21st Global Symposium for Regulators (Virtual Event, 2021)

Regulation for Digital Transformation: Accelerating inclusive connectivity, access and use

Contributions from Regulators

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Australian Communications and Media Authority (acma)
for the GSR-21 consultation

Contribution to GSR-21

Question 1 - Inducing new, effective and agile financing mechanisms to digital infrastructure, access and use

Supporting digital infrastructure and services, access and use requires regulators and policy makers to find an appropriate balance between facilitative actions to enable a thriving digital environment, while ensuring enduring social policy objectives are met. An enabling environment is needed to facilitate investment in digital infrastructure including an adaptive fit-for-purpose regulatory ecosystem along with open and competitive markets. Both the Australian Government and private industry are making significant investments to upgrade our digital infrastructure and to promote ubiquitous access. This includes delivery of the National Broadband Network which aims to replace aging digital infrastructure with optical fibre and other technologies to deliver more reliable, high-capacity internet to homes and businesses.

The Australian Government has also committed $380 million to the Mobile Black Spot Program to invest in telecommunications infrastructure to improve mobile coverage and competition across Australia. The Program is supported by co-contributions from state and local governments, mobile network operators, businesses and local communities. To date, this program has generated investment of more than $836 million, delivering more than 1,200 new base stations across Australia.

In May 2020, the Australian Government took steps to increase the resilience of the telecommunications network by investing in the Strengthening Telecommunications Against Natural Disaster package. This package allows telcos to invest in digital infrastructure to prevent telecommunications outages during disaster events and improve temporary communication structure capabilities at fire depots and evacuation centres.

On 29 September 2020, the Australian Government announced the Digital Business Plan. The Digital Business Plan provides significant backing to build the digital momentum, which accelerated strongly as a result of COVID-19 and expanded opportunities for businesses to grow and create more jobs. The Digital Business Plan aims to remove outdated regulatory barriers, boost capability of small business and support the continued uptake of technology across the economy. Another part of the Digital Business Plan is the Australian 5G Initiative; a grants program to help small to large businesses in Australia test and develop 5G uses, applications, services and products, including IoT applications. The 5G initiative will help showcase the productivity boosting applications of this technology and will aim to encourage other businesses to better understand ways they can adopt 5G solutions.

Question 2 - Prototyping regulatory patterns for the post-Covid digital world

Regulating in the post-COVID digital world will require an agile, innovation enabling approach to regulation. New measures may be needed to enhance regulatory foresight, harness data to target interventions and to create space for regulators to experiment. The post-COVID regulatory world will need adaptive, fit-for-purpose regulatory frameworks which are outcome focussed. Opportunities to leverage the role of the private sector should also be explored, along with reducing barriers to trade and cooperation.

Regulatory frameworks need to be fit-for-purpose and regularly reviewed to ensure they are continuing to meet public policy objectives in a rapidly changing digital environment. As an evidence informed regulator, the ACMA, through our research program, considers how current and future developments in the communications and media landscape will impact public interest outcomes and our regulatory role.

The Australian Government's Deregulation Taskforce aims to drive improvements in the design, administration and effectiveness of the stock of government regulation to ensure it is fit-for-purpose. The Taskforce will develop and recommend solutions to lower the costs of regulation while retaining the benefits, making it easier for businesses to invest, create jobs and grow the economy.

The ACMA has a strong focus on building our research and data analytics capabilities to inform regulatory decision making and identify emerging regulatory issues. Our research program covers industry, consumer and market research. The ACMA also monitors market developments to help us stay informed on changes occurring within the broader media and communications environment.

Through our emerging technologies research series, we have explored how new tools and techniques could enable more efficient and cost-effective regulatory processes for regulators and industry. In March 2021, we published research on RegTech which found advances in this technology could have application within the Australian media and communication sectors in areas such as compliance, reporting and risk management outcomes. In March 2021, we also published research on IoT and digital twins which identified a range of potential use cases for this technology in

the media and communications environment including how a digital twin could potentially support communications infrastructure monitoring and reporting. We plan to publish research over the coming months which will examine how natural language processing and blockchain could support regulatory practice.

Question 3 - Transformational leadership to unleash the power of emerging technologies and business models

As the pace of technological change continues to accelerate, traditional regulatory approaches are under increasing strain. The COVID-19 pandemic highlighted the need for agile, responsive regulatory action and leadership. Through the pandemic the ACMA recognised the challenges for the media and communications sectors and established an agile, multidisciplinary taskforce to respond to industry requests for regulatory forbearance. As our environment during the pandemic evolved, the ACMA continued to adapt and respond in response to these changes.

Regulating in a digital context recognises transboundary issues in the digital ecosystem and the need for greater cooperation between regulators and across different sectors. The ACMA, through our international engagement strategy, works closely with international regulators and participates in several international fora.

Through our work leading the scam technology project, the ACMA examined potential technological solutions that could disrupt and reduce the level and severity of scams being perpetrated over telecommunications networks. The ACMA collaborated with the Australian Competition and Consumer Commission (ACCC) and the Australian Cyber Security Centre (ACSC) on the scam technology project to reduce harms associated with scam calls and we work closely with the Unsolicited Communications Enforcement Network (UCENET) to monitor international developments.

In addition, in March 2021, the ACMA entered into a MoU with the Australian Financial Crimes Exchange (AFCX). The MoU enables the exchange of relevant data and other information between the AFCX and the ACMA around unauthorised mobile number porting, which will help the ACMA deliver on our phone scam priority compliance work for 2020–21 and beyond.

The ACMA considers that collaborative, agile regulation, which is outcomes focussed, can effectively support cross border collaboration and coordination. Collaborative regulation can be accountable in its design and implementation by including regular and transparent engagement and building co-operative partnerships. The ACMA has adopted new and innovative ways of working such as overseeing the development of a voluntary code of practice by digital platforms to address online disinformation and news quality issues. In June 2020, we released a position paper which detailed what we thought the voluntary code should cover. The final code was published by DIGI in February 2021. The ACMA is currently assessing the measures committed to by digital platforms and will be reporting to government on whether a self-regulatory framework is appropriate for the future.

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Telecommunications Regulatory Board (ART)
for the GSR-21 consultation

CONTRIBUTION OF THE TELECOMMUNICATIONS REGULATORY BOARD (ART) CAMEROON TO BEST PRACTICE GUIDELINES: GLOBAL SYMPOSIUM FOR REGULATORS (GSR-21)

Theme: "Regulatory uplift for financing digital infrastructure, access and use".

1.a. Regarding new policy and regulatory tools, Cameroon proposes:

To adopt an incentive policy for the deployment of electronic communication infrastructure and its sharing that can lead to a reduction in the cost of digital services; to institute a customs policy aimed at facilitating imports of electronic communication equipment; to establish an industrial policy aimed at manufacturing electronic communication equipment locally; to introduce incentives for investment projects in landlocked/remote areas through the special telecommunication development fund.

1.b. Recognizing that there are no "silver bullets", the roll-out of ubiquitous connectivity should be ensured in the first instance through the deployment of infrastructure and services in unconnected areas supported by innovative financing mechanisms for the construction of community telecentres and access to community Internet terminals, and through user training. Moreover, collaboration and cooperation at the international, regional, subregional and bilateral levels with a view to drawing on positive experiences represent a lasting solution.

1.c. With the establishment of policies promoting lower prices for services and equipment intended for end users (regulatory measures for retail markets, lower customs duties for terminal equipment and lower taxes on digital services); through the promotion of public access points (community telecentres, schools, universities, libraries, etc.); by encouraging start-ups which develop innovative financial solutions that meet the needs of the population.

1.d. Aware that the use of digital technology is more global in scope as it affects all areas of activity, it would be advisable to encourage policy-makers and regulators in the different areas of activity to create co-regulation mechanisms that will result in new financing models, such as blended or pooled financing.

1.e. To establish a framework for collaboration between regulators, policy-makers and financial institutions with a view to proposing collaborative approaches for the benefit of all; to create regulatory incentives for new financing models that will help remove barriers to broadband deployment and promote infrastructure sharing, including among sectors; to encourage bilateral and subregional collaboration for project financing.

1.f. A change in the regulatory landscape for operators, particularly in terms of regulatory compliance and digital innovations is required. To this end, policy-makers and regulators should develop new regulatory models following a collaborative approach while ensuring that stakeholders' scope of action is defined. The partnership agreement protocols drawn up through consensus and monitored by the regulator should clearly and precisely define the roles, interests, responsibilities and spheres of action of each actor in the process.

2.a. The current financial difficulties on digital markets have led to the development of several innovative digital solutions (telecommuting, cryptocurrency, etc.). This has also made

markets more competitive for the benefit of consumers, who now enjoy a wide range of services adapted to their needs, in a responsible manner and at an affordable cost, but which are sufficient to guarantee their satisfaction. A large part of the world's population has been able to access digital technology to meet their daily needs.

2.b. The regulation of new digital services is a subject which is currently under discussion in Cameroon. The good practices and experiences of developed countries are paths to be followed that will encourage the establishment of regulations in this area. In the long term, it will be necessary to bring regulations and regulatory policies for electronic communications into line with socio-economic objectives. It will also be necessary to set objectives to encourage investment, innovation and healthy and fair competition, while bearing in mind the interests of consumers.

2.c. The creation of regulatory collaboration platforms will enable informed stakeholders to propose innovative tools, practices and initiatives that can unlock the power of new and emerging technologies. Legal and regulatory frameworks will need to be adjusted on an ongoing basis.

2.d. Regulatory sandboxes do provide a safe space for regulatory experimentation. The proximity between regulators and innovators ensures that both parties generate resilient ideas which, once combined, will help fine-tune models before full market entry takes place. Consideration will have to be given to setting up a participatory collaborative framework for designing and conducting Quality of Experience (QoE) testing, involving stakeholders in the development and implementation of the testing protocols. Nonetheless, a safe space can help fine-tune new business models and promote resilience insofar the regulatory expectations of primary digital stakeholders (consumers and regulators) form part of a predictable and sustainable approach.

2.e. The regulations in force in Cameroon provide for conditions of access, use, installation and deployment of networks, on an experimental basis, using innovative technologies or services aimed at the digital transition of smart grids and infrastructures for a maximum period of time, which may or may not be renewed. These regulatory "sandboxes" may also be regarded as innovative solutions that help to mobilize funding. Regulatory sandboxes offer regulators the opportunity to promote innovation without over-regulating, while protecting the interests of consumers. So yes, regulatory sandboxes are the answer.

3.a. In terms of co-regulation in Cameroon, there are subregional directives (Economic and Monetary Community of Central Africa – (CEMAC)), which serve as a compass and provide guidance for the States of the central African subregion on priority activities to be implemented. Despite the fact that we are witnessing the evolution of telecommunications and ICTs towards electronic communications through the convergence of networks and services and the emergence of digital services at the expense of analogue ones, it must be recognized that the existing structure will always have to be matched with and taken into account for the development of new regulatory models. Several traditional legal and regulatory frameworks are still relevant and remain open, adjustable, neutral, forward-looking and flexible enough to be able to leverage new technologies and innovative services.

3.b. Digital regulation is indeed multimodal by design, as required by innovations in digital technologies. Moreover, digital operators must comply with the legislative and regulatory provisions of the countries where they offer their services notwithstanding the harmonization of technical resources at the international level, the accessibility of multiple

networks worldwide, the existence of international fibre-optic networks and international connectivity links.

3.c Since there are no benchmark governance practices to provide an ideal interface for digital transformation, some of the more competitive socio-economic activities need to be transformed through the creation of synergies that will allow regulatory bodies to flourish in several areas of activity. This will prompt the emergence of co-regulation activities on technical, financial, legal and managerial aspects, through partnership agreements or normative texts between regulators and service providers in areas such as e-health and e-learning, as well as multilateral consultation frameworks and operator associations.

3.d. Collaborative consultations with financial institutions, innovators and academia will lead to optimal regulation. Such regulation must take account of technological developments and encourage the establishment of multisectoral, public-private and inter-State collaborative agreements and partnerships. It must be flexible and open enough to leverage new technologies and innovative services.

Colloque mondial des régulateurs (GSR-21)
(Evénement virtuel, 2021)

Contribution de l'Agence de Régulation des Télécommunications (ART)
pour la GSR-21 consultation

CONTRIBUTION DE L'ART-CAMEROUN A L'ELABORATION DES LIGNES DIRECTRICES RELATIVES AUX BONNES PRATIQUES : COLLOQUE MONDIAL DES REGULATEURS (GSR) 2021

Thème : « Renforcer la réglementation pour financer l'infrastructure numérique, l'accès et le recours au numérique »

1.a. Quels nouveaux outils politiques et réglementaires, le Cameroun propose :

Adopter une politique incitative pour le déploiement des infrastructures des communications électroniques et leur partage pouvant aboutir à la réduction des coûts de services numériques; mettre en place une politique douanière visant à faciliter les importations des équipements de communications électroniques ;mettre en place une politique industrielle visant à fabriquer localement les équipements de communications électroniques ; mettre en place des mesures incitatives en faveur des projets d'investissements dans les zones enclavées/reculées à travers le fonds spécial de développement des télécommunications.

1.b. Reconnaissant qu'il n'existe pas de « solutions miracles » le déploiement d'une connectivité Universelle devrait être assurée au préalable par le déploiement des infrastructures et services dans les zones non connectées soutenus par des mécanismes de financement novateurs pour (la *construction des télécentres communautaires et l'accès aux terminaux communautaires Internet)* et à travers la formation des utilisateurs. Par ailleurs, la collaboration et la coopération à l'échelle internationale, continentale régionale, sous-régionale et bilatérale en vue de s'inspirer des expériences positives représentent une solution durable.

1.c. - Mettre en place des politiques qui favorisent la baisse des tarifs des services et des équipements destinés aux utilisateurs finaux (mesures de régulation sur les marchés de détail, baisse des droits de douanes sur les équipements terminaux et baisse des taxes diverses sur les services numériques) ; Favoriser les points d'accès publics (télécentres communautaires, écoles, université, bibliothèques, …) ; Encourager les startup qui développent des solutions Financières innovantes répondant aux besoins des populations.

1.d.e Conscients que l'utilisation du numérique a une portée plus globale puisqu'elle intervient dans tous les secteurs d'activités, il serait indiqué d'encourager les décideurs et les régulateurs des différents secteurs d'activité à créer des mécanismes de co-régulation qui donneront lieu aux nouveaux modèles de financement, tels que le financement mixte ou le financement conjoint.

1.f. Créer un cadre de collaboration entre les régulateurs, les décideurs et les institutions financières afin de proposer des approches concertées dans l'intérêt de tous. Créer des mesures d'incitation réglementaire donnant lieu aux nouveaux modèles de financement qui permettront de lever des obstacles au déploiement du large bande et de promouvoir le partage des infrastructures y compris entre secteur. Inciter la collaboration bilatérale et sous-régionale pour le financement des projets.

1.g. Une modification du paysage Réglementaire ouvert aux Opérateurs, notamment en ce qui concerne les questions de conformité réglementaire et d'innovations numériques, à cet effet Les décideurs et les régulateurs devraient élaborer de nouveaux modèles règlementaires suivant une approche collaborative en s'assurant de la délimitation des périmètres d'interventions des parties prenantes. Les protocoles d'accord de partenariats élaborés avec consensus et encadrés par le régulateur, devront ressortir de manière claire et précise les rôles, les intérêts, les responsabilités et les champs d'intervention de chaque acteur du processus

2.a. Les difficultés financières actuelles des marchés numériques ont permis le développement de plusieurs solutions numériques innovantes (télétravail, cryptomonnaie…). Cela a également permis de renforcer la compétitivité des marchés au profit des consommateurs qui bénéficient désormais d'une large gamme de services adaptée à leurs besoins de manière responsable, à un coût abordable mais suffisant pour assurer leur satisfaction. Une grande partie de la population mondiale a pu accéder au numérique pour répondre à leurs besoins au quotidien.

2.b. Au Cameroun, l'encadrement des nouveaux services numériques est un sujet en cours de réflexion. Les bonnes pratiques et les expériences des pays développés sont des pistes qui favorisent l'élaboration d'une réglementation en la matière. A long terme, une harmonisation des réglementations et des politiques de régulation des communications électroniques orientés vers des objectifs socio-économiques sera nécessaire. Il sera également question de se fixer des objectifs afin d'encourager les investissements, l'innovation et la concurrence saine et loyale tout en tenant compte des intérêts des consommateurs.

