ITUGSR
KAMPALA2024

Kampala, Uganda, 1-4 July 2024

Chairman's report

Regulation for Impact

The 23rd edition of the Global Symposium for Regulators (GSR-24) was held in Kampala, Uganda, from 1 to 4 July 2024 under the theme 'Regulation for impact'. The event attracted over 600 participants including Government Ministers and Deputy Ministers (10), Heads of Regulatory Authorities and C-level industry executives (50+) from over 77 countries.

GSR-24 was organized by the International Telecommunication Union (ITU) in collaboration with the Government of Uganda. The Symposium was chaired by Mr William Nyombi Thembo, Executive Director, Uganda Communications Commission (UCC).

A series of special events took place on 1 July, including the Regional Regulatory Associations (RA) and Digital Regulation Network (DRN) meeting and the Heads of Regulators' Executive Roundtable. The Industry Advisory Group on Development Issues and Private Sector Chief Regulatory Officers (IAGDI-CRO) convened on 2 July. A session of Network of Women (NoW) in ITU's Telecommunication Development Sector on 3 July explored mechanisms for greater participation of women in ICT-related fields and addressed the leadership gender gap in the ICT sector. A technology exhibition was held from 1-4 July showcasing the latest digital innovative technologies and applications from international and local ICT companies. Throughout the GSR programme, discussions focused on maximizing digital opportunities, the space economy, universal connectivity, digital transformation, Artificial Intelligence (AI) and robotics for positive impact, safe and inclusive digital financial services, agile regulation, and digital for climate action.

Regulators from around the world identified and endorsed the GSR-24 Best Practice Guidelines on "Helping chart the course of transformative technologies for impact". The Guidelines can help ICT regulators shape a regulatory environment that enables the rollout of cutting-edge infrastructure to support digital societies and digital economies of the future. The Guidelines also identify measures to minimize risk and maximize inclusive social and economic benefits of transformative technologies. The guidelines are included in annex to this report and can be found on the GSR-24 website at: www.itu.int/gsr24.

GSR core sessions

Opening ceremony

The Opening ceremony welcomed distinguished guests:

- H.E. MAJ. (RTD) Jessica Alupo, Vice President, Uganda
- H.E. Dr Chris Baryomunsi, Minister, Ministry of ICT and National Guidance Uganda
- Ms Doreen Bogdan-Martin, ITU Secretary General
- Mr George William Nyombi Thembo, Executive Director, UCC and GSR-24 Chair, Uganda
- Dr Cosmas Luckyson Zavazava, Director, ITU BDT

In his welcoming remarks, **Mr Nyombi Thembo** welcomed all participants to Kampala, Uganda, the Pearl of Africa. He stressed that one-third of the global population remains in digital darkness, without Internet access, requiring urgent action from telecommunication regulators to close this gap. Internet access has become an absolute necessity for services like education, healthcare, and financial inclusion. Effective connectivity depends on appropriate content and the capability to use it, alongside affordable smart devices. Bridging the digital divide is both an economic and humanitarian imperative, as emphasized by UN Secretary-General Antonio Guterres. Digital inclusion is crucial for social and economic development, especially in sub-Saharan Africa. Achieving this requires collaboration among governments, the private sector, civil society, and citizens to create inclusive policies and infrastructure. Our ultimate goal, he said, is digital inclusion and digital equity, a connected world where each individual can purposefully thrive in the digital era.

Dr Zavazava thanked the Government of Uganda and UCC for the warm welcome and hospitality extended to all participants and congratulated UCC on its Silver Jubilee. For over two decades, GSR has been the leading platform for sharing best practices in ICT and digital regulation, fostering universal access to digital technologies, and strengthening markets. This year, GSR focuses on regulatory agility, collaboration, and excellence to keep pace with rapid changes and impact lives through digital means. Together, he stressed, we can craft regulatory solutions for impact. Emphasizing transformative technologies, the symposium aims to accelerate progress towards Sustainable Development Goals and build inclusive digital economies. This year's GSR Best Practice Guidelines provide a blueprint for charting the course of transformative technologies for positive impact, he added. Dr Zavazava concluded by thanking all regulators and contributors to the GSR Best Practice Guidelines consultation process.

Ms Bogdan-Martin expressed her thanks to the Government of Uganda for hosting this year's GSR. The pace of change since the last GSR is accelerating, raising critical questions about deepfakes, AI's impact on jobs, and cyberattacks. We need rapid action in AI, space, and international cooperation, she stressed. Building bridges to close the digital divide, fostering innovation, and creating a supportive policy environment are essential. Engaging all stakeholders, ensuring interoperability, and balancing benefits and risks without stifling innovation are crucial for progress towards a connected and equitable digital future, she stressed. We need to engage all stakeholders in the regulatory process, ensuring that everyone's voice is heard, she added. Let's make this digital experience inclusive, affordable, and safe, and meaningful for all, she concluded.

H.E. Mr Baryomunsi thanked ITU for choosing Uganda to host this symposium. ICTs accelerate socio-economic transformation, boosting productivity, government efficiency, business competitiveness, and institutional effectiveness. Integrating technology is essential for progress. We must act quickly to incorporate technology into our daily programs and bridge existing gaps, he said. Many governments have put in place ministries and departments in charge of digital transformation, he added, and we need to work together at the continental level, but also within the global framework, to ensure that we realize the key objectives of integrating technology in our programmes. The Government of Uganda has prioritized digital transformation as expressed in their National Development Plan 3. As a ministry, as a sector, we are guided by a roadmap prioritizing digital infrastructure, skills, cybersecurity, data protection, and entrepreneurship, he stressed. We are committed to making ICTs a priority in our national interventions.

Representing H. E. General Yoweri Kaguta Museveni, President of Uganda, **H. E. MAJ. (RTD) Jessica Alupo**, Vice President, welcomed everyone very warmly to Uganda. In delivering the President's message, H.E. MAJ. (RTD) Jessica Alupo commended ITU for uniting telecommunication and ICT regulators, policymakers, and industry stakeholders. The ICT regulators' mandate is to enhance the ICT sector's economic impact. The theme "Regulation for Impact" highlights the importance of effective regulations. H.E MAJ. (RTD) Jessica Alupo urged prioritizing innovation, safety, privacy, and user rights. Uganda, one of the pioneering African countries to establish an independent regulatory body, aims for nationwide communication services through a Digital Transformation Roadmap, she underlined. Emphasizing AI, cybersecurity, and investment, we must balance ICT benefits with potential downsides. Collaboration is essential to protect against cyber threats and support development.

High-Level Segment: Maximizing digital opportunities for impact

The high-level segment featured two engaging complementary conversations.

The Ministerial conversation welcomed esteemed guests:

- H. E. Mr Kabbyanga Godfrey Baluku, Minister of State for National Guidance, Uganda
- H.E. Mr Nape Moses Nnauye, Minister of Information, Communication and Information Technology, Tanzania
- H.E. Mr Poumulinuku Onesemo, Minister of Communications and Information Technology, Samoa

The Regulators-Industry players' conversation welcomed the following distinguished panelists:

- Professor Sandra Maximiano, Chairwoman, Autoridade Nacional de Comunicações (ANACOM), Portugal
- Eng. Omar Alrejraji, Deputy Governor of Regulation and Competition Sector, Communications, Space and Technology Commission (CST), Saudi Arabia
- Mr Bocar Ba, CEO, SAMENA Telecommunications Council & IAGDI-CRO Chairman
- Ms Jane Nkechi Egerton-Idehen, Managing Director & Chief Executive Officer, NigComSat, Nigeria

In starting the conversation, the moderator, **Dr Zavazava**, emphasized that collaboration is key to achieve sustainable, inclusive digital transformation. Ensuring universal, reliable and anytime internet access requires resilient networks and readiness to respond to disruptions, such as the recent undersea cable cuts in East Africa and natural disasters threatening digital infrastructures which are also vital for disaster response. Supportive regulation, investment in diverse connectivity, digital literacy, cybersecurity, and public-private partnerships are critical for leveraging digital tools for societal and economic growth.

