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Global Symposium for Regulators (GSR) 2021
Outcome Report

REGIONAL REGULATORY ROUNDTABLE
REGIONAL ECONOMIC DIALOGUE
FOR **ASIA AND THE PACIFIC**

June 8-9

www.itu.int/gsr21-asp

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1. INTRODUCTION

The ITU GSR Regional Regulatory Roundtable and Regional for Asia and the Pacific was held online on 8 to 9 June 2021. The roundtable was organised by the International Telecommunication Union (ITU).

This Regional Regulatory Roundtable for Asia and the Pacific was held within the framework of the ITU World Telecommunication Development Conference 2017 (WTDC-17). It was organised with the support of the Regulatory and Market Environment (RME) Division of the Telecommunication Development Bureau within the context of the Global Symposium for Regulators 2021 on "*Regulation4digitaltransformation: Accelerating inclusive connectivity, access and use*".

The event provided a unique opportunity for all stakeholders to actively exchange their approaches related to fostering policy and regulatory with the objective of creating an enabling environment for the realization of meaningful and inclusive connectivity. It also offered an

opportunity to the delegates to present progress made so far in advancing the policy and regulatory agenda at national and regional levels.

The main outcomes of the Regional Regulatory Roundtable and the Economic Dialogue are outlined in this report, which structures the key points emerged during each session.

2. PARTICIPATION AND DOCUMENTATION

The Forum was viewed by over **123 participants**. Participants included representatives of administrations and National Regulatory Agencies from Member States from the ITU Asia and the Pacific regions, as well as representatives of regional regulatory bodies, private sector and academia and international organizations.

The total number of registered participants was over **123**, with 63 participants representing **26** Member States, **31** participants from ITU-D Sector Members, **7** participants from the United Nations systems, **2** participants from Regional Telecommunications Organizations, and **20** guests.

The event was held entirely in virtual format. Relevant documentation was made available in electronic form on the [event webpage here](#). The Roundtable was supported with **captioning**. **Video recordings** of the roundtable, as well as this outcome report, are also made available on the website, together with the agenda and speakers' bio and presentations delivered.

3. EXECUTIVE ROUNDTABLE WITH HEADS OF NRAS

Ms Atsuko Okuda, Regional Director, ITU Asia and the Pacific Regional Office warmly welcomed participants and thanked them for their unwavering commitment to ITU and support to activities advancing digital transformation in the Asia and the Pacific region at a time when connectivity is never more important. She highlighted the region's significant progress in accelerating digital connectivity and digital transformation, but also noted persistent challenges in the areas of affordability, gender equality, digital literacy, cybersecurity. Digital solutions will be key to success in this final Decade of Action to achieve the SDGs, especially while responding to and recovering from the COVID-19 impact. In short, the ITU's mandate to 'connect the world', has simply never been more important.

Ms Okuda noted how the COVID-19 pandemic has accelerated the region's digital transformation process, where greater regional and international cooperation will be essential, and where national policy and regulation can play a critical role. Emerging technology is rapidly expanding into a wide range of socioeconomic sectors, such as business, agriculture, education and health. She highlighted how regulators need to ask how to create an enabling ecosystem that encourages innovations but at the same time ensure that they benefit all, including women and vulnerable groups in society. She provided an overview of the closed executive roundtable as a platform to co-create policy and regulatory good practices in Asia and the Pacific, with the region's leading and renowned regulators and policy makers sharing their views, insights and inspirations. She emphasized how the GSR-ASP is programmed with less presentations and more discussion, in order to find new ways to identify good practices, and rapidly amplify them throughout the region.

Ms Okuda reiterated how real progress will depend on broad, multistakeholder digital cooperation. The ITU's five Regional Initiatives adopted by the World Telecommunication Development Conference in 2017 remain the roadmap for delivering on the priorities of the

region. She noted how projects have already been implemented in areas of Emergency Telecommunications, Cyber security, Policy and Regulation, Digital inclusion, Spectrum Management, Digital Infrastructure, Child online protection, harnessing ICTs to support the digital economy and digital infrastructure.

She concluded her opening remarks by thanking all the regulators for their collaboration and contribution to ITU's Regional Initiatives, and Asia and the Pacific digital development agenda.

Mr S. Ismail Shah, ITU Area Representative for Southeast Asia and other Member States in Asia and the Pacific was the MoC of this session.

Emerging Trends and their Regulatory Implications

Moderator: Ms Fuatai Purcell, Regulator, Office of the Regulator, Samoa

Presenters: Dr Raul Katz Director of Business Strategy Research Columbia Institute for Tele-Information, USA; Professor Baharul Islam, ITU-ASP Regional Expert on Co-deployment

Ms Fuatai Purcell, Regulator, Office of the Regulator, Samoa (Independent State of), welcomed all participants to the GSR-21 Roundtable and RED Sessions. She noted the importance of optical fibre cables in both fixed and mobile broadband technology, especially in connecting to the backbone network. However, the main issue faced in infrastructure deployment is the high cost. Therefore, this session explored the possibility of co-deployment of OFC with energy as well as the market outcomes of liberalization, competition, and taxation on the telecommunications sector. She further highlighted the desire to develop concrete recommendations that bring the cost of service down while increasing connectivity, but that also take into account the unique context on-the-ground in different countries.

Dr Raul Katz, Director of Business Strategy Research, Columbia Institute for Tele-Information, presented the ITU report on the impact of policies, regulation, and institutions in the post-COVID-19 world¹. He presented the global econometric research which focused on three main questions:

1. What is the impact of government policies and regulation on the performance of the ICT sector, measured by capital investment, network deployment, service pricing, consumer demand, and ultimately impact on the economy?
2. Is competition enough of an incentive to drive an improvement of sector performance?
3. How long does it take for changes in regulation and policies to affect sector performance?

Based on the research and the theoretical framework used, a few key findings were noted. Firstly, the regulatory institutional framework is linked to a positive and significant increase in telecommunications investment. Secondly, a reduction in taxation and administrative burden is linked to a significant increase of capital investment. Thirdly, being affiliated in international organizations that promote sound regulations and good practice is linked to higher telecommunications investment. Fourthly, mobile ICT sector policies (technology neutrality, spectrum sharing, and number portability) have a positive and significant impact on investment.

¹ Available at the Economic Impact of Broadband, Digitization and ICT Regulation Portal: <https://www.itu.int/en/ITU-D/Regulatory-Market/Pages/Economic-Contribution.aspx>

Dr Katz also noted that these positive effects are compounded over multiple years and will translate into further gains beyond a single time period. Therefore, regulators and policymakers need to address the institutional framework guiding industry operations and examine whether some of the policies found to be critical in promoting an improvement of performance are in place. They also need to be examined in detail to determine whether they meet international best practice, as defined in the ITU's ICT Regulatory Tracker.

Professor Baharul Islam, ITU-ASP Regional Expert on Co-deployment, next presented the study on ICT co-deployment with Transport and Energy (Electricity and Oil & Gas) Infrastructure. He noted that this study focused on the role of co-deployment to bridge the digital divide and in increasing connectivity. This was done by reviewing existing regulations on co-deployment and collaborative regulation. It was noted how previous country cases have filled connectivity gaps using this mechanism.

He provided an overview of the four country cases examined: Bangladesh, Bhutan, India, and the Republic of Korea. In each case study, he highlighted the respective national laws and regulations governing telecommunications and co-deployment, and what policies are in place to facilitate co-deployment. From the case studies, he summarized how there is a co-deployment trajectory, where there are firstly national missions, projects, and programs that feed into policies/laws/regulations/guidelines/executive orders. These then evolve further into agreements, Memorandums of Understandings (MoU), and Partnerships that effectuate co-deployment on the ground.

He concluded by noting how collaborative regulation needs to be reverse-engineered. Platforms need to be created to bring together all sectoral regulators, to understand that ICT infrastructure is a common infrastructure. The COVID-19 pandemic has only reinforced this emphasis given the need for broadband access, so the development of this common platform is vital to resolve any issues that may arise (tariff, taxation, etc.). A collaborative regulation approach is needed rather than a siloed sectoral approach.

During the discussion, Dr Katz explained the importance of both passive and active network sharing to deploy networks in rural areas, but that obligatory sharing may not be helpful. He highlighted how sharing will naturally emerge among operators once they recognize the economic variables of redundant network deployments, and how competition (but not unfettered competition) can stimulate deployment and investment, with a certain optimal level of market players to maximize investment.

Professor Islam noted that to accelerate co-deployment, incentivization and matching will allow for collaboration by operators and stakeholders. This nudge has to happen by regulators for operators to view backhaul as a common infrastructure, that can decrease the cost of co-deployment. Professor Islam also highlighted the role of the Domestic Network Coordination Committee in Bangladesh from his case studies, and separately noted how railway co-deployment can be utilized in countries where rail networks were already previously deployed.

