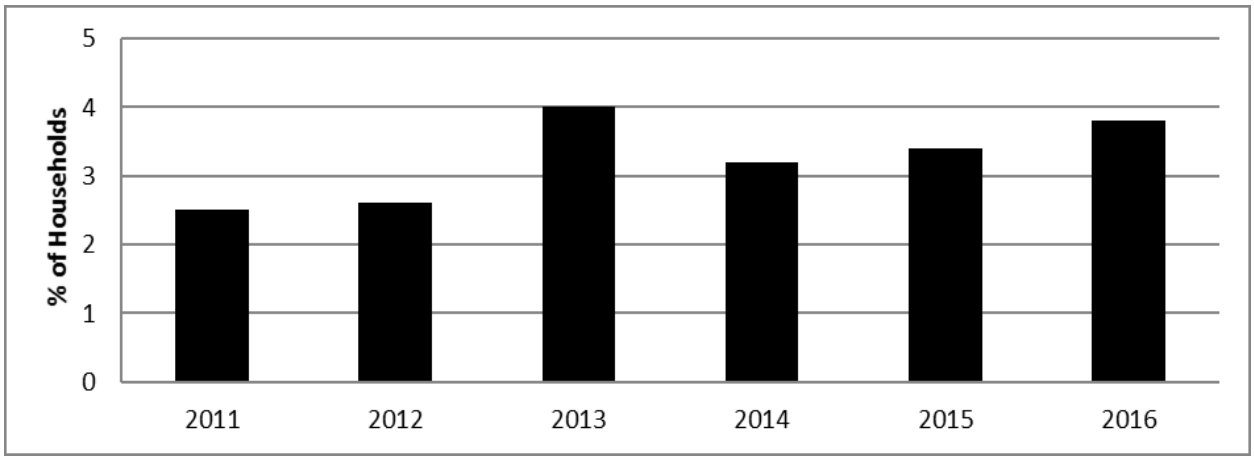


Fig. 2 Households with personal computer [3-8]

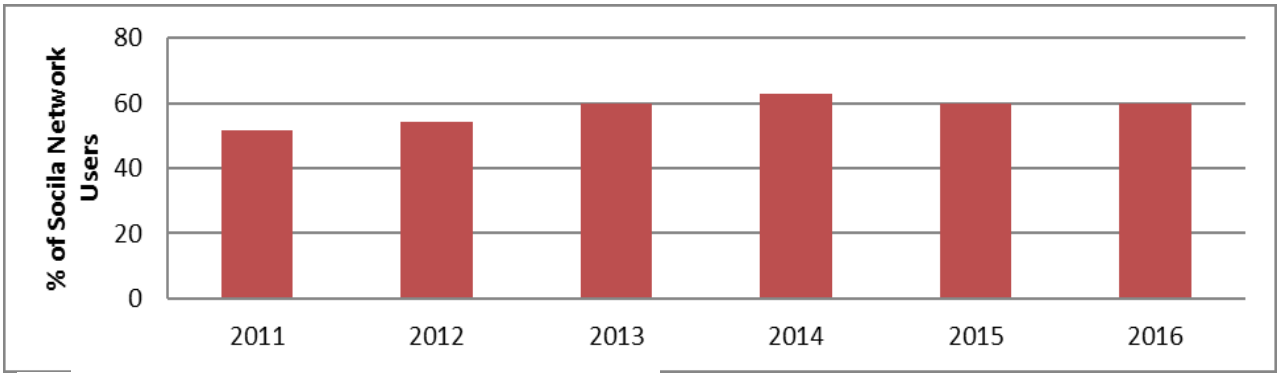


Fig. 3: Percentage of social network users[3-8]

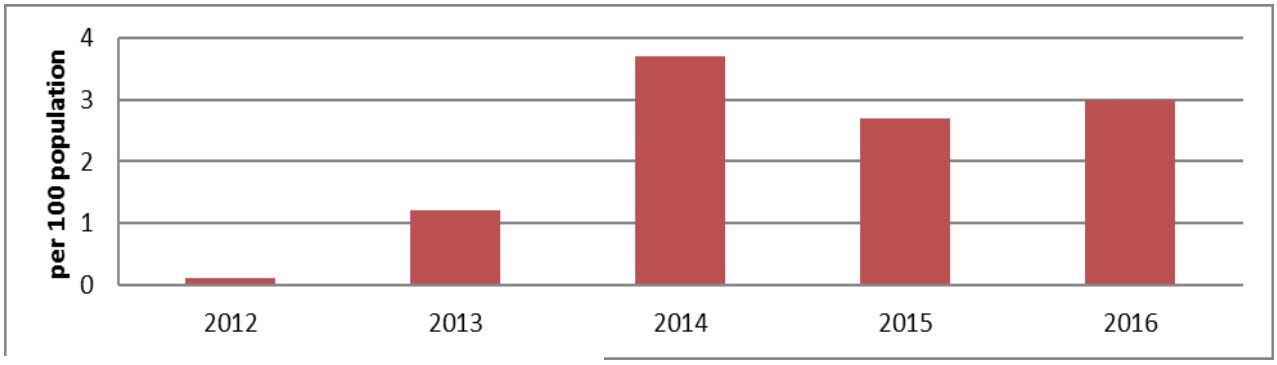


Fig. 4: Mobile broadband subscription[3-8]

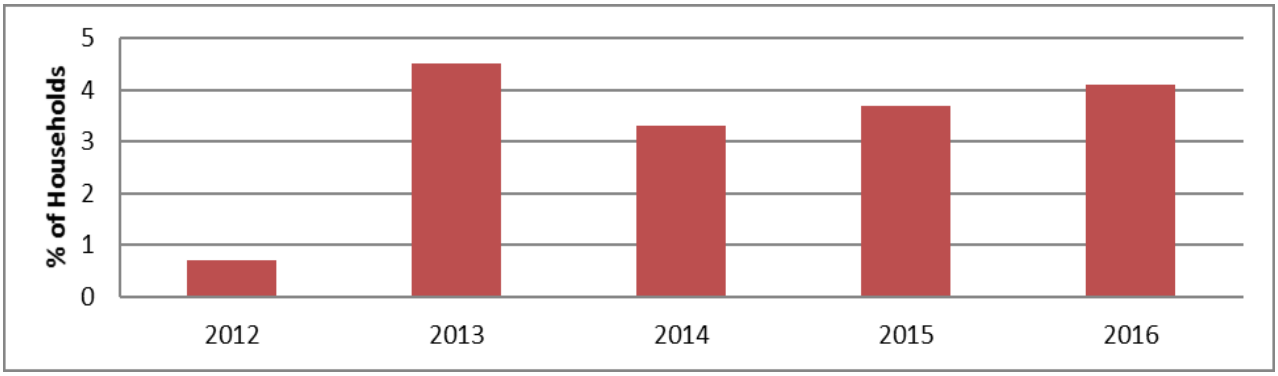
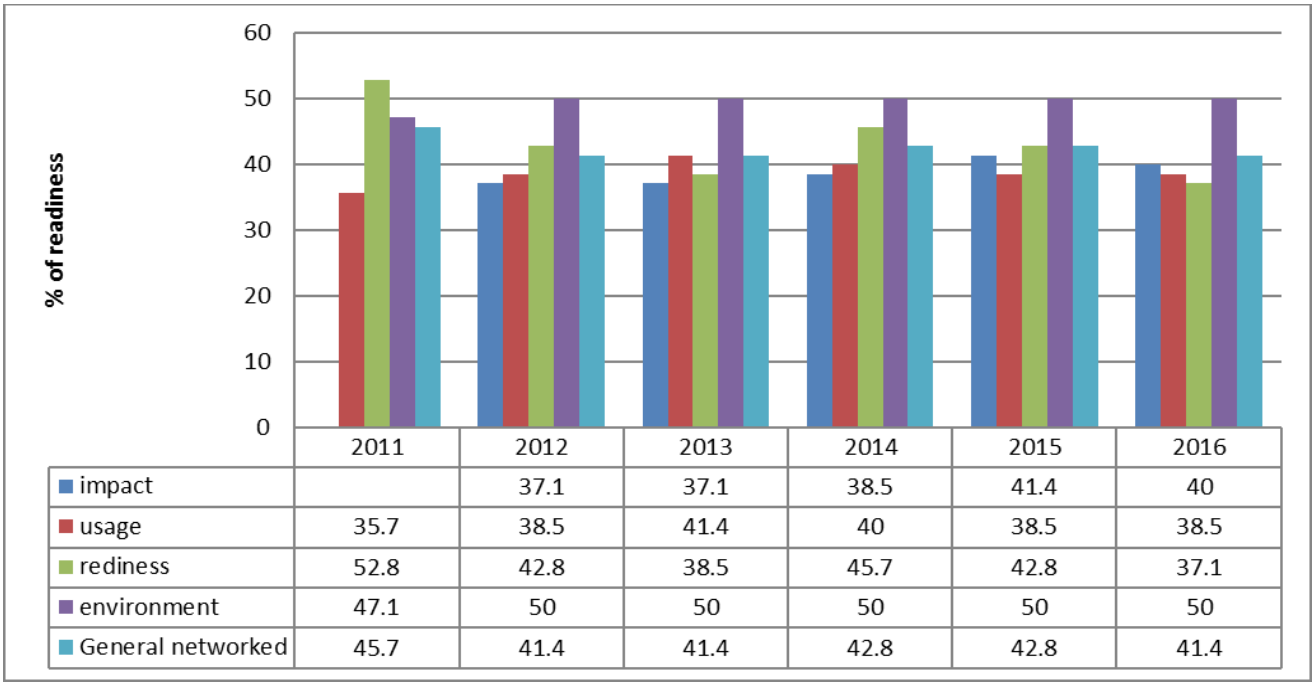


Fig. 5: Households with Internet access [3-8]]

index (NRI) [3-9]. The NRI framework is guided by five principles which include economic and social impacts of ICTs, enabling environment to determine the capacity of an economy and society to benefit from the use of ICTs and ICT readiness and usage. The networked readiness framework (NRF) normally translates into the NRI and comprises four sub indexes that measure the environment of ICTs; the readiness of the society to use ICTs, the actual usage of all main stakeholders and impacts that ICTs generate in the economy and society. The environment, readiness and usage sub- indexes are regarded as drivers while economic and social are regarded as impact sub index. It can be observed that the environment of ICT in Tanzania is average. Other factors are about 40% and below.

3.0 Use of ICT in teaching and learning Process

ICT is a powerful mechanism in every aspect of education: teacher training, local curricula, local-language instruction, monitoring and assessment of student performance, education-systems management, coaching and mentoring, and preparing students for a world in which ICT is a necessity for successfully



	2011	2012	2013	2014	2015	2016
impact		37.1	37.1	38.5	41.4	40
usage	35.7	38.5	41.4	40	38.5	38.5
rediness	52.8	42.8	38.5	45.7	42.8	37.1
environment	47.1	50	50	50	50	50
General networked	45.7	41.4	41.4	42.8	42.8	41.4

Fig. 6: ICT Networked Readiness Index [3-8]

navigating their future careers and lives and contributing to their national economies. ICT-based innovation is taking place throughout the education value chain. Recent ICT-based advances for educational systems include ICT for spatial planning, Massive Open Online Courses (MOOCs), and distance training, tutoring, and mentoring. Through ICT, the learning space is no longer limited to a traditional classroom. Education delivery has been shifted to the palms of every individual. ICT provides an unprecedented, cost-effective platform for governments, schools, teachers, communities and businesses to collaborate effectively. ICT enables delivery of high quality content regardless of location. It provides a mechanism for ongoing teacher pedagogy, professional development and communities of practice. Significantly, it also enables substantial reduction of delivery costs.

Some universities in Tanzania have already set the pace in exploiting ICT in teaching and learning by starting some programmes such BSc in ICT Mediated Content Development, BSc in Multimedia Technology and Animations and BED ICT (University of Dodoma), BSc in Education with Computer Science (Saint Joseph University) etc. In addition there are some initiatives in the Open University of Tanzania and Center for Virtual Learning at the University of Dar es Salaam etc. Despite all these initiatives, research on how best this opportunity can be exploited at maximum in Tanzania is lacking. Very little investment is being directed towards ICT for education in Tanzania. Most of these initiatives are fragmented and isolated. There is no national coordination.