The Ministerial conversation offered an opportunity to policymakers actively involved in leading the implementation of national digital policies to share their perspectives on addressing today's digital priorities while preparing for a better tomorrow.

The following experiences were shared:

Uganda has been heavily investing in ICT, a sector they highly depend on, primarily driven by the private sector, contributing 2.5% to GDP. The Digital Transformation Roadmap aims to expand infrastructure, making ICT inclusive, affordable, and nationwide. Efforts include enhancing digital literacy and creating a conducive regulatory framework attractive to companies, with over 40 telecom players, including the four national operators, already investing. ICT is an integral part of the country's economic development and efforts to further enhance their contribution will engage both government and market stakeholders.

Tanzania shared that the process of creating a participatory Digital Economy Framework involving public and private sectors, and civil society was initiated in 2022 and lasted two years. It focuses on five pillars of connectivity: availability, affordability, quality, safety, and impact. The framework, intended to be people-centered, now progresses towards establishing resilient, dynamic and inclusive digital identities with three layers: Digital ID, Digital Finance, and Digital Data Exchange. The ten-year strategy (2024-2034) aims to impact individuals, the economy, and government service delivery and impact on how people are interacting with each other.

In **Samoa**, the government has undertaken several initiatives to develop its ICT sector, including a national digital transformation strategy. This encompasses infrastructure rollout, regulatory reforms, and capacity building. Efforts include expanding connectivity through fibre, mobile networks, and satellite, with free internet provided to schools and plans for national cybersecurity to protect youth and culture. Samoa is also establishing international fibre links and digital IDs. The government is partnering with international organizations such as the World Bank and ITU for support in infrastructure and capacity building. The strategy aligns stakeholders to ensure nationwide connectivity. Regional collaboration within the Pacific region is needed to address common challenges and opportunities, with ITU's support being acknowledged.

The conversation then continued with regulators and industry players sharing their views on adjusting the policy and regulatory pendulum to address today's digital needs while preparing for tomorrow and ensuring resilience of networks and better handling disruption to ensure always on and ubiquitous connectivity.

The following key messages were emphasized:

- Collaboration with stakeholders to protect critical infrastructures is key, including from wildfire risk, as in the case of Portugal. The country's strategic location facilitates global submarine cable connections, essential for its remote regions, with new upgrades planned to enhance security in response to the increased risk of threats to submarine cable communications. The country is also innovating with smart cables for surveillance and scientific data collection, addressing threats and expanding cable functionality beyond communication.
- In Saudi Arabia, the connectivity challenge led to exploring non-terrestrial networks, regulatory changes, and strategic partnerships. Technological advancements include the launch of the NTN program for space-related wireless networks, 5G trials, and IoT experiments with LEO and GEO satellites. Strategic partnerships facilitated competition and infrastructure sharing among operators, with new measures like ZIP Code assignments for exclusive network deployment.
- Infrastructure resilience, robustness, and preparedness are critical for national development, as evidenced by the reliance on resilient networks during the health crisis we went through four years ago. Proactive risk management and cybersecurity cooperation are vital for identifying network vulnerabilities.
- Investment in predictive technologies and artificial intelligence can enhance the robustness of digital infrastructures. Ensuring inclusivity means building resilient networks that provide ubiquitous services for all regions, including remote and underserved areas. Regulatory measures should be flexible to adapt to market dynamics and support rather than hinder technological development.
- West Africa experienced a disruptive subsea cable outage, highlighting the need for network resilience and prompting a coordinated, multilateral approach to risk mitigation and emergency response.
- Nigeria is focusing on disaster management and recovery, examining the entire telecommunications value chain for potential vulnerabilities, including tower operators that impact mobile services. Improvements in quality-of-service measurements include regional and local level analysis rather than national averages and incorporating crowdsourced data to proactively identify and address service gaps.
- It is important to advocate for the independence of national regulators, data-driven decisions, and human-cantered approaches, and to work together.

Session 2: Space economy

Moderator: Dr Dorothy Okello, Board Chair, UCC, Uganda

Panelists:

- Mr Konstantinos Masselos, President, Hellenic Telecommunications & Post Commission (EETT), Greece
- Ms Jane Nkechi Egerton-Idehen, Managing Director & Chief Executive Officer, NigComSat, Nigeria
- Mr John Janka, Chief Government Affair Officer, Global Government Affairs & Regulatory, Viasat
- Mr David Goldman, Vice President Policy, SpaceX
- Ms Tatiana Lawrence, International & Regulatory Vice President, Iridium

This session explored regulatory measures and approaches for an inclusive and sustainable space economy, discussing future services such as satellite direct to device and its spectrum considerations. Future challenges and opportunities were presented, including affordability and partnerships models.

The following key messages were highlighted:

- Direct-to-Device (D2D) will play a key role in mobility and universal access.
- Cross border interference needs to be evaluated when considering D2D.
- A series of challenges lie ahead, from spectrum issues to infrastructure sharing, from funding to market access and adequate regulations.
- Affordability remains an issue. A robust competition of satellite operators is key.
- Challenges for emerging economies include a series of resources such as technical capacity building, access to spectrum orbit resources and investment.
- Many opportunities exist in Africa for deployment of satellite technologies to be used for connectivity and agricultural purposes.
- Non-Geostationary Orbit (NGSO) large constellations are looking into decreasing costs for satellite services and terminals. Service in Africa and Latin America are 2 to 3 times cheaper than in the United States. It is not only about access to spectrum-orbit resources but about affordability as well.
- At a time of satellite innovations, when new applications and disruptive technologies are introduced, regulation needs to be updated without overregulating.
- Partnerships are needed, from Public Private Partnerships (PPP) to partnerships between Satellite and Terrestrial operators.

Special event: Dialogue on tools for sustainable space

Moderator: Ms Ekaterine Imedadze, Commissioner, Communications Commission (ComCom), Georgia

Panelists:

- Mr Jorge Ciccorossi, Senior Radiocommunication Engineer, ITU Radiocommunication Bureau (BR)
- Mr Cecil Amiel, Director for Regulatory Affairs, SES
- Mr Gonzalo de Dios, Head of Global Licensing, Project Kuiper at Amazon
- Dr Laura Roberti, Senior Director, Spectrum & Market Access, Telesat Canada

The session discussed the current innovations in satellite and space communications derived from the WRC-23 outcomes, the path towards WRC-27 and the challenges of space sustainability in the context of increasing number of satellites being launched and planned to be launched in a near future in Low Earth orbit (LEO). Several components of space sustainability were addressed, from space environment to Radio Frequency Spectrum to market access.

The session concluded with a series of messages provided to regulators and industry as tools for action to ensure the responsible use of space to continue benefiting from satellite technologies to maintain and leverage connectivity on Earth.

The following key messages were emphasized:

- The need for globally agreed harmonized, flexible and comprehensive space sustainability guidelines based on science and data.
- The need for global guidelines and regulations on long term sustainability to be reflected in National Policies and legislations.
- The need for data sharing, collaboration and transparency among space users: governments, satellite operators and space agencies.
- While the space environment is becoming more complex, the associated spectrum also requires more elaborate mechanisms to ensure compatibility among systems, prevention from harmful interference and return on investment.
- Everyone needs to get involved in these collective efforts from different roles, either as regulator, satellite operator or space agency, and move into action as best they can to contribute to enhancing spectrum efficiency and space sustainability.