Regulator's Roundtable: Emerging Trends and their Regulatory Implications from the Regulator's Perspectives

Moderator: Ms Fuatai Purcell, Regulator, Office of The Regulator, Samoa

Panelists: Dr P D Vaghela, Chairman, Telecom Regulatory Authority of India (TRAI); Major General Amir Azeem Bajwa, Chairman, Pakistan Telecommunication Authority; Mr Joao Freitas, Chairman, Ministry of Public Works, Transport and Communications National Communications Authority, Timor-Leste

Major General (R) Amir Azeem Bajwa, Chairman, Pakistan Telecommunication Authority, started his opening remarks by noting the thought-provoking nature of the previously presented ITU studies. He emphasized how digital infrastructure is a product of supportive policies, business innovation, and technological evolution that requires substantial private sector investment. COVID-19 has severely affected the global economic environment, and new business models are needed to that support connectivity resource sharing, especially as traditional vertical integration is being challenged by outsourced network elements. Therefore, he noted that the key success factors in co-deployment include collaboration between stakeholders outside the traditional telecommunications ecosystem, as well as taking a whole-of-government approach.

The Major-General then expanded on the country's Digital Pakistan policy, where through collaborative and inclusive regulation, there has been the creation of a G4 enabling environment for new industries, e.g. Artificial Intelligence, Internet of Things, quantum computing, etc. The government has also introduced new policies that facilitate the new business model adoptions in the ICT sector, including right-of-way policies, citizen online harm protection, as well as telecommunications licensing regimes. Public consultations on draft infrastructure guidelines to encourage efficient spectrum usage have been conducted, as well as frameworks on index pricing for charging mechanisms.

The Major General concluded by noting how collaboration and resource sharing are highly important. He emphasized collaborations with the State Bank of Pakistan on a range of frameworks and policies, including on a registration blocking system. He noted too the importance of working closely with civic bodies, health operators, equipment providers, and other stakeholders to ensure equipment continuity during the pandemic. Finally, he highlighted how the path to digital transformation requires dedication and assistance, he encouraged fellow regulators to support resource sharing and collaborative deployment by industry.

Mr Joao Freitas, Chairman, Ministry of Public Works, Transport and Communications National Communications Authority, Timor-Leste opened by noting the challenges his organization faced given the latest revolutions in the ICT and telecommunications sector, especially as a young regulator in a small economy with limited human resources. However, he emphasized the regulator's focus on 3 issues: 1) protect consumers, 2) foster competition, 3) provide universal service to promote technologies and innovations.

To protect consumers, Mr Freitas explained how Timor-Leste will officially launch the Consumer Protection Office for the telecommunications sector. They will also introduce the Consumer Complaints Form, which is being rolled out for the first time in the country. To foster competition, he emphasized the introduction of additional spectrum band for mobile broadband services (2300 and 2600 MHz). Finally, to provide universal service, he noted capacity development focused on university students, including the Timor-Leste Research and Education Network program. Through this initiative, Timor-Leste is trying to connect together the existing universities in the capitol, to support students and make resources accessible.

Despite these successes, Mr Freitas reiterated the resource limitations the regulator faced as a young agency. Therefore, they have been pursuing collaborative regulation at the regional and international levels, working closely with the ITU to provide technical assistance. He also noted that stable connectivity is an issue, but the country is pursuing submarine optical fiber cable by 2023.

Mr Freitas concluded his opening remarks by noting the issue of affordability. Currently, although there is good voice coverage, data access for the general population is an issue. Lowering telecommunications prices is also a priority, with Timor-Leste encouraging new

operators. With increased coverage and lower data prices, it is hoped that this will spur economic growth in the country and development.

Dr P D Vaghela, Chairman, Telecom Regulatory Authority of India, opened his intervention by noting how the importance of digital communications has been further emphasized by the pandemic. While telecommunications networks are important, challenges remain in both infrastructure and the technological gap. Additionally, there are issues faced by the emerging technology ecosystem. India has started consultations on 5G and related technology, but also noted how machine learning and big data have permeated every telecommunication vertical. The importance of backhaul, spectrum harmonization globally, and right-of-way policies was emphasized further too. He also noted the importance of data privacy and cybersecurity throughout these issues, where the role of regulation is vital.

Dr Vaghela noted how co-deployment is already in place in India, encouraged by the government, especially in the Railway and energy sectors. He noted projects to provide optical fiber connectivity throughout India by the government, that will be privatized. He noted that this work will emphasize technology neutrality, mobile portability, and other practices that are already in line with the results of Dr Katz's research.

He then emphasized the need to work on digital inclusion and empowerment, including through. There is an understanding gap about this issue among the general populace, and policy interventions are needed to close this gap. Dr Vaghela noted that Universal Services Obligation (USO) budgetary allocations can be utilized to look at the demand side, to ensure people are not excluded as technology is developed and people are incorporated into the digital world.

Finally, he noted the importance of doing impact assessments. Dr Vaghela noted the work done in India already, but that further convergence between government and regulation needs to happen, to ensure synergies and that regulation is seamless across all sectors. He reiterated the need to look at laws to ensure technology can play a full role in economic growth. Collaboration at a cross-sectoral level is needed throughout all regulatory agencies, and government and regulators need to move to collaborative regulation to ensure they can keep up with fast changing times.

In the roundtable discussion, Major General Bajwa elaborated on profit sharing mechanisms in Pakistan and how it is affected vis-à-vis right of way charges. He highlighted how Pakistan's dispute resolution system works in these issues, including through nominated authorized dispute resolution provider for each province with a 30-day turnaround time. Dr. Vaghela also highlighted the profit sharing mechanisms in India currently.

The panelists were also asked a question about the tradeoffs associated with municipal networks developing common infrastructure that is exclusive, meaning it restricts service providers from building their own private infrastructure. Major General Bajwa noted that COVID-19 has ensured policymakers understand ICT a necessity. While civic authorities may not like to invest in common infrastructure due to initial high costs, the long-run value is high, so government sector projects are making it mandatory to lay common infrastructure. He noted this is the way forward, but that it must be done collaboratively to bring down the cost of infrastructure.

Dr Vaghela noted that in India, Internet Service Providers and Telecommunications Operators require a lot of CAPEX, as well as ongoing maintenance costs that cannot be borne by them beyond a certain limit. Additional fees that government bodies institute are also part of this cost factor. Therefore, since it is in the municipal body's interest to have infrastructure buildout,

charges and fees levied should be reasonable, while facilitating equal access among all telecommunications operators.

The panel then pivoted to what lessons learned can be provided for developing countries in this session. Mr Freitas highlighted how as a young regulator with Telecom liberalization in 2012, they can learn a lot from the other regulators with longer histories. However, firstly, human resource capacities must be strengthened to deal with technological change, while also instituting collaborative regulations. He reemphasized that development levels are unique and the country cannot immediately compare itself with other contexts that have different development levels and backgrounds. He noted how as a success story, among the 3 current operators, they reached internal agreement on sharing of cell towers without regulatory intervention.

All panelists emphasized the importance of this session on learning from best practices and on future collaboration. **Mr S. Ismail Shah, ITU Area Representative for Southeast Asia and other Member States in Asia and the Pacific** concluded by presenting a Closed LinkedIn Group for ICT Policy Makers and Policy Makers from Asia and the Pacific (<https://www.linkedin.com/groups/13969059/>) to share informal best practices and have discussions outside of the formalized structures. Interactions here would be meant as suggestions and views expressed, rather than formal statements, leading to more agile and collaborative discussions. ITU-ASP would like to encourage regulators and policymakers will join and engage in this informal group, to further build the network in the Asia-Pacific region.

Ms Atsuko Okuda closed the session by summarizing the key trends highlighted: a need for collaborative regulation through an incentive-based approach, the importance of co-deployment as a tool (especially with 5G), and how to create a conducive enabling environment, including in issues such as dispute resolution and profit sharing. She closed by noting that we all have a lot to learn from each other, hoping that the LinkedIn group will co-create policy and regulatory best practices in the Asia-Pacific region, while accelerating the embracement of emerging technologies.

4. OFFICIAL OPENING

Moderator: Ms Atsuko Okuda, Regional Director, Regional Office for Asia and the Pacific, International Telecommunication Union

Speakers: Ms Doreen Bogdan-Martin, Director, Telecommunication Development Bureau (BDT), ITU; **Ms Mercy Wanjau**, GSR-21 Chair and Acting Director General of Communications Authority of Kenya; **Mr Masanori Kondo**, Secretary-General, Asia-Pacific Telecommunity.

Ms Atsuko Okuda, Regional Director, Regional Office for Asia and the Pacific, International Telecommunication Union, emphasized the importance of ICT connectivity in socioeconomic development especially in the post COVID-19 era. She noted how the Regional Regulatory Roundtable for Asia and the Pacific (RRR-ASP) sessions - on the Global Symposium for Regulators (GSR) Best Practices Guidelines (BPG), Regulatory uplift for financing digital infrastructure, access and use and Collaborative (5th generation) regulations and incentives- are very much aligned with the this year's GSR-21 theme on "Regulation for Digital Transformation: Accelerating inclusive connectivity, access and use" and will provide very important inputs towards the global sessions on 21-25 June.