2.c. Par la création des plateformes de collaboration réglementaires qui donneront la possibilité aux parties prenantes en toute connaissance de cause de proposer des outils, des pratiques et des initiatives novatrices susceptibles de libérer le potentiel des technologies nouvelles et émergentes. Il faudra adapter en permanence les cadres juridiques et réglementaires.

2.d. Les « bacs à sable » réglementaires offrent un espace sûr pour l'expérimentation réglementaire. La proximité entre le régulateur et les innovateurs garantissent la productivité des idées résilientes des deux parties qui, une fois fusionnées, affineront le modèle, avant d'accéder pleinement au marché. Il faudra penser à la mise en place d'un cadre de collaboration participative qui permettra de développer et de réaliser des tests de qualité d'expérience (QoE) en associant les parties prenantes à l'élaboration et à la mise en œuvre des protocoles de test. Toutefois, Un environnement sécurisé peut permettre d'affiner les nouveaux modèles économiques et de promouvoir la résilience dans la mesure où les attentes réglementaires des premiers acteurs du numérique (consommateurs et régulateurs) sont intégrées dans une approche de prévisibilité et de durabilité.

2.e. La réglementation en vigueur au Cameroun a prévu des conditions d'accès, d'utilisation, d'installation et de déploiement des réseaux à titre expérimental des technologies ou des services innovants en faveur de la transition numérique des réseaux et infrastructures intelligents pour une durée maximale renouvelable ou non. Ces "bacs à sable" réglementaires peuvent se présenter aussi comme des solutions d'innovation contribuant à mobiliser des financements. Les bacs à sable réglementaires offrent aux régulateurs la possibilité de favoriser les innovations sans sur réglementer, tout en protégeant les intérêts des consommateurs. Alors oui, les bacs à sable réglementaires sont la solution.

3.a. En termes de co réglementation au Cameroun, il existe des directives Sous Régionales (CEMAC).Celles-ci servent de boussole et orientent les Etats de la sous-région Afrique Centrale sur les actions prioritaires à mettre en œuvre. Malgré le fait que nous soyons témoins de l'évolution des télécommunications et TIC vers les communications électroniques à travers la convergence des réseaux et des services et l'émergence du numérique aux dépens de l'analogie. Il y'a lieu de reconnaitre que l'existant devra toujours être associé et pris en compte pour l'élaboration de nouveaux modèles réglementaires. Plusieurs cadres juridiques et réglementaires traditionnels sont toujours d'actualité et conservent leur caractère ouvert, modulable, neutre, tourné vers l'avenir et souple pour pouvoir tirer parti des nouvelles technologies et des services innovants.

3.b. En effet, la réglementation du numérique est multimodale par essence, car les innovations technologiques numériques l'imposent. Par ailleurs, les opérateurs du numérique doivent se conformer aux dispositions législatives et réglementaires des pays où ils offrent leurs services malgré l'harmonisation des ressources techniques sur le plan international, l'accessibilité de multiples réseaux partout dans le monde, l'existence des réseaux internationaux à fibres optiques et de liaisons de connectivité Internationales.

3.c. Conscients qu'il n'existe pas de pratiques de gouvernance de référence pour fournir une interface idéale pour la transformation numérique, il apparaît nécessaire de transformer certaines activités socio-économiques plus compétitives avec la création des synergies qui verront éclore des organes de régulation dans plusieurs secteurs d'activités. Cela donnera lieu à l'émergence des activités de co-régulation sur le plan techniques, financier, juridique et managérial, à travers les conventions de partenariat ou les textes normatifs

entre régulateurs et fournisseurs des services du e-health, du e-learning, étc…, ainsi que les cadres de concertations multilatéraux et les associations des operateurs.

3.d. Les consultations collaboratives avec les institutions financières, les innovateurs, les académies permettront d'avoir une réglementation optimale. Cette réglementation doit prendre en compte l'évolution technologique et encourager la conclusion des accords et des partenariats de collaboration multisectoriels, public-privé et inter-Etats. Cette règlementation doit être souple et ouverte pour pouvoir tirer parti des technologies nouvelles et des services innovants.

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Communications Regulatory Commission (CRC) of Colombia
for the GSR-21 consultation

GSR-21 CONTRIBUTION BY THE COMMUNICATIONS REGULATORY COMMISSION (CRC) OF COLOMBIA

Our intention in putting forward this document is to make the following contributions to the topics associated with the theme: "*Regulation for digital transformation: Accelerating inclusive connectivity, access and use.*"

Inducing new, effective and agile financing mechanisms to digital infrastructure, access and use.

In 2021, we can say that just over half of the world is connected. An important factor in this connectivity is the public's appropriation and increased awareness of the use of the Internet for productivity. This would not have been achieved had it not been for the preventive confinement measures taken in 2020, forcing people to use ICTs in order to continue their daily lives, whether working from home or for education.

Governments, businesses , academia and the general public now recognize the importance of having the requisite telecommunication infrastructure to perform activities, such as education, work, health care, justice and entertainment, that did not use to require 100 per cent use of the Internet. Thus, telecommunication regulators have had to reinvent themselves in 2020 to streamline the spectrum allocation procedure, speed up the installation permit process, adjust quality indicators and take special measures to avoid infrastructure collapses.

In Colombia, the national government has been seeking since 2015 to eliminate barriers to the deployment of municipal telecommunication infrastructure. Initially, CRC was tasked with reviewing complaints in this regard and identifying measures for municipal authorities to take to improve the situation. These measures, however, did not provide the motivation for remedying the situation. This being the situation, under Law 1955 of 2019, municipalities accredited by CRC[1] as being free from barriers to the deployment of telecommunication infrastructure have been given the motivation to be candidates to expand their mobile communication infrastructure through the obligations to take action.[2] As of the beginning of May 2021, CRC had accredited 390 municipalities, or 37 per cent of national territory.

[1] List of accredited municipalities available at: https://www.crcom.gov.co/es/pagina/infraestructuraDisponible en

[2] Article 309, Law 1955 of 2019 http://www.secretariasenado.gov.co/senado/basedoc/ley_1955_2019_pr006.html#309

Seeking to promote deployment in Colombia's major cities, CRC has designed an index to illustrate how conducive conditions are to telecommunication infrastructure deployment. This index[3] is considered a tool for the development of smart cities and territories.

Prototyping regulatory patterns for the post-COVID digital world.

CRC has proposed a first Regulatory Sandbox for Communications to identify need, relevance and impact regarding modification of the current regulatory framework, involving the implementation of new measures, the modification or elimination of existing mechanisms or the introduction of different rules.

Similarly, this mechanism will help to promote the satisfaction of public interest as an essential driver in the State's pursuit of its fundamental objectives and to foster the economic development of ICT sector actors through the generation of innovative products and services which benefit users, on the basis that regulatory sandboxes around the world are playing a key role in the accelerated transformation of new technologies and business models.

This mechanism will allow for experimentation with different scenarios during and after the COVID-19 pandemic.

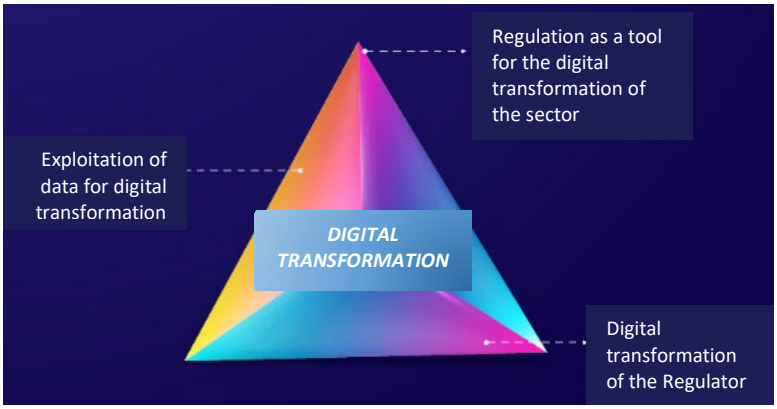
Transformational leadership to unleash the power of emerging technologies and business models

It is widely recognized that digital transformation has burst into all areas and sectors at a global level, bringing with it benefits in terms of agility, efficiency, transparency and social well-being. The public sector in particular has been gradually incorporating technological advances in its management. It is important to note that the COVID-19 pandemic in 2020 has also accelerated digital transformation in the public sector.

CRC is aware of the importance of being a regulator that stays abreast of trends, can call on data to make informed decisions and is sufficiently flexible and innovative to leverage the digital transformation. Consequently, CRC has adopted the concept of smart regulation, which includes, in addition to the above, regulatory simplification, reduction of regulatory burdens, creation of spaces for self-regulation and implementation of innovative models, such as the Sandbox.

[3] Index available at: https://www.crcom.gov.co/es/pagina/infraestructura

In line with the above, in order best to leverage the digital transformation, CRC is taking action on three fronts: regulation as a tool for the digital transformation of the sector; digital transformation of the regulator; and the exploitation of data, for which we have implemented machine learning tools, an open data platform, web scraping and robotic process automation for activities both inside and outside CRC.



Simposio Mundial para Organismos Reguladores (GSR-21)
(Evento virtual, 2021)

Contribución de la Comisión de Regulación de Comunicaciones (CRC)
para el GSR-21 consultación

CONTRIBUCIÓN GSR 2021 COMISIÓN DE REGULACIÓN DE COMUNICACIONES (CRC) DE COLOMBIA

Mediante el siguiente documento nos permitimos hacer las siguientes contribuciones en torno a las temáticas asociadas con la *"Reglamentación para la transformación digital – Acelerar la conectividad, el acceso y el uso inclusivos".*

Inducción de mecanismos nuevos, eficaces y ágiles para financiar la infraestructura digital, el acceso a la misma y su utilización.

Al 2021 podemos afirmar que un poco más de la mitad del planeta está conectado. Dicha conectividad cuenta con un factor especial de apropiación por parte de los ciudadanos y con una mayor conciencia del uso de Internet para la productividad. Esto no se hubiera logrado de no ser por los aislamientos preventivos del 2020 que obligaron a la población hacer uso de las TIC para continuar con sus actividades diarias de trabajo en casa y educación.

Ahora bien, los gobiernos, empresas, academia y la ciudadanía en general reconocen la importancia de contar con una infraestructura en telecomunicaciones para realizar actividades que antes no requerían en un 100% del uso de internet como el estudio, el trabajo, la salud, la justicia y el entretenimiento. Es de esta manera que las agencias reguladoras en telecomunicaciones se vieron en la labor de reinventarse en el 2020 para agilizar los procesos de asignación de espectro, acelerar los permisos de instalación, ajustar los indicadores de calidad y tomar medidas especiales para evitar colapsos en las infraestructuras.

En el caso de Colombia, desde el año 2015, el gobierno nacional ha buscado que las barreras al despliegue de infraestructura de telecomunicaciones en los municipios sean levantadas; al inicio se dio competencia a la CRC para revisar las denuncias al respecto y formular unas acciones de mejora que debían ser aplicadas por las autoridades municipales. Sin embargo, estas acciones no motivaron a remediar la situación; así las cosas, para el 2019 mediante la Ley 1955, se incentivó a los municipios que reciban por parte de la CRC una acreditación[1] como libres de barreras al despliegue de infraestructura de telecomunicaciones, a ser candidatos para ampliar su infraestructura de comunicaciones móviles, a través de las obligaciones de hacer[2]. A principio de mayo de 2021, la Comisión ha acreditado 390 municipios, es decir un 37% del territorio.

La CRC en búsqueda de fomentar el despliegue en las ciudades capitales de Colombia, diseñó un índice que visualiza la favorabilidad al despliegue de infraestructura de telecomunicaciones. Este índice[3] es considerado como una herramienta para el desarrollo de ciudades y territorios inteligentes.

Creación de prototipos de modelos reglamentarios para el mundo digital posterior a la Covid.

[1] Listado de municipios acreditados disponibles en https://www.crcom.gov.co/es/pagina/infraestructuraDisponible en
[2] Ley 1955 de 2019 articulo 309 http://www.secretariasenado.gov.co/senado/basedoc/ley_1955_2019_pr006.html#309
[3] Índice disponible en https://www.crcom.gov.co/es/pagina/infraestructura

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El primer Sandbox Regulatorio en Comunicaciones, propuesto por la CRC, tiene la potencialidad de advertir la necesidad, pertinencia e impacto de modificar el marco regulatorio vigente, ya sea mediante la implementación de nuevas medidas, modificar o eliminar las que se encuentren vigentes; o implementar reglas diferenciales.

De igual forma, a través de este mecanismo se busca fomentar la satisfacción del interés general como pilar fundamental de los fines esenciales del Estado, así como promover el desarrollo económico de los agentes del sector de las TIC, a través de la generación de productos y servicios innovadores que beneficien a sus usuarios, tomando como base que los Sandbox Regulatorios en el mundo se fundamentan en la transformación acelerada de las nuevas tecnologías y modelos de negocio.

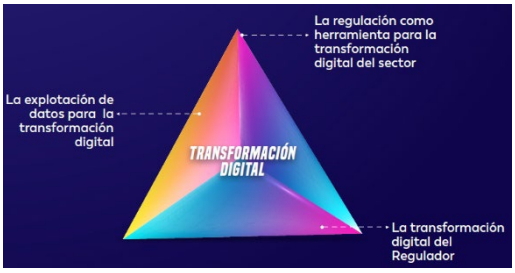
Ahora bien, este mecanismo permitirá experimentar escenarios durante y después de la pandemia por el COVID-19.

Liderazgo transformador para dar rienda suelta al potencial de las tecnologías y los modelos de negocio incipientes

Es ampliamente reconocido como la transformación digital ha irrumpido en todos los ámbitos y sectores a nivel mundial, llevando consigo beneficios en términos de agilidad, eficiencia, transparencia y bienestar social. De manera particular, el sector público ha venido incorporando gradualmente avances tecnológicos en su gestión. Ahora bien, debemos reconocer que en el año 2020 la pandemia generada por el COVID-19 también aceleró la transformación digital en el sector público.

La CRC es consciente de la importancia de ser un regulador conocedor de las tendencias, que tenga datos para poder tomar decisiones informadas y sea flexible e innovador para apalancar ese cambio digital. Por eso, en la CRC se ha implementado el concepto de "Regulación Inteligente", que incluye, además de lo mencionado, simplificación regulatoria, reducir cargas regulatorias, generar espacios de autorregulación e implementar modelos innovadores como el Sandbox ya mencionado.

De acuerdo con lo anterior, las acciones de la CRC para apalancar la transformación digital se pueden reconocer en tres frentes: la regulación como herramienta para la transformación digital del sector, la transformación digital del Regulador y la explotación de datos, para lo cual hemos implementado herramientas de machine learning, una plataforma de datos abiertos, webscrapping, y Automatización Robótica de Procesos – RPA, tanto para actividades internas y externas del regulador de comunicaciones.



Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Telecommunications Regulatory and Control Agency (ARCOTEL)
for the GSR-21 consultation

Contribution

Agencia de Regulación y Control de las Telecomunicaciones (ARCOTEL)

Ecuador

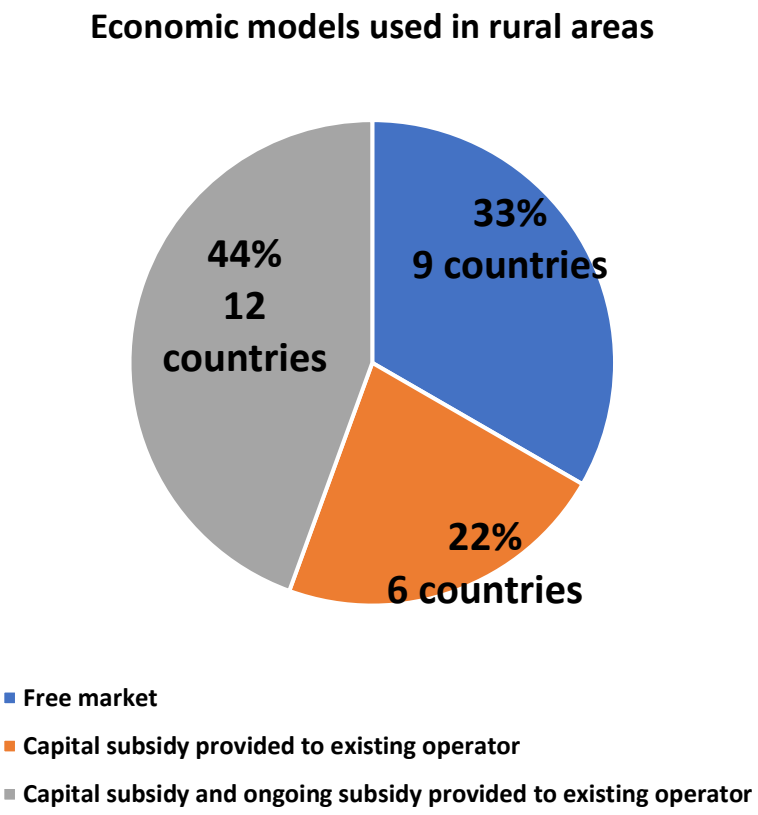
Proposal for regulatory uplift for financing digital infrastructure, access and use

Economic models used in other countries for deployment in rural areas

In most developing countries, indicators for socio-economic development and infrastructure in rural areas remain at a very low level. Once the underdevelopment of rural and remote areas has been identified, it is also possible to pinpoint problems associated with the development of the telecommunication sector and either directly or indirectly stimulate telecommunication development in such areas.