4.0 ICT as a technological force that drives industrialization

The first industrial revolution used water and steam power to mechanize production. The second used electric power to create mass production. The third used electronics and information technology to automate production. Now a fourth industrial revolution is building on the third: the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.

There are three reasons why today's transformations represent not merely a continuation of the third industrial revolution but rather the arrival of a Fourth and distinct one: velocity, scope, and systems impact. The speed of current breakthroughs has no historical precedent. When compared with previous industrial revolutions, the fourth is evolving at an exponential rather than a linear pace. Moreover, it is disrupting almost every industry in every country. And the breadth and depth of these changes the transformation of entire systems of production, management, and governance.

The possibilities of billions of people connected

by mobile devices, with exceptional processing power, storage capacity, and access to knowledge are unlimited. These possibilities will be multiplied by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing.

Already, artificial intelligence is all around us, from self-driving cars and drones to virtual assistants and software that translate. Impressive progress has been made in artificial intelligence in recent years, driven by exponential increases in computing power and by the availability of vast amounts of data, from software used to discover new drugs to algorithms used to predict our cultural interests.

Digital fabrication technologies, meanwhile, are interacting with the biological world on a daily basis. Engineers, designers and architects are combining computational design, additive manufacturing, materials engineering, and synthetic biology to pioneer a symbiosis between microorganisms, our bodies, the products we consume, and even the buildings we inhabit.

Internet of Things (IoT): there are already 400 million cellular IoT subscriptions, forecast to reach some 28 billion connected devices worldwide by 2021. The IoT will be a rich platform for innovation and is projected to add around USD 11 trillion of market value globally by 2025 across applications. In the industrialization context this technology will apply to processes such as anomaly detection and control of complex equipment and integrated systems; systems optimization; prediction; data capture and analytics; and systems maintenance.

Automation and innovation: Next-generation mobile broadband (5G), IoT, artificial intelligence, advanced robotics and 3D printing herald unprecedented advances in healthcare, education, energy services, production, agriculture, and environmental monitoring and protection. But such innovations also raise issues such as privacy and security around protecting the integrity of individual data, and new areas of concern are likely to come to light as technology evolves. In the context of industrialization this area will form products and machines that communicate with each other, enabling the products themselves to control their production.

Big data' and analytics: through big data, it will be possible to produce in real time high-quality vital statistics (births, deaths, population), indicators for health (e.g. epidemic out-breaks), education (e.g. learning outcomes) and the environment (e.g. air and water quality). Both public and private sectors are making use of big data analytics and any risks must be balanced against the benefits to society, including the possibility to use big data for social good, such as improving response to disease outbreaks. A core part of any nation's ICT strategy should therefore be upgraded information platforms to harness the flow of big data in the service of public policy.

Advanced robotics: an industrial robot 'revolution' is already transforming many industrial and service sectors, with countries like China investing heavily in the R&D and deployment of advanced robotics and a surge in applications. Machine learning algorithms are enabling breakthroughs in robotics pattern recognition, voice recognition, natural language capabilities, and problem-solving capacities. Robots will increasingly be used in the high-tech service economy in legal analysis, medical diagnostics, and other areas of complex problem solving. In a vision of the future of manufacturing, the pervasive networking of people, things, and machines will create completely new production environments.

5.0 Positive implications of ICT

The spread of ICT and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies, as it does scientific and technological innovation across areas as diverse as medicine and energy. ICT can bridge institutional gaps by integrating informal trade into formal frameworks, strengthening economic development and reducing trade barriers.

According to the Organization for Economical Cooperation and Development (OECD), "more ubiquitous access to and use of broadband Internet networks, which are available in a competitive market and at affordable prices, will help foster innovation and drive the growth of the Internet economy and the economy in general. ICT needs to be combined with innovative policies, services and solutions to deliver transformation at unprecedented speed and scale. It can be a powerful means of implementation in five major ways:

- Accelerated up scaling of critical services in health, education, financial services, smart agriculture and

low-carbon energy systems, etc.

• Reduced deployment costs addressing urban and rural realities.

• Enhanced public awareness and engagement.

• Innovation, connectivity, productivity and efficiency across many sectors.

• Faster upgrading in the quality of services and jobs.

6.0 Issues and challenges

No technology is without risks, and widespread uptake of ICT raises a number of issues that will need to be addressed and managed. Several issues have been identified which governments, industry and other stakeholders must work together to address:

• Privacy and surveillance: The pervasive nature of ICT could result in loss of privacy, growth of surveillance and violations of human rights without adequate oversight and boundaries.

• Cyber security: A networked economy is more vulnerable to systemic network failures of the Internet or power grid, which could bring the economy to a grinding halt. Disrupting the networked economy could become the focus of deliberate acts of cyber-warfare and terrorism. Luckily enough this challenge is already being addressed at the University of Dodoma where there are curricula for cyber security at the levels of certificate, diploma, degree, masters up to PhD. Another initiative is the Computer Emergency Response Team (CERT) under the Tanzania Communications Regulatory Authority.

• Loss of human skills: The online world will literally reshape brain development, possibly engendering loss of 'human' skills and the 'crowding out' of real communities, undermining social interaction and trust.

• Possible public concern about health effects: To protect human health, radio wave exposure levels from products and network solutions must be kept within established safety limits, while sedentary lifestyles could contribute to the growing global burden of non-communicable diseases (NCDs). In Tanzania through TCRA and Tanzania Atomic Energy Agency (TAEC) already this challenge is being addressed. There is a national committee dealing with Electromagnetic Fields (EMF).

• Electronic waste and carbon emissions: Growth in global ownership of digital devices, rapid product turnover and inadequate waste processing have led to accumulation of dangerous electronic waste; and while ICT can reduce carbon emissions in other sectors, it must also reduce it own emissions, focusing on energy performance. Already there is a committee dealing with this issue under the National Environment Management Council (NEMC) and TCRA.

• Digital exclusion: As well as winners, there will be losers from digital transformation due to age and generation gaps, digital literacy, geography and industry sector. Ensuring that no one is left behind is easier said than done.

• Child protection and the Internet: Using the Internet provides children worldwide with opportunities but also risks. The ICT industry has a role to play in protecting children in the online world including against child sexual abuse.

7.0 What can be done to address Challenges in ICT?

To fulfill its potential as a disruptive, transformative technology for good and deliver, ICT must be integrated into every facet of public policy and economic activity. To achieve this a number of hurdles must be overcome. Some of these are:

• Equipping the entire public sector including service delivery in finance, education, health, energy and transportation with high quality ICT infrastructure. Currently Public sector regulations do not enable full utilization of ICT.

• Expanding mobile broadband physical infrastructure. This needs rapid expansion and upgrading, especially to public facilities like schools and clinics.

• Promulgating a national policy to channel funding and efforts on the start-up local initiates particularly on training (UDOM curricula and research) and software development domestication.

• Small, fragmented demonstration projects require national scale-up with business models addressing urban and rural areas.

• ICT-based system components need to be interoperable across competing platforms.

• Significant training of personnel is required to manage ICT systems and international certification.

• Policy and regulation must play catch-up with rapid ICT innovation and deployment to ensure that new challenges, risks and threats are effectively managed.

• Public-Private Partnerships (PPP): New partnerships are needed between government, international organizations and industry in order to find sustainable business models that support wide-scale ICT

Workers assembling pre-paid electrical energy meters at the Inhemeter Tanzania Limited factory in Dar es Salaam.

deployment. For example, to connect the unconnected in areas that are not currently profitable, or to accelerate the creation of innovation hubs to develop new ICT applications especially locally designed and targeted ones. Sufficient public and private investment needs to be actively targeted towards ICT. Business models need to address the needs of urban and rural areas.

• Upgrading STEM: Foster science, technology, engineering and mathematics (STEM) skills in primary and secondary education to build long-term technology readiness and scale up ICT training programs with universities.

• Harness big data: Create national online and open databases using big data from public service provision and satellites, mobile networks, remote sensors and other connected devices in the Internet of Things.

• Establish a timeline for universal broadband connectivity of public facilities and services.

8.0 Lessons from other countries

The ICT industry in China covers a wide range of products and services, including telecommunications, hardware, software, and IT services. The Chinese government realizes that ICT is the key to the modernization of other industries. China's ICT sector has grown rapidly because of the support of the Chinese government's plans and policies. In 2006, the Ministry of Industry and Information Technology published the '2006-2020 National Information Development Strategy'. This guideline outlined the goals for the Chinese ICT industry by 2020. China promulgated the outline of its National Medium and long term Science and Technology Development Plan. This plan identifies innovation as the new national strategy, placing innovation capability strengthening as the strategic basis for science and technology development and the core of industrial restructuring and growth mode transformation.

The key points are:

• To grow the economy through high technology rather than capital investment by fully utilizing the ICT industry

• To develop indigenous innovative core technologies rather than imitating or introducing them from abroad

• To establish a world-leading, reliable, and safe information system

• To make government and military affairs paperless

A number of policies were also initiated to support the ICT industry's development. The major policies included the following:

• Optimizing administrative processes for ICT companies

• Increasing government procurement of ICT products

• Promoting a chief information officer (CIO) system in companies

• Better financing and taxation for ICT companies in

supported sectors

- Improving related laws
- Reinforcing the standardization and protection of intellectual property

In the national level development plans for identified key technologies include: Integrated circuit, High-Definition Television (HDTV), software, Networked and Information security, new components, Broadband wireless mobile communications, next generation networks, intelligent terminals, intelligent transportation system, automotive engineering computing platform, information industry and information technology services platforms and scientific research platform and service system.

To upgrade overall environment for technology innovation and promote high-tech industrialization, government has implemented a series of actions including: National Science and Technology Industrial Parks, Innovation Fund for Tech-based SMEs, Technology Business Incubators, Specialized Industrial Bases, Software Parks and productivity Promotion Centers to perfect support systems for high-tech industrialization, to promote indigenous innovation, to foster growth of tech-based SMEs and to boost technological innovation in enterprises.

To enhance industrialization in China foreign ownership in telecommunication market has a 49% limit and up to 50% for related value added services. Tariffs for ICT products and services vary depending on the category classification and what level of Chinese indigenous component is included. Certain ICT products exported to China are subject to China compulsory certification. The tariffs of ICT related hardware products ranges from 0% to 35%.

The IT market reached EUR 197 billion and the telecom services market was worth EUR 236 billion in 2015. The ICT industry's revenue has grown by 8% in 2014 to EUR 246 billion.

9.0 Conclusions

ICT is changing the world towards the fourth industrial revolution. This is building on the third industrial revolution and is characterized by a fusion of technologies that blur the lines between the physical, digital, and biological spheres. The current status of ICT in Tanzania has been discussed. Use of ICT in teaching and learning process and ICT as a technological force that drives industrialization have been addressed. Positive implications of ICT, issues and challenges and what can be done to address Challenges in ICT including lessons from China have been discussed. It has been observed that Tanzania's optical fiber infrastructure is connected to nine borders and all district are covered. Looking at the networked readiness index, Tanzania is below average in many aspects, which needs some improvement. The paper has further observed that ICT is a powerful mechanism in every aspect of education, financial and all public sectors. The fourth industrial revolution has possibilities of multiple emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing.

Finally, there are some possibilities of increasing industries such as in telecommunications, software, hardware and IT solutions. Different policies and regulations are needed to enable Tanzania to move towards ICT industrialization.

ACKNOWLEDGEMENT

The contributions from Eng. Prof. A. N. Mvuma and Prof. L. J. Mselle in the College of Informatics and Virtual Education, the University of Dodoma are highly acknowledged.

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Online Content Regulations petition dismissed

A petition filed by a local non governmental organization against regulations on online content published under the Electronic and Postal Communications Act (EPOCA) in March 2018 has been rejected by the High Court of Tanzania.

The regulations were introduced to promote responsible use of social media and the internet and to protect the public; particularly children aganst indecent and offensive online content but were challenged by a local NGO.

In its ruling the High Court of Tanzania, Mtwara insisted that the Minister for Information, Culture, Arts and Sports followed due process in introducing the regulations.

Online content can be generated by both a service provider and an end user. The Regulations cover the obligations of online radio, television and bloggers; online content hosts; internet cafe operators and social media users. They also provide for the licencing of online content service producers. Parts of the regulations are reproduced on page 24.

The Tanzania Communications Regulatory Authority had by November 2018 licenced 224 online content service providers; including 93 blogs and weblogs, two online forums, 32 online radios and 97 online televisions.

The high court ruling is reproduced below.