She noted too how the Regional Economic Dialogue for Asia and the Pacific (RED-ASP) sessions will focus on Incentives to foster affordable ICT services by promoting investment for

meaningful connectivity in the Region, Economic and financial approaches in the digital ecosystem, Effective partnerships for advancing connectivity and achieving the sustainable development goals (SDGs) and Policies and regulations for critical technologies of the future.

Ms Doreen Bogdan-Martin, Director, Telecommunication Development Bureau (BDT), ITU opened the event by welcoming all distinguished attendees to the GSR-21 ASP, and expressed her pleasure to have Ms Mercy Wanjau, Acting Director-General of the Communications Authority of Kenya, as the Chair of GSR 2021.

She focused her remarks around three key themes: (1) challenges faced in the ITU's connectivity work and where regulation has potential to make breakthroughs (2) the ITU's current work to help strengthen effective regulation and institutional frameworks and (3) the ITU's global conversations on connectivity.

Under challenges, Ms Bogdan-Martin highlighted how another wave of the COVID-19 pandemic is surging in the Asia and the Pacific region, emphasizing the importance of enhancing resilience through connectivity. She noted that ICT uptake differs considerably, with internet usage penetration rates ranging from more than 90% in the advanced economies to less than 15% in the region's least developed economies. Although coverage is high, with over 96% of the population within reach of a 3G signal and 94% within reach of an LTE mobile-broadband signal, that does not equate to connectivity. Beyond infrastructure, there are other challenges, including affordability, accessibility, availability of relevant content, online safety, and digital skills and literacy. She emphasized how vulnerable populations are being left behind in meaningful connectivity, and the importance of digital inclusion so that women, girls, youth, the elderly, indigenous people, persons with disabilities, and other groups are able to leverage the power of the internet. She noted the ITU's "Connecting Humanity" study, which highlighted how the investment needed to bring an additional 3 billion people online by 2030 will exceed US\$ 218 billion for Asia and the Pacific region, excluding the cost of a fully-fledged roll-out of 5G across both regions.

Under effective regulation, Ms Bogdan-Martin highlighted the 20 year history of the ITU's Global Symposium for Regulators and how it's helped countries optimize their regulatory strategies to drive faster and more inclusive connectivity. She noted the importance of Fit-for-Purpose regulation in unlocking investment and contributing to overall economic growth. She previewed to-be-published research by the ITU, which explored how the telco markets have been disrupted, the evolution of the traditional telco business models, the opportunities for co-deployment between ICT and energy and transport sectors, and how enabling regulations can help achieve economic benefits and efficiencies. She noted how the reports emphasized the need for coordinated whole-of-government regulatory regimes in guiding development of the digital economy, in collaboration with all market players. These reports follow on the reinforce the conclusions of the 7th Economics Expert Roundtable in February 2021, which also discussed the need to review business models and potential financing strategies to deliver universal connectivity in the post-COVID-19 world.

However, countries in Asia and the Pacific still face challenges in creating enabling environments for digital deployment. Ms Bogdan-Martin noted how the ITU has been tracking the evolution of collaborative ICT regulation, starting from 2007 to date, across the four (now five) generations of regulation. Over the past 13 years, regulatory regimes have evolved with the number of Asia-Pacific countries at Generation 1 dropping from 17 to 3 as of 2019. She also highlighted how the ITU is conducting a series of case studies with the aim of identifying best practices to better frame the gold standard of fifth generation regulation - the so-called G-5 benchmark - to create a point of reference for all regulatory agencies and bodies around the

globe. She emphasized how the strong growth now exhibited in many Asian markets speaks to a quick transitioning continent, one that recognizes the powerful transformative potential of technology for development, and one that is ready to embrace bold new approaches to drive growth. Therefore, the ITU is actively promoting fit-for-purpose regulation by facilitating regional dialogue across regulators, mobilizing resources at the country level, fostering partnership-building within and across regions, and by building awareness and capacity at the global level.

Ms Bogdan-Martin finished her remarks by touching on the subject of *global conversations on connectivity*. Here, she noted how the GSR-21 ASP discussions will not only feed into GSR-21, but into the ITU's next WTDC that will be held in Addis Ababa, Ethiopia. During the recent Regional Preparatory Meeting for WTDC held in Asia and the Pacific, ITU members emphasized enabling policy and regulatory environment as an important regional priority. With connectivity now at the top of the global agenda, there is an unprecedented opportunity to use WTDC to dramatically redraw the roadmap for digital development.

Ms Mercy Wanjau, GSR-21 Chair and Acting Director General of Communications Authority of Kenya, opened her remarks by noting how the virtual roundtable sessions have been critical in enabling wider inclusion and participation of the regulatory community, from across the world in critical discussions, with a focus on regional priorities. Indeed, this flexibility has reinforced the importance of GSR as a platform for diverse insights. She emphasized how this Asia and the Pacific region will provoke discussion on issues that are pertinent to the region, as well as the overall objectives of both the GSR and the ITU community at large.

Ms Wanjau noted the region's diversity, with 14 Member States classified as Small Island Developing States (SIDS) and 11 classified as Least Developed Countries (LDCs). The ICT uptake among economies in the region differs considerably too, and Internet usage rates range from more than 90 per cent in the advanced economies to less than 15 per cent in the region's least developed economies. Over the last four years, the region has seen continued growth in most areas of ICT infrastructure, access and use.

Ms Wanjau then emphasized how the GSR continues to provide regulators world over with a platform to share experiences on best practices. Such best practices, if widely adopted, can help countries leapfrog their economies and fully benefit from the immense possibilities that ICTs present to all of us. As regulators grapple with the urgency to facilitate adequate ICT response to the ongoing pandemic, and the challenge of connecting and giving access to all, the GSR continues to be that place where regulators can put our minds together and come up with proactive approaches. The challenges brought about by the COVID-19 pandemic have created new realities for regulators and emphasized how now is the time to open new regulatory frontiers, by adopting agile and flexible approaches to accelerate the inclusive growth of ICTs.

The GSR-21 Chair noted that for ICTs to be meaningful to people, regulators and policymakers must go beyond just availing the services, and ensure key aspects such as affordability, acquisition of requisite skills as well as availability of relevant content. She highlighted how this year's GSR theme, "*Regulation for Digital Transformation: Accelerating inclusive connectivity, access and use*," speaks to the need for regulators to reflect deeply on what else we can do to leave no one behind. Regional events like this Regional Regulatory Roundtable and Economic Dialogue and the core sessions of GSR-21, will provide space for sharing of experiences as well as collaborations in the face of evolving regulatory tools to bring affordable, safe, secure and trusted connectivity to all.

Ms Wanjau concluded by calling upon regulators to leverage the GSR Best Practice Guidelines in adopting and implement globally acceptable approaches, that are relevant to their

jurisdictions and global collaborations in the ICT field. She also encouraged National Regulatory Authorities and Regional Regulatory Associations in the Asia and the Pacific Region as well as the larger regulatory community, to gain interest and promptly respond to the ongoing consultation that shall inform the outcome of the 2021 Regulatory Best Practice Guidelines.

Mr Masanori Kondo, Secretary-General, Asia-Pacific Telecommunity, started by emphasizing the importance of this event and the interesting sessions within. He focused his remarks around three main points. Firstly, *COVID-19 and connectivity*. Mr Kondo noted how the pandemic has emphasized how much the world relied on ICTs and its potential to improve quality of life. COVID-19 drove data traffic to a 47% annual increase compared to the forecasted 28% growth, which led to telecom operators providing measures to meet soaring demand and quality of service. At the same time, flexible approaches were requested to ICT policymakers and regulators to ensure the needs of citizens, including temporary spectrum allocation, lowered cost of connectivity, etc. However, bridging the digital divide remains critical, and additional efforts by policymakers and regulators are needed.

Mr Kondo next noted the importance of *digital transformation and the digital economy*. He highlighted how COVID-19 accelerated the transformation of business models, and that while conventional sectors like tourism and onsite entertainment had a rough pandemic, online shopping/food/delivery were successful. He emphasized how this is a good snapshot to understand how ICT will contribute to future sectors, and how ICT policymakers/regulators should work with counterparts to stimulate digital transformation.

Finally, Mr Kondo highlighted the issue of *personal information & data protection*. He noted how society is more dependent on digital platforms where people's Personal Identifying information is shared and stored. There are issues with information leakage due to cybersecurity. Although many countries are drafting personal information/data protection laws and regulations, other countries still require support in this field to safeguard citizens. Mr Kondo noted how international frameworks like the European Union's (EU) General Data Protection Regulation (GDPR) and the Asia-Pacific Economic Cooperation (APEC) Cross Border Privacy Rules (CBPR) have launched, but that it is still important for the international community to come together to assist members with adopting relevant domestic and international rules.