A study carried out by ITU[1] has helped to identify economic models used by regulators in 27 countries of varying levels of development to promote deployment in uncovered rural areas.

The ITU document found that 33 per cent of the countries under study use a free-market economic model, i.e. a mobile service provider is free to decide whether or not to install a radio base in a rural area, based purely on level of competition. In addition, 22 per cent of the countries use an economic model based on the granting of capital subsidies to the existing operator for development in uncovered rural areas, while 44 per cent of the countries under study use a model based on a capital subsidy and an additional ongoing subsidy as an incentive for deployment by providers in uncovered rural areas.



[1] Telecommunications/ICTs for rural and remote areas, ITU, 2014

Figure 1: Economic models used to promote deployment in rural areas. Source: ITU. Produced: CRDM

In addition, Figure 2 shows the different economic models used by the 27 countries[2] under study, disaggregated by level of development. 27 per cent of developing countries, such as Ecuador, use a free-market economic model, while another 27 per cent use an economic model based on capital subsidy grants to the existing operator and 47 per cent use a model based on a capital subsidy and an additional ongoing subsidy as an incentive for deployment by providers in uncovered rural areas.

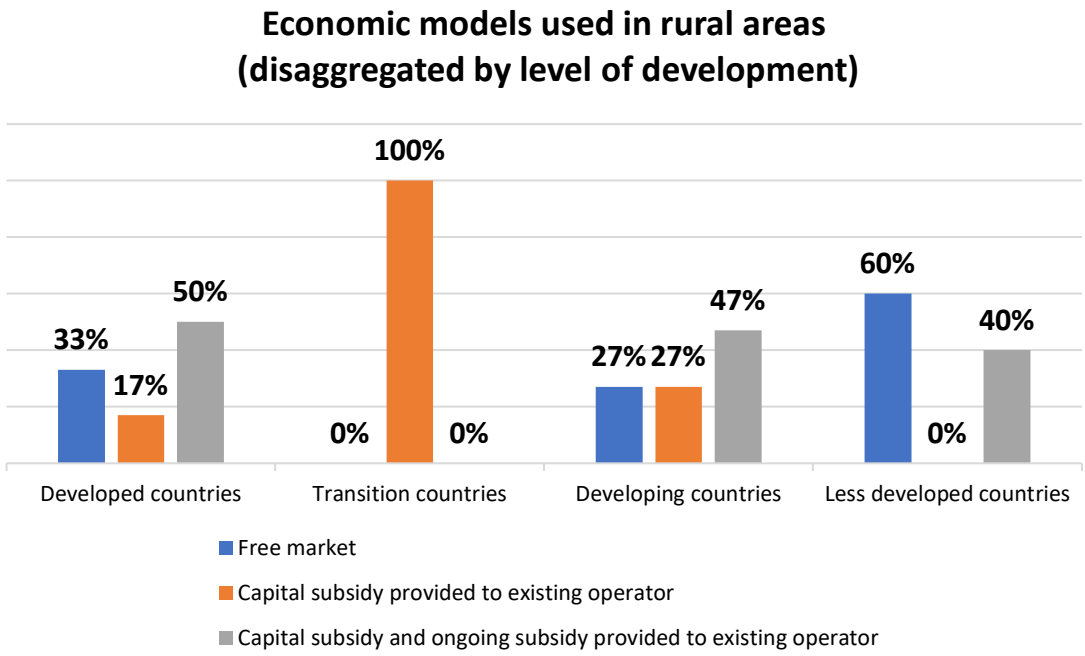


Figure 2: Economic models used to promote deployment in rural areas, disaggregated by level of development. Source: ITU. Produced: CRDM

Business models used in other countries for deployment in rural areas

The ITU report on telecommunications/ICTs for rural and remote areas also analysed the business models used in the 27 countries under study for the deployment of uncovered rural areas: 19 per cent of countries use a State-owned incumbent operator as the business model for providing mobile services in uncovered rural areas; 15 per cent use a public-private partnership (PPP) model as the means of guiding mobile service deployment, in particular in rural and underserved areas; 22 per cent of the countries adopt a business model based on the use of regulatory incentives, without considering subsidies to private operators; 4 per cent use a multistakeholder partnership model; while 41 per cent use other business models, such as in

[2] List of 27 countries that participated:

Andorra, Argentina, Bahamas, Belarus, Brazil, China, Colombia, Democratic Republic of the Congo, Egypt, India, Japan, Latvia, Lebanon, Mauritius, Republic of Nepal, Niger, Oman, Paraguay, Peru, Portugal, Rwanda, Seychelles, Slovenia, Swaziland, Syrian Arab Republic, United Kingdom and Vanuatu.

Oman, where the public company provides passive infrastructure for telecommunication operators in remote areas.

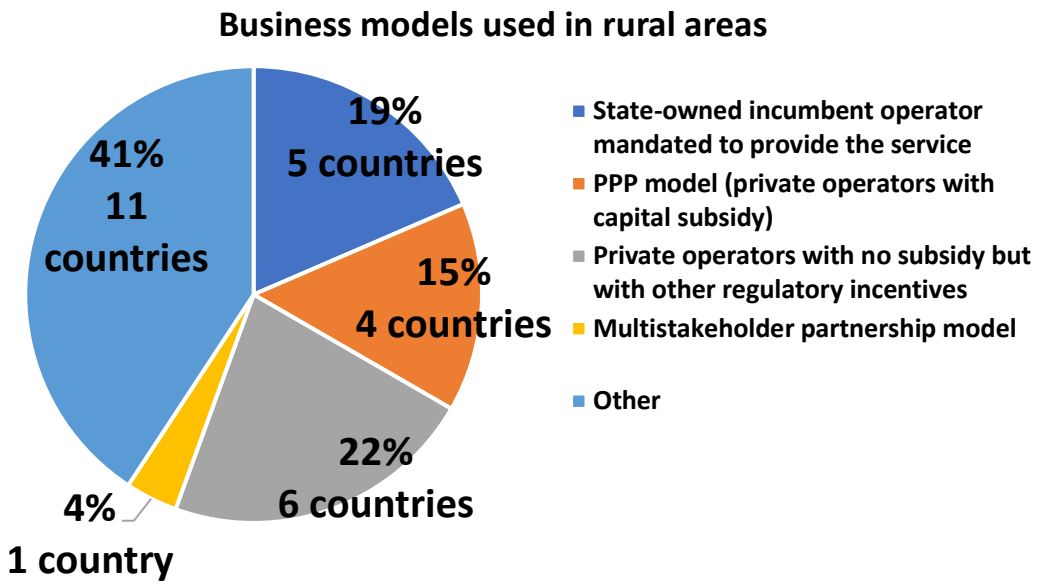


Figure 3: Business models used to promote deployment in rural areas (disaggregated). Source: ITU. Produced: CRDM

Figure 4 illustrates the various business models used by different countries according to level of development: 20 per cent of developing countries, such as Ecuador, employ an approach based on a State-owned operator; 13.33 per cent use a PPP model; 13.33 per cent adopt a business model based on the use of regulatory incentives, without considering subsidies to private operators; another 13.33 per cent use a multi-stakeholder partnership model; and 53.33 per cent use other business models, such as in Brazil, where the State-owned operator is obliged to provide mobile services in rural areas and private operators receive a subsidy to serve these areas.

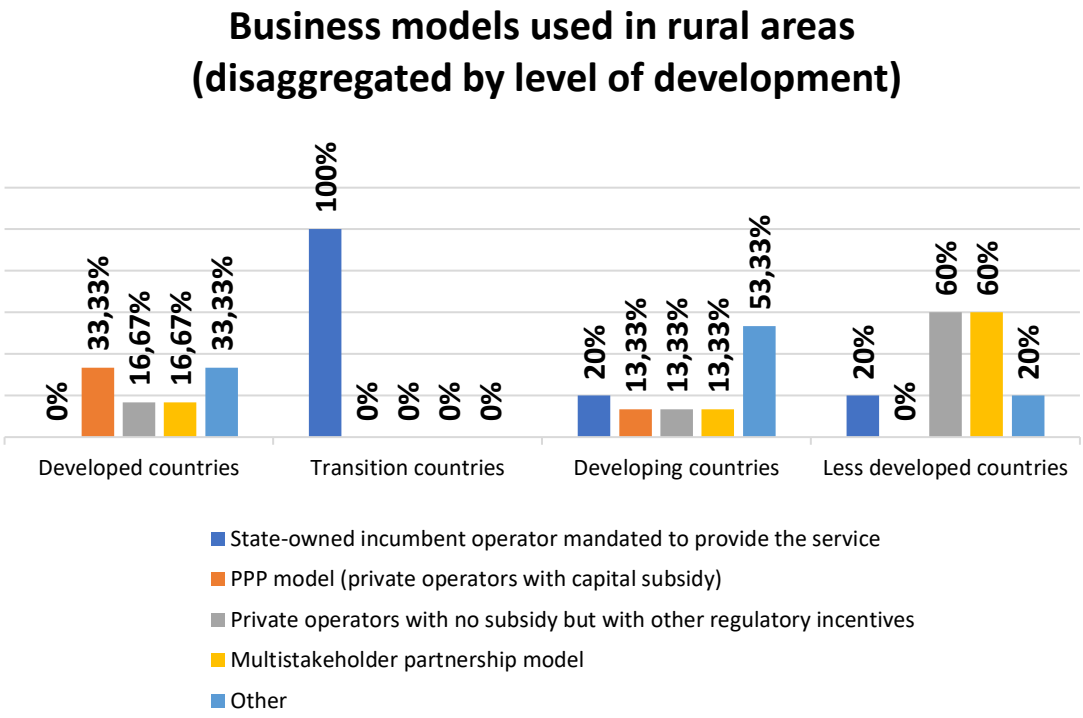


Figure 4: Business models used to promote deployment in rural areas, disaggregated by level of development. Source: ITU. Produced: CRDM

In view of the different economic and business models used by the 27 countries, at different levels of development, for the deployment of telecommunication services in rural areas, the following is being considered in the case of Ecuador:

- Proposal for the possible exemption from a certain amount of the annual payment made by providers, equivalent to the amount of CapEx for every new radio base or equipment in rural areas where, to date, there is no given telecommunication service, such as advanced mobile services or Internet services (capital subsidy for existing operators).

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Simposio Mundial para Organismos Reguladores (GSR-21)
(Evento virtual, 2021)

Contribución de Agencia de Regulación y Control de las Telecomunicaciones (ARCOTEL)
para el GSR-21 consultación

Contribución de ARCOTEL, Ecuador

Propuesta de Mejora de la reglamentación para la financiación de la infraestructura digital, el acceso a la misma y su utilización

Modelos Económicos usados en otros países para el despliegue en zonas rurales

En la mayoría de los países en desarrollo, los indicadores de desarrollo socioeconómico y de infraestructuras en zonas rurales se mantienen en niveles bajísimos. Una vez conocido el subdesarrollo de las zonas rurales y distantes, pueden también conocerse los problemas asociados con el desarrollo del sector de las telecomunicaciones en estas zonas, pues afectan directa o indirectamente al desarrollo de las telecomunicaciones en estas zonas.

De acuerdo con un estudio realizado por la UIT[1], en 27 países con diferentes niveles de desarrollo, se ha identificado los modelos económicos que usan los reguladores para fomentar el despliegue en zonas rurales sin cobertura.

En el documento de la UIT se determinó que el 33% de los países en estudio usan un modelo económico de libre mercado, es decir existe libertad para que un prestador del servicio móvil instale o no una radio base en una zona rural, considerando solo el nivel de competencia. Por otro lado, el 22% de los países en estudio, usan un modelo económico basado en otorgar un subsidio de capital al operador existente, para el desarrollo en zonas rurales sin cobertura. Mientras el 44% de los países analizados, indicaron que aplican un modelo basado en un subsidio de capital y adicionalmente un subsidio continuo como incentivo a los prestadores para el despliegue en zonas rurales sin cobertura.

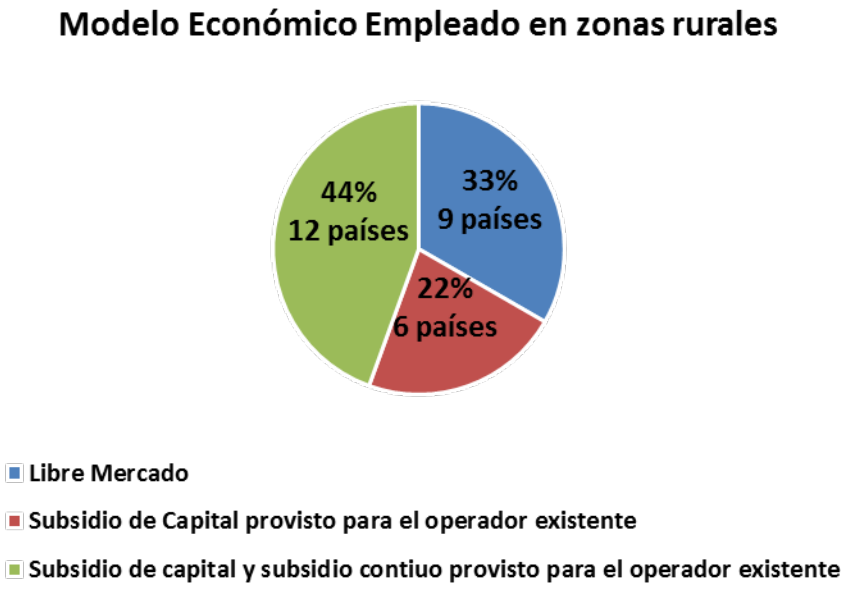

Figura 1: Modelos económicos empleados para fomentar el despliegue en zonas rurales. Fuente: UIT. Elaboración: CRDM

Adicionalmente en la Figura 2, se puede apreciar la aplicación de los diferentes modelos económicos, de los 27 países[2] de estudio, desagregados de acuerdo con su nivel de desarrollo.

[1] Telecomunicaciones/TIC para zonas rurales y distantes, UIT, 2014

[2] Lista de países que participaron (27)
Andorra, Argentina, Bahamas, Bielorrusia, Brasil, China, Colombia, D.R. Congo, Egipto, India, Japón, Letonia, Líbano, Mauricio, Nepal, Níger, Omán, Paraguay, Perú, Portugal, Ruanda, Seychelles, Eslovenia, Suazilandia, Siria, Reino Unido y Vanuatu

En países en vías de desarrollo como el Ecuador, aplican un 27% como modelo económico de libre mercado. El 27% de los reguladores en esos países usan modelo económico basado en otorgar un subsidio de capital al operador existente y un 47% usan un modelo basado en un subsidio de capital y adicionalmente un subsidio continuo como incentivo a los prestadores para el despliegue en zonas rurales sin cobertura.