MISCELLANEOUS CIVIL CAUSE NO. 25 OF 2018
LEGAL AND HUMAN RIGHTS CENTRE
& 2 OTHERS VERSUS THE MINISTER FOR INFORMATION, CULTURE, ARTS AND SPORTS, THE TANZANIA COMMUNICATIONS REGULATORY AUTHORITY & THE ATTORNEY GENERAL

SUMMARY REPORT OF THE CASE

1. INTRODUCTION

On 04th September, 2018 the above mentioned Applicants filed an application for Judicial Review in the High Court of Tanzania Mtwara Registry seeking for the order of certiorari against the Respondents attacking the subsidiary legislation promulgated by the Minister responsible for Information, Culture, Sports and Arts, namely:

This Honourable Court be pleased to grant an order for certiorari to quash and declare the provisions of the electronic and Postal Communication (On line content) Regulations, 2018 GN No. 133/2018 to have been promulgated in excess of powers, illegality, against the principles of natural justice, unreasonable, arbitrary and ambiguous.

The application was supported by three Affidavits of the Executive Officers of the Applicants, namely Anna Aloys Henga (for 1st Applicant), Kajubi Mukajanga (for 2nd Applicant) and Onesmo Olengurumwa (for 3rd Applicant). The application was also supported by a Statement signed by the said named three Executives Officers of the Applicants.

2. GROUNDS OF THE APPLICATION

In the Statement in support of the Application, the Applicants raised nine (9) grounds upon which an order of certiorari was sought, namely:-

1.That the 1st Respondent has acted in excess of his jurisdiction (utra vire);

2.Regulations 16 and 17 of the Electronic and Postal Communications (On line content) Regulations are unreasonable, arbitrary and ambiguous;

3.Regulations 5 (1) (e) and 9 (d) of the Electronic and Postal Communications (Online Content regulations) 2018 are illegal and unreasonable;

4.Regulation 14 of the Electronic and Postal Communications (Online Content regulations) 2018 is illegal as it interferes with the right to freedom of information;

5.Regulation 4 (b) of the Electronic and Postal Communications (Online Content regulations) 2018 is subjective thus prone to arbitrary use;

6.Regulation 12 of the Electronic and Postal Communications (Online Content regulations) 2018 prohibits overly broad and ambiguous categories of content;

7.The conditions for registration set by the Electronic and Postal Communications (Online Content regulations) 2018 are very stringent and arbitrary to the extent that most online content service providers would not afford, thus impeding the right to access to information and freedom of expression;

8.That the conditions and standards for registration set by the Electronic and Postal Communications (Online Content regulations) 2018 require time and resource thus prudence requires a transition time be given to online content service providers to prepare. The transition period should be say one

year or so; and

9.That, the Registration contravenes the rules of natural justice as they do not provide for procedure to be followed before imposing sanctions. Upon being served with the Application, the Respondents opposed the Application by filling their Counter Affidavit, Statement in Reply and two sets of Preliminary objection in opposition of the Application.

3. HEARING OF THE APPLICATION

The hearing of the Application started with disposal of the Preliminary objection raised by the Respondent in which the Court overruled all the preliminary objections and ordered the main application be argued by way of written submission. Both parties complied with the schedule and the matter was set for Ruling on the 9th day of January 2019.

Generally, among other issues, it was the Respondents submission that the Regulation was properly made and was in compliance with all the Principal Legislation. The Applicant misconstrued or negligently read section 103 (1) and (2) of EPOCA by not recognizing that there are two different things stated in that section. While subsection 1 vest powers to the Minister to make Regulations, Subsection 2 vests power to the Authority to make Rules. The disputed a Regulations were correctly made by the Minister responsible for contents related matters as per section 103 (1). One the other hand the Authority can also make RULES under section 103 (2). The Regulation in question have been made by the Minister responsible for contents related matters under section 103 (1) of EPOCA. The section does not categorize as to the substantives and/or compliance/procedural power to limit the power of the Minister.

4. RULING

On the 9th day of 2019, the High Court delivered its ruling by rejecting all the Applicants argument that in promulgating the Regulations, the Minister acted in excess of power, illegally, against the principal of natural justice, unreasonably, arbitrary and ambiguously except the definition of the word content were the Court was of the view that it conflicts with the definition provided by the parent Act. Save for the definition of the word content, the Court dismissed the application.

The Minister for Information, Culture, Arts and Sports Dr. Harrison G. Mwakyembe addresses the media, with most microphone flags reflecting the response to the licencing requirements for online content services provision. TCRA has licenced 224 online content service providers; including 93 blogs and weblogs, two online forums, 32 online radios and 97 online televisions. Left is the Authority's Head of Enforcement and Compliance, Dr.Philip Filikunjombe.

EDITOR'S NOTE

In the ruling above, the High Court cites discrepancies in the definition of content in the Electronic and Postal Communications Act (EPOCA) and in online content regulations. We reproduce the definitions for reference.

Definition of content in EPOCA: Information in the form of speech or other sound,data, text or images whether still or moving, except where transmitted in private communications. https://www.tcra.go.tz/images/documents/policies/epoca.pdf

Definition of content in Online Content Regulations: Sound, data, text or images whether still or moving. https://www.tcra.go.tz/images/documents/regulations/SUPP_GN_NO_133_16_03_2018_EPOCA_ONLINE_CONTENT_REGULATIONS_2018.pdf

Revisiting free to air broadcasting

The Tanzania Communications Regulatory Authority (TCRA) has been on a whirlwind tour of the regions to educate stakeholders on their right to view free to air (FTA) television channels. This article looks at the different transmission modes and the essence of FTA.

Television broadcasting is the transmission of television (video and audio) programmes by means of radio waves for reception by the public at home or on the move. Television programmes can be transmitted in four ways: terrestrial (antenna mounted on the tower mast), satellite, cable and internet.

In terrestrial broadcasting programmes from the studio are sent to earth based transmission towers (mast) where they are broadcast and received by viewers with the use of an antenna.

Digital terrestrial television broadcasting networks involve two key stakeholders; a content service provider (CSP) and a multiplex operator (MUX) who distributes the content. CSPs do not have to install their own network: they produce content and send it to the MUX. Tanzania is among the first countries in Africa to migrate from analogue to digital terrestrial television broadcasting. The last analogue signal was switvhed off in April 2015.

In satellite broadcasting television programmes from the studio are sent to a satellite where they are broadcast back to earth and received using a satellite dish and satellite receiver (DVB-S Set Top Box) or decoder.

Cable television programmes are transmitted from the studio through cable (coaxial cable, optic fiber cable and received at customer premises using a cable receiver/decoder.

Internet television programmes are transmitted through an internet protocol (IP) based network.

Content by subscription, which is referred to in technical terms as direct to home (DTH), means paying to watch or view. Licences for this category of content service have an international character and use satellite for broadcasting. The licensee is authorized to operate in Tanzania Mainland (service area) and provide support services for subscription television content services by satellite.

There are currently three companies which have applied for such a license. They are DSTV, AZAM Media and Zuku TV.

Their licence conditions do not allow them to carry local FTA channels except TBC, which is the designated public service broadcaster.

Free to air (FTA) programmes are supposed to be viewed without payment, even in subscription channels. The programmes are carried on decoders of licenced multiplex operators - Basic Transmissions Limited (Digitek/ Continental), Star Media (T) Limited (Star Times), and Agape Associates Ltd (Ting). TCRA has invited applications for a fourth MUX licence.

FTA national content services providers are TBC1, Star TV, ITV, Channel TEN, Clouds TV and East Africa TV.