Mr Kondo concluded by noting that there are many issues at the attention of policymakers and regulators, and how this event will deepen insight on these matters. He emphasized the need to harness ICT while also minimizing negative consequences.

5. GSR REGIONAL REGULATORY ROUNDTABLE SESSIONS

GSR Roundtable 1: GSR Best Practices Guidelines (BPG) Consultation: Regulatory Uplift for Financing Digital Infrastructure, Access and Use

Moderator: Ms Bolor-Erdene Battsengel, Chair, Communications and Information Technology Authority (CITA), Mongolia

Panelists: **Ms Sophie Maddens**, Head, Regulatory and Market Environment Division, Telecommunication Development Bureau International Telecommunication Union; **Ms Nerida O'Loughlin**, Chair, Australian Communications and Media Authority, Australia, **Mr Kila Gulo Vui**, CEO, National ICT Authority of Papua New Guinea; **Mr Enota Ingintau**, CEO, Communications Commission of Kiribati.

Ms Bolor welcomed and thanked all participants for attending the GSR Best Practices Guidelines (BPG) Consultation: Regulatory Uplift for Financing Digital Infrastructure, Access and Use. The aim of the session is to share and discuss the regulatory enablers that can generate a multiplier effect on investments and use of digital infrastructure and services as digital economy and digital transformation takes center stage.

Ms Sophie Maddens, Head, Regulatory and Market Environment Division, Telecommunication Development Bureau International Telecommunication Union set the scene of the panel discussion by presenting the GSR-21 Best Practice Guidelines Consultation. Ms Maddens highlighted that as part of the consultation, ITU received over 20 contributions by regulators and policy makers, regulatory associations and regional organizations as well as contributions from civil society and industry player and associations which serves as an input for the GSR-21.

Ms Maddens presented the three key themes that will be the focus at the upcoming GSR-21:

1. Inducing new, effective and agile financing mechanisms to digital infrastructure, access and use;
2. Prototyping regulatory patterns for the post-COVID-19 digital world; and
3. Transformational leadership to unleash the power of emerging technologies and business models

Ms Nerida O'Loughlin, Chair, Australian Communications and Media Authority, Australia shared Australia's experience in ensuring that national infrastructure are in place to support service delivery and Australia's economy and society. The Australian government has adopted a number of programmes to ensure that the country's digital infrastructure is within an open connections market. The national broadband network was established in 2009 to provide Australians access to a reliable and affordable network for the Australian taxpayer. There are currently two million homes connected and more that are able to be connected.

The national broadband network uses a mix of technologies including fixed and fixed wireless and satellites. The wholesale network providers offer non-discriminatory services and provides 25 Mbps to users and 50 to wholesale data rates to 90% over fixed line network. We are seeing increasingly take out of customers on plan indeed higher and last deck I'd from depth funding it from wealth government. The government of Australia also supported the funding of businesses by providing a loan of AUD25 billion which is due to mature until 2024.

As a result, when COVID 19 struck, 99% of Australia homes and businesses continue to have connectivity to support activities such as home schooling and tele-health. There is increased reliance on network has resulted in significant increases in demand and is expected to play a critical role to ensure that Australia remains competitive.

Ms Nerida also shared the Australian government commitment to invest in connectivity by investing \$380 million on infrastructure program which generated investment of over \$836 million across Australia and this includes contributions from state and local governments, mobile network operators, businesses and local communities.

Ms Nerida also shared Australia's Emergency Telecommunication response in May 2020 as an effort to increase resilience of telecommunications by investing 37.1 million dollars into a new package. In 2019 and 2020, the bush fires impacted a total of 1390 facilities, but most of the outages were caused by power outages rather than fire damage, with average length of outages at 3.5 days with median of 1.6 days. The government package allows telecommunication companies to invest in digital infrastructure to prevent telecommunications during disaster events outages and improve temporary capabilities at fire depots and evacuation centers.

Ms Nerida concluded by sharing how the Australian Government has sought to promote significant investment in new and upgraded digital infrastructure. This includes a mix of direct investment in infrastructure, co-investments with other stakeholders, and financial incentives

that promote private investment and initiatives. This is not a one size fits all approach, but a variety of flexible arrangements best suited to achieve public interest outcomes.

Mr Kila Gulo Vui, CEO, National ICT Authority of Papua New Guinea shared Papua New Guinea's perspective on the session topic by sharing the PNG Digital Transformation policy. It was highlighted that Digital transformation makes governance more effective, improves service delivery, and fosters inclusive social and economic development because of a smart, networked and well-informed society.

- The PNG Digital Transformation Policy focuses on 6 thematic areas:
- Digital Infrastructure
- Digital Government
- Digital Skills
- Innovation and Entrepreneurship
- Cybersafety & Privacy
- Financial inclusion

Mr Kila also shared that the Digital transformation policy was announced last year and currently the Government Digital Transformation Bill 2021 is currently under public consultation. Mr Kila highlighted the importance of regulatory enablers in PNG to support a predictable and certain environment through neutral and transparent policy and regulatory approaches. There is a need to balance the need and demand of the market to foster innovation and effective competition, foster a pro-investment economic reforms, universal access through contribution from the industry and cross sectoral contribution. Discussion on 5G spectrum allocation is currently taking place. PNG is currently focusing in ensuring quality of service in delivery, by upgrading the capacity of existing 2G and 3G network to 4G.

Mr Enota Ingintau, CEO, Communications Commission of Kiribati highlighted the importance of having a national ICT policy to support a small island developing country, as the country is made of small and scattered island. The national ICT policy in Kiribati is develop with a vision to create a profound impact in the country through the use of ICT, to improve security, health and education sector, amongst others. As development of ICT cross sectoral in nature, a common manifesto and vision across sector is key to capitalise on national ICT infrastructure. The national regulator plays an important role to create an innovative financing schemes to stimulate growth of communication network and services. Kiribati has completed the cost price model to help regulator to provide innovative solutions to expand the communication network and services throughout the island. To support this expansion in the context of cross-sectoral development, regulator has to be empowered to harmonise coordinate the ICT project roll out between ministries and throughout the country. This has been a challenge as each ministries in the country has unique ICT projects funded by different entities, including backbone infrastructure in remote areas. In order to address this, Kiribati has developed a two-year access plan in close collaborations with various stakeholders and taking on financing arrangement between licensees and to roll out to the universal access plan.

GSR Roundtable 2: Setting the Scene: Toward Collaborative 5th Generation Regulation

Moderator: Ms Mina Seonmin Jun, Policy Adviser, Korea Information Society Development Institute (KISDI)

Panelists: **Ms Youlia Lozanova**, Senior Programme Officer, ICT Policy & Regulation, Regulatory and Market Environment Division, Telecommunication Development Bureau, International Telecommunication Union; **Mr Oshada Senanayake**, Director General Telecommunications Regulatory Commission Sri Lanka, **Mr Thomas Abell**, Advisor SDCC and Chief of Digital Technology for Development Asian Development Bank; **Mrs Jeanette Whyte**, Head of Public Policy, APAC, GSMA; **Ms Sonja Lukic**, Director, Public and Regulatory Affairs, External Relations Asia Telenor Group.

Ms Youlia Lozanova, Regulatory and Market Environment Division shared a presentation on collaborative regulation for the digital transformation and the G5 Benchmark. The regulatory landscape has seen significant change in the past 20 years. Regulators have struggled to keep up with the rapid change led by the industry. However, the expectation is that regulators are tasked to lead the market through changes in the regulatory framework to meet the growth demand driven by the industry. Regulations have evolved from obligation based to incentive based, where decision making processes are based on a more inclusive approach. Traditionally, consumers were not placed in the centre of the decision-making process, instead, the past framework were developed based on ICT sector perspective on digital transformation. The collaborative regulation no longer is an option as regulator needs to move away from the silo approach to navigate through digital transformation initiatives. ITU has built a new concept on the new collaborative framework and found that collaboration is defining the element of digital regulation and the 5th generation collaboration. The collaborative approach must include engagement with a broad and diverse range of stakeholders and equipped with informed evidence-based rule and decision-making processes. Through collaboration, it provides stakeholder the opportunity to participate in decision making processes to contribute towards the success of economic and social impact. ITU has gathered many case studies worldwide of different practices on 5th generation regulation which has made an impact which outlines an evidence based new metrics of the G5 benchmark, which brought the qualitative perspective for consideration. In this exercise, ITU has found two recurring patterns:

1. First is implementation of best policies, which are bold and executable. Regulators and policy makers need to excel in both vision and operation and they need to design concrete mechanisms to make sure they have made impact. It must support regulatory compliance and policy implementation. Since the focus on policy making and regulation is on the design and adoption of regulatory frameworks, regulation must ensure that goals are met and reflected, which means monitoring, evaluating and revising implementation is essential.
2. Second is collaborative regulation marks a fundamental change in the way government develop regulatory framework and how they are implemented. Through collaboration between institution and industry stakeholders, a coherent regulation between domestic and international, as well as across sectors such as transportation and energy can be developed.