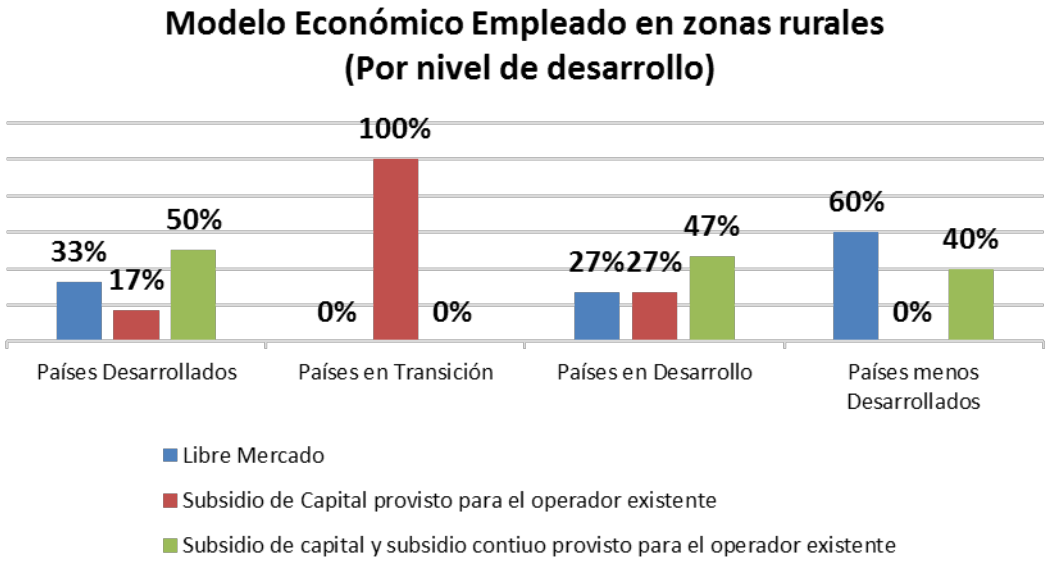

Figura 2: Modelos económicos empleados para fomentar el despliegue en zonas rurales desagregado por nivel de desarrollo. Fuente: UIT. Elaboración: CRDM

Modelos de Negocios Usados en Otros Países para el Despliegue en Zonas Rurales

En el estudio de la UIT "Telecomunicaciones/TIC para zonas rurales y distantes", adicionalmente se realizó un análisis de los modelos de negocios usados en los 27 países de estudio para fomentar en despliegue en zonas rurales sin cobertura. El 19% de los países tienen como modelo de negocio para proporcionar el servicio móvil en zonas rurales sin cobertura, el uso del operador incumbente de propiedad del estado. El 15% usan un modelo asociaciones público-privadas (conocidas por sus siglas en inglés PPP) que pueden ayudar a orientar adecuadamente el despliegue del servicio móvil particularmente en zonas rurales y en zonas insuficientemente atendidas. El 22% de los países en estudio, utilizan como modelo de negocio el uso de otros incentivos regulatorios, sin considerar subsidios a los operadores privados. El 4% usan un modelo de asociación de múltiples *stakeholders*, y el 41% usan otros modelos de negocio, como por ejemplo en Omán la empresa pública proporciona la infraestructura pasiva para los operadores de telecomunicaciones en las áreas remotas.

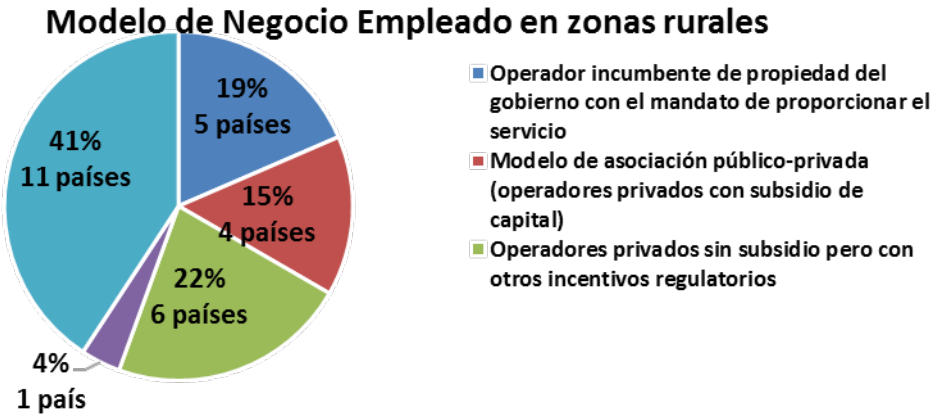

Figura 3: Modelos de negocios empleados para fomentar el despliegue en zonas rurales desagregado. Fuente: UIT. Elaboración: CRDM

En la Figura 4, se observa la aplicación de los diferentes modelos de negocio, que aplican los diferentes países de acuerdo con su nivel de desarrollo. Para los países en desarrollo como el Ecuador, el 20% de los países tienen como modelo de negocio, el uso del operador incumbente de propiedad del estado. El 13,33% usan un modelo asociaciones público-privadas. El 13,33% de los países en estudio, utilizan como modelo de negocio el uso de otros incentivos regulatorios, sin considerar subsidios a los operadores privados. El 13,33% usan un modelo de asociación de múltiples *stakeholders*, y el 53,33% usan otros modelos de negocio, como por ejemplo en Brasil, el operador propiedad del gobierno tiene la obligación de dotar el servicio móvil en zonas rurales y los operadores privados poseen un subsidio para atender esas zonas.

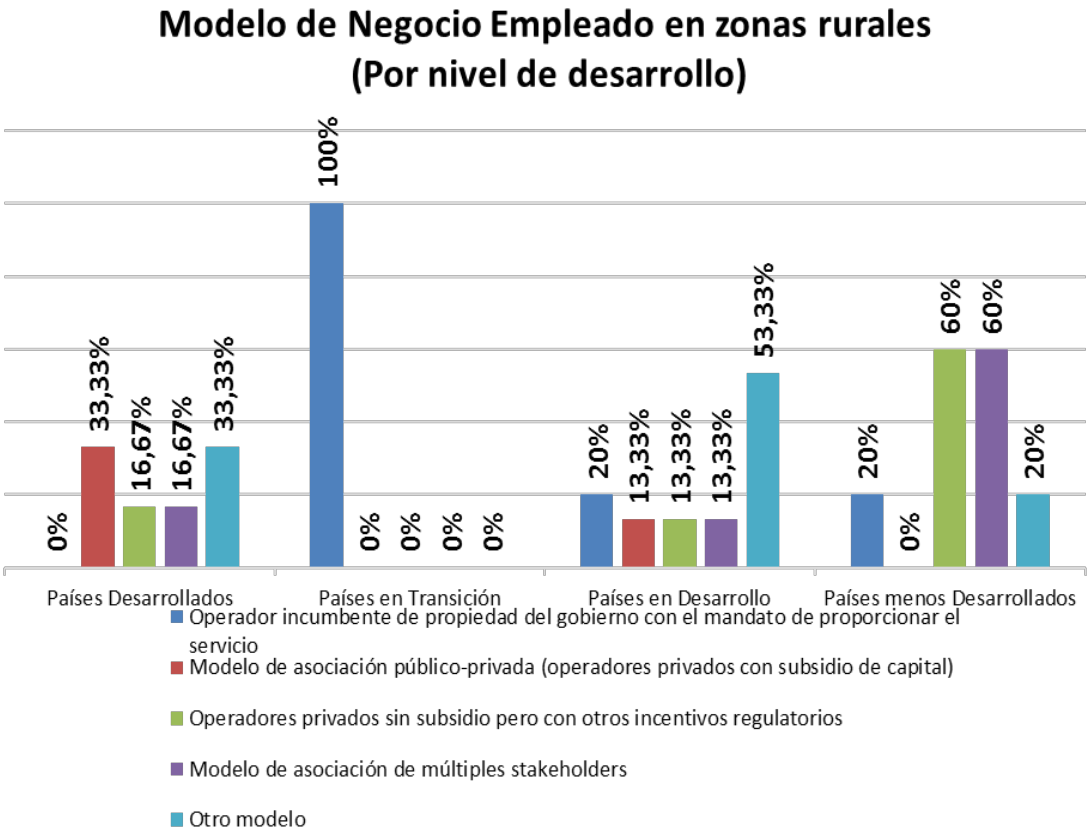

Figura 4: Modelos de negocios empleados para fomentar el despliegue en zonas rurales desagregado por nivel de desarrollo. Fuente: UIT. Elaboración: CRDM

Considerando los diferentes modelos económicos y de negocio aplicados por 27 países con diferentes niveles de desarrollo, para el despliegue del servicio de telecomunicaciones en zonas rurales, se considera para el caso ecuatoriano lo siguiente:

- Propuesta de una posible exoneración de un valor del pago anual que realizan las prestadoras, equivalente al valor del CAPEX de cada nueva radio base o equipo en parroquias rurales donde hasta la fecha no cuenten con el servicio de telecomunicaciones como el servicio móvil avanzado SMA o el servicio de internet (subsidio de capital para los operadores existentes).

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the French Electronic Communications, Postal and Print media distribution Regulatory Authority (ARCEP) for the GSR-21 consultation

ARCEP's response to the consultation for the global symposium for regulators 2021 (GSR-21) best practice guidelines on "Regulatory uplift for financing digital infrastructure, access and use".

1 Inducing new, effective and agile financing mechanisms to digital infrastructure, access and use

1.1 Frequency allocation: binding commitments for spectrum licences

The French regulator for telecommunications and the post (*Autorité de régulation des communications électroniques, des postes et de la distribution de la presse*, ARCEP) has leveraged mobile frequency allocations to introduce binding obligations for operators, backed up by ARCEP sanctions in the event of non-compliance.

"New deal mobile"

Mobile coverage and the quality of mobile services are at the heart of ARCEP's priorities and among the key objectives as regards national connectivity. In January 2018 the State and operators announced "New deal mobile"[1], a programme based on ARCEP proposals that makes **regional development a priority in the licensing conditions for operators bidding for mobile spectrum, rather than strictly financial criteria**. Spectrum licences coming up for renewal on a horizon of several years included the 900 MHz, 1 800 MHz and 2.1 GHz bands.

The twofold objective was to improve mobile voice and data services and to use 4G to achieve service improvements for fixed Internet access.

Concretely, the programme includes commitments to improve coverage along transport routes and inside buildings, to bring in 4G on all mobile sites, to progressively improve the quality of service across the mobile networks, and to **target underserved areas**.

Operators signed on to these commitments, and from July 2018 on, the commitments were incorporated in the licensing agreements then being negotiated. Following an invitation-to-tender procedure, ARCEP on 25 October 2018 awarded 10-year spectrum licences in the 900 MHz, 1 800 MHz and 2.1 GHz bands to the four mobile operators active on the continental French market.

All obligations, whether entered into by mobile operators who committed themselves at the outset or enshrined in the new licences, thus have a binding character, backed up by the threat of ARCEP sanctions in the event of non-compliance.

Allocations in the 3.4-3.8 GHz band[2]

The procedure for allocating these frequencies was required to address objectives established by the national government as regards regional development, competition, innovation and services for 'vertical sector' players, and the revenue generated. The selection process was defined by ARCEP, and relied on a mix of criteria, going beyond a purely monetary auction. It took the form of a first round involving **optional commitments in exchange for spectrum**, whereby a single 50 MHz block could be acquired at a fixed price of EUR 350 million. This was followed by a second round of bidding for additional spectrum. The **optional**

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1 https://www.arcep.fr/uploads/tx_gspublication/description-dispositif-couverture-mobile-220118.pdf (in French)

2 https://www.arcep.fr/fileadmin/cru-1618480032/user_upload/grands_dossiers/5G/dossier-de-presse-5G_28092020.pdf (in French)

commitments[3] were then transferred to the spectrum licensing agreement, becoming **mandatory terms** for the winning bidder.

1.2 The co-investment mechanism on the fibre-optic market

To meet the connectivity objectives established at the national and the European level while ensuring that the markets for high and very high-speed fixed communications remain competitive, France has set up a regulatory framework for optical fibre and adopted a national plan to develop digital coverage, the *Plan France Très Haut Débit* ("very high-speed plan for France").

The regulatory framework for optical fibre has two complementary pillars: an **asymmetrical regulatory scheme that makes it an obligation to grant access to the civil engineering infrastructure of the historical incumbent**, Orange (cost-oriented tariffs), and a **symmetrical regulatory scheme that makes it an obligation to grant access to and co-investment in** the terminal/vertical portion **at a reasonable tariff and under non-discriminatory conditions**. The objective is to create incentives for operators to make passive investments in the deployment of FTTH networks, thus providing for a viable competitive equilibrium with two or more players capable of providing presence at the curb. The framework identifies different types of zones, depending on the intensity of competition. In high-density zones sharing of the terminal segment of the FTTH network begins at the curb, while in low-density zones it begins before the curb and covers more of the terminal portions of the networks. To ensure that this innovative model can succeed, general principles regarding access offers have been established for co-investment in low-density zones. To respect the "ladder of investment" principle in access offers, infrastructure operators must make available access under conditions covering both the long term (co-financing offers) and the short term (passive leasing offers). Co-financing offers allow the different operators who use the shared infrastructure to split the costs and risks associated with the investment. They also protect healthy, effective competition, as investment opportunities remain available throughout the lifetime of the network, comprising both *ab initio* and *ex post* co-financing (tariffs charged to late-joining investors can include a risk premium to reward the initial investor). Such access offers also ensure that the ladder of investment functions well, by making it possible to invest in a limited number of access points in a given investment grid. In practice, co-financing offers today are proposed by slices of five per cent.

2 Prototyping regulatory patterns for the post-COVID-19 digital world: 5G pilot projects

To allow all of the players—operators, manufacturers, start-ups etc.—to prepare for the arrival of 5G, in early 2018 ARCEP rolled out its "5G pilot project" interface, which allows the regulator to issue licences for portions of the spectrum that have been identified for 5G.

For the 26 GHz band, after ARCEP and the government jointly launched a call for proposals in January 2019, ARCEP issued the first licences for operation of open 5G trial platforms to begin. These are trial networks which have received a long-term (up to three years) spectrum use licence. **The participants undertake to allow third parties** (i.e. someone other than the licence-holder) **to use the trial network for purposes of trialling their own 5G use cases.**

Logistics, smart cities, mobility, sports coverage: the call for trial platforms to be created has led to the emergence of 15 projects, for which ARCEP has allocated spectrum. In addition to the traditional telecommunication players (mobile network operators and providers of telecom equipment), several projects are sponsored by 'vertical sector' organizations or consortia from beyond the telecommunication world.

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[3] Offers of access to "vertical sector" players (industry, communities, etc.), indoors coverage, fixed access offers, network sharing in underserved zones, transparency on technical breakdowns, deployment schedules, openness to mobile virtual network operators.

3 Transformational leadership to unleash the power of emerging technologies and business models: data-driven regulation

As mentioned in the response to the 2019 GSR guidelines consultation[4], ARCEP has implemented collaborative regulation through **data-driven regulation**, combining player accountability, strengthened analytical capacity for the regulator, and the mobilization of users and civil society.

As explained in that document, the principle is to **harness the power of information to steer the market in the right direction**. In practice, this means not only gathering more precise information from the players regulated, but also expanding the data sources, for example by employing crowdsourcing and more refined data processing tools. Data-driven regulation has two major objectives: to amplify the regulator's capacity to act, particularly in a supervisory role; and to inform users' choices, steer the market better, and ensure a return on investment.

In recent years, this new regulatory tool has served to monitor the quality of service and coverage of mobile and fixed telecommunication networks via the Internet sites "monreseaumobile" and "maconnexioninternet", and has been used in the development of a reporting platform called "J'alerte l'Arcep".

This platform allows individual users, businesses and communities to report problems in their interactions with fixed, mobile, Internet and postal operators. In November 2020 the platform was opened to new categories of users: application developers, telecom operators and consumer associations.

The platform gives users a chance to make a contribution by sharing their experience with market regulation, creating an incentive for operators to improve their services and develop their networks. As an outcome, the users are provided with a list of tips appropriate to their situation.

The reports received give ARCEP a real-time window on the difficulties encountered by users, so that problem areas and concentrations can be identified. The objective is for the regulator to improve the targeting and effectiveness of its work with the operators.

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4 https://www.itu.int/en/ITU-D/Conferences/GSR/2019/Documents/France_Contribution-GSR-19_E.pdf

Colloque mondial des régulateurs (GSR-21)

(Evénement virtuel, 2021)

Contribution de l'Autorité de régulation des communications électroniques, des postes et de la distribution de la presse (arcep) pour la GSR-21 consultation

Réponse de l'Arcep à la consultation relative aux lignes directrices sur les bonnes pratiques du colloque mondial des régulateurs (GSR-21) portant sur « Renforcer la réglementation pour financer l'infrastructure numérique, l'accès et le recours au numérique »

1. Création de mécanismes novateurs, efficaces et souples pour le financement de l'infrastructure numérique, de l'accès et du recours au numérique

1.1 Attributions de fréquences : Engagement contraignant des opérateurs contre l'obtention de fréquences

L'Arcep s'est appuyée sur les attributions de fréquences mobiles pour introduire des obligations contraignantes sur les opérateurs, pouvant faire l'objet de sanctions par l'Arcep en cas de non-respect.

