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The ICT Regulator

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The Newsletter of the Information and Communication Technologies Authority

Editorial

Welcome to the newsletter of the Information and Communication Technologies Authority. We speak to the Chairperson Mr Dick Ng Sui Wa who shares his vision and views on ICT regulation.

We also look back at the sanitary curfew of earlier this year to see all the efforts put in place by the Authority to stay operational and stay safe.

Our story on infodemic sheds light on the ICT Authority's scope to address online content especially in the context of section 46 of the ICT Act.

In an age of ICT convergence and demand for spectrum, our story on the World Radio Conference (WRC 2023) gives an insight into one of the key functions of the Authority and the international context for collaboration on global spectrum management.

In the era of the fourth industrial revolution, secure transactions will become ever more important. We highlight Public Key Infrastructure and show how the principles of PKI have been implemented to secure confidentiality of documents via the Authority's eBoard project.

We hope you enjoy reading this edition and look forward to bringing you the next one.

Mr Dick Ng Sui Wa, you were appointed Chairperson of the ICT Authority in February 2020. What are your initial impressions?

ICT regulation means balancing competing demands in the digital era. My initial impressions are that the current legislation, the ICT Act 2001 (as amended) gives ample room for sector transformation. High on my list of priorities is a strategic roadmap which delivers on digital inclusion. This is something which is being addressed by the Board alongside senior management and the staff in general.

You have a track record of turning around the performance of organisations. What is your vision for the ICT Authority?

ICTs ultimately have to deliver to socio-economic goals. It is widely recognized that every single one of the 17 United Nations Sustainable Development Goals (SDGs) can be attained faster through a strategic use of ICTs. Efficient and affordable ICT infrastructure and services allow countries to participate in the digital economy and to increase economic welfare and competitiveness for the benefit of all citizens. The ICT sector can become a veritable pillar of the economy and the ICT regulator's role is crucial to make this happen.

What projects are in the pipeline?

A review of the licensing framework; regulation for (Subscriber Identity Module) SIM card registration; reform of the Universal Service Fund; Mobile Number Portability and Regulating and curtailing online illegal and harmful content on the Internet are some of the projects earmarked. We must not forget free

Mr Dick Ng Sui Wa, Chairperson ICT Authority

WiFi hotspots, which will be deployed in 234 sites across the country.

What will be the impact of these projects?

My vision is to fast track a number of projects in the interest of the sector. A 3-year strategic plan 2020-2023 has been drawn up. Efficient and affordable ICT infrastructure and services allow countries to participate in the digital economy. Building resilient infrastructure, promoting, good governance principles and fostering innovation underpin our vision to regulate into a digital future.

What is the status of things now?

First of all I would like to state that I am convinced that the Authority can implement its projects which will give the ICT sector a boost. The International Telecommunication Union (ITU) which is the United Nations specialized agency for information and communication

technologies has devised a regulatory tracker which is a tool to track the stages of regulation in terms of generations of regulation. The tracker moves from G1 to G5. At present Mauritius is tracked at G3. We need to move to G4: that is from an enabling environment to an integrated regulation ecosystem.

Where does the ICT Authority fit in?

Different countries have witnessed sector transformation over a period of decades. In the case of Mauritius, with the creation of the Information and Communication Technologies Authority, distinct stages can be noted. The first was the opening up of markets and the promotion of competition of ICT services with new entrants in a level playing field. Mauritius has fared quite well in terms of new entrants. What we observe now is the phenomenon of technological convergence. The Internet has

transformed the ICT service landscape adding to the complexity of services supported by new technologies fuelled by consumer demand and patterns of consumption.

Is the regulator being able to function fully according to its legal mandate and objects?

Today we must also recognize that in the digital space there are regulatory overlaps; technological governance places an onerous burden on institutions charged with the governance of a sector. The explosion of social media is one example we are witnessing today. Under Section 46 of the ICT Act, the offences are listed with regard to the use of information and communication technologies misuse or abuse.

What is the public perception on the ICT Authority and the social media content?