In summary, digitalisation through G5 policy and regulatory framework, can help empower citizens and the economy to realise the potential brought forth by digital transformation. G5 regulation also provides a signal of another step forward is connecting the unconnected for developing countries and the marginalised groups in communities.

Mr Oshada Senanayake, Director General, Telecommunications Regulatory Commission, Sri Lanka shared his perspective of the whole of government approach, a collaborative environment expects the public institutions and organizations from various sectors, to work together. The traditional e-government, silo approach where each entity has its own roadmap

ensuring connectivity to citizens, will require a huge shift from the traditional strategy. There are three tenets to consider when shifting this strategy:

1. How can ICT help realize the Whole-of-Government approach?
2. It is imperative that regulators and government to re-institutionalize and look at what are the areas that supports the whole-of-government ecosystem, to identify the parameters before moving away from the traditional system. This will require government to look beyond frameworks and the entity itself, which requires certain reorganization of regulations to ensure that there are no overlaps and loopholes which can be a stumbling block towards the whole-of-Government-approach; and
3. How can the Whole-of-Government-approach can contribute towards the achievement of the 2030 Goal for Sustainable Development, through coordination from supporting public sectors in harmonizing this approach?

Mr Thomas E. Abell, Advisor SDCC and Chief of Digital Technology for Development, Asian Development Bank pointed out that Partnership is key to accelerate digital development. There is a need to move away to recognise that digital development should not just take place within the ICT sector, but also across other sectors such as education, health and transports, which are fast becoming digital. Hence the focus should not be focus on connectivity or digital infrastructure alone. This development has to be brought together to achieve overall development objectives which are enabled by new digital technology. Digital partnership is happening at a rapid pace, under intense competition. Nevertheless, the pandemic has highlighted that partnership is needed to connect the unconnected. ADB have partnered with governments to invest in telecom operators and is working with the ITU to undertake research on how digital infrastructure can be shared alongside other infrastructure such as water, power and transport. Beside mobile networks built alongside other infrastructure across other sectors, there is also a need to explore different technologies such as lower satellite that could deliver connectivity in remote areas. This enables telecom operators to focus their investment in developing fiber infrastructure in populated areas. Partnerships between government and private sectors, across all sectors is key to accelerate the roll out of digital infrastructure to connect the rest of the 50 percent of the population in developing countries.

Ms Jeanette Whyte, Head of Public Policy, APAC, GSMA highlighted that the pandemic has exposed the weakness of existing digital transformation frameworks, even in advanced societies. Many countries are now developing an industry 4.0 goals to help drive recovery process and make countries more resilient against future shocks.

GSMA together with government agencies, mobile operators and other players are examining the role of Whole-of-Government-approach to see how cross sectoral and sectional view in formulating and implementing digital policies and frameworks can help realise intrinsic inefficiencies and to streamline decision-making processes.

There is no one size fit all solution with regards to driving the industry 4.0 goals. Unique circumstances such as government structures and resources availability need to be factored into the design and implementation of cross sectorial government strategy to deliver a country's goals.

Respondent from this examination is that there seem to be lack of ownership, responsibility and accountability in achieving the goals set to develop the Industry 4.0. Many from the industry are of the opinion that the Prime Minister's Office should take the responsibility in coordinating the collaboration efforts across government agencies and to increase collaboration with non-government agencies. However, when asked about who is responsible in driving the vision on

Industry 4.0, it was highlighted that the Ministry responsible for the digital economy has a vital role to play.

Regardless of the local situation, effective leadership is required and the setting of a clear strategic direction and taking ownership of the implementation of that strategy and facilitating collaboration within the digital ecosystem is required to achieve this goal.

Ms Sonja Lukic, Director, Public and Regulatory Affairs, External Relations Asia, Telenor Group highlighted that the industry has proven during the pandemic that it can overcome the multiple challenges faced to provide better connectivity to the consumer, as industry has been tested to deliver new volume and demands of data.

As industries continues to set new goals and strategies to meet these demands, discussion on affordability of services is taking place, and one area is that is currently being looked into is collaborative approach in pricing. As discussion on 5G connectivity takes place. the question that is arising is how to strike a balance on the lifelines of mobile broadband.

Many lessons can be drawn from the implementation of 4G network, and areas such as licensing remains complex, a solution to address this would be useful for mobile operators to continue upscaling value delivery to support the implementation of the SDG.

Finally, she noted that resolving the challenges on 5G policies can provide mobile operators the bandwidth to provide end-to-end 5G services for consumers and enterprises, through multiple agencies. A whole-of-government -approach is required to address issues that bring up cost, such as right of way. There are coordinated efforts made in Asia and the Pacific region, and many countries are committed to have a shared vision of a more collaborative market. Collaboration with the industry to support short term goals required to implement 5G could help governments to make some of the difficult decision.

6. CLOSED SESSION FOR THE SECTOR MEMBERS AND ACADEMIA

Ms Atsuko Okuda, Regional Director for ITU Regional Office for Asia and the Pacific in her opening remarks thanked and welcome all sector and academia participants for their commitment and show of support for the closed session. The session is a designed as a platform to co-create evidence-based policy in the Asia and the Pacific, to listen to views from experts and key partners on how to support digital connectivity in the region.

Ms Atsuko highlighted the important role of sector members and the academia in advancing digital transformation across the region, particularly at the time when digital connectivity has never been more critical, due to the onset of the pandemic. Drawing from the ITU Digital Trends 2021 report, statistics in Asia and the Pacific shows that digital connectivity and digital transformation is accelerating in the region. However, challenges remain in affordability, gender equality, digital literacy and cybersecurity among others.

As we continue to respond and recover from the devastating impact of COVID-19, digital solutions will be key to support the achievement of the SDGs. The pandemic has highlighted the need for greater collaboration in between the industry and academia to accelerate digital transformation in the region, particular in areas such as business, agriculture, education and health, where emerging technology is rapidly evolving.

Ms Atsuko emphasised the need to create an enabling ecosystem that encourages innovations, but at the same time, ensure that they it benefits all, including women and vulnerable groups in society.

Moderator: Dr Jingbo Huang and **Dr Attlee Gamundani**, UNU, Macao, China

Panelists: Dr R.S. Sharma; Mr Rajnesh Singh, Regional Vice President for the Asia-Pacific Internet Society; **Mr Scott Minehane**, ITU Expert; **Mr Daniel McFarlane**, Senior UN Coordinator Specialist for ITU Asia and the Pacific, International Telecommunication Union and **Mr Calvin Chan**, Programme Administrator for ITU Asia and the Pacific, International Telecommunication Union

Moderators: Dr Jingbo Huang and Dr Attlee Gamundani, UNU, Macao, China welcomed and thanked all participants for joining the session. The session aims to discuss challenges and opportunities, based on the evidence-based perspective of ITU sector members and the academia on the policy and regulatory environment in the region, specifically on the subject of whole-of-government-approach. The session also aims to explore potential collaboration on how sector members and academia can support countries to improve existing policy and regulatory environment.

Dr R. S. Sharma presented an overview of New Business Models in the Telecom Sector study by ITU by showcasing a case study of three companies that have adopted new business models in response to digital transformation. Dr R S Sharma highlighted that these companies are some examples of how the telecommunication space has now become digital communication space, driven by digital services and application and data. These companies have evolved from being a telecommunication to a data service provider in a converging environment.

1. **Reliance JIO, India** has emerged as a technology solution company, despite being relatively new, established in 2016. Reliance JIO began its services with 4G and has developed its business model to focus on data consumption, by providing affordable telecommunication devices and data services.
2. **COMCAST, India** evolved from a traditional broadcasting player to a digital player by delivering cable TV, wireless, broadband, phone, content, streaming, home security, streaming devices and services to consumer.
3. **Rakuten, Japan** began as an online shopping and delivery company and has transformed into a mobile virtual network operator to capture a significant portion of the mobile network in Japan.

The three case studies outline how the changing and competitive landscape are creating new business model to take advantage of the converged telecommunication and digital landscape, low cost of adoption, and transborder access to international market. However, it was highlighted the need for regulatory environment to respond swiftly to keep up with the rapidly changing trends, particularly in the area of licensing, spectrum management and cross-sector regulation. This is important to ensure that whilst industry continue to innovate and evolve, growth is not stifled and consumers remain protected. As new businesses continue to emerge, regulatory bodies have a responsibility to manage the disruptions in businesses, which has both the positive and negative impact to the overall socioeconomic development. Issues such as legal terminologies and structures requires institutions to develop mechanisms and enhance collaboration with other sectors to create a conducive and an enabling environment for new economy to flourish.