Session 3: Connecting everyone, everything, everywhere, all at once

Moderator: Ms Ava Nadir, Commissioner, Communications and Media Commission (CMC), Iraq

Panelists:

- Mr Gustavo Delgado, Vice President of the Board, Unidad Reguladora de Servicios de Comunicaciones (URSEC), Uruguay
- Ms Isabelle Mauro, Director General, GSOA
- Mr Ben Roberts, CTIO, Liquid Intelligent Technologies Group
- Mr Patrick Masambu, Director General, ITSO
- Dr Bello Moussa, Head of ICT Strategy and Industry Relations, Huawei

This session examined new policy and governance approaches to make the digital economy more resilient and available at the national, regional and global levels as neither everyone nor everything is connected everywhere.

The following key messages were emphasized:

- The world is more interconnected and digital connectivity allows information and knowledge to spread in an increasingly digitalized world.
- Satellite technologies have an immense potential for providing connectivity to everyone, everywhere, at all times, and especially to areas that are currently underserved or unserved.
- To deliver meaningful connectivity everywhere, the optimum solution lies in using the right mix of technologies and leveraging and pooling the strength of different technologies to create economies of scale and lower costs.
- Dialogue and engagement between the public and the private sector are key if we want to ensure that industry continues to innovate, invest, and provide the most meaningful and innovative solutions worldwide.
- Future-oriented policies that ensure equal opportunities for all and encourage competition are needed, as well as regulatory frameworks that are progressive, adaptable, and capable of keeping pace with fast technological advancements. Predictability, especially regarding spectrum and licensing is required to provide the industry with the certainty and transparency necessary for continued investment.
- To ensure resilient first mile connectivity, countries need to collaborate with other countries in their region and consider this on a regional level to achieve a more interconnected network.
- Connectivity and infrastructure are interlinked, and both concepts play a significant role in the development of society and the global economy as they have direct consequences on technology, digital equality, social development, and economic development.
- To ensure meaningful connectivity, we must examine regulatory measures to bridge these gaps: connectivity, usage, and affordability.

Session 4: Mastering digital transformation

Moderator: Mr Petros Galides, Deputy Commissioner, Office of the Commissioner of Electronic Communications and Postal Regulation and EMERG Chair, Cyprus

Firestarter: Dr Abdul Busuulwa, Lecturer Department of Community and Disability studies, faculty of Special Needs and Rehabilitation, Kyambogo University, Uganda

Panelists:

- Mr Louis-Marc Sakala, Director General, Agence de Régulation des Postes et des Communications Electroniques (ARPCE), Congo (Rep.)
- Ms Denyse White Sutherland, Deputy National Chief Digital Officer, Ministry of Digital Transformation, Trinidad & Tobago
- Mr Mothibi Ramusi, Chairperson, Independent Communications Authority of South Africa (ICASA), South Africa
- Ms Lele Modise, Group Chief Legal and Regulatory Affairs Officer, MTN

This session examined how policy makers and regulators respond to the challenges in digital regulation due to the speed of technology evolution. The discussions focused on affordability and access to digital public services and infrastructure, building trust in the transformation process, and ensuring quality of service across digital infrastructures, services, and applications.

The following key messages were emphasized:

- Effective regulation must balance innovation and investment incentives with safeguarding consumer interests, fostering fair competition, and ensuring meaningful connectivity.
- Regulators should expand their expertise in emerging technologies such as AI, IoT, blockchain, cloud technology, quantum technology, 6G, deepfakes, etc, and contribute to achieving environmental sustainability goals.
- Ensuring affordable infrastructure, devices and access to digital services, boosting regulatory frameworks, and enhancing accessibility of tools and open-source software for persons with disabilities are critical to successful inclusive digital transformation.
- Ensuring that policy frameworks remain flexible so that technology can evolve while providing the required protection for citizens.
- Addressing fear and distrust around digital technologies involves deepening citizen engagement, establishing grievance redress mechanisms, and earning trust through adequate policies.

Session 5: Safe and inclusive digital financial services

Moderator: Mr Aliyu Yusuf Aboki, Executive Secretary, West Africa Telecommunications Regulators Assembly (WATRA)

Panelists:

- Mr Mustafa Yasin Sheikh, Director General, National Communications Authority, Somalia
- Mr James Gabriel Claude, CEO, Global Voice Group, Spain
- Ms Mei Lin Fung, Chair, People Centered Internet, USA
- Mr Ronald Azairwe, CEO, Pegasus Technologies Ltd, Uganda

The session focused on the need for regulatory frameworks to balance innovation with security in the digital financial ecosystem. The importance of regulating cryptocurrencies was highlighted to manage their complexities and cross-border nature.

The following key messages emphasized:

- Strategies should include infrastructure development, enhancing telecom networks in rural areas, affordable internet access, and enable legislation to support digital transactions.
- Improve digital literacy and create flexible Know-Your-Customer (KYC) requirements to include underserved populations.
- The significance of collaboration between public and private sectors, as well as the use of regulatory technology (regtech) and big data, was underscored.
- Advocacy for sandboxing environments to test new technologies and support small and medium enterprises in accessing funding based on digital assets.
- Recommendations on enhancing telecom networks in rural areas to facilitate digital transactions, ensuring digital financial products are affordable, and developing services tailored to the specific needs of rural populations, women, and small and medium-sized enterprises (SMEs).
- Advocacy for government policies that support digital payment systems and reduce cash dependency, regulatory harmonization across African countries, improved data collection and accessible identification systems.
- Modernization of cross-sector regulations is necessary to meet current fintech needs.
- Prioritization of ICT at the national policy level is key, as well as to educate citizens to prevent scam and ensure compliance with cybersecurity through regulatory monitoring. It is the shared responsibility of service providers, users, and regulators in securing digital transactions.

Session 6: AI and robotics for positive impact

Moderator: Mr Neil Sahota, Chief Executive Officer ACSILabs Inc, UN AI Advisor, IBM Master Inventor

Panelists:

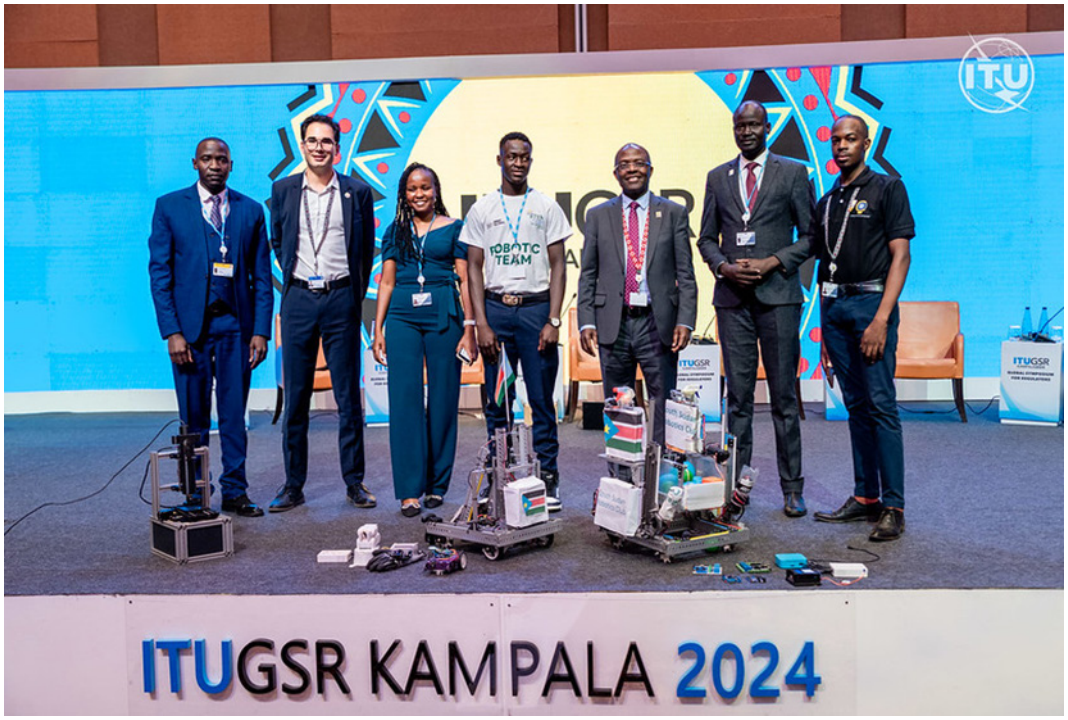
- Dr Gift Kallisto Machengete, Director General, Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)
- Ms Cristiana Camarate Leão Quinalia, Substitute Member of the Board of Directors, Anatel, Brazil
- Mr John Omo, Secretary General, ATU
- Eng. Bassam Al Sarhan, Chairman of the Board and CEO, Telecommunications Regulatory Commission (TRC), Jordan
- Omeife (Humanoid robot) and Mr Chuks Ekwueme (Nigeria), Founder, Omeife AI, Chairman Uniccon Group of Companies
- Dr Joyce Nakatumba-Nabende (PhD), Lecturer in the Department of Computer Science & Head of the Makerere Artificial Intelligence Lab