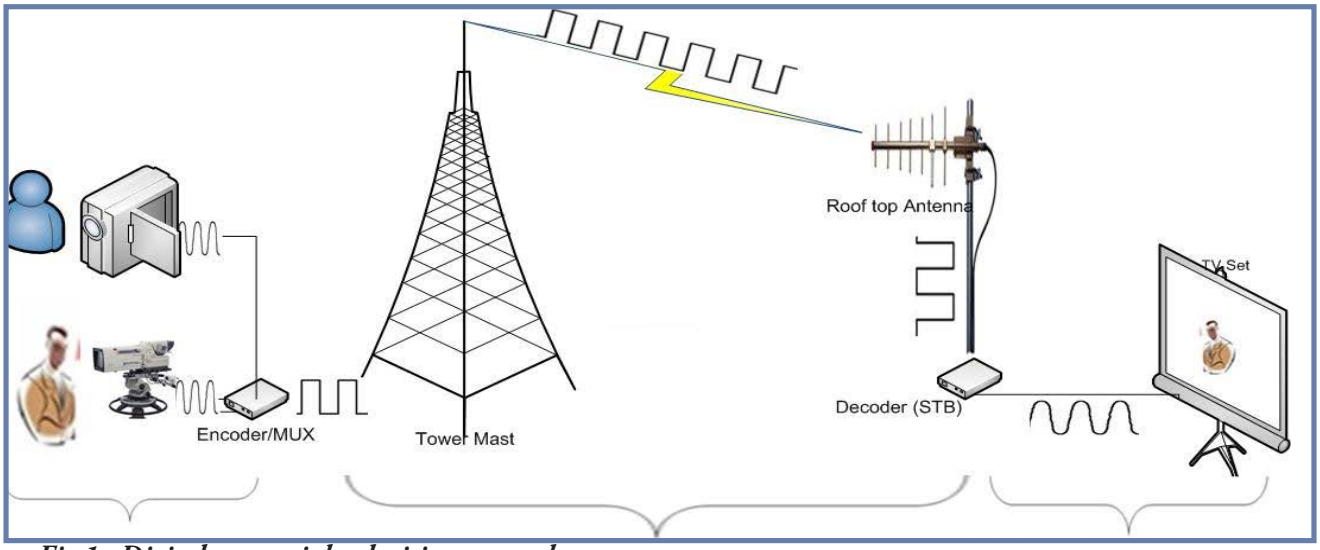

Fig.1. Digital terrestrial television network

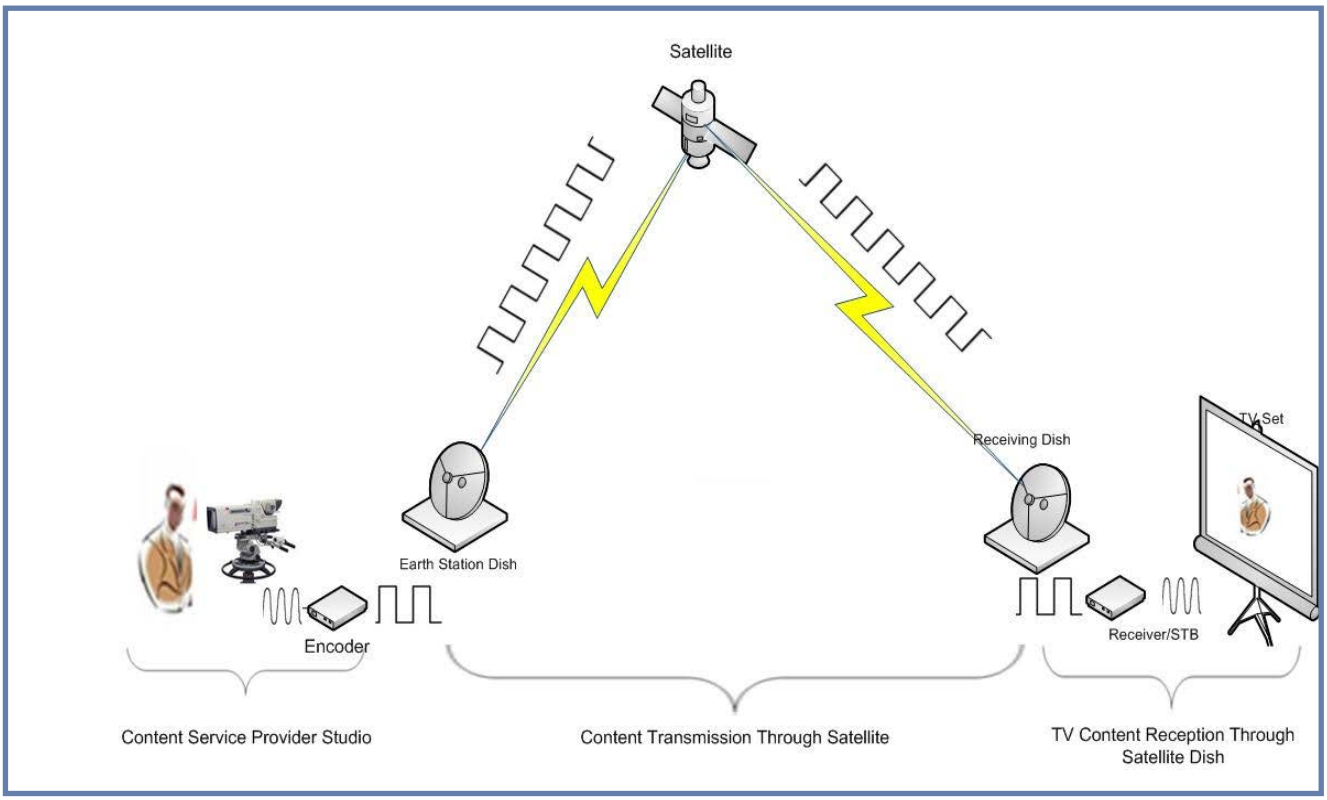

Fig. 2. Satellite television network

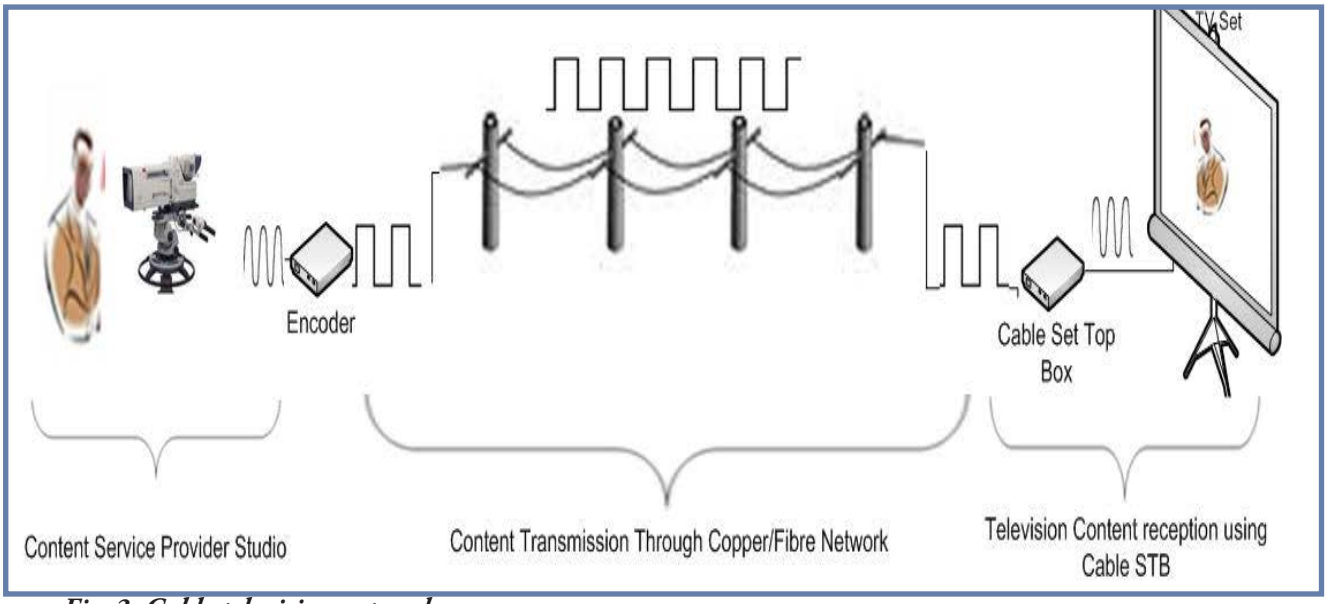

Fig. 3. Cable television network

ENG. Andrew Kisaka of TCRA at the Authority's content monitoring station in Dar Es Salaam. Viewers are entitled to free to air channels without additional payments.

TCRA engages stakeholde

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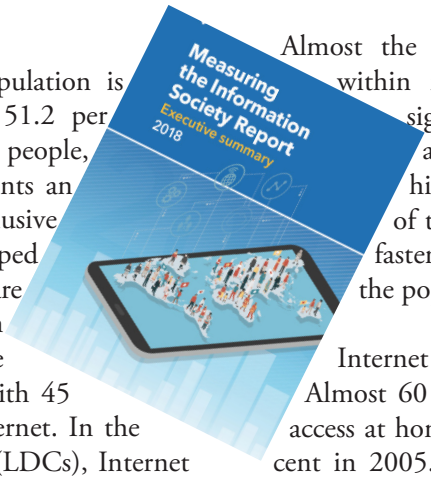
Gender gap, access issues limit global ICT uptake

Four reports on global ICT trends published in 2018 list the factors affecting the growth of communications in least developed countries, including Tanzania.

The Mobile Economy report, Mobile Gender gap report, a report on universal and affordable internet in developed countries and the annual measuring the information society report (MISR), 2018 published by the International Communication Union (ITU) note disparities in ICT use.

Highlights of MISR 2018

The report features key ICT data to measure the information society in individual countries. It presents a quantitative analysis of the information society and highlights new and emerging trends and measurement issues.



More than half of the world's population is now online. At the end of 2018, 51.2 per cent of individuals, or 3.9 billion people, were using the Internet. This represents an important steps towards a more inclusive global information society. In developed countries, four out of five people are online, reaching saturation levels. In developing countries, though, there is still ample of room for growth, with 45 per cent of individuals using the Internet. In the world's 47 least-developed countries (LDCs), Internet uptake remains relatively low and four out of five individuals (80 per cent) are not yet using the Internet.

There continues to be a general upward trend in the access to and use of ICTs. With the exception of fixed telephony, all indicators showed sustained growth over the last decade. However, in recent years, growth is slowing for most of the access indicators, particularly in countries where large parts of the population are already connected. Growth will need to pick up again if the ambitious targets of the ITU Connect 2030 Agenda and targets of the Broadband Commission for Sustainable Development are to be met. These include a target of 70 per cent Internet penetration by 2023, and 75 per cent by 2025.

Mobile access to basic telecommunication services is becoming ever more predominant. While fixed-telephone subscriptions continue their long-term decline, mobile-cellular telephone subscriptions continue to grow. Although the number of mobile-cellular telephone subscriptions is already greater than the global population, the same is not true in all regions.

It can be expected therefore that developing countries, and especially LDCs, will slowly catch up with the rest of the world.

Broadband access continues to demonstrate sustained growth. Fixed-broadband subscriptions are continuously increasing, without a slowdown in growth rates. Furthermore, almost all fixed-broadband subscriptions had download speeds of at least 2 Mbit/s, with a very substantial part having advertised speeds of more than 10 Mbit/s. In LDCs, there is still a significant pocket of subscriptions for the lowest speed tier (≥256 kbit/s to

Almost the whole world population now lives within range of a mobile-cellular network signal. In addition, most people can access the Internet through a 3G or higher-quality network. This evolution of the mobile network, however, is going faster than the growth in the percentage of the population using the Internet.

Internet access at home is gaining traction. Almost 60 per cent of households had Internet access at home in 2018, up from less than 20 per cent in 2005. Fewer than half of households had a computer at home, highlighting that a substantial number of households accessed the Internet (also) through other means, most importantly through mobile devices, often using the data plan of the mobile-broadband subscription. Three quarters of the world's population owned a mobile phone in 2017, but in LDCs this proportion stood at 56 per cent. Given the positive impacts of mobile phone ownership on development, this is an area where quick gains can be made.

Lack of ICT skills is an important impediment for people to access the Internet. Data show that, as activities get more complex, fewer people undertake these activities. More importantly, computer users in developed countries seem to possess more ICT skills than users in developing countries, pointing to a serious constraint on the development potential of developing countries and LDCs.

Growth in international bandwidth and Internet traffic has been even stronger than growth in access to ICTs and the percentage of the population using the Internet. This could be explained by the fact that people spend more time online, and more and more spend that time doing data-intensive activities, such as watching videos and playing interactive games.

Key findings of the Mobile Gender gap report, 2018

1. Women in low- and middle-income countries are, on average, 10% less likely to own a mobile phone than men, which translates into 184 million fewer women owning mobile phones.
2. Even when women own mobile phones, there is a significant gender gap in usage, particularly for more transformational services, such as mobile internet.
3. Over 1.2 billion women in low- and middle-income countries do not use mobile internet. Women are, on average, 26% less likely to use mobile internet than men. Even among mobile owners, women are 18% less likely than men to use mobile internet.6
4. The gender gap is wider in certain parts of the world. For instance, women in South Asia are 26% less likely to own a mobile than men and 70% less likely to use mobile internet.
5. Cost remains the greatest barrier to owning a mobile for both men and women.
6. Beyond cost, barriers to mobile ownership tend to be related to the local context, with low digital literacy and literacy standing out in several markets, and safety and security concerns in Latin America, all of which tend to affect women disproportionately.
7. Women are less aware of mobile internet compared with men, which significantly limits their uptake, particularly in Africa and Asia.
8. Among those who are aware of mobile internet, the biggest barriers to use for both women and men are cost-related. Other key barriers across markets, often felt more strongly by women, are a perception that mobile internet is not relevant to their lives, low digital literacy, and safety and security-related issues.
9. Closing the gender gap represents a substantial commercial opportunity for the industry. If mobile operators in low- and middle-income countries could close the gender gap in mobile ownership and mobile internet use today, this would generate an estimated incremental revenue of $15 billion over the coming year.

Barriers to mobile ownership and mobile internet use

The gender divide in mobile ownership and use is driven by a complex set of social, economic and cultural barriers. The 2017 GSMA Consumer Survey asked respondents in 23 countries whether certain pre-determined barriers were preventing them from (1) owning a mobile (if they did not already own one)

or (2) using mobile internet (if they had used a mobile in the last three months and were aware of mobile internet,but did not use it).

Women and men who do not own a mobile phone report many of the same barriers to mobile ownership (Figure

Affordability of handsets stands out as a major barrier in almost every sample country, and the cost of credit is another barrier cited by women and men alike. Beyond these cost-related barriers, impediments to ownership vary significantly between regions and between countries within regions, highlighting the importance of understanding the local context when tackling the gender gap in mobile ownership. In most countries, the main barriers to mobile ownership after cost tend to be difficulties with reading and writing and using mobile handsets. These challenges are felt most strongly in several Asian and Sub-Saharan African countries. Across the sample countries, these issues were more commonly reported by female non-owners than male non-owners. For example, in Nigeria, 40% of women who did not own a mobile identified literacy as a key barrier to ownership, compared to only 22% of men. Safety concerns, such as worries about being contacted by strangers and information security, are a major factor limiting mobile ownership in Latin America, and are typically felt more strongly by women. In Mexico, for instance, 40% of women who do not own a mobile reported concerns about strangers contacting them as a main barrier to ownership (versus 24% of men).

Closing the mobile gender gap will also generate significant commercial benefits for the mobile industry and provide an effective catalyst for economic growth. A 10% increase in internet penetration in a market, for instance, is estimated to result in a 0.25–1.38% increase in GDP.

A holistic approach and urgent, coordinated action is required by all stakeholders, including the mobile industry, policymakers and others, to ensure women in low- and middle-income countries are not excluded from the benefits mobile technology can deliver.

Note: GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations n adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress.

The Mobile Economy report

Having surpassed 5 billion people connected to mobile services in 2017, the global mobile industry will reach further milestones over the next eight years. The number of unique mobile subscribers will reach 5.9 billion by 2025, equivalent to 71% of the world's population. Growth will be driven by developing countries, particularly India, China, Pakistan, Indonesia and Bangladesh, as well as Sub-Saharan Africa and Latin America.

The speed of growth is slowing though, with most of the developed world approaching saturation. The more significant growth opportunity will lie in mobile internet – a market that will add 1.75 billion new users over the next eight years, reaching a milestone of 5 billion mobile internet users in 2025.

Mobile internet adoption will increasingly become the key metric by which to measure the reach and value created by the mobile industry, including its contribution to the UN's Sustainable Development Goals (SDGs).

Scaling the Internet of Things: 25 billion connections by 2025

The number of Internet of Things (IoT) connections (cellular and non-cellular) will increase more than threefold worldwide between 2017 and 2025, reaching 25 billion.

While IoT is rapidly becoming a mainstream technology in some consumer markets such as consumer electronics and smart homes, the industrial IoT segment is still in its infancy – but is set to be the largest source of connections growth going forward. Globally, the industrial connections base will overtake consumer IoT connections in 2023.