Mr Rajnesh Singh, Regional Vice President for the Asia-Pacific, Internet Society shared the ISOC Studies on Sustainability of Community Network. Mr Rajnesh highlighted that unconnected communities face various challenges to get establish a community network, and

this includes the types of devices available, the speed of connectivity and cost and the location and availability of backhaul services. These challenges require attention from policymakers and regulators, as communities in the rural are deprived of critical services such as access to information such as vaccination and the ability to work from home. Community network have evolved over the year where some communities are able to set up their own network as many of the location where community network are setup has little access due to their unviability for commercial player to establish a business case. These community network comes in different shapes and sizes, utilising different technology such as WIFI, mesh network, voice only services or fiber optic, and Fixed Wireless Access (FWA) depending on size of the population, location, the local environment and the target use.

Community network is essentially a complementary solution which can support the effort to bridge the digital divide. However, issue of financial and operational sustainability remains a challenge. Some these challenges which affects the viability of a business case includes regulatory challenges such as licensing fees, right of way, training, rental and utility costs, including electricity and operating a central node. Another challenge related to sustainability that many community networks are funded by donors or other form of assistance from organisation, which are time and resource bound. Hence, policymakers and regulators have a role to play is fostering new innovative ways required to address these ongoing challenges related to sustainability. Policies that can help reduce costs, such as licencing fees, sharing of spectrum, and introducing new types of incentives for telecom operators such as tax deductions through Corporate Social Responsibility can further contribute towards accelerating universal connectivity in these locations.

Mr Scott Minehane, ITU Expert provided an overview of ITU's study on *Pandemic in the Internet Age: From Second Wave to new normal, Recovery, Adaptation, and Resilience*. The paper is the second document which focuses on gathered survey results related to government and telecommunication responses to COVID-19. In the first study conducted in June 2020, the focus was on COVID-19 response to support the management of the pandemic, such as ICT systems used for contact tracing and distribution of vaccine. It also touched on responses on the availability of temporary spectrum to support new services in managing the pandemic. The second study is focused on the health and economic implication of COVID-19. The world saw digital connectivity and addressing the digital divide being brought to the top of country's agenda. The study looks into four key themes which needs to be considered in the post-covid era, particularly in the context of existing national digital broadband plan.

1. Addressing the digital divide;
2. Driving deepening;
3. Digital Transformation; and
4. Building digital resilience.

The detailed case study gathered in Asia and the Pacific region provided many lessons which can be emulated by government and businesses as countries develop a plan on how to better respond to the new normal, support recovery process, adapt to the new normal and build a more resilient ICT ecosystem.

Key Interventions from participants were received from Intel Corporation, CISCO, Welchman Keen, AIBD, Amazon, ISOC, Nokia, Inmarsat, IIM and Axiata. Their interventions covered the following themes:

1. Developing digital skills in new and emerging technology is key to support young generation as they cope with the disruption in education throughout the pandemic.

Many students faced set back in their education as they suffer through lack of broadband connectivity and ICT devices to support learning.

2. To focus on raising awareness on responsible and safe use of the internet, particularly misinformation, which is rampant during the time of crisis. There are now definite ways to address this issue as it is difficult to manage every activity that happens online, however raising awareness and building the capacity of internet users to distinguish misinformation through critical thinking can be one solution. Efforts on bridging the digital divide have to be complimented with the effort to develop capacity of users to use ICT meaningfully by developing appropriate applications and platform for citizens.
3. Regulatory certainty is key to provide incentive for private sector to continue investing in digital infrastructure. Investment in digital infrastructure, particularly in licensing and allocation of spectrum, are expensive and cost intensive, for mobile and satellite network operators, which requires careful planning on return of investment.
4. Technical solutions on efficient utilization of licensed and unlicensed spectrum can support in bringing more technology solutions to support accelerating connectivity to the unconnected.
5. The pandemic has brought greater engagement and cooperation between the government and the private sectors to support digital transformation policy framework, to bring services to support digital and financial inclusion to communities.
6. Connectivity providers will require support from government and regulators to create a conducive environment to invest more in digital infrastructure to support the growing demand in digital services accelerated by the pandemic.
7. The pandemic has empowered the foundation but there is a need to review and reinvent policies to support connectivity and services which supports short term and long-term goals, to ensure reliable and affordable options to bring connectivity everywhere available, including and we need a creating new pact between the different stakeholders.
8. Academia must play a greater role by focusing on three aspects, multisectoral collaboration, protection, and addressing stakeholder expectations. Academia must play a role in policymaking or regulatory processes. With the exponential growth of new technologies and applications, policymakers and regulators will see research and development labs as active collaborator in the policy and regulatory implementation processes.

Mr Daniel McFarlane, Senior UN Coordinator Specialist for ITU Asia and the Pacific presented the ITU Asia and the Pacific Academic Network to share with participants on how Academia can collaborate through an academia network to create impact in policymaking. Universities and funders expect that academia research must create an impact, judged on its contribution to the economy, society, environment or culture. Academia research is being assessed on the degree it contributes to the UN Sustainable Development Goals. The academia researched are focused on answering two questions:

1. What is relevant?
2. How can they engage policymakers and industry leaders?

Academia can play a role in support ITU in developing evidence-based analysis and informed advice from experts to guide government policy and business strategies as ITU grapple with important questions related to the work carried out in the region. ITU is focusing on:

1. How to create the regulatory environment and competitive markets so network providers can reach the most underserved communities and provide them with

- affordable telecommunications, such as broadband internet so that everyone can access information and opportunities?
2. How can government, business and civil society come together in a whole of society manner to develop and deliver digital services that support the achievement of the SDGs?
 3. How can governments support innovation and the development of new digital technologies while also reducing inequality?

ITU Regional Office of the Asia and the Pacific is developing an academic network and it will bring together academics from around the region to work on research that support the ITU's mission

Mr Calvin Chan, Programme Administrator for ITU Asia and the Pacific shared the latest development of the creation of Industry informal working group for Asia and the Pacific. Within the ITU-D membership in the Asia and the Pacific region, ITU would like to create an informal working group to engage industry proactively on a range of issues, including knowledge sharing and research support, on fostering partnerships, on communications and advocacy, and to also help ITU to implement projects and pilot activities for future initiatives to bridge the digital divide. The proposed industry working group will be governed based on the draft Regional Initiative 2022 to 2025 which has five regional priorities, supported by the ITU Regional Office for Asia and the Pacific, which will play a role as secretariat for the informal group. Some of the potential activities include:

1. Information session on the topic of importance to the industry and region;
2. Joint research, publication of case studies, and working papers on emerging trends and policy recommendations;
3. Projects and pilot initiatives;
4. Advocacy via social media and other communications means.

The group will function within each of the regional priorities, where members are welcome to contribute towards this informal group by participating in sub-groups established to support the following preliminary identified areas:

1. Connectivity (Rural, Urban, Semiurban)
2. Telecom regulation, including taxation and competition
3. Digital services and applications (smart city, whole of government, smart village, smart islands, telemedicine)
4. Digital Economy (including legal reform/masterplans)
5. Innovation
6. ICT accessibility
7. Inclusion and capacity development
8. Education
9. Sustainability and digital transformation (including financing mechanisms)
10. Resilience and distributed networks
11. Cybersecurity (Data Security/Privacy/Protection)
12. Child Online Protection

7. REGIONAL ECONOMIC DIALOGUE (RED-ASP)

RED Session 1: Incentives to foster affordable ICT services by promoting investment for meaningful connectivity in the Asia and the Pacific Region

Moderator: Ms Memiko Otsuki, Ministry of Internal Affairs and Communications, Japan

Panelists: Ms Anju Mangal, Head of Asia-Pacific Region Alliance for Affordable Internet; Mr Notachard Chintakanond, Executive Director, The National Broadcasting and Telecommunications Commission, Thailand; Mr Brian Winji, Regulator, Telecommunications Radiocommunications and Broadcasting Regulator, Vanuatu; Mr Hameedullah Sherani, Board Member Afghanistan Telecommunications Regulatory Authority (ATRA), Afghanistan

Ms Memiko Otsuki, Ministry of Internal Affairs and Communications, Japan, opened the session as moderator. She noted how the session aims to share the good practices and lessons learned on the topic of affordable ICT services. She emphasized how this session will highlight how to promote investment for meaningful connectivity through enabling policy and regulatory measures.

Ms Anju Mangal, Head of Asia-Pacific Region Alliance for Affordable Internet (A4AI), opened her remarks by highlighting A4AI's role as a broad technology multistakeholder alliance working to transform policy and regulatory frameworks, grounded on the principles of internet freedom, rights of expression online, and safe and secure web. She highlighted how A4AI is working with national coalitions to improve affordability aspects and meaningful connectivity target in order to ensure inclusivity. She noted that A4AI defines meaningful connectivity as four key factors: regular internet access, appropriate device, enough data, and a fast enough service.