The session focused on the potential of AI and robotics to drive positive impact, emphasizing the need for robust regulatory measures, ethical considerations, and practical applications. The discussion underscored the importance of creating a balanced approach to harness the benefits of AI while mitigating potential risks.

The following key messages were emphasized:

- AI and robotics can significantly contribute to global GDP growth and innovation, driving positive impact across sectors. Policymakers need to ensure that AI development aligns with economic and social goals.
- Regulators must balance promoting AI and robotics with ensuring ethical standards and protecting citizens' privacy. Comprehensive legislation is needed to address potential risks and safeguard user data.
- Developing countries, particularly in Africa, need foundational infrastructure and high-quality data to effectively deploy AI and robotics. Investments in connectivity and data management systems are essential for success.
- Mitigating bias in AI systems involves using diverse data sets that represent the local population accurately. Encouraging the collection and use of representative data can help achieve fairness in AI outcomes.
- AI applications should align with local norms, values, and behaviors to ensure ethical use and societal acceptance. Tailoring AI solutions to cultural contexts is critical for their effectiveness and acceptance.
- Standardization and governance are important, with clear ethical guidelines covering privacy protection, accountability, transparency, and fairness. Such standards can be established through international cooperation.
- Promoting inclusivity in AI adoption by removing barriers to access and enhancing digital literacy is essential. Initiatives to educate and empower all societal segments can bridge the digital divide.
- International collaboration and knowledge sharing are necessary to address global and cross-border AI challenges. Joint efforts can facilitate the development of robust, universally applicable AI frameworks.
- Governments must provide legislation to protect users, enforce security measures, and educate consumers about responsible AI use. Ensuring legal frameworks are updated to reflect technological advancements is key.
- Supporting local tech start-ups and SMEs through funding, infrastructure development, and business training can foster innovation and competitiveness. Creating a nurturing environment for entrepreneurs can drive local advancements.
- Building AI systems locally, involving end-users, and ensuring transparency and explainability of models are vital for creating trustworthy AI applications. Engaging with the community can improve the relevance and trust in AI solutions.
- Policy development is critical in AI adoption, with frameworks guiding the responsible use and development of AI technologies. Policymakers should focus on creating flexible, forward-looking regulations.

Side event: AI and robotics in action



Moderator: Mr Guillem Martinez Roura, AI and Robotics Programme Officer, ITU, TSB

Panelists:

- Mr Richard Ring Kuach and Emmanuel Maror, South Sudan Robotics Club (SSRC)
- Mr Eugene Kudzai Jamu, Founder and Team Leader, Bruteforce Engineering
- Ms Mumbe Mwangangi (Kenya), co-Founder, Nyansapo AI
- Dr William Wasswa, Head of the Department of Biomedical Sciences and Engineering
- Mbarara University of Science and Technology (MUST), Uganda

The session discussed AI and robotics in action, highlighting various innovations and their impact on the Sustainable Development Goals (SDGs). Young African innovators presented groundbreaking solutions utilizing AI and robotics to address critical challenges such as food insecurity through support to farmers, healthcare, and education in their respective countries. The following key messages were emphasized:

- Supporting African innovators through partnerships, financial backing, and infrastructure development is crucial for fostering local innovation and effectively addressing specific community needs and challenges.
- Integrating AI in education can significantly improve literacy and numeracy in regions with overcrowded classrooms and disrupted education systems, enhancing overall learning outcomes and providing personalized learning experiences.
- AI-powered tools for healthcare can significantly enhance diagnostic accuracy and patient management practices, addressing critical healthcare challenges and improving patient outcomes.
- Ensuring AI systems are free from biases requires collecting representative data and developing context-specific solutions with active community involvement and collaboration, promoting fairness and inclusivity.
- Designing AI systems with a focus on human needs, transparency, and trust is essential for ethical deployment and societal acceptance of these technologies, ensuring they meet the specific needs of diverse populations.
- Fostering public-private partnerships and collaboration between innovators, policymakers, regulators, educational institutions and the private sector is crucial for scaling AI solutions, promoting resources sharing and ensuring an equitable digital ecosystem that benefits all stakeholders and promotes sustainable growth.
- Highlighting the work of young innovators (under 35) emphasizes the importance of nurturing future engineers and policymakers for sustained technological growth, encouraging youth involvement in AI and robotics.
- Increasing financial support is required to help young innovators turn their ideas into scalable solutions, driving economic growth and technological advancements locally, and fostering a supportive environment for innovation.
- Investing in infrastructure that supports the deployment and scalability of AI solutions is necessary for effective and widespread use of AI technologies, ensuring that communities have the necessary resources to benefit from technological advancements.

Session 7: Agile regulation for innovation

Moderator: Mr Philip Marnick, General Director, Telecommunications Regulatory Authority (TRA), Bahrain

Panelists:

- Ms Bridget Mphatso Linzie, Executive Secretary, Communications Regulators Association of Southern Africa (CRASA)
- Mr Mufarreh Nahari, Deputy Governor for International Affairs and Partnerships, Communications Space and Technology Commission (CST), Saudi Arabia
- Dr Tumubweinee Twinemanzi, Executive Director Banking Supervision, Bank of Uganda, Uganda

This session underscored the rapid pace of technological change, highlighting that the next decade will see a century's worth of progress. It was noted that more agile approaches to regulation enabling responsiveness to unforeseen digital developments is needed to foster innovation, leverage new and emerging technologies, and allow learning from failures to improve future market outcomes.

The following key messages were emphasized:

- Agile regulation is required in the face of constantly evolving technologies. Regulatory impact assessments (RIA) are important to evaluate the challenges and opportunities presented by new innovations.
- ICT regulators should carefully balance consumer protection with the need to foster investment in new technologies and infrastructure development. Collaborative efforts to pool resources are highly significant for effective regulation as are using regulatory sandboxes to test and understand new innovations in a cost-effective manner.
- Regulatory sandboxes can create a safe and flexible environment for testing innovative business models, providing regulatory certainty in the face of emerging technologies and allow regulators to understand and evaluate the associated risks. The Bank of Uganda's sandbox initially adopted a hands-off approach, allowing digital financial services to grow, and later they formalized the regulation through the National Payment Systems Act. They applied RIA to guide them evaluating benefits and risks.
- RIA can help regulators to evaluate the potential upsides and downsides of innovation and proposed regulations, ensuring they align with sector goals like financial inclusion and responsible conduct. This process balances innovators' focus on potential benefits with regulators' emphasis on risk, ensuring both parties are aware of and can mitigate potential downsides.
- Regarding the financial sector, collaborative regulation between the ICT and finance sectors is crucial for addressing security and efficiency in digital financial services.
- ICT regulators and the judiciary need to collaborate to keep pace with rapidly evolving technologies and ensure that regulations are interpreted and applied effectively, through workshops and ongoing dialogues to bridge the knowledge gap among sectors.