The Authority does not have the enforcement power to take action against any online behaviour which may be deemed an offence, whether it is a hacked email account or user-generated content on social media platforms. There is definitely a discordance in the public perception as to what the ICT regulator can and cannot do. This is the market reality of the digital space where users or consumers are producers of content. Interactions on social media platforms are a good example. Many times the issues channelled to the Authority may fall within the purview of other regulators to act. The ICT Authority is not a law enforcement agency, that's the most important thing we must understand.

This issue must be looked at as a priority. The ICTA board will come

up with a recommendation plan for the Prime Minister to consider being our responsible Minister as per the ICT Act to follow the large democracies in the world for social media oversight, very important indeed.

This is the similar situation faced by regulators across the world. The nature of interactions across this digital space can have wide-reaching social and economic implications and impacts, for good or bad.

How did ICT Authority operate during the historic sanitary curfew?

I think that the Covid 19 pandemic has shown just how important digitalisation is. Indeed the Authority maintained operations during the sanitary curfew. The Authority has been delivering many of its services online in a secure manner. Furthermore, online customer systems support the contactless modes of delivering services in the wider interest of public health.
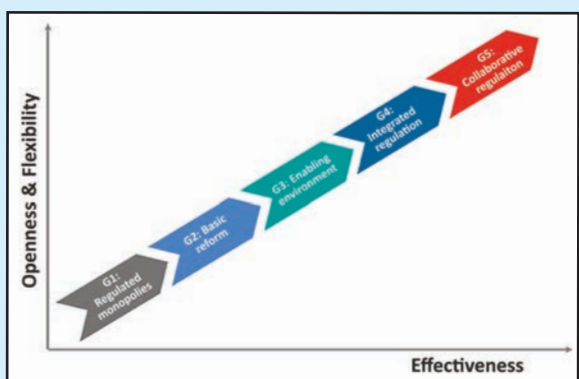
And how did the Authority respond to social media queries or complaints during the lockdown?

We are here to inform consumers about what the Authority can do but also what may not fall within its purview. Anything which may constitute an offence under the ICT Act would be referred to the Police which is the appropriate jurisdiction to investigate and take action. The Authority replies to each member of the public regardless of who they may be to offer guidance. Such Consumer education in the digital era is important. People need to be guided to navigate safely in the digital environment.

How do you intend to drive the strategic plan?

My approach is to really delve into the institutional capacity and drive it forward in order to capitalize on the potential of regulation and on human capital. Business models of operators have kept pace and consumer demand and consumption patterns have also evolved. Conversely the legislative framework has not necessarily kept pace with all the aspects of ICT convergence. I wish to lead an organisational culture that promotes change at the required pace. A leadership mindset is essential.

The ICT Regulatory Tracker is an evidence-based tool to help decision-makers and regulators make sense of the rapid evolution of ICT regulation. The Tracker pinpoints the changes taking place in the ICT regulatory environment. It facilitates benchmarking and the identification of trends in the ICT legal and regulatory frameworks. It helps track progress and identify gaps in regulatory frameworks, making the case for further regulatory reform towards achieving a vibrant and inclusive ICT sector.

Source: ITU

Business continuity a priority

*Mr Jerome Louis,
Officer in Charge of the
ICT Authority*

" **The Authority's team really pulled together during the sanitary confinement period. It was a challenge at times. But it was also a moment of adaptation and transformation.** "

Without doubt the Covid 19 pandemic defined the resilience and preparedness of organisations in the last six months. From the outset of the anticipated lockdown, the ICT Authority identified the action lines to minimize disruptions for its internal and external stakeholders. Arrangements were also made to enable work from home with IT technicians putting in place the infrastructure for remote desk tops.

For Mr Jerome Louis, the Officer in Charge, *"the Authority's team really pulled together during the confinement period. Although it was a challenge at times, the situation created opportunities for adaptation and transformation"*.

The Authority had been implementing its digital transformation strategy to deliver its range of services with the launch in September 2019 of an online web portal. The portal was designed to facilitate business for the Authority's licensed dealers who need to import ICT equipment as well as individuals/companies importing such equipment for their own use.