Growth in IoT will be driven by a proliferation of uses cases for smart homes, cities, buildings and enterprises, as well as rising investor financing and a supportive ecosystem for innovation.

4G takes the lead in 2019

In 2019, 4G will become the leading mobile network technology worldwide by number of connections (more than 3 billion) – another major milestone for the mobile industry, about 10 years since the launch of early 4G commercial services.

By 2025, two thirds of mobile connections (excluding cellular IoT) across the world will operate on high-speed networks, with 4G accounting for 53% of total mobile SIMs and 5G at 14%. To support customer migration and further drive consumer engagement in the digital era, mobile operators will invest $0.5 trillion in mobile capex worldwide between 2018 and 2020.

Mobile contributing to economic growth and addressing social challenges

In 2017, mobile technologies and services generated 4.5% of GDP globally, a contribution that amounted to $3.6 trillion of economic value added. By 2022, this contribution will reach $4.6 trillion.

Achieving universal and affordable Internet in least developed countries

The report presents findings on internet use in 47 developing countries facing sustainable development challenges. LDCs have a combined population of 979 million people, representing 13 per cent of the world's inhabitants. Twenty seven of these countries are in Africa.

It cites digital literacy as one of the barriers to internet access.

The report presents Tanzania's national ICT broadband backbone (NICTBB) which extends across the country and connects neighbouring land-locked countries to international submarine cables; describing it as having the potential to transform Tanzania into a regional ICT hub.

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Radio content transforms district

Strategic radio content production remains an effective tool in Tanzania's and Africa's rural development initiatives. In a recent tour of regions in the TCRA Southern Highlands zone, the Authority's Content Committee found out that radio stations owned by district councils have a key role in stimulating development. Derek Murusuri profiles Nkasi FM radio in Rukwa region.

Nkasi FM radio in Rukwa region continues to make big news. Owned by the Nkasi District Council, the radio has been doing well in different campaigns to drive the development agenda in the district.

The radio worked with the Council staff to research, produce and broadcast appropriate content which was timely aired to help farmers and livestock keepers do the right things right.

Development content turns things around. Nkasi district today goes on record as Tanzania's leading cereal production district.

The district had earlier performed poorly in food crop production compared to the other regions famous for cereal production in the southern highlands; which cover Rukwa, Katavi, Mbeya, Songwe, Iringa and Ruvuma regions.

Ruvuma used to be the national market leader in food crop production, particularly maize but has now been overtaken by Nkasi district. Successful radio campaigns which were literally an arm of extension services contributed to this success.

Nkasi FM radio was established in 2009 to enhance the activities of extension officers in the District. It focused on producing development content, providing solutions for pressing development challenges.

The district council has agricultural development plans implementation of which has improved agriculture and animal husbandry in the district. Nkasi also leads in government revenue collection in Rukwa region.

Nkasi FM radio is among the seven (7) radio and two (2) television stations owned and operated by local government authorities in Tanzania.

Thirty four (34) district radio stations had been licenced by TCRA but only seven are on air today.

The surviving stations include Nkasi FM; Radio ya Wananchi Newala (Newala, Mtwara); Boma Hai Radio (Hai, Kilimanjaro); Ulanga Radio FM (Ulanga, Morogoro); Mwanza City FM (Nyamagana, Mwanza); Mbeya City FM (Mbeya) and City FM in Ilala, Dar es Salaam.

The two television stations are Tanga City Council Television (Tanga) and Iringa Municipal TV in Iringa.

Most local government radio stations do not survive because they are not the priority of most district councils. Unfortunately, most non-media people do not appreciate the value of radio content in various development campaigns.

Another reason is the operational structure of the radio stations. They operated as any other local government department without recognizing radio's unique industry demands.

A radio station cannot operate like an economic department. Media organizations operate differently. A degree of autonomy lacks in radio stations owned by local governments.

Nkasi FM's success story shows that radio content can make a difference. Quality development content of district council radio stations is an input which could transform the districts.

District councils need to be advised on the importance of this facility in development.

About the author: Derek Murusuri is a member of the TCRA Content Committee and business journalist and media consultant based in Dar Es Salaam. Email: djmurusuri@gmail.com.

Obligations of providers, users

Due to demand from our readers, and as part of public education, we reproduce parts of the EPOCA Online Content Regulations published in March 2018

Obligations of online content providers and users

5. - (1) For the purpose of these Regulations, an online content provider shall have the obligations to-

(a) ensure that online content is safe, secure and does not contravene the provisions of any written law;

(b) take into account trends and cultural sensitivities of the general public;

(c) establish online policy or guideline and make it available to users;

(d) use moderating tools to filter prohibited content;

(e) have in place mechanisms to identify source of content;

(f) take corrective measures for objectionable or prohibited content; and

(g) ensure prohibited content is removed within twelve hours upon being notified.

An online content provider shall cooperate with law enforcement officers in pursuing his functions under these Regulations.

(2) A subscriber and user of online content services shall:

(a) be responsible and accountable for the information he posts in an online forum, social media, blog and any other related media; and

(b) ensure his posts do not contravene the provision of these Regulations and any other written law.

(3) An online content provider shall cooperate with law enforcement officers in pursuing his functions under these Regulations.

Obligations of Application services licensees

6. - (1) An application services licensee shall, when application entering contract with subscribers, incorporate terms and conditions of service which include the right to:

(a) deny access or terminate service where a subscriber contravenes these Regulations; and

(b) remove prohibited content in accordance with these Regulations.

(2) The terms and conditions incorporated under sub-regulation (1) shall be in a manner and form easily accessible by its subscribers.

(3) Where the licensee is notified by the Authority or by a person affected by the existence of prohibited content shall, within twelve hours from the time of notification, inform its subscriber to remove the prohibited content.

(4) Upon receipt of notification pursuant to sub-regulation (3), the subscriber shall, within twelve hours from the time of notification, remove the prohibited content.

(5) Where the subscriber fails to remove the prohibited content within twelve hours, the licensee shall suspend or terminate the subscribers' access account.

Obligations of Online radio, television and blogger

7. - (1) A licensee of online radio and television intended for broadcasting over the public internet with the objective of informing, entertaining and educating the public shall adhere to the following conditions:

(a) content streamed to abide to regulations governing broadcasting services;

(b) adhere to journalism ethics and professionalism;

(c) payment of regulatory fees;

(d) submit to the regulator the human resource development plan;

(e) adhere to copyright and intellectual property laws and Regulations;

(f) adhere to ownership and corporate obligations provided under the Act;

(g) Adhere to local content requirements.

(2) Sub regulation (1) shall apply to Tanzania residents, Tanzanian citizens outside the country, non- citizens of Tanzania residing in the country, blogging or running online forums with contents for consumption by Tanzanians.

(3) An applicant for electronic media under this regulation shall apply to the Authority and provide the following information:

(a) address indicating premises of operation;

(b) certificate of incorporation;

(c) owner and management team of the web;

(d) curriculum vitae of the staff;

(e) nature of content to be provided such as current affairs, news and sports (programme information);

(f) editorial policy guidelines;

(g) operation hours;

(h) technical description for the facilities used;

(i)clarification if it is a profit or non-profit making service.

Obligations of Online content host

8. Subject to Regulation 5 an online content host shall-
(a) adopt a code of conduct for hosting content;
(b) upon notification by the person affected by the content, the Authority, or law enforcement agency, remove the hosted content.

Obligations of Internet cafe

9. - (1) Subject to Regulation 5, every internet café or business center shall have the following obligations:
(a) to ensure that all computers used for public internet access at the café are assigned public static IP addresses;
(b) establish and publish a safe internet use policy for safe use of the internet with regards to online content and post it on conspicuous place; computer home screen or display the same on a visible areas for users to read before using the service;
(c) to put in place mechanism to filter access to prohibited content;
(d) to install surveillance camera to record and archive activities inside the cafe.
(e) to keep a proper service user register and ensure every person using internet service is registered upon showing a recognized identity card.
(2) The images recorded by surveillance camera and the register of users recorded pursuant to sub regulation 1 shall be kept for a period of twelve months.

Obligations of Social media user

10. Subject to Regulation 5, a social media user shall:
(a) be responsible and accountable for the information he publishes on a social media;
(b) use password to protect any user equipment or access equipment or hardware to prevent unauthorised access or use by unintended persons.

Disclosure of information

11. - (1)The Authority or any person employed by the Authority shall not disclose any information received or obtained during the exercise of its powers or performing its duties under the provisions of these Regulations, except, where the information is required by any law enforcement agency, court of law or other lawfully constituted tribunal.

(2) Notwithstanding sub-regulation (1) or other provisions of these Regulations, any authorized person who executes a directive or assists with execution of such directive and obtains knowledge of any information shall not-
(a) disclose such information to another person unless that other person is a law enforcement officer and the extent of such disclosure is necessary for the proper performance of the official duties of the authorized person or the law enforcement officer receiving the disclosure; or
(b) use such information to the extent that such use is necessary for the proper performance of official duties.

Prohibited content

12. Online content services provider shall not publish-
(a) indecent content save for sex and nudity sex scenes approved by the body responsible for film censorship;
(b) obscene content;
(c) hate speech;
(d) explicit sex acts or pornography;
(e) sex crimes, rape or attempted rape and statutory rape, or bestiality;
(f) content that portrays violence, whether physical, verbal or psychological; that can upset, alarm and offend viewers and cause undue fear among the audience or encourage imitation;
(g) content that portrays sadistic practices and torture, explicit and excessive imageries of injury and aggression, and of blood or scenes of executions or of people clearly being killed;
(h) content that causes annoyance, threatens harm or evil, encourages or incites crime, or leads to public disorder;
(i) content which advocates hate propaganda or promotes genocide or hatred against an identifiable group;
(j) content that may threaten national security or public health and safety such as-
(i) making available instructions and guidance on bomb-making, illegal drug production or counterfeit products;
(ii) disseminating false information with regards to outbreak of racial tension;
(iii) disturbances in a specific part of the country;
(iv) circulating information and statements with regards to possible terrorist attacks;
(v) circulating or making available information with regards to the outbreak of a deadly or contagious diseases;
(vi) any other related content.
(k) content that uses bad language including-
(i) the use of disparaging or abusive words which is calculated to offend an individual or a group of persons;
(ii) crude references words, in any language commonly used in the United Republic, which are considered obscene or profane including crude references to sexual intercourse and sexual organs;
(iii) hate speech.
(l) false content which is likely to mislead or deceive the public unless where it is clearly pre-stated that the content is-
(i) satire and parody;
(ii) fiction; and
(iii) where it is preceded by a statement that the content is not factual.

Minimum Security Guidelines for Internet Service Providers

ABSTRACT

As Information and Communication Technologies (ICTs) continue to expand and converge, the dangers from cyber threats have also significantly increased, triggering wider damage and effects than before. The situation worsens as the society's dependency on ICTs increases.

These guidelines, to be referred to as "the Internet Service Providers' Minimum Security Guidelines", have been made in accordance with Regulation 6 (c) of the Electronic and Postal Communications (Computer Emergency Response Team) Regulations 2018 to define a list of operational security requirements for the infrastructure of Internet Service Provider (ISP) networks in their provision of services to users. The goal is to provide network operators a clear, concise way of minimizing security threats to their systems and networks.

By virtue of the position and role played by ISPs in the provision of information and communication technology services in the society, ISPs have a crucial role to play in responding to cyber security incidents. Important as ISPs are in ensuring secure ICT services, it is important that guidelines be in place to ensure that every service provider puts in place secure cyber environment by adhering to minimum security Guidelines that will assist in protecting the users and allow smooth response to cyber security incidents.

Approved by the Tanzania Communication Regulatory Authority, these Guidelines apply to all licensed ISP in Tanzania. It is envisaged that every ISP will ensure her systems and network will meet these Guidelines. While these Guidelines set minimum requirements, ISPs are encouraged to pursue higher security measures.

The Guidelines will be updated at least every six months or as required due to various needs.

1. PURPOSE

The purpose of these minimum security guidelines is to ensure that users of Internet Services are properly secured and that the reported incidents can be responded to in an effective and efficient manner that provides enough evidence from Internet Service Providers.

Compliance to these minimum security guidelines will ensure that businesses keep relying on the use of Information and Communication Technologies (ICT) to run their businesses and deliver critical services to their customers.