Session 8: Harnessing digital for climate action

Moderator: Mr Flavien Bachabi, President of the Board, Autorité de Régulation des Communications Electroniques et de la Poste (ARCEP), Benin

Panelists:

- Mr Xavier Merlin, Board Member, Autorité de Régulation des Communications électroniques et des Postes (ARCEP), France
- Ms Gisa Fuatai Purcell, CEO, Office of the Regulator, Samoa (Independent State of)
- Dr Kim Mallalieu, Deputy Chairman, Telecommunications Authority of Trinidad and Tobago (TATT), Trinidad and Tobago
- Ms Dorothy Kabagambe Ssemanda, Chief Executive Officer, ATC, Uganda (Republic of)

The ICT sector, a critical driver of global connectivity and technological advancement, stands at the forefront of efforts to combat climate change and tackle e-waste. However, the absence of regulated emissions reporting hinders effective policymaking, the setting of realistic targets, and progress monitoring. Recognising this critical gap, ITU is leading an initiative to address the challenges in monitoring ICT sector Greenhouse Gas (GHG) emissions. This session discussed what sustainable practices and regulatory challenges are needed to undertake a comprehensive global GHG emissions data collection effort and to tackle increasing amounts of e-waste from the ICT sector.

The following key insights were shared:

- Digital technology, from smartphones to data centers, significantly impacts the environment throughout its lifecycle from manufacturing to disposal. The expansion of data centers and servers to support online activities is a growing environmental concern. The ICT sector, essential for global connectivity and technological advancement, is preparing to take corrective actions to address climate change and e-waste. However, the lack of regulatory emissions reporting hampers effective policymaking and progress monitoring.
- Challenges include the lack of regulatory requirements for reporting emissions, global data collection and ensuring equipment compliance, particularly in low-income contexts.
- Many developing countries face barriers like capacity building, tools, and funding in collecting GHG emissions data.
- Some traditional methods of powering ICT equipment, like using diesel, are not sustainable. Using more energy efficient equipment is key, for example, solar power. The transition however requires substantial investment in solar panels, batteries, and infrastructure. Collaboration between government and the private sector is essential for effective deployment and maintenance of sustainable ICT solutions.
- Incentives for environmentally acceptable equipment are needed, as well as policies that encourage compliance with e-waste regulations. Suggested incentives include duty-free concessions on equipment and awards for best environmental practices to incentivize industry compliance.
- Consumer education is becoming fundamental to promote longer equipment lifecycles and recycling. This is crucial for reducing digital carbon footprints.
- Governance, capacity building, and international collaboration were identified as essential steps for enhancing greenhouse gas emissions monitoring and reporting in the ICT sector.
- Efforts are underway to monitor and mitigate GHG emissions and e-waste from ICT activities. The ITU's role in setting common indicators and methodologies for measuring ICT sector emissions was underscored.

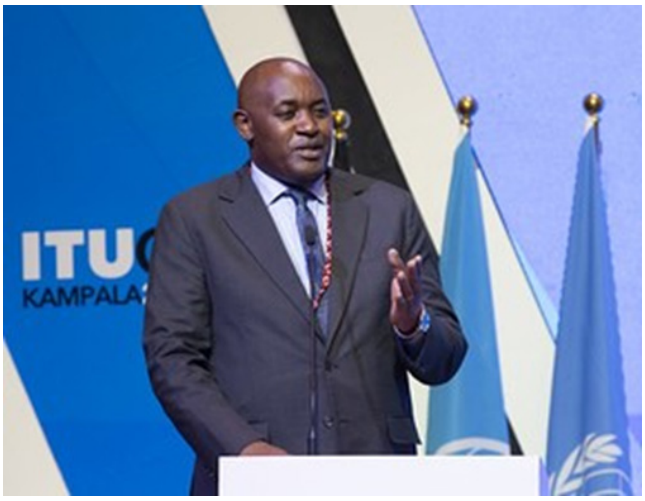
Closing session

BDT Director, **Dr Zavazava**, underlined that GSR-24 provided a unique opportunity to get together, share views, exchange ideas and adopt best practices on topical regulatory and technology policy issues. He recognized all regulators and stakeholders who contributed to making the Best Practice Guidelines a significant outcome of GSR-24, adding that we broke records in terms of contributions received.

In presenting the GSR-24 Best Practice Guidelines on helping chart the course of transformative technologies for positive impact, **Mr Nyombi Thembo**, GSR-24 Chair, thanked all policymakers, regulators, international organizations, private sector and civil society who contributed to the consultation process. He urged all participants to make effective use of these guidelines and to disseminate them widely. By implementing these measures and principles collectively, he added, regulators can contribute towards creating an environment conducive to positive outcomes for all stakeholders, fostering innovation, trust, and social welfare.

Summarizing the discussions and outcome statement of the IAGDI-CRO meeting, **Mr Ba**, IAGDI-CRO Chair, emphasized the need for collective action to achieve 100% connectivity. Discussions focused on digital infrastructure development, implementation of regulatory sandboxes, strategies to enable high-speed connectivity, regulation of the future, including new domains such as AI, and technologies for the future. An Outcome Statement was put forward recommending that regulators create a predictable and transparent regulatory environment that enables competition, innovation, and long-term investment in transformative technologies.

Reporting on the outcomes of the Regional Regulatory Associations (RA) and Digital Regulation Network (DRN) Meeting, **Dr Simba**, Executive Secretary, EACO, and Chair of the RA meeting reported on the achievements of the successful first year of DRN, focusing on capacity building, thought leadership, and regulatory experimentation and innovation. Key activities presented include knowledge sharing through the ITU Academy, the broadband mapping project, capacity building activities, contributions to ITU-D Study Groups, RA participation in interactive workshops and engaging on twinning experiences to learn from other Regional Regulatory Associations.



In his concluding remarks, **Dr Zavazava** expressed his profound gratitude to the Government of Uganda for hosting the symposium. He thanked Mr Nyombi Thembo for his commitment and dedication to GSR-24 and for leading and coordinating the GSR-24 Best Practice Guidelines. He delivered a Certificate of Appreciation to Mr Nyombi Thembo, and further thanked the UCC team for their hard work and the excellent organization. He thanked again the government of Saudi Arabia, for the kind offer to host GSR-25.

In his concluding remarks, **Mr Nyombi Thembo**, extended his gratitude to ITU Secretary-General, Ms Bogdan-Martin and BDT Director, Dr Zavazava, for entrusting Uganda to host GSR-24. He further thanked ITU, his team and all participants for making the event a success.

In his closing remarks, **H.E. Dr Chris Baryomunsi**, Minister, Ministry of ICT and National Guidance, Uganda, thanked Dr Zavazava, Ms Bogdan-Martin, Mr Nyombi Thembo, the Ministers present and all participants for the rich discussions held over the past four days and for coming to Kampala. H.E. Dr Baryomunsi stressed that Africa needs to embrace and integrate new technologies and catch-up with the rest of the world in order to move together.

In closing the meeting, **RT. Hon. Thomas Tayebwa**, Deputy Speaker of Parliament, Uganda, thanked the ITU for choosing the Pearl of Africa, to host GSR-24. He emphasized that huge advancements were made in Uganda in the promotion and implementation of ICT as an enabler of digital transformation. Digital technologies have the potential to significantly boost productivity by making government, businesses, institutions, and individuals more efficient. He further thanked the Head of State, the Minister and the UCC Executive Director for accepting the opportunity of hosting GSR-24. He congratulated the UCC team and all participants for a successful event.

Thank you to the amazing ladies who made the beautiful lanyards for GSR-24!