The portal in effect enabled applicants to obtain a streamlined clearance at the customs department online. The clearance portal was a response to the provisions of the Business Facilitation (Miscellaneous Provisions) Act 2019 promulgated on 25th July 2019. This

The table below shows the number of clearances which were handled via the Online Clearance portal for ICT equipment during the first semester of 2020

Individual	Free Entry	735
	New Regulated Equipment	53
	Auto Regulated Equipment	98
Dealer's	Declaration of Compliance	4218
	Exempted	83
	Listed Type Approved	34
New Type Approval + Clearance (industry/manufacturer/dealers)		68
List of Type Approval Certificate		56
List of Regulated Equipment		26

portal was further enhanced on 29 May 2020 with a platform solely for the applications for the Dealer's licence which the Authority issues to entities who wish to commercialize ICT equipment.

To cater for ICT consumers who needed to lodge complaints or queries from

providers of information and communication services (ICS), the Authority also put in place an online consumer complaints system. This has been a boon to staff of the communications department who handle consumer complaints and queries about a host of issues related to ICTs as well as deal with all the frontline

customer issues. During the sanitary confinement the primary mode of communication with external stakeholders was via electronic mail or the online systems for submitting applications.

From the start of the lockdown period, the Authority also published details to enable its licensees to pay fees and dues online.

The Authority also extended the validity of licences reaching expiry during lockdown till 30 June 2020, a move which was well received by licensees.

In times of crisis, the need for constant communication is paramount to keep stakeholders informed about the measures put in place for the operations. All the measures were published in press communiqués and on the Authority's website.

Furthermore, with the anxiety generated by the pandemic, the Authority received complaints and calls from members of the public for intervention regarding the posts on social media. Here too the Authority issued a communiqué to inform the public as to the penalties which anyone posting content which may be deemed an offence under section 46 of the ICT Act may face and action which the law enforcement agencies of the Mauritius Police Force may bring as a result.

The sanitary lockdown began on Friday 20 March 2020 and the sanitary curfew came into force on Monday 23 March 2020 at 20:00 hours. The sanitary curfew was lifted on 30 May at midnight. There was a phased or gradual resumption of economic activities from 15 May 2020 with a full resumption on 2 June 2020.

Rapid responses were required by organisations and government to cope with the pandemic.

The Authority which manages the national numbering plan processed requests for short codes in a very short timeframe. This enabled services like hotlines to be put in place such as the one by the Ministry of Foreign Affairs, Regional Integration and International Trade to allow families of Mauritian nationals stranded abroad to contact the Ministry to stay up to date about developments.

The ongoing digital transformation meant that the staff of the Authority were able to from home; meetings were held online and reassurances and information were given to staff who stayed connected through social media.

Working practices were adapted to adhere to the Government and Public Health guidelines. This was translated into a sanitary protocol to ensure the safety of staff and indeed of visitors to the Authority with the partial reopening of offices on 15 May 2020. On 6th July, staff were invited to have a rapid Covid test conducted at the seat of the Authority following a request made to the Ministry of Health and Wellness. Most members of staff chose to undergo the test.

Overall the swathe of measures supported the prevailing Stay Safe, Social Distancing and contactless measures to cope with the Covid 19 pandemic and to avoid disruptions to operations.
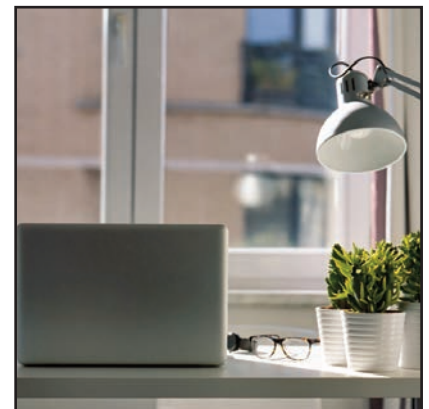
Covid 19 and Infodemic

The uncertainty generated by the Covid 19 pandemic has led to a rush for information about how to avoid falling prey to the Corona virus infection.

In an era of social media and Internet connectivity, millions of people have been relying on information shared on social media platforms to stay up to date about all aspects of the pandemic.

As in other countries, Internet users of social media platforms in Mauritius have also turned to content posted on social media to obtain information and stay up to date about the pandemic. But when the information is fake or comes from sources which cannot be verified, such information can cause offline harm. Even before the Covid 19 pandemic, social media platforms had been used to systematically spread disinformation in many countries on issues of public interest or during times of uncertainty.