2. DEFINITIONS

In these guidelines, unless the context otherwise requires:

a. Authentication, means to confirm the identity of an entity when that identity is presented;

b. Authorization, means to access privileges granted to a user, program, orprocess or the act of granting those privileges;

c. Dynamic Host Configuration Protocol, abbreviated as DHCP, means a network protocol that enable computer hosts to get assigned IP addresses automatically from a defined range of IP addresses;

d. Incident also known as Information Security Incident, means single or aseries of unwanted or unexpected information security event that have a significant probability of compromising business operations and threatening information security;

e. Internet Service Provider abbreviated as ISP, means Companiesoperating in Tanzania, with application service license and providing Internet Services;

f. Internet Protocol also known as IP Address, means a string of numbers separated by periods (or full colon for IPv6) that identified each host connected to a network;

g. Log, means a computer file that records events and activities that occur when an operating systems runs a particular service.

3. MINIMUM SECURITY GUIDELINES

In providing services to their clients, ISPs are required to ensure the following set of requirements is implemented:-

3.1 INFORMATION SECURITY GOVERNANCE, RISK AND COMPLIANCE

The ISPs are required to provide the foundations for information security management within their organization by implementing the following:-

3.1.1 Information Security Policies

ISPs shall develop, adopt and maintain appropriate information security policies to ensure secured, reliable and dependable services to their customers.

Management of the ISPs shall ensure that the Information Security Policies are implemented, observed and adhered to in their service provisioning.

3.1.2 Information Security Governance, Risk Management and Compliance Framework

ISPs shall establish and maintain Information Security Governance framework that establish and mitigate their Information security risks.

ISPs will establish and maintain the Information Security Governance framework based on nature of their organization and the services offered.

Management of the ISPs shall ensure that the Information Security framework implemented is observed and adhered to in their service provisioning.

3.1.3 Organization's Information Security Roles and Responsibilities

The Internet Service Providers shall ensure they establish and maintain appropriate Information security roles and responsibilities of protecting themselves as well as their customers.

3.1.4 Management of Third Party Services

Where service is delivered through a third party, the ISPs shall ensure these minimum guidelines are observed in the service provided by the third party.

3.2 SECURITY OF SYSTEMS AND FACILITIES

In providing services to their customers, ISPs are required to maintain a secure environment, by ensuring the following:-

3.2.1 Physical Security

ISPs shall establish and maintain reliable physical security of facilities, systems and network infrastructure.

To ensure reliable physical security, ISPs are required to ensure environmental controls are in place to provide protection against theft, fire and other related disasters that may affect their facilities.

ISPs are required to take precautionary measures against natural calamities such as earthquakes, flood and related disaster.

3.2.2 Access Control

ISPs shall establish and maintain the logical access control to the systems and network infrastructure.

ISPs shall ensure mechanisms to identify and authenticate each of its users before providing services.

3.2.3 Audit and Accountability

ISPs shall implement a mechanism to provide auditability and accountability to the activity performed in their systems and networks. In implementing this mechanism, the ISP shall keep the logs for the minimum of six (6) months.

The logs that must be retained shall include but not be limited to:

i.DHCP assignments;

ii.Access and authentication logs to systems and network devices;

iii.Services logs such as web services logs, database logs.

3.2.4 Security of Systems and Network Infrastructure

ISPs shall identify malicious traffic destined to their systems and adopt technical measures to filter such traffic.

ISPs shall ensure appropriate privacy of the customer's information is maintained.

ISPs shall ensure they detect and prevent propagation of incorrect routing information as well as spoofed IP source addresses.

3.3 INCIDENT MANAGEMENT AND RESPONSE

ISPs are required to ensure the information security incidents reported are responded effectively and efficiently by doing the following:-

3.3.1 Incident Response Procedures

ISPs shall establish, adopt and maintain policies, processes and procedures for managing cyber security incidents within their organizations. The policies, processes and procedures shall, among other things, cover incident reporting, response

and communication with customers. The policies shall provide for, among other things, the escalation procedures and the appropriate roles and responsibilities in responding to the incidents.

3.3.2 Incident Detection Capabilities

ISPs shall build incident detection capabilities by deploying security measures that can detect security incident. ISPs shall report to Tanzania Computer Emergency Response Team all information Security Incidents detected. The incidents shall include but not be limited to:- i. Intrusions to the ISPs network; ii. Breach of customer's data; iii. Denial of Service and Distributed Denial of Service Attacks; iv. Malware outbreaks; v. Spam related incidents; vi. Phishing attacks; vii. Spoofing related attacks; viii. Web defacement. Where the incidents concern the privacy and security of the customers, the ISPs shall inform the customer about the incidents, measures taken to handle the incidents and measures the customer need to take to protect themselves.

3.4 INFORMATION SECURITY TESTING AND AUDITING

ISPs are required to maintain a secure environment for delivering services to customers by ensuring the following:-

3.4.1 Contingency Plans Testing

ISPs shall perform contingency plans testing at least once a year in order to ensure the prepared contingency plans have been appropriately implemented to provide continuity of the ISPs services to customers.

3.4.2 Security Assessments

ISPs shall perform independent information security assessments at least once a year to ensure they continue to provide secure and reliable services to the customers. The information security assessment shall, among other things, cover the operating procedures, physical security and systems security.

3.4.3 Compliance Monitoring and Audit

ISPs shall perform an annual self or third party audit to verify the organization's compliance to their information security framework. The auditor shall also verify the relevance of the Information Security Framework in protecting the ISP and their customers.

3.5 BUSINESS CONTINUITY MANAGEMENT

To minimize the risks that may be suffered by the customers and ensure business continuity, the ISPs shall be required to perform the following:-

3.5.1 Business Continuity Strategy and Contingency plan

ISPs shall develop, maintain and adopt comprehensive business continuity plans to ensure continuity of reliable and dependable services to their customers.

3.5.2 Disaster Recovery capability

In implementing and adopting their business continuity plans, ISPs shall implement disaster recovery capabilities for restoring services after the disaster.

4. CONCLUSION

To provide secure and reliable services to the customers,ISPs are required to implement these mandatory minimum guidelines. It is to be noted that these are minimum guidelines; and ISPs are encouraged to implement advanced standards/frameworks to protect their customers such as implementation of ISO 27000 Information Systems Security Management. The Authority may, from time to time, carry out regulatory checks to ensure compliance with these guidelines.

Minimum Technical Specifications for Radio Hearing Aids

1.0 General Requirements

1.1 Scope of Specification

This Specification defines the minimum technical requirements for radio hearing aids to operate in one of the authorised frequency bands or frequencies, and transmit within the corresponding output power levels given in short range devices minimum technical specifications.

1.2 Safety and Health

Use of radio hearing devices shall comply with International Standards as mentioned herein.

Compliance with these standards does not by itself confer immunity from legal obligations and requirements imposed by national health or safety authorities. TCRA may invalidate the equipment registration if so requested by the relevant authority for reasons of safety or hazards that would likely be caused to users.

1.3 Electrical Safety Requirements

Manufacturers shall demonstrate that the radio hearing aids have been tested and certified to meet the following safety standards:-

a.) IEC 60950/EN 60950: Safety of Information Technology equipment including Electrical business equipment.

b.) IEC 60215/ EN 60215: Safety requirements for radio transmitting equipment.

2.0 Technical requirements

The table below shows information on frequency bands, maximum output power and applicable specifications:

Frequency band	Maximum Output Power or Magnetic Field	Standard
173.965-174.015 MHz	2 mW e.r.p.	EN 300 422

Note: Frequency allocations can change and this information should be checked with the Tanzania Communications Regulatory Authority (TCRA).

Testing should be carried out to ensure compliance with the following specifications as applicable:-

a.) EN 300 422-2: Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 2: Harmonized EN under article 3.2 of the R&TTE directive.

b.)EN 301 489-1: Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements.

c.) EN 301 489-9: Electromagnetic compatibility and Radio spectrum Matters (ERM) - Electromagnetic Compatibility (EMC) standard for radio equipment and services - Part 9: Specific conditions for wireless microphones, similar Radio Frequency (RF) audio link equipment, cordless audio and in-ear monitoring devices.

d.)ETSI EN 300 220-3: Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW; Part 3: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.

e.)ETSI EN 301 489-3: Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz.

A radio hearing device

Digitizing the African Post

African public postal operators are being urged to transform their operations through the use of digital technologies.

The Arusha-based Pan African Postal Union (PAPU) has adopted the theme of digitalization for the 2019 African Postal Day on 18 January.

In the face of dropping mail volumes, most African postal operators have adopted survival strategies involving broad diversification.

The Kenya Postal Corporation now provides financial and payment services to sections of the populations that have been side-lined from the formal financial ecosystem.

It has launched a financial service known as M-Post which transforms mobile phone accounts into virtual postal accounts.

Sixty percent of Kenya's rural population still use postal services and the introduction of e-commerce, M-postal services, and other postal digital platforms will help revolutionize postal service in Kenya and Africa as a whole, according to government officials.

South Africa's Post has launched parcels tracking system which traces South African and international parcels using allocated tracking numbers.

The organization has also introduced an electronic registered mail service in which registered mail can be sent to an email address and show if the recipient has received and read the message.

The system could also be used to send traffic fines notices.

House Journal

New staff shown the ropes

As part of discharging its regulatory functions, TCRA has a comprehensive capacity building programme including regularly training its employees. The Authority's new staff participated in an orientation programme in Bagamoyo from 12th to 16th and 19th to 23rd November 2018, respectively. They are pictured here with the Director General, Eng. James M. Kilaba (seated second left above, and centre below) and the Director of Corporate Resources Management, Mr. Alinanuswe Kabungo (seated first left in both photographs).

Photographs by Semu Mwakyanjala.

Regulator KISWAHILI
OKTOBA– DESEMBA 2018

Hili ni toleo la Kiswahili la jarida la The Regulator, linalotolewa mara nne kwa mwaka na Mamlaka ya Mawasiliano Tanzania (TCRA), taasisi ya serikali inayosimamia mawasiliano ya kielektroniki na posta nchini. Sekta ya mawasiliano inajumuisha simu, intaneti, mtandao wa kompyuta na kadhalika,huduma za Posta na usafirishaji wa vipeto katika Jamhuri ya Muungano wa Tanzania na pamoja huduma za utangazaji (kama vile redio na televisheni) kwa Tanzania Bara tu. Zanzibar ina Tume inayosimamia utangazaji. Kazi za TCRA zimefafanuliwa kwenye Sheria yA 2003 iliyoiunda Mamlaka na pia kwenye Sheria ya Mawasiliano ya Kielektroniki na Posta EPOCA) ya 2010.

Namna ya kuwasilisha makala, maoni na picha

Mhariri anakaribisha makala, maoni na picha kuhusu masuala ya mawasiliano ya kielektroniki na posta. Makala ziwe hazijachapishwa au kutolewa mahali pengine. Zichapishwe kwa ukubwa wa herufi (font) 12; nafasi ya kawaida na ziwe na ukubwa usiozidi kurasa nne za A-4. Picha zihifadhiwe katika mfumo wa JPEG.

Makala zitumwe kwa Mhariri, Jarida la Regulator, TCRA, Mawasiliano Towers, Namba 20 Sam Nujoma, S.L.P 474, 14414 Dar es Salaam. Barua pepe: regulator.magazine@tcra.go.tz.

Barua ya Mhariri

Toleo hili la Regulator limekuja sawia na kumbukumbu ya miaka mitatu ya uongozi wa Serikali ya Awamu ya Tano ya Jamhuri ya Muungano wa Tanzania inayoongozwa na Rais Dkt. John Pombe Joseph Magufuli. Tuna makala inayoorodhesha mafanikio kwenye sekta ya mawasiliano kati ya Novemba 2015 na Novemba 2018.

Mafanikio hayo ni pamoja na kuongezeka kwa watoa huduma na watumiaji wa huduma za mawasiliano; kutolewa kwa kanuni mpya za sheria ya Mawasiliano ya Kielektronki na Posta (EPOCA), zikiwemo kanuni za maudhui mtandaoni. Hizi zimewezesha kutolewa kwa leseni 224 kwa wamiliki na watoa huduma za maudhui mtandaoni kati ya Machi 2018 na Novemba 2018. Kati yao ni blogu 93, majukwaa ya majadiliano (online forums) mawili (2), redio mtandao 32 na televisheni mtandao 97. Kuna makala inayofafanua masuala ya leseni za maudhui mtandaoni.