Special sessions

Regional Regulatory Associations (RA)/Digital Regulation Network (DRN) meeting

The 2024 annual Regional Regulatory Associations (RA)/ Digital Regulation Network (DRN) meeting held on 1 July 2024, was chaired by Dr Ally Simba, Executive Secretary of the East African Communications Organization (EACO). The meeting focused on the Digital Regulation Network (DRN) Initiative, which is serving as a platform for sharing best practices, fostering innovation, and harmonizing regulatory approaches at the regional, inter-regional and global level. The objective of DRN is to support Regional Regulatory Associations and their members in accelerating sustainable digital transformation through collaborative digital policy, regulation, and governance to achieve a resilient, inclusive, and digitally empowered future.

Over the past year, DRN facilitated the active participation of RAs in capacity building workshops, shared digital regulation materials, and called for twinning opportunities to learn from other Regional Regulatory Associations (RAs). Future activities will continue to focus on capacity building, collaborative regulation, twinning, and participation in ITU-D Study Group activities. A call for new DRN Board members was launched after GSR-24 to broaden participation and strengthen strategic direction in the Board.

Regional Regulatory Associations highlighted their ongoing activities and priorities to be taken into consideration in the Digital Regulation Network (DRN) workplan, including addressing gender gap challenges, improving engagement with international bodies; harmonization of regulatory texts; collaboration and sharing of data among regulators; measuring the environmental impact of digital technologies and services and promoting sustainability; and regional digital economic strategy.

Participants highlighted the importance of the DRN initiative and recognized its success. RAs agreed to lend their support to the initiative as a vehicle to facilitate stronger collaboration and cooperation between Regional Regulatory Associations and their members. There is an urgent need, they said, to accelerate the development and deployment of emerging technologies in markets by fostering collaborative regulatory methods that span different sectors, countries, and regions. They agreed that the DRN Initiative is facilitating this collaboration among RAs while helping to build internal capacities.

A special session focusing on the development of harmonized broadband mapping systems offered an opportunity to discuss the importance of broadband mapping with such initiatives being seen as an enabler for investment in sustainable and inclusive infrastructure. Effective digital infrastructure mapping aims to identify infrastructure gaps, target policy and regulatory initiatives and private investment to foster digital access among underserved vulnerable user groups and communities, and can contribute to enhancing network resilience. Furthermore, as broadband mapping systems are based on geo-referenced data, it enables decision-makers to make informed decisions and define evidence-based regulatory approaches to foster market competition and secure funding for broadband infrastructure-related projects for universal broadband access.

The meeting concluded that effective implementation of the building blocks of the DRN Initiative (thought leadership, capacity development, and regulatory experimentation and innovation) within the Regional Regulatory Associations and their members is key to its success. The DRN will continue to foster dialogue among RAs and their members at the intergovernmental, interregional and international levels to respond to emerging digital challenges and sustainable digital transformation.

Heads of Regulators Executive Roundtable

The Heads of Regulators Executive Roundtable held on 1 July 2024 under the theme "Charting the course of transformative technologies" brought together over 160 participants.

BDT Director opened and moderated the roundtable. In starting the discussion, Dr Cosmas Luckyson Zavazava emphasized that with the GSR best practices guidelines, it is our collective responsibility to chart the course of transformative technologies for positive impact as a catalyst to development, economic growth, inclusivity, and sustainability. Technological change requires agile, forward-looking, collaborative and fit-for-purpose regulations to bridge the digital divide and ensure equitable access to the benefits of digital technologies for social and economic development.

In presenting the GSR-24 Guidelines for adoption, **Mr George William Nyombi Thembo**, Executive Director of UCC, Uganda and GSR-24 Chair, thanked all regulators and stakeholders for their contributions to the consultation. A record number of 47 contributions were received. The Guidelines on "Helping chart the course of transformative technologies for impact" aim to maximize the benefits of telecommunications/ICTs for transformative technologies while mitigating risk and ensure inclusivity in their application, Mr Thembo emphasized. By recognizing the interdependencies with other sectors, regulators can create a cohesive framework that supports sustainable development, economic growth and inclusivity. Together, regulators and market stakeholders have the power to turn technology into a force for positive change, illuminating pathways to a brighter and more connected future.

The ITU Secretary-General, **Ms Doreen Bogdan-Martin**, underlined that artificial intelligence has been on everybody's minds ever since ChatGPT took the world by storm in December 2022. At the recent session of ITU Council, she said, the UN Secretary-General declared AI a major revolution. ITU made AI governance an integral part of the AI for Good Summit. Concrete actions were taken, including a Call for AI for good, that was answered by seven organizations and the Partner2Connect Global Coalition committing together USD1.7 billion for digital inclusion initiatives to strengthen global cooperation on policies, regulation, and harmonized standards to avoid fragmentation and to build AI capacity. Regulators are seen as pivotal in implementing these high-level digital governance principles.

Two fire starters set the scene for the discussions.

- Mr Neil Sahota, Chief Executive Officer ACSILabs Inc, UN AI Advisor IBM Master Inventor
- Mr Michael Niyitegeka, Director, Refactory Limited

They shared the following key messages:

- Technologies such as AI, the metaverse, blockchain, and IoT are driving an era of hyper change, where a century's progress may occur in a decade. To manage this, regulators must improve their regulatory agility, particularly around data privacy and usage of the vast amounts of data collected by IoT devices. Additionally, regulations should foster diversity, equity, and inclusion to bridge the digital divide, considering both the risks and the potential for innovation, as seen in Africa's mobile financial systems. Good actors need a nudge, so regulators should think about the potential negative and positive risks when developing regulation. Solutions to local problems can be found at the global level.
- There is an urgency to understanding and adapting to the data-driven nature of the Internet, which is both a marketplace and enabler of transformation across sectors. With the Internet as a critical resource and the foundation for AI and data science, regulators must consider the balance between fostering innovation and drawing boundaries. The challenge is to leverage these technologies effectively, particularly in regions like Africa, to avoid becoming mere consumers and instead contribute to the global transformation. This requires investment in skills development to prepare current and future generations for the realities of this rapidly evolving world.

Heads of Regulators from all regions shared their views and insights on measures taken to minimize the risks and maximize inclusive social and economic benefits for transformative technologies deployment. They also highlighted how GSR Best Practice Guidelines can support regulators in shaping regulation for impact.

The following key messages were emphasized:

- With limited resources at a regulatory authority's disposal, the importance of best practices, guidelines, and international experiences cannot be overstated. They are essential to regulators' daily

operations. Regulators need to learn from each other's experience so together they can work for an inclusive, open, sustainable, safe, and secure digital future.

- GSR Best Practice Guidelines serve as a key tool for regulators, offering benchmarks to refine regulatory processes to foster economic growth, technological innovation, and practices that further inclusive and sustainable development.
- Flexible regulatory frameworks are necessary to adapt to technological evolution, protect consumers and respond to market demands. Innovation promotion is key to meeting future demands. Regulators need to design and implement innovative regulatory methods and tools, such as sandboxes, to foster more agile and adaptive regulation. Collaboration and knowledge sharing are paramount in this regard.
- Regulation must evolve with technology, focus on human-centered approaches, incorporating behavioral insights and prioritizing network security, connectivity, sustainability, consumer protection, and international cooperation.
- As regulators are striving to create digital services for their citizens, the support of international organizations as well as Regional Regulatory Associations and the sharing of experience and practices at the international level is key.
- Policy makers face considerable difficulties in ensuring compatibility across systems, collaboration among stakeholders, sufficient technical resources, adherence to ethical standards, and achieving international regulatory alignment.
- Balancing innovation and safety in tech regulation is critical, it requires data transparency, privacy and collaborative efforts. It also requires promoting digital literacy and collaboration with academia, developing policies in partnership, and learning from successful models for uniform standards.
- It is key to prioritize affordable digital access for all, regulatory policies for competition, and include digital market openness. Address big platform regulation for societal benefits, focus on sustainable digital technologies, and innovate to combat climate change.
- Addressing environmental impacts and ensuring robust infrastructure for digital transformation is a must. Regulators should also manage the digital sector's carbon footprint and electricity consumption through comprehensive measures, considering service networks and data use interdependence, to reduce environmental impact.