During 2020's prevailing Covid 19 pandemic, social media has been both a source of information and disinformation or, 'fake news'. So much so that the United Nations Secretary General, António Gutteres has been quoted as dubbing this trend as an infodemic.

In some countries, infodemic on social media has led to casualty or loss of life, for example, when people have used unfounded medical remedies to fight the virus. At other times, genuine accurate information from official sources or trusted mass media organisations has been ignored leading to disastrous circumstances.

To whom can people turn to when they consider that content and behaviour on social media platforms may lead to offline harm or disrupt public order?

Under the ICT Act 2001 (as amended), there is the following provision for the ICT Authority to respond to consumers in Mauritius: 18 (o) entertain complaints from consumers in relation to any information and communication service in Mauritius and, where necessary, refer them to the appropriate authorities.'

When consumers send complaints, the Authority does not have the powers to investigate or take action against persons committing an offence, whether on social media platforms or for that matter offline. The Authority will refer the matter to the appropriate authorities. For online content which may constitute an offence, the appropriate authority is the Police.

Section 46 (ha) of the ICT Act provides that anyone who is found to be using an information and communication service, including telecommunication service, to impersonate, or by any other means impersonates, another person which is likely to cause or causes annoyance, humiliation, inconvenience, distress or anxiety to that person shall commit an offence. But the ICT Authority is not an enforcement agency for offences or cybercrimes. The power to investigate if a social media post may constitute an offence rests with the Police.

The ICT Authority is the ICT regulator for the Republic of Mauritius. Under the ICT Act 2001 (as amended), the Authority regulates the ICT sector which includes inter alia, frequency management, licensing of operators and granting authorizations for the

importation of radiocommunication and telecommunication equipment.

The social media companies are not licensed by the Authority. Content published in the public domain such as on the World Wide Web or on social media platforms is not generally regulated by the ICT Authority. The Authority, nevertheless, has as one of its mandates, to regulate and curtail Internet content which is deemed to be harmful or illegal. Measures taken under this mandate are for ex-ante prevention as is the case for the filtering of Child Sexual Abuse websites which the Authority has been doing since 2011.

Throughout the year, the ICT Authority receives diverse queries and complaints from the public related to various aspects of information and communication technologies. Social media is just one category of complaints or queries received. Others may pertain to bills or customer service by telecommunication operators or information pertaining to importing telecommunication or radiocommunication equipment/devices.

Around the world it is recognized by regulators, policy makers, academia and civil society that interactions in the digital environment have made digital governance evermore challenging.

One solution is the advocacy of digital literacy which advocates responsible use of social media.

Greater attention is also being given to advocating media literacy which enables users to spot signs of dubious information online.

For their part, the social media companies are waking up to their share of responsibility in ensuring that their platforms are secure, safe and sustainable. For example, Facebook's efforts include webinars about the safe and secure use of its platform and its community standards.

Some social media outlets are bringing in measures to cope with the infodemic phenomenon to sustain their platforms' credibility through the use of independent factcheckers.

But the speed and scale at which true and false narratives spread and the volume of content present a big challenge for ICT and digital governance in the long term.

The Covid 19 crisis has shown the importance for ordinary users of social media to become better skilled at scrutinizing information they come across before risking sharing fake news or opinions as facts.

The consequences of spreading information which may put oneself or others at risk must be grasped. If found guilty of an offence under Section 46 of the ICT Act, a person may incur a fine of up to a million rupees and a sentence not exceeding ten years.

Capacity Building ahead of World Radio Conference (WRC 23)

Around the world radio-frequency spectrum is a scarce natural resource. Equitable access and rational use of this limited resource is crucial to enable the efficient and effective operation of all radiocommunication services and services which use satellite orbit resources.

Regulators foresee that there will be greater demand for introducing and expanding access to the radio spectrum for new radio-communication systems and applications.

Equally there will be a need to protect the operation of existing radio-communication services and provide the stable regulatory environment to enable future investment. Harmful interference between radio services is also an important consideration. Another challenge is to make network and user devices more affordable.

The WRC shapes the technical and regulatory framework for the provision of radiocommunication services in all countries, in space, air, at sea and on land.