Kuongezeka kwa laini za simu zilizotolewa kumewezesha kupanuka kwa matumizi ya simu kufanya miamala ya kifedha, ambapo akaunti za pesa mtandao zimeongezeka kwa asilimia 20 na idadi ya miamala ya kifedha imeongezeka kwa asilimia 50.

YALIYOMO

Laini za simu za kiganjani zilizotolewa zimeongezeka kwa asilimia nane katika kipindi cha miaka mitatu ya uongozi wa serikali ya Awamu ya Tano chini ya Rais Dkt. John Pombe Joseph Magufuli (2015 -2018).

Pichani, mfanyabiashara akitumia simu sokoni Muheza, Tanga.

Taswira mpya sekta ya mawasiliano

Novemba 2018 ni kumbukumbu ya miaka mitatu ya uongozi wa Serikali ya Awamu ya Tano ya Jamhuri ya Muungano wa Tanzania inayoongozwa na Rais Dkt. John Pombe Joseph Magufuli. Kipindi hicho kimeshuhudia maendeleo makubwa katika sekta ya mawasiliano nchini. Makala haya yanazungumzia maendeleo na mafanikio yaliyopatikana kati ya Novemba 2015 na Novemba 2018.

Miaka mitatu ya uongozi wa Rais Dr. John Pombe Joseph Magufuli imeshuhudia mafanikio mengi katika sekta ya mawasiliano; ambayo baadhi yake ni kuongezeka kwa watoa huduma na watumiaji wa huduma za mawasiliano; kuongezeka kwa mchango wa sekta ya mawasiliano kwa serikali na kupitiwa upya sera ya taifa ya Tekinolojia ya Habari na Mawasiliano (TEHAMA) na kuirekebisha mwaka 2016;

Mengine yaliyotokea katika kipindi hiki ni kusimamia mfumo wa utangazaji wa dijitali; kuimarisha shughuli za usimamizi kwa kuwa na nyenzo zaidi za kazi ikiwa ni pamoja na kuwepo kwa mitambo, ndani ya TCRA, ya kusimamia mawasiliano; kupanuliwa kwa mfumo wa simbo za posta na anwani mpya za makazi ambao unawezesha Watanzania wengi zaidi kufikiwa kwenye makazi yao na kuanzishwa kwa utaratibu wa kuipitia upya Sera ya Taifa ya Posta ya 2003.

Orodha ya mafaniko inajumuisha pia kutolewa, mapema 2018, kwa kanuni mpya za sheria ya Mawasiliano ya Kielektronki na Posta (EPOCA) ili kuimarisha shughuli za usimamizi na kuwalinda watumiaji; kuanzishwa kwa aina mpya ya leseni;kuimarishwa kwa mfumo wa usajili wa laini za simu na kutekelezwa kwa mipango mipya ya kuwalinda watumiaji, ikiwemo kuchapishwa na kusambazwa mwongozo maalum wa watumiaji.

Kumekuwa na ongezeko la idadi ya watoa huduma, idadi ya watumiaji na aina ya huduma na kuanzishwa huduma ambazo hazikuwepo. Aidha kukua huku kumesababisha kuwepo kwa biashara na ujasiriamali unaotumia fursa zinazotokana na maendeleo haya.

Ili kuelewa ongezeko la leseni zilizotolewa kwa ajili ya huduma mbalimbali, ni vyema kuuelewa mfumo wa utoaji wa leseni unaozingatia muingiliano wa tekinolojia. Mfumo huu wa leseni una aina nne za leseni ambazo ni za Mitandao, Huduma za Mtandao, Huduma za mawasiliano na za Maudhui ya utangazaji.

Aina za leseni zinazotolewa na Mamlaka:

i. Leseni ya Mitandao (Network Facility)

Inajumuisha miundombinu ya satelaiti, mitandao inayotumia waya aina ya optic fibre, uwekaji wa nyaya na njia za mawasiliano, vifaa vya mawasiliano kutumia redio, milingoti ya mawasiliano ya simu za mkononi, minara na vifaa vya kurushia matangazo ya vyombo vya utangazaji;

ii. Leseni ya Huduma ya Mtandao (Network Services)

Hii ni leseni inayoruhusu kutoa huduma za simu yaani sauti, picha na takwimu (voice, data, etc);

iii. Leseni ya Huduma (Application Services)

Hii ni leseni inayoruhusu mmiliki kutoa huduma kama vile intaneti, kupiga simu kupitia intaneti, takwimu kwa ajili ya biashara, na huduma za kutuma taarifa fupi;

iv. Leseni ya Maudhui (Content Services)

Hii ni leseni inayoruhusu mmiliki kutoa huduma za utangazaji wa redio na televisheni na taarifa kupitia mitandao (online publishing) na taarifa za habari.

Leseni chini ya mfumo wa muingiliano wa tekinolojia zinatolewa kwa ajili ya kutoa huduma katika ngazi nne - ngazi ya kimataifa, kitaifa, mkoa na wilaya.

Aidha pamoja na leseni zilizotajwa hapo juu, Mamlaka hutoa leseni nyingine zifuatazo:

i.Leseni ya huduma za posta (Public postal license);

ii.Leseni ya kusafirisha vifurushi (Courier Services License);

iii.Leseni ya Masafa (Frequency User License);

iv.Leseni ya ujenzi na Ukarabati (Installations and maintenance license) wa miundo na vifaa vya kielectronic vifaa;

v.Leseni ya kuagiza, kusambaza na/au kuuza vifaa ya kielectronic (Import, Distribution and or sale of electronic communication equipment);

vi.Leseni ya ubora wa vifaa vya kielektroniki (Type approval license)

vii.Leseni ya namba za mawasiliano.

Watoa huduma wenye leseni ya mitandao wamefikia 22; wenye leseni za kutumia mitandao kutoa huduma ni 14, leseni za huduma zimetolewa kwa makampuni 69. Watoa huduma za utangazaji wameongezeka hadi kufikia redio 154 na televisheni 32.

Kanuni za Maudhui Mtandaoni zilizotolewa na Serikali mwezi Machi 2018 zimewezesha kutolewa kwa leseni kwa wamiliki na watoa huduma za maudhui mtandaoni. Kati ya Machi 2018 na Novemba 2018 makampuni 224 (mia mbili ishirini na nne) yameshasajiliwa na yanatoa huduma. Kati yao ni blogu 93, majukwaa ya majadiliano (online forums) mawili (2), redio mtandao 32 na televisheni mtandao 97.

Utaratibu wa kutoa Leseni kwa maudhui mtandaoni umechangia katika kuthibiti matumizi mabaya ya mitandao.

Watumiaji wa huduma wameongezeka. Laini za simu za kiganjani zilizotolewa zimeongezeka kwa asilimia nane (8%) kutoka laini za simu 39,808,419 Disemba 2015 hadi 42,961,449 Septemba 2018.

Huduma za ziada nazo zimesababisha kuwepo kwa ongezeko kubwa la simu ya kiganjani kwani simu imekuwa na matumizi zaidi ya kuwasiliana tu. Simu ya mkononi imekuwa sio tu kifaa cha mawasiliano; bali imekuwa ni chombo cha kufanya miamala ya kifedha.

Huduma za pesa mtandao zimekuwa na kuenea. Kuongezeka kwa huduma za pesa mtandao kumechangiwa sana na kupanuka kwa mitandao ya watoa huduma za simu sehemu nyingi nchini. Kila palipo na huduma za mawasiliano ya simu, wananchi wanaweza kupata huduma za pesa mtandao. Ifahamike kuwa, usimamizi mzuri wa rasilimali za mawasiliano (masafa na namba), ndio unaowezesha upatikanaji wa huduma za pesa mtandao.

TCRA ndio inayopangilia na kutoa namba fupi fupi (short codes) zinazotumika katika kufanya miamala ya kifedha. Kwa kutumia namba fupi fupi zinazotolewa na TCRA, miamala ya fedha, huduma za benki, michezo ya bahati nasibu, uchangishaji wa fedha na huduma nyinginezo nyingi zinaweza kupatikana kupitia kwenye simu.

Mifano ya namba fupi ni *150*00# inayotumiwa kwa M-pesa, *150*01# (Tigo pesa), *150*07# (TTCL pesa, *150*03# (CRDB Bank) na *150*66# (NMB).

Akaunti za pesa mtandao zimeongezeka kwa asilimia 20 kutoka akaunti milioni 17.4 hadi akaunti milioni 21.9, katika kipindi cha miaka mitatu ya Rais Dkt. John Pombe Magufuli.

Idadi ya miamala ya kifedha kupitia simu za mkononi imeongezeka kwa asilimia 50 (hamsini); kutoka miamala 131,165,020 hadi 262,279,668 kwa mwezi kati ya 2015 na 2018. Ongezeko hii limetokana na mazingira wezeshi ya kulipia huduma mbalimbali kwa kutumia simu, kama vile umeme, tiketi za ndege, maji, ununuzi wa muda wa maongezi, malipo ya kodi na tozo mbalimbali pamoja na biashara nyingine.

Ingawaje maendeleo ya TEHAMA yameathiri utumaji wa barua kupitia posta, kumekuwa na ongezeko la huduma za ziada zinazotolewa na Shirika la Posta Tanzania (TPC).

Kwa mfano idadi ya barua na vifurushi kupitia

Simu ya kiganjani imekuwa nyenzo muhimu ya biashara.

Wakazi wa Kibaha, Pwani wakipata malezo kuhusu mtambo wa kufuatilia matumizi ya masafa na ubora wa mawasiliano kwenye maonyesho ya viwanda yaliyofanyika huko hivi karibuni.

posta ilipungua kutoka 22,992,828 vilivyotumwa ndani ya nchi mwaka 2012 hadi 8,228,501 mwaka 2017 na vya kimataifa kutoka 8,137,969 hadi 1,892,887.

Wateja wa TPC wameongezeka kutoka 159,374 mwaka 2012 hadi 522,95 mwaka 2015 na kufikia 545,160 mwaka 2017. Hii inatokana na kuanzishwa kwa huduma za ziada badala ya kutegemea tu usafirishaji wa barua na vifurushi.

Mchango wa sekta kwenye pato la taifa umezidi kuongezeka katika kipindi cha miaka mitatu tunayoizungumzia hapa kwa njia za kodi za moja kwa moja au ambazo zinatokana na huduma. Kiasi kamili cha mapato yanayotokana na sekta ya mawasiliano inaweza kupatikana kwa Mamlaka ya Mapato Tanzania (TRA).

Mamlaka ya Mawasiliano Tanzania inachangia moja kwa moja katika mapato ya Serikali. TCRA imechangia katika mfuko wa taifa (Treasury) shilingi 91,784,014,719 mwaka 2015/2016; 39,921929,975 (2016/17), 81,372,143,631 (2017/2018 na imeshachangia 51,979,448,534 kwa mwaka wa fedha 2018/2019. Michango hii ni tozo zinazotokana na simu za kimataifa zinazoingia na kuishia hapa nchini, ada za leseni za watoa huduma na mauzo ya masafa kwa njia ya mnada.

Mwezi Juni 2018 TCRA iliuza kwa mnada masafa ya wigo wa 700 MHZ ambapo jumla ya dola za kimarekani milioni 20 (takribani TZS 45,531,380,000) zilipatikana; huku walionunua wakipewa masharti ya kuhakikisha upatikanaji wa huduma za mawasiliano ya kasi (broadband) kwa asilimia 90 ifikapo 2024. Fedha hizo zimewasilishwa Serikalini.

Masafa hayo yalipatikana baada ya kufanikiwa kuhamia mfumo wa utangazaji wa televisheni wa dijtali kutoka analojia. Aidha mnada huo umesifiwa wa kufanyika kwa mafanikio makubwa ambayo yanapaswa kuigwa Afrika.

Katika kusimamia gharama za muingiliano kati ya mitandao ya simu, TCRA imeshusha gharama hizi kwa kiasi kikubwa. Kwa mfano Disemba 2017 TCRA ilishusha gharama za maingiliano kutoka 26.96 kwa dakika hadi shilingi 15.6 kwa dakika kuanzia Januari 2018, na shilingi 10.4 kuanzia Januari 2019 Januari 2020 kiwango kitakuwa shilingi 5.2 na kinategemewa kushuka hadi shilingi 2 (mbili) Januari 2022. Kwa maneno mengine, gharama za kuunganisha simu ya mtumiaji wa simu kupiga simu mtandao mwingine zimeshuka.