BDT Director concluded the roundtable by highlighting that impact and disruption move in tandem. Regulators face several challenges in embracing transformative technologies for greater impact. Developing open, flexible, and risk-based governance structures and proactive approaches for such technologies is a policy priority. Transformative technologies are a challenge that we can embrace if we are ready to adapt. This requires working together across sectors and across borders and sharing knowledge and experiences.

Industry Advisory Group on Development Issues and Private Sector Chief Regulatory Officers (IAGDI-CRO)

The meeting of the Industry Advisory Group on Development Issues and the Private Sector Chief Regulatory Officers (IAGDI-CRO) was held on 2 July prior to the opening ceremony of GSR-24.

The meeting facilitated a constructive exchange of perspectives, experiences, and concrete proposals to refocus efforts on addressing regulatory challenges and seizing opportunities, reaffirming the commitment of the private sector to support regulatory endeavours globally. The IAGDI-CRO meeting focused on the urgent need to expand Internet access for the remaining 2.6 billion unconnected by 2030. The discussions highlighted the necessity of intensified collaboration between terrestrial and non-terrestrial service providers, as well as between service providers and regulators, to adapt regulatory frameworks. Establishing fair market access conditions including a level playing field for all market players stands as a priority. Ensuring spectral efficiency, reducing sector-specific fees and taxes, and ensuring smartphones are affordable, streamlining licensing regimes, enabling predictable and sustainable network investment, and encouraging partnerships with local operators were identified as critical components in this effort.

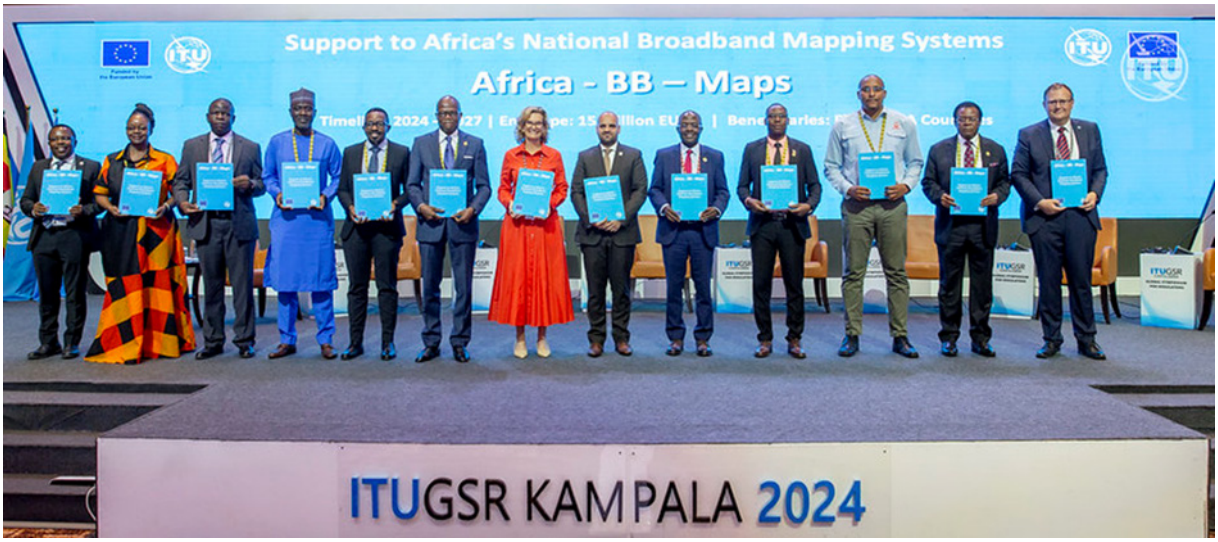
IAGDI-CRO discussions also highlighted the promotion of public-private partnerships to accelerate deployments in underserved areas and recommended implementing regulatory "sandboxes" to test new technologies on a smaller scale. Moreover, it was emphasized that dedicated institutional capacities are needed for continuous monitoring and guidance regarding AI, along with engaging a broad range of stakeholders and collaborating on global standards and regulatory sandboxes to drive adaptable and agile regulations.

IAGDI-CRO re-affirmed in its Outcome Statement the Private Sector's commitment to supporting governments, particularly the Regulators, during today's volatile and everchanging environment to achieve common goals both in the near and long term.

Announcements

- The Communications, Space and Technology Commission (CST) of Saudi Arabia announced that the country will host the Global Symposium for Regulators in 2025.

- ITU and the European Commission announced the Africa-BB-Maps, the Africa's National Broadband Mapping Systems project. The project will help establish broadband mapping systems to foster investment and digital transformation in Africa. With a budget of EUR 15 million over four years, the project will initially benefit 11 countries: Benin, Botswana, Burundi, Côte d'Ivoire, Ethiopia, Kenya, Malawi, Nigeria, Uganda, Zambia and Zimbabwe.



- The Digital Skills Forum, a flagship event, will discuss the most pressing needs that must be addressed to ensure universal digital skills. The event will take place in Manama, Bahrain, from 17 to 19 September 2024. The event, organized by the ITU Telecommunication Development Bureau, is hosted by the Telecommunications Regulatory Authority (TRA) of Bahrain.

https://www.itu.int/itu-d/meetings/digital-skills-forum/wp-content/uploads/sites/25/2024/06/flyer-v3.jpg

Network of Women (NoW) in ITU-D

The Network of Women (NoW) in ITU-D at GSR-24 was an interactive session that sought to discuss barriers and explore mechanisms for greater participation of women in ICT-related fields at the highest levels of policy making with a view to addressing leadership gender gaps in the ICT sector.

The session was attended by approximately 135 women and men and the group discussions were focused on 4 key questions:

- Why is gender balance in the digital ecosystem leadership important and how can we break stereotypes?
- How can a gender perspective inform regulation for impact?
- What policy and regulatory approaches have been and can be employed to increase the participation of women in tech operations and leadership?
- Can you share three ITU-D meetings that you have participated in over the last four years and recommendations to increase women's participation?

Common themes emerging from the group discussions highlighted the need for gender balance in decision-making roles to ensure that policies and regulations address gender-specific needs and design more comprehensive solutions that tackle societal challenges. Empowering women with leadership and digital skills to engage in the digital ecosystem and celebrating the success of women in the ICT sector to inspire others to join the sector was emphasized as fundamental to foster active involvement of women in leadership roles and break stereotypes within the digital ecosystem.

The need for Gender literacy programs, increased access to STEM for girls, enabling gender responsive policies and investment in ICT infrastructure especially in rural communities was noted to enable more women to participate in tech operations and leadership. To facilitate higher participation of women in ITU-D meetings, capacity building programs, internship and mentorship programs were noted as essential. Additionally, ensuring equal representation on panel discussions to promote gender equality and strengthening regional associations was pointed out to enhance collaboration within the ITU-D community. The participants demonstrated high engagement during the session and indicated continued interest in collaborating further to advance gender equality in the ICT sector.

Annex 1: GSR-24 Best practice guidelines

GSR-24 BEST PRACTICE GUIDELINES

"Helping to chart the course of transformative technologies for positive impact"

Dr Cosmas Luckyson Zavazava
Director, Telecommunication Development Bureau (BDT), International Telecommunication Union (ITU)

We stand at the threshold of a digital revolution with profound implications for the future of our societies. Recognizing the nature of advances in transformative technologies, we need to commit to fostering an enabling regulatory environment where innovation thrives while minimizing risks and maximizing benefits. It is our collective responsibility to chart the course of transformative technologies for a greater positive impact, where technology serves as a lighthouse of development, economic growth, inclusivity and sustainability.