Additionally, she highlighted the work A4AI does in generating disaggregated data to track progress, including through scorecards and audits in the Pacific that look at the reality of digital skills and internet empowerment for women. She noted the importance of encouraging public access initiatives, with a focus on digital skills, local content, and affordability, including summarizing the research A4AI has done on phone data cost.

Mr Notachard Chintakanond, Executive Director, the National Broadcasting and Telecommunications Commission, Thailand, spoke about the work the NBTC does to foster affordable ICT services. He focused his opening remarks on the importance of regulatory and connective strategies to achieve connectivity in rural and isolated areas. Thailand is drafting its Universal Services Masterplan 2022-2026, working with other outside ministries to develop and extend the telecommunications network. He also noted the importance of this connectivity to ensure equality, especially for people who live in unserved and underserved areas, and those who are elderly, disabled, and children with special needs.

He also noted the importance of the three 'As' - Availability, Affordability, and Accessibility. He highlighted the work NBTC has done in 2020 to provide free Wi-Fi in schools and hospitals in rural areas, and the provision of ICT training to 500,000 people nationwide. Mr Chintakanond emphasized the ITU project NBTC worked with to map unconnected schools. He mentioned how there has been an increasing trend of internet users in the country (45.19 million in 2017, 50.10 million in 2019). He overviewed NBTC's Smart Hospitals pilot collaboration with the Ministry of Health, which included using 5G and cloud computing technologies, as well as permission based blockchain for hospital data records to reduce personal contact.

Finally, Mr Chintakanond noted the importance satellite technology to provide communication networks to remote area where terrestrial networks are unavailable. This will allow high volume data transfer and reduce the cost of network connectivity deployment. He noted how NBTC will hold a satellite packages option round on 24 July 2021, where for the first time in Thailand private satellite operators can receive these licensed packages by bidding. This will maximize benefits for both consumer and satellite providers.

Mr Brian Winji, Regulator, Telecommunications Radiocommunications and Broadcasting Regulator (TRBR), Vanuatu, started his intervention by noting the importance regulatory rural connectivity and affordability in small country states like Vanuatu where the countries are made up of many islands separated by vast ocean. He noted how TRBR conducted a nationwide coverage field audit, where only 70% of people have access to mobile broadband (3g and 4g), despite the universal services policy requiring 98% population coverage for broadband and narrow band at required speeds. Mr Winji noted the issues of access provision to remote areas and small markets, where the return on investment becomes a large challenge. He also noted challenges with natural disasters, especially in offering affordable services after a cyclone.

Mr Winji highlighted how COVID-19 has promoted challenges and opportunities in digital transformation, and challenge regulators to innovate and collaborate more. He noted that Vanuatu's universal access policy is based on pay or play approach, meaning operators who decide to expand their network to the unserved or underserved areas identified by regulator are regarded as players and are exempted from paying universal access levies while those who are not committed to the roll out are identified as payers and are subject to paying the levies. Telecommunication laws of Vanuatu are subject to the levy and is calculated based on net revenue, and telecommunication services were declared as essential services by the government.

With all these changes, TRBR provided incentives and exemptions for certain fees to telecommunications operators to promote rollout to rural areas. He also highlighted how they continue to provide innovative services including free access to education website, and the passage of a cybercrime bill recently. He noted how Vanuatu's ICT policy is under review, and SIM card regulations to facilitate the digital economy are being considered. Finally, he noted the digital government and Smart Islands initiatives under progress and the need to leapfrog and achieve the Sustainable Development Goals.

Mr Hameedullah Sherani Board Member Afghanistan Telecommunications Regulatory Authority (ATRA), Afghanistan, began his intervention by addressing the specific question of regulatory incentives which help promoting investments and making connections affordable. He noted that regulatory incentives play important role, and that Afghanistan has had a number of challenges, but that it has gone from a complete monopoly 15/20 years ago to now an open market, with 20% operators conducting infrastructure sharing and promoting economic investment. However, he noted that policy implementation requires three stages: 1) Development of Open Access policy, 2) Regulations developed for Open Access Policy, and 3) Infrastructure Sharing Implementation. He noted that Afghanistan is currently at the third stage.

Mr Sherani shared that in order to improve the telecom services in Afghanistan, they have launched the process to assign more spectrum to mobile operators. There is also the Universal Access Fund that is being used to provide access in remote areas, and the law is being changes to make it more inclusive in order to also provide access to schools and hospitals. The fund subsidizes mobile network operators in areas that are not of interest to them (lower population/remote areas) to ensure they can be connected.

Finally, Mr Sherani noted one of the main challenges is developing local content and latency since traffic is international. Therefore, he highlighted how they are working to promote fiber networks and regional interactions by authorities in specific region in order to connect and south and central and west Asia. Internationally, he noted a need to deploy international exchange points and promote cloud service use and regional roaming. Locally, he emphasized how they are working closely. With local governments to enforce data driven regulations and migrate from IPv4 to IPV6 in order to be ready for Internet of things and further promote infrastructure sharing

During the discussion, Mr Chintakanond highlighted how the 3 'As' promote affordable bundled ICT services. Of particular note is addressing the lack of information, since consumers may not know what are the options available, prices, and services. Therefore, NBTC created the ProCheck app to provide information about digital services, and to ensure customers can find the right ICT service for them. He emphasized that information is key for consumers to understand their options. Once information flows, competition will be the mechanism to lower prices and increase accessibility and availability.

Mr Winji noted ICT is crosscutting across all sectors, and that in Vanuatu, there is a hope that the country's economy can leapfrog in the future. To accomplish this, regulators must be facilitators with other sectors. In the context of digital transformation, he noted the importance of the three pillars of: 1) infrastructure rollout, 2) provision of digital services, and 3) consumer education on different digital services and also digital skills while ensuring that all necessary policies and legislations are in place. Through these pillars, one can facilitate digital services in the context of improving competition and provision of wider choices to consumers to improve broadband coverage and improve affordability.

Mr Sherani noted that when it comes to affordability, it is not just about economic variables, but also data protection, privacy, literacy, and other factors. In traditional societies, these dimensions need to be considered. He highlighted how one needs to show the return on using the internet for potential users, whether that a farmer to learn from an agricultural expert, or to connect to traders as a buyer. In Afghanistan, the price of using internet is higher too since it needs to be purchased from neighboring countries, so the internet value chain needs to be redefined.

To encourage collaborative regulation, Mr Chintakanond noted that the transparency of the regulator is essential in order to get other agencies, in both the public and private sectors, to come onboard. He emphasized how NBTC always holds public hearings for new regulations to ensure stakeholder views can be heard, in order to promote meaningful connectivity and enhance affordability. Collaboration is key and will ensure we can all learn from each other.

Mr Sherani also noted how in Afghanistan, they have developed regulatory guidelines governing right of way. On spectrum allocation, he noted how a policy paper developed for the High Economic Council emphasized spectrum assignment at low prices to give operators' space to investment in infrastructure development and inclusivity. This is in addition to an open access policy that allows for infrastructure sharing.

The moderator closed the session by noting there are three key areas, including services, technology, and regulatory strategy. While policies and regulation are important, one needs to keep in mind what business models or technology should be applied to services. A customized approach may be better than a one-size-fits-all approach, given the diversity in the Asia and the Pacific region, which can lead to good solutions for incentive creation.

RED Session 2: Economic and financial approaches in the digital ecosystem - Effective partnerships for advancing connectivity and achieving the SDGs. Session organized in coordination with the ITU-D Study Group Question 4/1

Moderator: **Mr Ilyas Ahmed**, Chief Executive, Communications Authority of Maldives (CAM), Maldives

Panelists: **Mr Arseny Plossky**, Rapporteur Question 4/1, BDT Study Group 1, Russian Federation; **Mr Purushottam Khanal**, Chairman, Nepal Telecommunications Authority, Nepal (Republic of); **Ms Mira Tayyiba**, Secretary General, Ministry of Communications and Informatics, Indonesia; **Ms Maria Perdomo**, Regional Coordinator for Asia UNCDF; **Mr Turhan Muluk**, Global Government Affairs and Telecom Policy Director, Intel Corporation.

Mr Arseny Plossky, Russian Federation, Rapporteur Question 4/1 presented the final report and works of the ITU-D Study Group 1 Question 4/1 on economic policies and methods of determining the costs of services related to national telecommunication/ICT networks. He explained that during this study period 2017-2021 the Rapporteur Group for Question 4/1 focused on various topics such as 1) new charging methods for services provided over Next Generation Networks (NGN), 2) infrastructure-sharing models including through commercially negotiated terms, 3) consumer price evolution and impact on ICT service usage, innovation, investment and operators revenues, 4) methods of determining the cost of licenses for the operation of networks and/or the provision of telecommunication services and regulatory accounting in an NGN environment, 5) trends in the development of mobile virtual network operators (MVNO) and their regulatory framework.