New deal mobile

La couverture et la qualité des services mobiles sont des priorités fortes de l'Arcep et des enjeux majeurs pour la connectivité du territoire. Sur la base des propositions de l'Arcep, l'État et les opérateurs ont annoncé en janvier 2018 le *New Deal mobile*[1], qui **donne la priorité à l'aménagement du territoire dans les conditions d'attribution des fréquences mobiles aux opérateurs par rapport à la valorisation financière** ; en l'occurrence les bandes de fréquences 900 MHz, 1800 MHz et 2,1 GHz, dont les autorisations arrivaient à terme dans les années suivantes.

L'objectif était, d'une part, l'amélioration des services voix et données mobiles, et d'autre part l'utilisation de la 4G en vue d'améliorer le service d'accès fixe à Internet.

Concrètement, ce dispositif inclut des engagements sur l'amélioration de la couverture des axes de transport et à l'intérieur des bâtiments, la généralisation de la 4G sur l'ensemble des sites mobiles, l'amélioration progressive de la qualité de service sur les réseaux mobiles et **un dispositif de couverture ciblée.**

Les opérateurs ont pris des engagements qui ont été, dès juillet 2018, retranscrits dans leurs autorisations en cours à cette période. Par ailleurs, au terme d'une procédure d'appel à candidatures, l'Arcep a attribué, le 25 octobre 2018, pour dix ans, les autorisations d'utilisation de fréquences dans les bandes 900 MHz, 1800 MHz et 2,1 GHz aux quatre opérateurs mobiles présents sur le marché métropolitain français.

L'ensemble des obligations, qu'elles fassent l'objet d'engagements immédiats de la part des opérateurs mobiles ou qu'elles soient inscrites dans les futures autorisations, revêtent ainsi le caractère d'obligations contraignantes pouvant faire l'objet de sanctions par l'Arcep en cas de non-respect.

Attribution de la bande 3,4-3,8 GHz[2]

Dans le cadre de cette attribution de fréquences, la procédure devait répondre aux objectifs fixés par le Gouvernement, à savoir l'aménagement du territoire, la concurrence, l'innovation et les services

[1] https://www.arcep.fr/uploads/tx_gspublication/description-dispositif-couverture-mobile-220118.pdf

[2] https://www.arcep.fr/fileadmin/cru-1618480032/user_upload/grands_dossiers/5G/dossier-de-presse-5G_28092020.pdf

pour les « verticales » et les recettes. Cette attribution, dont les modalités ont été définies par l'Arcep, reposait sur un mécanisme d'attribution mixte, qui ne s'appuyait pas sur de pures enchères financières. Cela s'est traduit par une première partie d'**engagements optionnels contre fréquences,** c'est-à-dire la possibilité d'acquérir 1 bloc de fréquences de 50 MHz à prix fixe de 350 millions d'euros et une deuxième partie d'acquisition de fréquences aux enchères. Sur les engagements optionnels[3], une fois qu'un candidat devient lauréat de la procédure d'attribution**, les engagements** qu'il a pris **sont retranscrits en tant qu'obligations** dans les autorisations d'utilisation de fréquences.

1.2 Le mécanisme de co-investissement sur le marché de la fibre optique

Afin de répondre aux objectifs de connectivité fixés au niveau national et européen tout en préservant la dynamique concurrentielle sur les marchés du haut et très débit fixe, la France s'est dotée d'un cadre réglementaire sur la fibre optique et d'un plan d'aménagement numérique du territoire le « Plan France Très Haut Débit ».

Le cadre de régulation de la fibre optique est constitué de deux piliers complémentaires : une **régulation asymétrique imposant l'accès aux infrastructures de génie civil de l'opérateur historique** Orange (orientation des tarifs vers les coûts) et une **régulation symétrique imposant de permettre l'accès et le co-investissement** sur la partie terminale/verticale à un **tarif raisonnable et dans des conditions non-discriminatoires**. L'objectif est d'inciter les opérateurs à investir, en passif, dans le déploiement des réseaux FttH, pour favoriser un équilibre concurrentiel viable avec plus de deux acteurs capables d'être présents au point de concentration. La réglementation a identifié différents types de zones selon l'intensité de la concurrence : Les zones très denses avec une mutualisation de la partie finale du réseau FttH en pied d'immeuble et « les zones moins denses » avec une mutualisation plus importante de la partie finale du réseau. Afin de s'assurer du succès de **ce modèle innovant**, des principes généraux relatifs aux offres d'accès en zones moins denses pour le co-investissement ont été fixés. Pour garantir une échelle des investissements dans les offres d'accès, les opérateurs d'infrastructure doivent proposer des modalités d'accès dites de « long terme » (les offres de cofinancement) et de « court terme » (l'offre de location passive). Les offres d'accès de cofinancement permettent un partage des coûts et des risques liés à l'investissement entre les différents opérateurs qui utilisent l'infrastructure mutualisée. Elles assurent aussi une concurrence saine et effective en étant proposées tout au long de la durée de vie du réseau, on parle de cofinancement ab initio et ex post (l'offre d'accès a posteriori pouvant faire l'objet d'une tarification spécifique, incorporant un taux de rémunération du capital conférant à l'investisseur initial une prime au regard du risque encouru). En outre, ces offres d'accès garantissent le bon fonctionnement de l'échelle des investissements en permettant d'investir sur un nombre limité de prises accessibles sur une maille d'investissement donnée. En pratique, les offres de cofinancement sont aujourd'hui proposées par tranche de 5%.

2 Création de prototypes de modèles réglementaires dans le monde numérique au lendemain du COVID-19 : Pilotes 5G

Pour permettre à l'ensemble des acteurs - opérateurs, industriels, start-up...- d'anticiper l'arrivée de la 5G, l'Arcep a ouvert début 2018 un guichet « pilotes 5G » : il permettait à l'Arcep de délivrer des autorisations d'utilisation de fréquences dans les bandes de fréquences identifiées pour la 5G.

[3] Offre d'accès au bénéfice des « verticaux » (industrie, collectivités…), couverture à l'intérieur des bâtiments, offre d'accès fixe, Partage de réseaux dans des zones ciblées, transparence pour les pannes et les déploiements provisionnels, accueil des MVNO

En ce qui concerne spécifiquement la bande 26 GHz, à la suite d'un appel lancé conjointement par l'Arcep et le gouvernement en janvier 2019, l'Arcep a autorisé de premiers acteurs à exploiter des plateformes d'expérimentation 5G ouvertes. Il s'agit de réseaux expérimentaux qui ont obtenu une autorisation d'utilisation de fréquences de longue durée (jusque 3 ans) L**es acteurs s'engagent à permettre à des acteurs tiers** (i.e. autres que le titulaire de l'autorisation) **d'utiliser le réseau expérimental pour venir tester leurs propres cas d'usages de la 5G.**

Logistique, ville intelligente, mobilité, couverture d'événements sportifs : l'appel à la création de plateformes d'expérimentation a permis de faire émerger 15 projets, pour lesquels l'Arcep a attribué des fréquences. Au-delà des acteurs traditionnels des télécommunications (opérateurs de réseaux mobiles, équipementiers télécoms), plusieurs projets sont portés par des « verticaux » ou des consortiums non spécialistes des télécommunications.

3 Initiatives porteuses de transformations afin de libérer le potentiel des technologies émergentes et des modèles économiques : la régulation par la donnée

Comme précédemment mentionné dans sa réponse à la consultation des lignes directrices du GSR en 2019[4], l'Arcep a mis en œuvre la régulation collaborative à travers **la régulation par la donnée**. Celle-ci combine responsabilisation des acteurs, capacité renforcée d'analyse du régulateur, et mobilisation des utilisateurs et de la société civile.

Pour rappel, son principe est **d'utiliser la puissance de l'information afin d'orienter le marché dans la bonne direction**. En pratique, cela passe non seulement par la collecte d'informations plus précises auprès des acteurs régulés mais aussi par un élargissement des sources de données au travers, par exemple, d'outils de *crowdsourcing*, de traitement plus fin des données, etc. Deux grands objectifs associés à la régulation par la donnée : amplifier la capacité d'action du régulateur, notamment dans une logique de supervision et éclairer les choix des utilisateurs, mieux orienter le marché et valoriser les investissements.

Ces dernières années, ce nouvel instrument de régulation a été notamment utilisé pour suivre la qualité de service et la couverture des réseaux télécoms, fixes ou mobiles au travers des sites internet « monreseaumobile » et « maconnexioninternet » ou encore développer une plateforme de signalement « J'alerte l'Arcep »

Cette plateforme permet aux particuliers, entreprises et collectivités d'alerter l'Arcep de dysfonctionnements rencontrés dans leurs relations avec les opérateurs fixes, mobiles, internet et postaux. En novembre 2020, la plateforme s'est ouverte à de nouveaux publics que sont les développeurs d'applications, les opérateurs télécoms et les associations de consommateurs.

La plateforme offre aux utilisateurs l'opportunité, de faire peser, par un geste citoyen, leur expérience dans la régulation du marché, pour inciter les opérateurs à améliorer leurs services et à développer leurs réseaux. Des fiches-conseils adaptées à leur situation leur sont également proposées en fin de parcours.

Les alertes recueillies permettent à l'Arcep de suivre en temps réel les difficultés rencontrées par les utilisateurs, d'identifier les dysfonctionnements récurrents ou les pics d'alerte. L'objectif étant de cibler son action et de gagner en efficacité dans ses actions de régulation vis-à-vis de ces opérateurs.

[4] https://www.itu.int/en/ITU-D/Conferences/GSR/2019/Documents/France_Contribution-GSR-19_F.pdf

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the National Communications Authority (NCA)
for the GSR-21 consultation

ITU GSR-21 BEST PRACTICE GUIDELINES

CONTRIBUTIONS FROM THE NATIONAL COMMUNICATIONS AUTHORITY (NCA), GHANA

REGULATORY UPLIFT FOR FINANCING DIGITAL INFRASTRUCTURE, ACCESS AND USE

Table of Contents

1.0 Inducing new, effective and agile financing mechanisms to digital infrastructure, access and use 2

Investment in digital infrastructure and Access: 2

2.0 Transformational Leadership to unleash the power of emerging technologies and business models 2

a. Common understanding on competition in the digital economy: 2

b. Encourage Regional and International Cooperation on data privacy and cybersecurity Initiatives: 3

c. ***International Cooperation on cross-border data flows:*** 3

1.0 Inducing new, effective and agile financing mechanisms to digital infrastructure, access and use

Investment in digital infrastructure and Access:

In an increasingly digital world, there is an urgent need for regulators and governments to adopt innovative ways to induce new, effective and agile financing mechanisms to digital infrastructure as they are the bedrock of modern economies.

Governments and citizens should embrace and recognize ICTs as enablers and fundamental for driving or achieving socio-economic development. Ease of access to government services, remote education, Digital Financial Services including Mobile Money Services, Financial Technology Services (FINTECH), etc. have materialized due to digital infrastructure, and as such, they qualify as essential in every economy.

Governments should be entreated to invest in Electronic Communications Infrastructures such as terrestrial fibre infrastructure deployment to complement that of the private sector; that will enhance nationwide connectivity to make the deployment of digital services possible.

Also, Governments should create funds (such as infrastructure funds that prioritise telecommunications infrastructure) to support the development and/or subsidise digital infrastructure deployment in their countries; just as it is done for roads and buildings.

Again, Governments should ensure the efficient and responsible use of the Universal Service and Access Fund (USAF) to extend and support digital connectivity to deprived and underserved communities.

For instance, Ghana through the Ghana Investment Fund for Electronic Communications (GIFEC) has built tower infrastructure at rural sites and communities. This has contributed to extending electronic communications and digital services to rural and underserved communities, by using the USAF to support and collaborate with Mobile Network Operators.

2.0 Transformational Leadership to unleash the power of emerging technologies and business models

Data localization requirements (which is usually country specific), patchwork of data privacy and cybersecurity laws and standards, anticompetitive behaviours of digital platforms and lack of dialogue between regulators/competition authorities in different sectors etc. are but a few of the challenges that impede cross-border collaboration and coordination on data flows and digital trade.

Given the borderless nature of the digital economy, introducing international/regional cooperation mechanisms with a focus on addressing the thorny issues related to digital trade, data protection, Internet of things and taxation will allow 5th generation regulation (G5) span geographies and markets to facilitate cross-border collaboration. Such mechanisms may include:

a. ***Common understanding on competition in the digital economy:***
States should collaborate and cooperate and come to a common understanding on issues surrounding anti-competitive behaviours in the digital economy: Digital platforms and services have improved the socio economic development of many nations. Consumers have better goods and

services however, some digital markets have significant network effects and such markets may have the potential of stifling innovation and act as barriers to entry.

Accordingly, it is important that Regulatory/Competition Authorities stay vigilant to detect anticompetitive behaviours by dominant firms. Adoption of and enforcement of flexible competition rules/laws that would enhance and adapt to challenges posed by the digital economy is necessary. Laws should not always prevent possible killer acquisitions of startups companies by giant digital platforms thereby stifling innovation. Laws that encourage the development of the digital economy but at the same time prevent anticompetitive behaviours need to be adopted; there should be a balance between allowing dominant firms to acquire startups and competition laws which may end up impeding innovation.

Ghana would soon join the community of African Countries that have passed laws that address anti-competitive behaviours of significant market powers/networks. A Bill has been laid before Ghana Parliament waiting to be passed. The law will cater for the SMP challenge ongoing in the Ghanaian mobile network industry and future dominant firms that may indulge in anti-competitive conducts.

Additionally, considering that digital economy is borderless, it is important that African Countries (AU) and other regions of the world cooperate and harmonize competition laws and policies to arrive at a common understanding of competition in the digital economy. When this is done, it will facilitate innovation which will spawn new home grown digital technologies and services; while at the same time addressing consumer interests. (*Taking a cue from the Agreement which establishes the African continental free trade area and advocates for cooperation on competition policies among other objectives as well as the Common understanding of G7 Competition Authorities on competition and the digital economy signed in Paris, on the 5th of June, 2019).*

b. Encourage Regional and International Cooperation on data privacy and cybersecurity Initiatives:

Patchwork of data privacy and cybersecurity standards and laws in a particular region does not allow free flow of data and hampers digital trade. The African Union Convention on cybersecurity and data privacy (Malabo Convention) was ratified by Ghana in 2018. This convention seeks to harmonize procedures on cybersecurity, data protection and fight cybercrime in Africa. It is important that countries encourage regional common data privacy and cybersecurity standards and initiatives to enhance data flows and improve digital trade.

c. *International Cooperation on cross-border data flows:*

There is the need to intensify International cooperation to ensure that Data Localisation requirements and other restrictions on cross-border data flow should only be applied when they are absolutely essential and implemented in a way that is minimally trade-restrictive while guaranteeing the privacy of data subjects.

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Federal Institute of Telecommunications (IFT)
for the GSR-21 consultation

GSR-21 Consultation on "Regulatory uplift for financing digital infrastructure, access and use"

Contribution of Mexico

The Federal Institute of Telecommunications (IFT) – the regulator and economic competition authority for the telecommunication and broadcasting sector of Mexico – is submitting the following contribution to the GSR-21 Consultation on "Regulatory uplift for financing digital infrastructure, access and use" for the following topics:

1. Inducing new, effective and agile financing mechanisms to digital infrastructure, access and use.

In order to promote the deployment of digital infrastructure, access and use, regulators might consider adopting the following mechanisms:

- Granting tax incentives to telecommunication operators;
- Promoting collaboration between local authorities and the Federal Government, as has been done by IFT in order to standardize and reduce regulation and speed up the deployment approval process;
- Fostering collaboration between telecommunication operators, local authorities and the Federal Government in the implementation of capacity building programmes that promote Internet access and ICT adoption.
- Promote regulatory changes that facilitate the adoption of blended finance, co-investment and public-private partnerships.
- Strengthening the regulation of infrastructure sharing and the search for dynamic mechanisms and spectrum sharing, as well as flexibility and agility in formalities and authorizations associated with new infrastructure projects in which the different market player types can participate as partners.
- Implementing practices such as "regulatory sandboxes" as a means of promoting innovation in digital infrastructure investment.