Pamoja na kushuka kwa gharama za maingiliano, ushindani katika kutoa huduma za mawasiliano ya intaneti kumeshusha gharama za huduma hii kwa Tanzania kiasi cha kufanya gharama za matumizi ya intaneti kuwa chini zaidi Tanzania kuliko penginepo Afrika Mashariki.

Kwa mujibu wa matokeo ya utafiti yaliyochapishwa Agosti 2017 na taasisi ya Research Internet Africa (RIA) gharama za kupata GB moja ya intaneti Tanzania ni dola za kimarekani 2.27; ukilinganisha na 2.34 (Uganda), 4.9 (Kenya), 5.34 (Burundi), 7.25 Ethiopia, 22.72 Angola na 35.26 Swaziland – Eswatini).

Tanzania ni ya nne Afrika kwa kuwa na gharama nafuu za matumizi ya intaneti; baada ya Misri, Tunisia na Guinea.

UTARATIBU WA KUWASILISHA MALALAMIKO

Utaratibu wa kuwasilisha malalamiko kuhusu masuala ya matumizi ya huduma za mawasiliano una hatua nne.

1. KWA MTOA HUDUMA

1a. Toa taarifa kwa mtoa huduma. Weka malalamiko yako kwa maandishi. Wasilisha nakala TCRA.

1b. Baada ya siku 30 iwapo hujapokea majibu au hujaridhika na majibu, wasilisha malalamiko yako TCRA .

2. MAMLAKA YA MAWASILIANO TANZANIA

2a. Wasilisha malalamiko yako TCRA ukiambatanisha kumbukumbu na nakala ya barua ulizotuma kwa mtoa huduma au majibu yao. Malalamiko yanaweza kuwasilishwa kwa barua, kwa barua pepe, kwa simu au kwa kufika kwenye ofisi zetu makao makuu Dar Es Salaam, ofisi ya Zanzibar na kwenye ofisi za kanda.

2b. TCRA itafuatilia kwa mtoa huduma na kumjulisha mlalamikaji kila hatua.

2c. Mamlaka itawakutanisha mlalamikaji na mtoa huduma kutafuta suluhu.

2d. Suluhu ikishindikana mlalamikaji atajaza fomu ya malalamiko ili suala lake lisikilizwe na Kamati ya Malalamiko ya TCRA.

3. KUSIKILIZWA KWA SHAURI NA KAMATI YA MALALAMIKO

Kamati imeundwa kutokana na kifungu cha 20 (1) cha sheria iliyounda Mamlaka ya Mawasiliano Tanzania ya mwaka 2003 ambacho kinatoa fursa ya kuundwa kwa kamati ndani ya TCRA kusimamia masuala mbalimbali. Kamati inaundwa na Wajumbe wa Bodi na Wakuu wa Idara za TCRA zinazoshughulikia masuala ya Sheria na Masuala ya Watumiaji.

3a. Kamati ya Malalamiko itaita pande zote na kuzisikiliza.

3b. Kamati itatoa uamuzi kati ya siku 30 hadi 60 na kuusoma mbele ya pande zote.

3c. Upande ambao hautaridhika na uamuzi wa Kamati unakata rufaa kwenye Baraza la Uamuzi wa Haki (Fair Competition Tribunal – FCT) .

3d. TCRA ijulishwe juu ya uamuzi au kusudio la kukata rufaa.

4. BARAZA LA UAMUZI WA HAKI (FCT)

4a. Asiyeridhika na uamuzi wa Kamati atakata rufaa kwa Baraza ndani ya siku 21 baada ya kupokea uamuzi wa Kamati

4b. Kuendelea na shauri kama itakavyoelekezwa na Baraza.

UFAFANUZI KUHUSU USAJILI WA WATOA HUDUMA ZA MAUDHUI KWA NJIA YA MTANDAO

Mamlaka ya Mawasiliano Tanzania (TCRA) inapenda kukiri mwitikio mzuri wa wamiliki wa Blogu, Majukwaa mtandaoni (online forums), Radio na Televisheni za mtandaoni wanaoendelea kujitokeza katika zoezi la usajili tokea tulipotoa tangazo tarehe 21 Aprili, 2018. Aidha, TCRA inapenda kutoa ufafanuzi juu ya maswali mbali mbali ambayo yamekuwa yakiulizwa kama ifuatavyo:-

Na	Swali	Ufafanuzi
1	Je, usajili huu unahusu pia Magrupu yanayotumia majukwaa/mitandao ya nje kama WhatsApp, Facebook, Instagram, n.k?	Usajili huu hauhusu watumiaji wa mitandao ya kijamii yenye wamiliki walioko nje ya nchi kama WhatsApp, Facebook, Instagram, n.k, Hata hivyo, Kanuni ya 5, 7, 8 na 10 za Kanuni za Maudhui Mtandaoni (Online Content Regulations) za 2018, inawapa wajibu wa kutimiza watumiaji wote wa maudhui mitandaoni ikijumuisha wana-Group wote na Wasimamizi (Administrators) wake bila kujali unatumia majukwaa/mitandao ya ndani au ya nje
2	Je, wamiliki wa websites nao wanatakiwa kujisajili?	Hapana iwapo haijihusishi na upakiaji wa taarifa za mara kwa mara (Current Affairs and News) vinginevyo itahitaji leseni kupitia usajili.
3	Je, wamiliki wa Radio na Televisheni walio na Leseni za TCRA kwa sasa lakini wanarusha pia matangazo yao kwa kutumia internet wanatakiwa kusajiliwa?	Ndiyo, Kwa wamiliki wa Radio na Televisheni ambao tayari wana leseni moja ya kurusha maudhui kwa njia ya mitambo iliyosimikwa ardhini na Maudhui yaleyale yatarushwa mtandaoni (simulcasting), wamiliki wake watatakiwa kuwa na leseni nyingine ya online redio/television.
4	Je, usajili unafanyika kwenye mtandao pekee?	Ndiyo, fungua tovuti (website) ya TCRA (www.tcra.go.tz), upande wako wa kulia juu kuna maandishi yanasomeka (BROADCASTING) chini ya maandishi haya utaona linki yenye neno Online Content Application System bofya na uendelee na usajili.
5	Je, gharama za usajili ni kiasi gani?	Gharama za usajili ni kama zilivyofafanuliwa kwenye Jedwali AA hapa chini
6	Muda wa Leseni ukoje?	Leseni zote ni za miaka mitatu ambapo baada ya muda huo itahitajika kuomba kuhuishwa na kupewa Leseni nyingine kwa anayekidhi vigezo husika.

Jedwali AA: Aina ya leseni na ada kwa shilingi

Na.	Aina ya Leseni	Blogu, Majukwaa mtandaoni (online forums), na waombaji wapya wa Redio na Televisheni mtandaoni wasio na leseni ya Utangazaji unaotumia mitambo iliyosimikwa ardhini. (Terrestrial broadcasting services)	Televisheni mtandaoni (simulcasting)	Radio mtandaoni (simulcasting)
1	Gharama za Maombi ya usajili (Application Fee)	100,000	50,000	50,000
2	Ada ya kupatiwa Leseni (Initial Licence Fee)	1,000,000	1,000,000	1,000,000
3	Ada ya mwaka (annual fee)	1,000,000	200,000	200,000
4	Gharama ya Kuhuhisha Leseni (Renewal)	1,000,000	200,000	200,000

Tanzania Communications Regulatory Authority

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Licencing information

REQUIREMENT CHECK LIST

A complete application for licence should have the following:-

1 Transmittal letter to the DG
2 Dully filled and stamped application form
3 Photo copy of receipt for application fees
4 A certified copy of certificate of Incorporation or Registration
5 A certified copy of Company's Memorandum of Association
6 Track Records (references)
7 Company profile
8 Physical and mailing address

BUSINESS PLAN

9 Technical Plan
9.1 Type of technology (manual, brochures and technical specifications
9.2 Network roll out plan
(a) coverage
(b) traffic capacity
(c) construction plan
d) radio frequency requirement
9.3 (a) Network plan and configurations
(b) Service offered
10 Tariff Plan
10.1 Costing structure
10.2 Service Pricing
10.3 Billing structure –capability of providing details
10.4 Customer care strategy (quality of services)

11 Financial Plan

11.1 Projected financial statement
11.2 Projected cash flow
11.3 Projected balance sheet

12 Investment Plan

12.1 Financing
12.2 Personally and Human resource development strategy
13 Programme Schedule (for content)
13.1 Quality and variety
13.2 Benefit to the local economy
13.3 Widening of programme choice
13.4 Impact on development of broadcasting industry overall benefit

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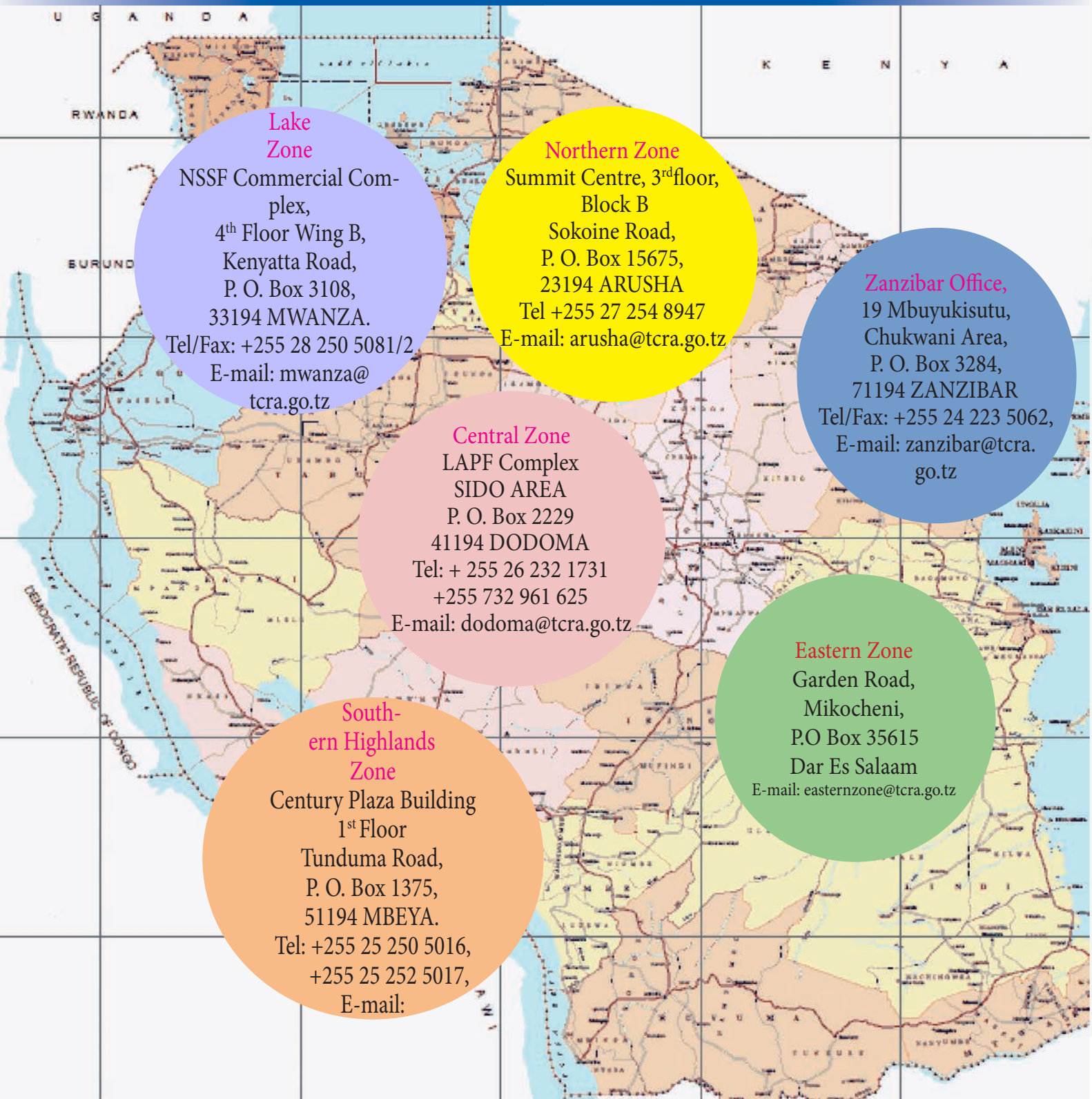
ZONAL OFFICES



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