Mr George William Nyombi Thembo
Executive Director and GSR-24 Chair Uganda Communications Commission (UCC)

As we navigate the transformative landscape of digital technologies, the importance of impactful regulation cannot be overstated. Our shared learnings and collaborative efforts are crucial in shaping a regulatory environment that not only fosters innovation but also ensures that the benefits of technological advancements are widely shared. By recognizing the interdependencies with other sectors, we can create a cohesive framework that supports sustainable development, economic growth, and inclusivity. Together, we have the power to turn technology into a force for positive change, illuminating pathways to a brighter, more connected future.

GSR-24 BEST PRACTICE GUIDELINES

"Helping to chart the course of transformative technologies for positive impact"

As telecommunication/ICT regulators, we play a key role in shaping a regulatory environment that enables the deployment and maintenance of cutting-edge infrastructure that support digital society of the future, including transformative technologies.

Recalling the series of GSR Best Practice Guidelines since 2003 that capture established regulatory principles for a competitive, secure and inclusive enabling digital environment, we, the regulators participating in the 23rd Global Symposium for Regulators, recognize the importance of defining effective policy and regulatory measures and guiding principles to help chart the course of telecommunications/ICTs as enablers of transformative technologies for positive impact. We have therefore identified and endorsed these regulatory best practice guidelines for helping to chart the course of transformative technologies.

Challenges

Policy makers and regulators face several challenges in embracing transformative technologies for greater impact. These include:

1. Regulatory silos, administrative burdens, policy fragmentation and sector overlaps.
2. The uncertainty of sectoral regulators' roles and responsibilities in addressing the challenges posed by telecommunications/ICT as enabler of transformative technologies.
3. Ethical concerns, including data privacy, big data challenges, artificial intelligence (AI) bias, job displacement, reliability of information.
4. Data governance and cross-border issues, including supranational competition issues.
5. New business models that make it difficult to enforce accountability as well as assign liability.
6. Technology complexities and risk management knowledge.
7. Security risks.
8. Environmental footprint and energy consumption.
9. Access inequality.
10. Investment deficiencies for infrastructure development, access, adoption and use.
11. Lack of skilled human resources in the telecommunication/ICT sector.
12. High deployment costs and potential revenue loss that could inhibit implementation for network operators.

Opportunities

Telecommunications/ICTs can unlock the potential of equal, global access to existing digital services and of transformative technologies, offering to:

1. Improve the efficiency of services by supporting the streamlining processes and applying automation and technology innovation.
2. Benefit from the use of transformative technologies, e.g., when network operators use AI in network planning or the prevention of fraud via their networks.
3. Promote innovation, economic growth and competitiveness, new industries and job opportunities, and enhance transparency and accountability in the public sector.
4. Empower citizens and all stakeholders by providing new means of participation, access to public information and services, and by sharing information.
5. Build partnerships between regulators and industry stakeholders to facilitate shared goals, risk mitigation, and maximization of technological benefits.
6. Enhance user experiences across various sectors.
7. Offer greater opportunity for flexibility, cost reductions, feasibility enhancements and resilience of networks.

Key policy and regulatory measures and guiding principles for positive and inclusive impact

These regulatory measures and guiding principles aim to maximize the benefits of telecommunications/ICTs for transformative technologies while mitigating risks and ensure inclusivity in their application. They emphasize the importance of balancing innovation with responsible regulation to create a positive impact on societies and economies. By implementing these measures and principles collectively, we, regulators, aim to create an environment conducive to positive outcomes for all stakeholders, fostering innovation, trust, and social welfare.

1. **Proactive approach:** adopt a proactive approach that balances innovation promotion with risk minimization and provide a controlled environment that enables businesses to test and scale up their products or services. This includes adopting agile, adaptive and anticipatory regulatory frameworks, applying innovative regulatory approaches such as regulatory sandboxes, regulatory impact assessments (RIA), collaborative regulation, horizon-scanning exercises, and evidence-based decision-making.
2. **Enforcement**: adopt regulations that incentivize ethical conduct and address misconduct, by establishing monitoring and supervision mechanisms to prevent abuses and address risks.
3. **Streamlining regulations and processes**: reduce bureaucratic hurdles to streamline administrative processes (e.g., in licensing).
4. **Stakeholder engagement**: prioritize inclusive stakeholder engagement and public consultation throughout the regulatory process by engaging industry and civil society collaboratively in the pursuit of shaping competitive and inclusive markets.
5. **Transparency and accountability in decision-making, based on data analysis**: ensure transparency, accountability and inclusive design in regulatory processes.
6. **Data collection and sharing**: adopt effective mechanisms for collection and use of data in order to increase the regulator's capacity for action.
7. **Collaboration**: foster collaboration among all stakeholders across different economic sectors, involving policy makers, regulators, regulatory and industry associations, private sector, academia and civil society at the national, regional and international level on developing harmonized governance and regulatory approaches to ensure that telecommunications/ICTs contribute to peace, security, and sustainable development.
8. **Regulatory harmonization**: align regulatory frameworks with international best practices.
9. **Risk-based approach**: consider employing risk-based principles to enhance product safety and effectiveness. Implement risk management and mitigation measures to address potential risks associated with transformative technologies, including research and foresight capacity among policy makers and regulators.
10. **Cybersecurity standards**: enforce robust cybersecurity standards and regulations to safeguard against threats.
11. **Equitable access**: ensure fair, affordable, consistent, resilient and non-discriminatory access and use of all digital technologies, resources and services to address the digital divide and ensure meaningful connectivity.
12. **Market competition and openness**: foster equitable market access and healthy competition among all players and technologies, including start-ups, ensuring sufficient availability of and ease of access to limited resources (e.g.: spectrum) to drive innovation and efficiency and encourage partnerships with local players.
13. **Regulatory incentives**: foster regulatory and economic incentives as well as innovative financing mechanisms that encourage investment and competitive pricing.
14. **Consumer and data protection**: ensure there are personal data protection and privacy regulations in place, as well as protect consumer interests and ensure accountability of service providers.
15. **Data governance**: develop appropriate data governance and transparency policies to strike a balance between safeguarding individual and organizational data privacy, security and integrity and enable cross border data flows to operate effectively.
16. **Ethics and security:** foster the creation of ethical frameworks and secure standards for the development and deployment of transformative technologies in telecommunications/ICTs, including

AI, by incorporating considerations such as human-centered design and non-discrimination.

17. **Promotion of ethical practices:** foster a culture of responsibility through industry-wide codes of conduct and corporate social responsibility initiatives in the telecommunication/ICT sector.
18. **Sustainability**: consider the environmental and socio-economic impact of all telecommunication/ICT technologies in developing policies and regulations. Provide incentives to companies adopting responsible and sustainable practices and encourage research and development for responsible and sustainable telecommunication/ICT technologies.
19. **Education and awareness**: invest in capacity-building and awareness initiatives to improve knowledge, literacy and skills of policymakers and regulators and promote digital skills among the population to ensure optimal use of telecommunications/ICTs and transformative technologies. This can include providing training programmes, technical assistance, and access to relevant resources and expertise.

Policy makers and regulators can encourage market players to:

1. **Employ risk analysis and assessment:** identify potential threats and opportunities associated with business activities and develop preventive measures to minimize threats, such as emergency plans, appropriate insurance and coverage mechanisms to mitigate potential losses.
2. **Diversify activities**: invest in different sectors or markets to reduce exposure to industry-specific risks.
3. **Adopt a sustainability-based approach**: incorporate sustainable practices in business operations to reduce environmental impact and consider social factors in decision-making.
4. **Invest in research and development**: allocate resources to stay at the forefront of the industry, stimulating innovation and reducing risks.

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