Similarly, it is considered very important to promote the establishment of clear rules, the issuance of effective regulations with the guidance of the Regulatory Governance Cycle, the promotion of public consultation as a means of identifying omissions, biases and unexpected consequences; and the elaboration of regulatory impact analyses. The aim of all of this is to clearly identify the problem that needs to be addressed and how to address it; to assess the economic viability of implementing the regulation to compare different proposals or options, and to systematically examine the potential benefits, costs and effects of a regulatory proposal. Combined with inter-institutional collaboration, this will lead to the implementation of practices that improve affordability and the use of digital infrastructure.

2. Prototyping regulatory patterns for the post-Covid digital world

As we have seen, the pandemic has accelerated the digital transformation of society as a whole, making it necessary for regulation to be accessible and flexible in order to align with

the needs of digital transformation and so that technological convergence is given consideration, along with the regulation of competition.

As mentioned above, using "regulatory sandboxes" as a means of promoting and fostering development and investment in emerging technologies is important. They should be seen as viable options for the development and growth of business models based on emerging technologies in a secure and controlled environment, as they provide communication channels between regulators and regulated parties, a delimited and controlled testing space, innovative products and "relaxed" regulation. Taking such an approach opens up a secure avenue for start-ups, financing bodies and regulators and helps to identify key issues before major risks arise.

3. Transformational leadership to unleash the power of emerging technologies and business models

Technological progress is currently reshaping the landscape of all business models, including traditional ones. As a result, regulation must reflect this reality and become convergent and multimodal.

In this sense, transformational leadership should provide for efficient governance based on the monitoring of key variables and prioritizing accountability and regular evaluation. This approach to governance will permit the use of adaptive regulation as a means of responding to new market needs, analysing the impact of regulations implemented and users, and which is suitably positioned to allow for changes to be made.

Similarly, collaborative national and international regulation, a multistakeholder approach comprising as many players in the technological ecosystem as possible, is important as it will allow for a global vision and coverage and should, therefore, be pursued at all stages of the regulatory process, i.e. all the way from design to implementation. In this regard, it is worth noting international regulatory cooperation which, through mechanisms such as memoranda of understanding, formal political partnerships, mutual recognition agreements, regulatory provisions in trade agreements and participation in regional and multilateral forums, can overcome physical distance This makes it possible for regulators to consider actions beyond national borders and develop joint strategies to address cross-border challenges, learn from the experiences of peers and to use evidence to drive decision-making.

In this regard, we should highlight the importance of regional forums and mechanisms, such as the Latin American Forum of Telecommunications Regulators (Regulatel), which help to foster and strengthen regulatory cooperation, in particular on the kind of issues and problems that regulators have in common and deal with on a daily basis.

In the light of all of the above, IFT developed its Roadmap 2021-2025,[1] in which one of the objectives is identified as "promoting the development of the digital ecosystem and adopting new technologies and digital use cases" with a view to meeting the demands of the current environment. This will involve a process of renewal, starting with the monitoring and analysis of the technology that will allow telecommunication and broadcasting services

[1] The Roadmap 2021-2025 can be consulted at the following link: http://www.ift.org.mx/conocenos/hoja-de-ruta-2021-2025 [Spanish]

to move towards digitalization or convergent services, such as the Internet, additional digital applications and subsequent interplay between traditional regulatory methods and the new approaches required for the stated objective (IFT, 2020: 79, 91).

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Simposio Mundial para Organismos Reguladores (GSR-21)
(Evento virtual, 2021)

Contribución de la Instituto Federal de Telecomunicaciones (IFT)
para el GSR-21 consultación

INSTITUTO FEDERAL DE TELECOMUNICACIONES

NOTA INFORMATIVA

12 de mayo de 2021

Consulta del Simposio Mundial para Organismos Reguladores de 2021 (GSR-21) “"Mejora de la reglamentación para la financiación de la infraestructura digital, el acceso a la misma y su utilización" – Contribución de México

El Instituto Federal de Telecomunicaciones (IFT), regulador y autoridad de competencia económica en el sector de telecomunicaciones y radiodifusión en México, presenta la siguiente contribución a la consulta del GSR-21 relativa a la “Mejora de la reglamentación para la financiación de la infraestructura digital, el acceso a la misma y su utilización” en los siguientes ámbitos temáticos:

- **Inducción de mecanismos nuevos, eficaces y ágiles para financiar la infraestructura digital, el acceso a la misma y su utilización.**

Para la promoción del despliegue de infraestructura digital, así como el acceso y uso de la misma, se considere que los organismos reguladores pueden implementar diversos mecanismos como:

- El otorgamiento de incentivos fiscales a los operadores de telecomunicaciones.
- Promover la colaboración entre las autoridades locales y del gobierno federal, tal y como lo ha implementado el IFT con la finalidad de estandarizar y reducir la reglamentación, así como de acortar el plazo de aprobación para dicho despliegue.
- Fomentar la colaboración entre los operadores de telecomunicaciones, las autoridades locales y el gobierno federal a fin de implementar programas de capacitación que promuevan el acceso a internet y la adopción de TICs.
- Se deben impulsar cambios regulatorios que facilitan la adopción de financiamientos mixtos, co-inversiones y asociaciones público privadas.
- Fortalecer la regulación en materia de compartición de infraestructura y la búsqueda de mecanismos dinámicos y de compartición del espectro, así como la flexibilización y agilidad en los trámites y autorizaciones de nuevos proyectos de infraestructura en los que puedan participar en asociación los distintos tipos de agentes del mercado.
- Implementar prácticas como las “cajas de arena regulatorias” como medio para fomentar la innovación en materia de inversión de infraestructura digital.

De igual manera, se considera de gran relevancia fomentar el establecimiento de reglas claras, la emisión de regulaciones eficaces con la guía del Ciclo de Gobernanza Regulatoria, la promoción de la consulta pública como medio para identificar omisiones, sesgos, efectos no identificados y la elaboración de los Análisis de Impacto Regulatorio. Todo ello con la finalidad de identificar claramente el problema que se quiere atender, las diferentes maneras

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de hacerlo, la viabilidad económica de implementar la regulación, comparar distintas propuestas o alternativas, y examinar de manera sistemática los beneficios, costos y efectos potenciales de una propuesta normativa. De esta manera, se logrará, junto con una colaboración interinstitucional, implementar prácticas que mejoren la asequibilidad y potencien el uso de la infraestructura digital.

2. Creación de prototipos de modelos reglamentarios para el mundo digital posterior a la Covid.

Como se ha podido observar, la pandemia ha acelerado la transformación digital de toda la sociedad, por lo que es necesario que la reglamentación sea accesible y flexible a fin de que ésta sea acorde a las necesidades de esa misma transformación y que considere la convergencia tecnológica, así como la regulación en materia de competencia.

Como se mencionó anteriormente, se considera relevante la integración de *sandboxes* o cajas de arena regulatorias, como herramientas para promover e impulsar el desarrollo e inversión en tecnologías emergentes. Estas deben ser consideradas como alternativas viables para el desarrollo y evolución de los modelos de negocio basados en tecnologías emergentes, en un ambiente seguro y controlado ya que proporcionan canales de comunicación entre los supervisores y regulados, un espacio de prueba delimitado y controlado, productos innovadores y una regulación "relajada". De esta manera, se podrá abrir una ventana de posibilidad y seguridad para las empresas emergentes y los organismos de financiamiento y, para los reguladores, así como la identificación de problemas clave antes que se presenten los principales riesgos.

3. Liderazgo transformador para dar rienda suelta al potencial de las tecnologías y los modelos de negocio incipientes

Actualmente, la evolución tecnológica está modificando el panorama de todos los modelos de negocio, transformando los modelos tradicionales, por lo que la regulación debe ser el reflejo de este escenario y convirtiéndose en una reglamentación convergente y multimodal.

En este sentido, se considera que el liderazgo transformador debe considerar una gobernanza eficaz, que se fundamente en el monitoreo de las principales variables, y que priorice la rendición de cuentas y evaluación periódica. Este proceso de gobernanza permitirá una regulación adaptativa como un medio para responder a las nuevas necesidades de los mercados, analizando el impacto de las regulaciones implementadas y los usuarios, y estar en condiciones de aplicar las modificaciones pertinentes.

Asimismo, se considera que una regulación colaborativa nacional e internacional, que incluya a la mayor cantidad de jugadores (multisteakholder) dentro del ecosistema tecnológico,

permitirá una visión y cobertura global por lo que deberá de efectuarse en todas las etapas del proceso regulatorio, es decir, desde su diseño hasta la implementación. Al respecto, se considera necesario tomar en cuenta la cooperación regulatoria internacional que, mediante mecanismos como memorandos de entendimiento, asociaciones político - formales, acuerdos de reconocimiento mutuo, disposiciones regulatorias en acuerdos comerciales y la participación en foros regionales y multilaterales; anula la distancia física y hace posible que los reguladores contemplen las acciones más allá de las fronteras nacionales, elaboren estrategias conjuntas para afrontar retos transfronterizos, aprendan de la experiencia de sus pares y utilicen la evidencia para la toma de decisiones.

En este sentido, se destaca también la importancia de foros y mecanismos regionales como el Foro Latinoamericano de Entes Reguladores de Telecomunicaciones (Regulatel), los cuales permiten fomentar y reforzar la cooperación regulatoria, especialmente en aquellos temas y problemas comunes que enfrentan día a día los reguladores.

Considerando todo lo anterior, el IFT definió una "Hoja de Ruta 2021 – 2025"[1], la cual establece como uno de sus objetivos el "promover el desarrollo del ecosistema digital y la adopción de nuevas tecnologías y casos de uso digitales", en pro de atender las demandas del entorno actual; lo cual implica un proceso de renovación que parte del monitoreo y análisis de la tecnología que permite a los servicios de radiodifusión o de telecomunicaciones, transitar a la digitalización o a servicios convergentes como el Internet, aplicaciones digitales adicionales y la consecuente interacción de los métodos tradicionales de reglamentación con las nuevas vías que demande el objetivo planteado (IFT, 2020: 79, 91)".

[1] La Hoja de Ruta 2021 – 2025 se puede consultar en el siguiente enlace: http://www.ift.org.mx/conocenos/hoja-de-ruta-2021-2025

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Ministry of Digital Development, Communications and Mass Media of the Russian Federation for the GSR-21 consultation

Contribution from the Administration of the Russian Federation on best practice guidelines for the Global Symposium for Regulators

Prototyping regulatory patterns for the digital world in the Russian Federation

The regulatory body for telecommunications/ICTs is the Ministry of Digital Development, Communications and Mass Media of the Russian Federation, which has delegated some of its functions to a subsidiary body (Roskomnadzor).

To remove the barriers to the development of the digital economy and create a favourable legal environment for the implementation of digitalization projects, a federal project was launched in 2019 entitled "Regulatory control of the digital environment" to facilitate regulatory sandboxing. As part of the project, legal relationships in the sphere of contemporary technologies were regulated, work was done to adapt legislation to the digital economy, and so on.

Since 2020 the process of drafting laws and regulations has been moving forward at an accelerated pace in order to expedite decision-making in the context of the COVID-19 pandemic. On 24 April 2020, Federal Law No. 123 on the conduct of an artificial intelligence (AI) experiment[1] in the city of Moscow was adopted. On 1 July 2020, a five-year experimental legal regime was set up that gives the government of the city of Moscow the authority to process anonymized personal health data (anonymized data) of citizens for the purpose of improving the effectiveness of the public administration. Also as part of the fight against the pandemic it became possible to process anonymized personal data related to the health of citizens. The AI experiment in question creates the necessary conditions for developing and deploying AI technologies (information and communication infrastructure, software, data processing procedures and services), which will make it possible to prevent the use of personal data from encroaching upon the private lives of citizens. The project participants include some major technology corporations: Kaspersky Lab, Yandex, MTS and Skolkovo participants. Among other things, the project will allow Yandex to develop an autonomous vehicle service that should greatly improve the city's transportation system. The MTS initiative for providing medical care using telemedicine technologies will make it possible to establish a diagnosis without the need for a face-to-face consultation.

In January 2021, a law on experimental legal regimes for digital innovation (Federal Law No. 258 of 31 July 2020) entered into force on the entire territory of the Russian Federation.[2] It stipulates that the use of regulatory sandboxing is extended to the following spheres: medicine, transport, agriculture, finance, commerce, and government services and oversight. The new law gives the public administration and the scientific and business communities a time-limited opportunity to benefit from a special regulatory regime (different from the general regime) for testing technologies (AI, blockchain, big data, neurotechnologies, quantum technologies, virtual reality). If the testing is successful, these technologies can subsequently be marketed.

All of the above-mentioned measures will facilitate adaptation to the digital transformation and the new challenges of epidemiological emergencies.

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[1] Federal Law No. 123 of 24 April 2020 on the conduct of an experiment involving the establishment of a special regulatory regime for the purpose of creating the necessary conditions for developing and deploying artificial intelligence technologies in an entity of the Russian Federation, the federal city of Moscow, and on the amendment of Articles 6 and 10 of the Federal Personal Data Act.

[2] Federal Law No. 258 of 31 July 2020 on experimental legal regimes for digital innovation in the Russian Federation.

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Ministry of Digital Development, Communications and Mass Media of the Russian Federation for the GSR-21 consultation

Вклад администрации связи Российской Федерации в Руководящие указания Глобального симпозиума для регуляторных органов 2021 года

Создание прототипов регуляторных схем для цифрового мира в Российской Федерации

Регуляторным органом в области электросвязи/ИКТ является Министерство цифрового развития, связи и массовых коммуникаций Российской Федерации часть функций которого выполняет его подведомственный орган (Роскомнадзор).

С целью снятия барьеров, препятствующих развитию цифровой экономики, и созданию благоприятного правового поля для реализации проектов цифровизации, в 2019 году был запущен федеральный проект «Нормативное регулирование цифровой среды», способствующий развитию регуляторных песочниц. В рамках проекта были урегулированы правоотношения в сфере современных технологий, проведена работа по адаптации законодательства к цифровой экономике и т.д.

С 2020 года процесс формирования нормативных правовых актов протекает в ускоренном режиме для форсирования принятия решений в условиях пандемии COVID-19. 24 апреля 2020 года был принят Федеральный закон № 123-ФЗ о проведении ИИ-эксперимента[1] в городе Москве. С 1 июля 2020 года на 5 лет был установлен экспериментальный правовой режим, предоставляющий полномочия Правительству Москвы обрабатывать персональные данные, полученные в результате обезличивания (далее – обезличенные данные) в целях повышения эффективности государственного управления. Также в целях борьбы с пандемией стала возможна обработка обезличенных персональных данных о состоянии

[1] Федеральный закон от 24 апреля 2020 г. № 123-ФЗ «О проведении эксперимента по установлению специального регулирования в целях создания необходимых условий для разработки и внедрения технологий искусственного интеллекта в субъекте Российской Федерации – городе федерального значения Москве и внесении изменений в статьи 6 и 10 Федерального закона “О персональных данных”»

здоровья граждан. Данный ИИ-эксперимент создает необходимые условия для разработки и внедрения технологий искусственного интеллекта (информационно-коммуникационную инфраструктура, программное обеспечение, процессы и сервисы по обработке данных), что позволит исключить использование персональных данных для вторжения в частную жизнь граждан. Участниками этого проекта стали крупные технологические компании: «Лаборатория Касперского», «Яндекс», «МТС» и резиденты «Сколково». В частности, благодаря данному проекту «Яндекс» будет развивать сервис беспилотных автомобилей, который значительно усовершенствует транспортную систему города. Инициатива «МТС» по оказанию медицинской помощи с применением телемедицинских технологий, сделает возможным установление диагноза без необходимости приходить на очный прием.

В январе 2021 года вступил в силу закон об экспериментальных правовых режимах в сфере цифровых инноваций на всей территории России (от 31 июля 2020 г. № 258-ФЗ)[2]. Отмечается, что перечень сфер применения «регуляторных песочниц» распространится на медицину, транспорт, сельское хозяйство, финансовую деятельность, торговлю, предоставление государственных услуг и осуществление государственного контроля. Благодаря данному закону у государства, научного и бизнес-сообщества появилась возможность в течение определенного периода времени воспользоваться специальным регулированием (отличающемся от общего) для тестирования технологий (искусственный интеллект, блокчейн, большие данные, нейротехнологии, квантовые технологии, виртуальная реальность). Затем, в случае успешного результата тестирования, выводить эти технологии на рынок.