 It is to the WRC that regulators turn to shape the key decisions which will impact how radio frequency is allocated and used to deliver the ICT services that require radio frequency spectrum. The WRC is held every three to four years under the auspices of the International Tele-communications Union (ITU) which is the specialized United Nations agency for information and communication technologies (ICTs).

Preparatory meetings nurture leadership

The Radio Regulations (RR) constitute the only international treaty governing the use of the radio-frequency spectrum and satellite orbit resources. They are revised during the WRC. The last WRC was held in 2019. The WRC cycle covers a period of three to four years.   The next WRC will be in 2023. The Radio Regulations (RR) are revised to cater for future demand of radio-communication services.

The scope of deliberations of a WRC touches everything to do with radio

frequency management and consequently the development of ICTs. This makes capacity building crucial in order to understand the complex technical and administrative impact of the decisions taken during a WRC.

The WRC is preceded by various preparatory events organised to pre-determine geographical bands or regions. The Radio Regulations make provisions for the use of

telecommunication services and, where necessary, also regulate new applications of radiocommunication technologies.

During a WRC, decisions must be taken on complex issues. All this makes capacity building essential to empower staff from the Authority to participate and represent the interests of Mauritius effectively. Emerging technologies that are set to revolutionize the digital economy, including those related to 5G New Radio, such as beamforming and massive Multiple Input Multiple Output (mMIMO) antenna systems,

require an ever more sophisticated understanding of the technical and administrative impacts of the WRC.

To foster capacity development the Authority nominated two young engineers in July to take part in the preparatory work for the WRC-23. The first Southern African Development Community (SADC) and African Telecommunication Union (ATU) meetings ahead of WRC 23 were held online.

World Radio Conference

Yannish Sewpersadsing was nominated as vice chapter coordinator for Chapter 2 (Aeronautical and Maritime issues) and Nikhil Jorai as Rapporteur for agenda item 9.1(b) pertaining to studies on technical and operational measures to be applied in the frequency band 1 240-1 300 MHz to ensure the protection of the radio navigation-satellite service (space-to-Earth).

The SADC and ATU online meetings took account of the outcomes of the last World Radio Conference (WRC) held in Sharm el-Sheikh, Egypt in November 2019. For Nikhil Jorai, *"the preparatory meetings enable regulators to devise the strategies to participate actively in the WRC 2023 and provides the essential grooming to take on leadership roles."* He adds, *"during the meetings participants are compelled to strive to forge a working structure towards achieving the objectives of the WRC-23."*

The preparatory meetings provide a valuable platform to discuss the important topics to be taken up at WRC-23.

Among the topics which the two nominees are to focus on are:

- the additional frequency bands for the development of 5G mobile networks;
- the review of the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz;
- the primary allocation of the band 3600–3800 MHz to mobile service within Region;
- the possible regulatory actions to support the modernisation of the Global Maritime Distress and Safety System;
- the review of the amateur service and the amateur-satellite service allocations.

Yannish Sewpersadsing says that *"it is indeed a great opportunity and a real privilege to actively participate in preparatory meetings organized by SADC and ATU for the WRC-23. The meetings gave me an insight into the latest technological advancements and their implications. It also puts the participant on a steep learning curve at the ICT Authority and provides for further motivation towards contributing to the technical and regulatory framework of Mauritius."*

Prior to the WRC-23, member states of the ITU will try to harmonise their positions with respect to all agenda items through regional meetings. The agenda items for the WRC-23 were already set by the first Conference Preparatory Meeting (CPM), held just after the WRC-19 held in Egypt in 2019.

Not losing sight that the WRC is the single most important event which decides the availability of radio frequency spectrum and its use for the next couple of decades, the Authority has earmarked its priorities for Mauritius. Among them are the identification of additional frequency bands for International Mobile Technology (IMT) and the protection of existing services in frequency bands proposed for the allocation to mobile services.

At the Authority, the Engineering Department is the custodian of the submissions to be made during the preparatory meetings and during each WRC.