Все вышеперечисленные меры будут способствовать адаптации к цифровой трансформации и новым вызовам эпидемиологических кризисов.

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[2] Федеральный закон «Об экспериментальных правовых режимах в сфере цифровых инноваций в Российской Федерации» от 31.07.2020 N 258-ФЗ

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from Rwanda to GSR-21

RWANDA CONTRIBUTION TO GSR-2021

1.0. Inducing new, effective and agile financing mechanisms to digital infrastructure, access and use

On this particular subject, the Government plays a vital role in the liberalization of the market through policies, legal and regulatory frameworks that support effective competition.

The Government allocates and assigns spectrum, facilitates access to rights of ways and open access to critical infrastructure. The Government has also the role to attract investors, provide equal opportunities to all operators on the market and give autonomy to the ICT regulator.

The Government further sensitizes the population through digital literacy campaign, to use the internet and facilitates the provision of low-cost user devices and creates e-government applications and digital content that fosters the use of internet.

The Government also monitors the quality of Internet services and supports secure e-transactions.

On this note, the Government of Rwanda (GoR) has made the following initiatives to build an enabling environment:

1.0. Rwanda liberalized the telecom market and established the institutional frameworks that help the sector to develop;

1.1. GoR provided tax incentives or tax deductibility for new investments, both in infrastructure, tangible and intangible assets such as ICT equipment and software;

1.2. In the spirit of providing equal opportunity and access to telecommunication/ICT services to all Rwandans and provide coverage in different uncovered and underserved areas of the country, the Universal Access Fund (UAF) supports Mobile Network Operators (MNOs) to increase their network coverage countrywide;

1.3. Rwanda entered into a partnership with Korea Telecom Networks Rwanda to implement and finance the Fourth Generation netwok (4G) and the coverage is currently above 96%;

1.4. The GoR implemented programs that focused on direct broadband infrastructure development. Which include among others:

- Low-interest loans to students and teachers to acquire digital devices (laptops);
- Subsidizing Internet bandwidth to rural communities for accessing the education, health and public services in rural and remote areas of Rwanda;
- Subsidizing broadband connectivity to ICT Telecentres in rural and remote areas of the country;
- Connecting all technical secondary and college schools in remote and rural areas to the Fiber and VSAT Internet connectivity;

1.5. The GoR established Rwanda Innovation Fund, the initiative that aims to address the financing gap that tech-enabled companies face at different growth stages in Rwanda;

2.0. Prototyping the regulatory pattern for post COVID digital world

2.1. Rwanda established the innovation labs that help startups to sit together and get mentorship services and basic digital infrastructure and develop their products.

2.2. Rwanda put in place the flexible regulatory framework for startups. The regulations governing sandbox have been developed in the utilities and financial sectors and startup companies are benefiting the same.

2.3. Rwanda also developed: the data protection and privacy policy, and law that are able to stimulate the exploration of the data towards data monetization.
2.4. Rwanda is developing the startup act that will facilitate the financing of startup companies.
2.5. Rwanda is working on the roadmap for fifth generation long-term evolution.
2.6. Rwanda is carrying out the feasibility study for implementing the Digital Identity (Digital ID).

3.0. Transformation leadership to unleash the power of emerging technologies and business models

3.1. Rwanda established a multisector and converged ICT regulator where Postal, Broadcasting, Telecom and IT are regulated by a single regulator (RURA).
3.2. In Rwanda's telecom sector, the interconnection obligations and termination rates are imposed to ensure that operators, especially new entrants, can access each other's networks. This has also protected consumers by making sure that they can connect to any other person, regardless of which operator they are using.
3.3. Rwanda's ICT regulator handles dispute resolution between licensed operators in cases where parties cannot come to an interconnection agreement. The regulator also resolves consumer complaints.
3.4. Rwanda's ICT regulator set up a new department, which is in charge of cybersecurity and strategic integration. The same department handles issues related to Technology innovation including block chain, IoT, Big data analytics, AI and smart cities. The overall purpose is to establish the light-touch regulation for digital platforms and promoting and streamlining the use of digital services by different organizations in the country.
3.5. To fully realize the potential of an independent and accountable regulator, its staff should have the necessary skills. It is in line with this framework that Rwanda established the master's degree course in regulatory economics and competition policy, the second of its kind in Africa.
3.6. Rwanda's ICT regulator engages the full range of stakeholders through open consultations, this is particularly important when adopting any digital regulation. Stakeholders in this setting include consumer associations, digital platforms, commercial players in other sectors, such as finance, transportation, and health, as well as other government agencies with overlapping interests and jurisdictions.
3.7. For the purpose of the use of evidence-based, decision-making, Rwanda's ICT regulator introduced within the department of economic regulation, the office in charge of regulatory impact assessment. The office assesses the likely positive and negative effects of the proposed regulations, tariff, decisions and consultations.
3.8. There is a self-regulation framework in media sector where Rwanda Media Commission (RMC) handles all issues related to the content or digital content published by the media outlet.
3.9. Rwanda is going to implement the converged licensing for ICT sector and its concerned regulation has been approved.

Global Symposium for Regulators (GSR-21)

(Virtual Event, 2021)

Contribution from Switzerland for the GSR-21 consultation

Contribution from Switzerland
GSR-21 Best Practice Guidelines

I would like to draw your attention to a recent legislative development in Switzerland, regarding the development of high-speed and superfast broadband. Specifically, it relates to a postulate by the Transport and Telecommunication Commission of the National Council of the Swiss Parliament, requesting that the Government (Federal Council) elaborate a superfast broadband strategy (see 21.3461 | Stratégie de la confédération en matière de très haut débit | Objet | Le Parlement suisse (parlament.ch)).

The Swiss Parliament is requesting that the Government submit a strategy setting out the long-term plan for developing the infrastructure for superfast broadband. In this strategy, the Federal Council must, in particular, show how it will be possible to extend Internet access over the coming years in areas where the market will not allow for the desired coverage of superfast broadband (over 80Mb/s). This means encouraging public demand, without distorting competition or hampering private investment in the network's development. In drafting the broadband strategy, the Federal Council must, among other things, take into consideration the repercussions of a superfast network on local and regional development, and factor in stable trends in economic and professional life.

Against this background, the Swiss Parliament considers that the development of superfast broadband infrastructure on a national scale is of the utmost importance for the Swiss economy and population. Switzerland already has good broadband coverage. That said, in some regions, the degree of coverage remains inadequate, and factors such as urbanization, demand and topography can impede infrastructure development. These regions currently benefit from universal service, in line with the Telecommunications Act. However, universal service currently guarantees only a basic level of service. The fact that the basic level of service in Switzerland is of good quality is solely due to multiple political interventions over recent years, aimed at improving the quality of service to keep up with developments in telecommunications. In the past, this approach was considered acceptable as there was no alternative, but it is no longer deemed appropriate for the medium and long terms. Increasing digitalization means that it is especially important from an economic and social perspective to deploy superfast broadband networks, adapted to future technologies. This was not the case when the concept of universal service was created more than 20 years ago.

The initial plan is to guarantee universal access to superfast broadband of at least 80 Mb/s. Subsequently, the Federal Council must establish how to encourage the medium-term deployment of the infrastructure needed for superfast broadband of at least 80 Mb/s. The Federal Council therefore needs to develop a superfast broadband strategy that will, in future, cover every region in the country in a targeted and effective manner, adapted to local needs. The strategy will also have to reduce, as far as possible, the risk of market distortion and be fully effective within around 8 to 10 years. The Federal Council must also look into possible sources of funding, and conduct a costing estimate. One solution for a source of funding would be to use part of the monies received by the Confederation from spectrum auctions for mobile telephony frequencies. Part of that income would thus remain in the telecommunication market.

With the above, the Swiss Parliament has strengthened the Swiss Government's initiative (see 16-306-bericht-bakom-2021-04-16-f.pdf (parlament.ch)) in which developing the concept of universal service is proposed as a means of guaranteeing national coverage of no less than

80 Mb/s. Given that universal service in Switzerland was developed and applied to fill gaps in the market and is designed to offer a range of basic services of a particular quality at an affordable price to the whole population, nationwide, the time has come – according to this initiative – to use some of the mechanisms of universal service to boost coverage across the country.

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Colloque mondial des régulateurs (GSR-21)

(Evénement virtuel, 2021)

Contribution de la Suisse pour la GSR-21 consultation

Contribution de la Suisse

Je vous rends attentif à une activité législatif qui s'est tenu dernièrement en Suisse, touchant au développement du haut débit et du très haut débit.
Il s'agit concrètement d'un postulat de la commission des transports et des télécommunication du Conseil National du parlement suisse, demandant au gouvernement (Conseil Fédéral) la création d'une stratégie de très haut débit (voir 21.3461 | Stratégie de la confédération en matière de très haut débit | Objet | Le Parlement suisse (parlament.ch))

Concrètement, le parlement Suisse exige du Gouvernement de soumettre une stratégie en matière de très haut débit qui présentera l'évolution à long terme de l'infrastructure de communication à très haut débit. Dans sa stratégie, le Conseil fédéral devra en particulier montrer de quelle manière il est possible d'assurer, ces prochaines années, le développement de l'accès à Internet dans les régions en Suisse où le marché ne permettra pas d'atteindre la couverture souhaitée en matière d'Internet à très haut débit, soit à plus de 80 Mb/s. Il s'agit de mettre en place un encouragement public qui n'entraîne pas de distorsion de concurrence ni d'entrave aux investissements privés dans le développement du réseau. Lors de l'élaboration de sa stratégie en matière de haut débit, le Conseil fédéral devra en outre prendre en considération les répercussions du raccordement au réseau à très haut débit sur le développement des sites et des régions et intégrer à ses réflexions des tendances stables de la vie économique et professionnelle.

Dans ce contexte, le parlement Suisse fait part que Le développement d'une infrastructure de communication à très haut débit à l'échelle nationale revêt une importance de premier plan pour l'économie et la population. La Suisse dispose déjà d'une bonne couverture en haut débit. Toutefois, dans certaines régions, le degré de couverture fourni par le marché restera insuffisant, la situation en matière d'urbanisation, de demande ou de topographie jouant contre un développement de l'infrastructure. Les régions concernées bénéficient à l'heure actuelle du service universel en matière de télécommunications, conformément à la loi sur les télécommunications. Cependant, dans sa forme actuelle, le service universel ne peut garantir qu'un service de base. Or, si le service de base est de bonne qualité en Suisse, c'est uniquement grâce aux multiples interventions des milieux politiques, ces dernières années, visant à relever le niveau de qualité du service afin qu'il soit conforme aux évolutions dans ce domaine. Il a fallu se contenter de cette approche par le passé, faute d'autres instruments, mais il s'avère aujourd'hui qu'elle n'est pas pertinente à moyen et long termes. Compte tenu de la numérisation croissante, le déploiement de réseaux à très haut débit, adaptés aux technologies futures, revêt une importance cruciale pour les activités économiques et sociales, ce qui n'était pas le cas dans cette mesure lorsque le service universel a été conçu, il y a plus de 20 ans.

Dans un premier temps, il est désormais prévu que la Confédération garantisse un débit Internet minimal de 80 Mbit/s dans le cadre du service universel. Dans un deuxième temps, le Conseil fédéral doit définir comment il peut encourager, à moyen terme, le déploiement d'une infrastructure de communication à très haut débit de plus de 80 Mbit/s. Le Conseil fédéral doit donc élaborer une stratégie en matière de très haut débit qui permette, à l'avenir, de couvrir toutes les régions du pays de manière ciblée, efficace et adaptée aux besoins. La stratégie en question devra également réduire autant que possible le risque de distorsion du marché et déployer ses effets dans environ huit à dix ans. Le Conseil fédéral doit également réfléchir aux sources de financement possibles et procéder à une estimation des coûts. Une solution consisterait à utiliser, comme source de financement, une partie des recettes de la Confédération provenant des ventes aux enchères réalisées pour l'adjudication du spectre de fréquences de téléphonie mobile. En d'autres termes, cette partie des recettes mentionnées resterait destinée au le marché des télécommunications.

Avec cette activité, le parlement Suisse a renforcé une initiative du Gouvernement Suisse (voir 16-306-bericht-bakom-2021-04-16-f.pdf (parlament.ch)), dans laquelle un développement du concept du service universel est proposé pour garantir une desserte nationale de 80 Mbit/s. Sachant que le service universel en Suisse a été conçu et appliqué pour pallier les lacunes du marché et qui a pour vocation d'offrir un éventail de services de base, à qualité définie et à des prix abordables, à l'ensemble de la population sur tout le territoire national, il est – selon cette initiative - maintenant temps d' adapter ce concept pour permettre und desserte plus poussée au niveau national en utilisant certains mécanismes du service universel.

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Office of Communications (Ofcom)
for the GSR-21 consultation

Global Symposium for Regulators (GSR) 2021 Best Practice Guidelines Topic

Inducing new, effective, and agile financing mechanisms to digital infrastructure, access, and use: *Digital infrastructure and services have become the foundation of the digital economy and society, and a powerful driver for development. What new policy and regulatory tools can be leveraged to trigger a multiplier effect on investment in digital infrastructure and services? Is there a 'silver bullet' for accelerating the rollout of ubiquitous connectivity? How can regulation improve affordability and enhance use? What regulatory incentives can stir the forming of new financing models, such as blended and pooled financing? What is the new role of policy makers and regulators with regards to bridging financing gaps? How can new regulatory patterns help craft new breeds of partnerships among different types of market players, funding agencies, banks and non-traditional players?*

Ofcom submission

1. The Covid-19 pandemic has underlined how important reliable broadband is to people and businesses. Broadband has allowed countless millions of people around the world to work, socialise and access health, education, and other government services remotely. However, many still lack access to affordable high-quality broadband. Investment in rolling out and (given rising bandwidth requirements) upgrading telecoms infrastructure is vital, as is ensuring affordable access.

2. The UK has recently adopted policy measures to increase investment in both mobile and fibre broadband services, including in areas which have traditionally been underserved. This includes a shared rural network designed to address poor rural mobile coverage (more information is available on that here), as well as a regulatory strategy to increase the availability of affordable, competitive fibre networks (which is outlined here). Investment in fibre is important for operators' transport/core networks, as well as to support rising user demand for fixed broadband access and to provide backhaul for increasingly capacity-hungry mobile broadband networks.

3. Historically, regulators have approached the roll out of, and upgrading to, fibre networks in different ways, according to their national situation. Many developing markets have little legacy fixed infrastructure (i.e. copper) so have considered rolling out substantial greenfield fibre. Other countries have needed to upgrade to fibre to the premises (FTTP) as the topology of their legacy fixed broadband networks left little or no scope to significantly extend the life of copper by adopting interim approaches like fibre to the cabinet (e.g. long distances from homes/offices to the cabinet meant the speeds that could be supported were too slow). Given rapidly rising internet demand and the time it takes to deploy or upgrade to extensive fibre networks, there is little scope to defer this evolution – especially as copper reaches the end of its useful life[1]. The key aim is therefore to support affordable fibre availability over as wide an area as possible.

4. Fortunately, growing demand for fibre capabilities has largely meant a greater interest from private investors in deploying fibre. In such cases, the role of regulators is to encourage such investment to try to support a vibrant, competitive market for future-proof broadband services. However, at the

[1] According to Cisco's annual internet report (2020), the average global fixed broadband speed is expected to more than double from 2018-2023 reaching 110.5 Mbps. The region with the fastest rate of growth is the Middle East and Africa which is expected to grow 4.2-fold reaching 41.2 Mbps.

same time regulators might need to adopt alternative approaches to support investment in those areas where there might be less or no commercial interest in deployment, or where competition is less feasible, such as less populated areas.

5. Where the market can sustain it, there are strong arguments for promoting broadband network *infrastructure* competition, rather than relying solely on access-based *service* competition on a single network. Competing network providers have greater scope for product differentiation and their control over the network means they can strive to win customers and generate higher margins by offering a better service than their competitors (e.g. faster speeds and higher reliability). Although this involves the replication of network investments, it can deliver significant benefits to consumers in the longer term from innovation (including innovation to increase efficiency and reduce costs), greater choice, and stronger incentives for price competition.

6. There are a variety of ways regulators can help incentivise private investment and competition in fibre networks.[2] In March 2021, Ofcom published the conclusions of its Wholesale Fixed Telecoms Market Review (WFTMR) on the regulation of the fixed telecoms markets that underpin broadband, mobile and business connections, for the period from April 2021 to March 2026. Our approach included:
   - Cutting the costs of rolling out networks: where there is a fixed telecom incumbent with market power, mandating third-party access to their ducts and poles can significantly reduce the upfront cost of building competing networks (in the UK, for instance, by around half).
   - Helping secure investments by new providers: New regional broadband providers can struggle to get a foothold in the market when an existing operator targets their potential customers with geographic discounts. Regulators can reduce this risk by ensuring that those with market power can only offer such discounts on a nationwide basis, thus reducing the risk that discounts are used to target new localised competition.
   - Providing clarity on future fixed broadband regulation: An uncertain regulatory environment can discourage network investment, so setting a clear regulatory framework with a sufficiently long time horizon can help provide regulatory stability and reassurance to all market players and potential investors.

7. Regulators might also consider methods for incentivising operators with market power to deploy fibre where there is none. This is especially important in areas where they provide the only fixed broadband network. Where a regulator considers imposing price controls to promote affordability, these can be selectively modified to allow the operator to charge marginally higher prices for full fibre products than the latest generation of legacy networks (e.g. advanced DSL), thus incentivising investment. Operators with market power are also often required to provide wholesale access to their networks (at regulated prices) to support competition for affordable broadband services. By selectively applying regulated pricing to entry-level superfast broadband services, regulators can encourage both the incumbent and any new providers to invest more in fibre deployments which support the fastest services.

8. There might still be some geographic areas where private investment in fibre networks will struggle to make returns – typically rural and remote locations. In these areas, regulators can adopt cost-based charge controls applicable to operators with market power (who are subject to regulated

[2] Ofcom focused on gigabit-capable networks, i.e. broadband services able to provide download speeds of 1 Gbit/s typically delivered over full-fibre networks and latest versions of hybrid fibre/coaxial cable networks

pricing) to ensure they are able to cover the costs of their investment. However, in some areas, the business case might not be present to justify fibre investment, and government subsidies might be the only means of supporting deployment in the near-term. It is important that regulators and governments work together to help define such locations in order to minimise the risk of subsidising investment in areas which might have otherwise been covered over time by a private investor.

9. The right mix of regulatory measures, especially those that focus on an incumbent with market power, might well vary in different parts of the country. This means regulators need to take time to assess the broadband market on a local basis to craft the right approach. In the UK, Ofcom defined three different areas in order to tailor its approach:

    - Areas with existing market competition: These areas typically require the least intervention.
    - Areas with the potential for material competition: Care needs to be taken in these areas to enable wholesale access to the incumbent's network to ensure service-based competition without undermining incentives to deploy competing networks (e.g. not regulating prices for the fastest services that can only be supported by fibre).
    - The remaining areas: There are likely to be less densely populated rural areas that require cost-based charge controls and potentially subsidies.

Global Symposium for Regulators (GSR-21)

(Virtual Event, 2021)

Contribution from the U.S. Federal Communications Commission
for the GSR-21 consultation

U.S. FEDERAL COMMUNICATIONS COMMISSION
CONTRIBUTION TO GSR-21 CONSULTATION:
"Regulatory Uplift for Financing Digital Infrastructure, Access and Use"

The United States Federal Communications Commission is pleased to participate in the 2021 Global Symposium for Regulators (GSR) consultation and offers this case study as an example of topic 3, ***transformational leadership to unleash the power of emerging technologies and business models***. We believe this example can suggest certain overarching principles which may serve broadly as a useful reference for others, and which we proffer in conclusion.

INTRODUCTION

Both in the United States and globally, the demand for wireless broadband service continues to grow, with a large proportion of mobile traffic data delivered on an unlicensed basis through devices using Wi-Fi, Bluetooth and similar protocols. The coronavirus pandemic has only amplified this trend, increasing the reliance on Internet connectivity and data intensive applications, requiring high capacity Wi-Fi connectivity, regardless of where we are, for all aspects of daily life, including remote access to education and healthcare.

The U.S. Federal Communications Commission (FCC) aims to facilitate an enabling regulatory environment that benefits consumers, bolsters competition, and allows industry-driven innovation to thrive. To support 5G development and deployment and bridge the digital divide, the FCC has taken a multifaceted approach to freeing up additional spectrum in the low, mid, and high bands for a variety of business plans. To successfully meet the need for additional network capacity while facing finite spectrum resources, the FCC has also sought to enable more efficient spectrum usage, balancing both licensed and unlicensed uses.

In particular, the FCC adopted new rules for the 6 GHz band, making 1,200 megahertz of spectrum available for unlicensed use. Unlicensed devices that employ Wi-Fi and other unlicensed standards have become indispensable for providing low-cost wireless connectivity in countless products used by consumers. By expanding unlicensed broadband into the 6 GHz band, the FCC created an opportunity for innovators to provide new and advanced services, such as the next generation of Wi-Fi (*i.e.*, "Wi-Fi 6"), while also ensuring that licensed incumbent operations in the band continue to flourish. The 6 GHz spectrum also will complement spectrum where Wi-Fi is presently deployed to ease any existing and anticipated congestion so that businesses and consumers can take advantage of new data intensive applications.

UNLICENSED USE IN THE 6 GHZ BAND

In October 2018, the FCC began a public consultation to explore how best to provide new opportunities for unlicensed use in the 6 GHz band (5.925-7.125 GHz) while safeguarding licensed services currently operating in the band. The proceeding attracted the participation of more than 150 diverse stakeholders, highlighting active industry engagement throughout the policymaking process.

In April 2020, after extensively evaluating all of the comments filed in the proceeding and other relevant considerations, the FCC authorized two types of unlicensed operations in the 6 GHz band – standard power or indoor low power. Devices communicate using power levels that depend on the type of access point to which they are connected – either the standard-power or the indoor low-power access point.

- *Standard-power:* The FCC permitted indoor or outdoor standard-power unlicensed operations in 850 megahertz of the 6 GHz band (5.925-6.425 GHz and 6.525-6.875 GHz). It adopted power levels and other technical rules generally consistent with existing rules for unlicensed portions of the nearby 5 GHz band, allowing synergistic use of both the 5 GHz and 6 GHz bands to promote unlicensed broadband deployment. These access points can be deployed anywhere as part of hotspot networks, rural broadband initiatives, or network capacity upgrades. To protect incumbent users from harmful interference, the FCC only allows unlicensed devices to operate at these power levels through the use of an Automated Frequency Coordination (AFC) system.

- *Indoor low-power:* The FCC also opened the entire 6 GHz band – a massive 1,200-megahertz test bed for innovation – for unlicensed use. This action increased the amount of mid-band spectrum available for Wi-Fi by a factor of three and allows unlicensed operations to use up to 320-megahertz channels to expand capacity and performance capabilities. These access points will be ideal for connecting consumer electronics in homes and businesses, such as smartphones, tablets, laptops, and Internet of Things (IoT) devices, to the Internet. To prevent interference to licensed services without the need for AFC-controlled access, the FCC established several restrictions so that devices are limited to indoor operation, required to use a contention-based[1] protocol, and subject to low-power operation.

The FCC designed these new rules in order to meet the much-needed capacity demands of the wireless industry and promote innovation and investment in new wireless unlicensed technologies. As a result, industry players have been proactive in developing standards for more efficient protocols that can be used in the 6 GHz band. Notably, the FCC's actions are helping usher in Wi-Fi 6 (*i.e.*, IEEE 802.11ax), which will be over two-and-a-half times faster than the current Wi-Fi standard, with better performance for connected devices. Likewise, in tandem with industry-led standards that will enable unlicensed 5G networks (*e.g.*, 5G NR-U), the FCC's unlicensed spectrum rules will also likely play a major role in the growth of IoT, connecting appliances, machines, meters, wearables, and other devices, as well as industrial sensors for manufacturing.

At the same time, in carefully crafting its rules, the FCC also prioritized protection of licensed incumbent operations. Microwave services in the 6 GHz band, for example, remain critical to supporting utilities, public safety, and wireless backhaul in the United States. By requiring the use of AFC systems, which only allow new standard-power operations in areas that will not cause interference to incumbents, and by placing conservative power limits on low-power indoor

[1] A contention-based protocol allows multiple users to share the same spectrum by defining the events that must occur when two or more transmitters attempt to access the same channel at the same time, and establishes rules by which a transmitter provides reasonable opportunities for other transmitters to operate. *See* 47 CFR § 15.403.

operations, the FCC has taken steps to ensure the continued reliability of these important incumbent services.

To further harness the opportunities of unlicensed use in the 6 GHz band, the FCC continues to consider possibilities for very low power devices, which could enable a new and innovative generation of personal area network technologies with low latency, high capacity, and all-day battery life. The FCC has proposed to permit very low power devices to operate across the 6 GHz band to support high data rate applications including high-performance, wearable, augmented-reality, and virtual-reality devices.

CONCLUSION

The FCC closely follows market developments and industry trends and makes data-driven decisions to identify timely opportunities to incentivize innovation and investment. In the 6 GHz band, the FCC followed an open and transparent rulemaking process with the participation of more than 150 diverse stakeholders, ensuring active industry engagement throughout the policymaking process to better meet the needs of the marketplace. The FCC also evaluated the need for additional network capacity for various services with the aim to increase spectrum efficiency and balance the needs of incumbents and newcomers for the ultimate benefit of consumers.

Unlicensed devices that employ Wi-Fi and other unlicensed standards have become indispensable for providing low-cost wireless connectivity in countless products used by consumers in the United States. As has occurred in the case of Wi-Fi in the 2.4 GHz and 5 GHz bands, the United States expects that 6 GHz unlicensed devices will become a part of most peoples' everyday lives. In making broad swaths of the 6 GHz spectrum available for unlicensed use, the FCC has laid the groundwork for innovative technologies and services that will deliver new devices and applications and advance the U.S. goal of making broadband connectivity available to all the people of the United States, especially in rural and underserved areas.

The FCC commends all ITU Member States that have taken action to address the needs of both consumers and industry by applying the principles identified below for exercising transformational leadership to unleash the power of emerging technologies and business models, and welcomes continued cooperation to promote economies of scale and expand the benefits of ICTs to users worldwide.

***Principles for exercising transformational leadership to unleash the power of emerging technologies and business models*:**

- Regulators are encouraged to follow national and global market developments and industry trends and make data-driven decisions to identify opportunities for spectrum-based services to incentivize innovation and investments in next generation services.

- Regulators are encouraged to take action to meet needs for additional network capacity with the aim to increase spectrum access and efficiency and balance the needs of incumbents, users, and newcomers with new technologies.

- Regulators are encouraged to employ transparent decision-making processes that announce plans and proposed actions and rules in advance and consult all relevant stakeholders providing an opportunity for them to comment on the potential impact of the proposals, and to publish all such comments received.

Global Symposium for Regulators (GSR-21)
(Virtual Event, 2021)

Contribution from the Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)
for the GSR-21 consultation

Contribution from POTRAZ - Zimbabwe

GSR-21 BEST PRACTICE GUIDELINES CONSULTATION

QUESTION 1
INDUCING NEW, EFFECTIVE AND AGILE FINANCING MECHANISMS TO DIGITAL INFRASTRUCTURE, ACCESS AND USE

COVID-19 accelerated the pace of usage of ICTs. Whereas those who had the relevant ICT infrastructure and could afford to access and use ICTs continued with ease in the new normal environments of working from home, e-learning, e-commerce, online banking, among other new normal facilities. However, for the section of the population who had no access to ICT infrastructure and could not access and use the infrastructure due to affordability reasons, the story was totally different.

The need to increase digital infrastructure especially in unserved and underserved areas became paramount in order to connect the unconnected to enable them to also benefit from the digital economy and experience the new normal life and thereby bridge the digital divide.
The challenge is that the MNOs perceive investment in the unserved and underserved areas as financially risky since either there is no return on investment at all or there is very minimal return on investment and yet in order to connect the unconnected infrastructure should be available, accessible and affordable.

It is therefore important to consider financing mechanisms to digital infrastructure, access and use that will not drive the digital services out of reach of the unserved and underserved sections of the society:

- Infrastructure sharing reduces the cost of service provision;
- Grants from donors;
- Loans with concessionary interest rates;
- Provision of guarantees by the government;
- collaboration between different sectors;
- Public private partnerships;
- Universal Service Fund programmes
- Release of some spectrum on affordable terms or at no cost
- Devices and services should be available and affordable
- Reduce taxes on ICT gadgets in order to make them affordable.
- Balance operator viability with affordability of the services to consumers so that consumers are able to access and use the digital infrastructure and services.

- Universal Service Fund Programmes
  Policies should promote digital literacy and skills development; The ICT literacy drive should cover all sectors of the economy, starting with the education sector at primary level as well as the rural community. The Universal Service Fund established Community Information Centres in all provinces at which members of the community were trained for free on how to use ICTs. The Universal Service Fund also donated computers and other ICT gadgets to schools as well as internet broadband in order to facilitate e-learning. The programme is still underway. Computers, other ICT gadgets and specialised software was availed to schools and homes that house people living with disabilities in order to ensure access and use of digital infrastructure.

- Release of some spectrum on affordable terms or at no cost.
  In 2020, the regulator released spectrum to operators at no cost in order for them to increase availability of the ICT services in residential areas during the COVID-19 pandemic lockdown when people were working from home. In addition the regulator released spectrum for the establishment of a pilot community network in one of the rural provinces.

QUESTION 2
PROTOTYPING REGULATORY PATTERNS FOR THE POST-COVID DIGITAL WORLD

Digital transformation has taken a quantum leap due to the Covid-19 pandemic. This digital mandate isn't new; it's simply been brought into sharp focus. Prior to the pandemic, a paradigm shift towards digitisation and servitisation of the economy was already underway. Current events have accelerated this paradigm. This new paradigm also requires a re-appraisal of ICT policy and regulation. Such regulatory approaches transformations include:

- Licensing Frameworks

Licensing structures in the telecommunication/ICT sector have been relatively static for some time, licensing in the sector is focused on regulating infrastructure and services. Telecommunication licensing regimes are arguably less focused on market entry and more concerned about the rights and obligations of market participants. The rapid growth of the app economy and global online service providers challenges the efficacy of traditional licensing frameworks. Converged licensing frameworks − featuring unified licenses and simplified administrative procedures will play an important role post-COVID to render the market attractive, enhance the ease of doing business and unlock market potential.

- Innovation Promotion

Regulators need to support and enhance innovation in emerging areas, lift potential barriers set up by existing regulatory frameworks and address gaps through adopting innovation testbeds and regulatory sandboxes in the context of adaptive regulation. Innovation testbeds and regulatory sandboxes support innovation by reducing the time and cost of getting innovative ideas to the market and providing access to finance. They can also be suitable for helping regulators determining when to regulate a given market or technology. In general, the instruments are geared toward supporting a particular innovation or technology, developing a market, enhancing competition, and generating economic growth. The regulator's involvement is no longer limited to oversight, monitoring, and supervision but also advisory and support.

- Regulatory Collaboration

The growing ubiquity of ICTs across all sectors calls for greater regulatory collaboration among ministries, sector and multisector regulators, and a multitude of stakeholders in order to effectively address the impacts and promote the progress of digitalization. Collaborative regulation does not mean more regulation, but instead involves more inclusive, evidence-based, and decision-oriented regulation between the ICT regulator and other sectoral agencies. The digital journey brings together all players – from different backgrounds and sizes – into one living network. Collaboration gives all the opportunity to participate in decision-making, in contributing to the success of others and in forging inclusive momentum around the mission.

- Data Privacy & Consumer Protection

The rise in the use of Internet for e-commerce, online streaming, and social networking has made large-scale data gathering and analysis a valuable strategic asset for market players in the digital eco-system. Commercial practices such as the collection of personal information, and its use and monetization by service providers have become a growing area of concern and a compelling candidate for enforcement priority. While regulators strictly monitor data protection and privacy requirements for users by operators, the regulation of online service providers is often practiced on a rather limited and generally voluntary basis, with there being minimal regulatory constraints. Differences in the regulatory treatment of data protection and privacy concerns causes a void of protection for citizens and an uneven playing field in the market. It is therefore arguable that online service providers offering substitutable services should be subject to the same data protection and privacy obligations as MNOs, so as to provide a stable and level regulatory environment where competition and consumer choice and protection is promoted.