Engineers hone their technical and leadership skills ahead of WRC-23

e-Board – an innovative online system for decision-making

*Mr Trilok Dabeesing,
Director of
Information Technology*

❝ **when a document or file is digitally signed and encrypted, it has the characteristics of integrity- no tampering is possible, authenticity is assured, confidentiality is certain and non-repudiation undeniable** ❞

The ICT Authority has discarded the old paper document based decision-making system and opted for an innovative digital system – e-Board. This tailor-made solution has been designed to securely prepare and conduct Board meetings in an electronic form – entirely without paper.

In March 2019 the Authority launched the e-Board project which provides for a totally paperless and secured solution for the ICT Board meetings. The eBoard project was further improved for the end users in July 2020 to integrate the use of the latest state of the art cybersecurity technologies. Mr Trilok Dabeesing, Director of Information Technology was interviewed to find out why the e-Board was introduced at the ICT Authority and the cybersecurity framework which underpins this innovative online application.

Mr. Trilok Dabeesing explains that the objectives of this project are twofold, "It pertains to ensuring that all the work processes related to the preparation, distribution, accessing and working with ICT Authority Board papers are totally secured and paperless both at Management and ICT Board levels. Mr Dabeesing further adds that, "the e-Board at the Authority streamlined work processes. The e-Board eliminated the need to manually obtain signatures and photocopy and collate voluminous quantities of paper. Imagine ten copies of often bulky documents being compiled in a physical environment. The risks of compromising confidentiality increase with each step. But with the eBoard project, the manual distribution is eliminated."

Trilok Dabeesing adds that, "It also purports to showcase a complete PKI-secured online application with the use of digital signatures. Mr. Dabeesing further adds "As the Controller of Certification Authorities (CCA), the ICT Authority is the apex body for the cybersecurity infrastructure (Public Key Infrastructure, PKI) in Mauritius. This emanates from the provisions of the Electronic Transactions Act 2000. The ICT Authority pioneered the PKI in 2010. The role of the CCA is to licence operators who issue digital certificates enabling the use of digital signatures of clients. The infrastructure is technically complex and the challenge has always been from the outset to make it easy to use for the end users and also to convey the key benefits of digital signatures in online transactions."

Mr Dabeesing explains that the cybersecurity features of digital signatures, are "when a document or file is digitally signed and encrypted, it has the characteristics of integrity - no tampering is possible, authenticity is assured, confidentiality is certain and non-repudiation undeniable. Non-repudiation means that the signatory cannot deny their identity with the said document," explains Trilok Dabeesing, adding that digital signatures, "constitute a very powerful tool which provides secure services in a comprehensive and integrated manner. In Estonia, for example, the value addition of digital signatures has been recognised and has been taken up by the Government at Cabinet level where the related work processes therein are completely secured and paperless. In fact, e-Cabinet has been the norm since the year 2000 in Estonia."

Furthermore, the e-board application was updated at the Authority in July 2020 to Version 2. This not only rendered the technology even more user friendly and matched the global trends in PKI infrastructure, but also integrates the use of a secured video conferencing platform. Such value addition prevents work disruption which are especially useful, for example during any future lockdown periods. The project entailed the use of open source software and was conceived, developed and deployed internally by staff of the Department of Information Technology. This secured online application has been fully customized and tailored to the Authority's requirements. The use of open source software implies a full understanding and mastery of same by the IT Department and has the major advantage of no CAPEX or OPEX when it is well executed. The hardware used for this online application is hosted at the ICT Authority.

robust with the so called WebAuthn technology. Username and passwords are no longer being seen as offering the most fail-safe ways of verifying if the end users were genuine or not. The WebAuthn global standard was developed with the big tech companies pooling their expertise to develop a PKI based authentication mechanism to replace the traditional use of username/password authentication mechanism which accounts for the large majority of cybersecurity breaches.

Meanwhile at the ICT Authority, the eBoard is seen as a model which may be replicated in other spheres of public life and indeed this is the hope for the way ahead. And in the midst of the Covid 19 pandemic, the need for more secure online systems capable of functioning remotely and securely complement the need to reduce physical contact. Digital signatures and the Public Key Infrastructure are ever more relevant to ensure business continuity.

Moreover, this new e-Board version integrates the use of the latest state of the art authentication component. In March 2019, many of the huge international tech players began strengthening their cybersecurity to make their systems more