Several country cases were also treated, specially focusing on wholesale offer related to the modern broadband networks; on the methodology and criterion for significant market power (SMP) determination; the experience on the use of different cost models for determination of wholesale tariffs as well as on regulation of interconnection; and finally on infrastructure sharing initiatives and regulation. This report will be available very soon in the framework of the ITU-D Study Groups activities.

Ms Mira Thayyiba, Secretary General of Ministry of Communications and Informatics, Republic of Indonesia shared Indonesia's priority issues in 2022 in the areas of connectivity and post-COVID-19 recovery. Indonesia is currently focused on developing digitally skilled and literate human network as well as cross border data flow. This is in recognition that the digital economy is an important cornerstone to achieve the sustainable digital ecosystem. To support the digital economy, Indonesia is focused in providing accessible connectivity for all citizens by building an inclusive, safe and resilient connectivity. Collaboration with the international community, such as the G20 countries are essential to achieve the goal to develop an agile and capable human resources Indonesia that is able to correspond with the needs of the industry, market and people and harness the potential of the digital economy. Data is an important component to harness the opportunity, however, there is a need to emphasize the importance data security and sovereignty. Indonesia is currently facilitating discussion on this issue to identify a clear common definition of trust and common principles on cross border data flow connectivity. Indonesia has also developed a digital economy working group to better coordinate, streamline and take stock of available platforms to clear the bridges among sectors deploying multidimensional nature of digital issues to avoid duplication of efforts made in other G20 sectors,

Mr Purushottam Khanal, Chairman Nepal Telecommunications Authority shared the ICT development status in Nepal and its focus in advancing connectivity to achieve SDGs, in particular in remote areas. The focus in Nepal is how to provide an affordable telecommunication service given the geographical constraints as Nepal is made of many mountain areas and lack of supporting infrastructure such as electricity. Nepal has undertaken projects to provide access by utilizing Universal Service funds to help make services more affordable in remote areas. Connectivity is currently focused on local government institutions, including government offices and community schools. Through the Digital Nepal Framework which was passed by the government in 2019, the framework aims to work with enterprises to expedite the building information super highway focusing on agriculture, education, infrastructure, energy, and health among others. NTA continues to develop partnerships with private operators and civil societies to support a more sustainable connectivity in the country.

Ms Maria Perdomo, Regional Coordinator for UNCDF in Asia shared with participants UNCDF role and mandate to finance development and have done so for the last 10 years. There is an urgent need to focus our attention is building partnership to support connectivity in least developing countries in the Asia and the Pacific. Many operators struggle to develop a viable business case to make the necessary financial commitment to scale and invest in connectivity. It is important to identify the right incentives for operators to invest in digital infrastructure, and beyond voice and data, digital finance could be a key factor to bring more investment in digital connectivity. UNCDF's approach to digital finance has proven that making digital economies inclusive requires all to look at both the supply and the demand side of the digital connectivity. Through collaboration with other agencies, UNCDF is supporting the market leader to relaunch their mobile to help expand and digitize aging networks in rural areas. Ms Perdomo emphasize the importance of working together with regulator to build a robust framework for telecom operators into the market and to share digital infrastructure to lower cost of development, hence increasing affordability services. UNCDF uses different financial instruments to de-risk investment in infrastructure and employ loans and guarantees in project countries. Together with GSMA, the EU, UNDP, UNDESA and government LDCs, UNCDF has developed a scorecard called IDIS, to be implemented in 20 countries to increase cooperation between policy makers, mobile industry and development partners which is vital to develop partnerships and increased connectivity.

Mr Turhan Muluk, Global Government Affairs and Telecom Policy Director, Intel Corporation shared its plans to support and enable high quality widely affordable broadband in all countries. To achieve this, it is important that national broadband and digital strategies has the adequate political support from the highest level in the government, and support from Ministries to finance connectivity projects, including broadband infrastructures. This means that connectivity project budget must be coordinated centrally, involving important ministries such as Ministry of ICT, Finance as well as all relevant Ministries, including municipalities. Effective economic and regulatory frameworks to support sufficient licenses and spectrum are assigned to support new broadband technologies such as 5G and WIFI 6 can help accelerate connectivity. Innovative financing through cooperation between development banks and effective use of universal service funds can help register more investment in digital infrastructure.

During the discussion, panelists agreed that Available technology can provide access, such as satellite technology, should not be excluded when considering bridging the digital divide in remote and difficult areas. The satellite technology has evolved to be more affordable than it used to be.

Mobile broadband services are currently wide-spread in coverage against the world population and the transition to 5G network is very important transformation to support digital connectivity between the developed and developing countries.

RED Session 3: Policies and Regulations for Critical Technologies of the Future

Moderator: **Ms Atsuko Okuda**, Regional Director, Regional Office for Asia and the Pacific International Telecommunication Union

Speaker: **Mr Daniel McFarlane**, Senior UN Coordinator Specialist for ITU Asia and the Pacific

Panelists: **Mr Shamsul Majid (Sam Majid)**, Chief Technology and Innovation Officer Malaysian Communications and Multimedia Commission (MCMC) Malaysia; **Ms Nguyen Thi Ngoc Trang**, Senior Official of Department of Sciences and Technologies Ministry of Information and Communications Viet Nam; **Mr Sameer Pujari**, Manager BHBM, World Health Organization (WHO); **Dr Jirapon Sunkpho**, Vice Rector for Information Technology, Thammasat University; **Mr Guillaume Mascot**, Head of Government Relations, APJ Nokia; **Dr Stefan Winkler**, Deputy Director, AI Singapore.

Mr McFarlane started the session by presenting on the role of standardization in developing critical technology in the Asia-Pacific region. He highlighted how digital transformation has accelerated in the region, with a push into Industry 4.0 and Digital Societies. However, he noted that the potential for digital transformation to achieve the SDGs also runs the risk of amplifying inequalities.

The Australian government has defined critical technologies as “current and emerging technologies with the capacity to significantly enhance, or pose risk to, our national interests (economic prosperity, social cohesion and/or national security).” Mr McFarlane highlighted how previous research showed AI was being used for surveillance in 75/176 surveyed countries, with 64 of these countries using facial recognition technology and 56 countries using sensors to transmit real-time data for service delivery, city management, and public safety. The pandemic provided new use cases for governments in this manner, including through Singapore’s system to trace the movement of COVID-19 cases using facial recognition and public transportation

Although critical technologies can bring value, Mr McFarlane noted how they can have adverse and unintended consequences. He noted how these technologies are vulnerable to various biases such as gender, as well as unconscious bias in race and ethnicity. Additionally, he noted how digital transformation is amplifying the risk of biases, especially through the reliance on big data neglecting how inequities between genders, and social groups could be embedded in the data and reinforced by algorithms. He noted too the challenges of governance of critical technologies, with a lack of regulation, low rates of AI literacy among policymakers/regulators, privacy issues, concerns surrounding accountability with autonomous systems, and the international nature of emerging technologies like AI and blockchain requiring global governance.

Mr McFarlane presented the new ITU project, funded by the Australian Department of Foreign Affairs and Trade, to develop standards and frameworks surrounding critical technologies. It will deploy a multi-stakeholder consultative and capacity development approach, particularly focusing on female stakeholders. The project further aims to build awareness among policy and lawmakers of the gendered dimension of critical technology and the importance of effective governance. Finally, it will lead to the development of standards, frameworks, policies, and

initiatives for implementation at national and regional levels to mitigate biases, build trust and create inclusive economies in Southeast Asia.

Mr McFarlane concluded by sharing several questions for establishing a policy dialogue, that he hoped this panel session would address.

Mr Shamsul Majid (Sam Majid), Chief Technology and Innovation Officer, Malaysian Communications and Multimedia Commission, began the panel session by responding to the question around what can be learnt from global examples of current frameworks being developed, and how the development of ethical guidelines, frameworks and principles in Asia and the Pacific be accelerated, especially in Malaysian context, while ensuring inclusivity. Mr Majid started by noting that for regulators, it depends on what is happening in society, and that more exposure is needed for policymakers for critical and new technologies. He noted the importance of agile spaces to push the envelope beyond assumptions, as well as the use of sandboxes that can test policies to validate ideas with the customer and industry in mind. He noted how policymakers can be helped to be more agile in innovation policy and not be behind societal development in critical technologies.

Mr Sameer Pujari, Manager BIBM, WHO, opened his intervention by responding to a question about the challenges and opportunities in developing, using and assessing AI solutions in Asia and the Pacific for the healthcare sector. Mr Pujari noted that digital is an enabler for healthcare services, with AI providing potential for machine learning capacities. He noted how in rural Africa, the cost of cervical cancer is almost \$100, but through AI-based solutions, the WHO is testing models that can bring the cost below \$1. This is also possible in treating diabetes, especially in diabetic retinopathy. However, he noted three clean challenges: firstly, there is the issue of ensuring an ethical approach, where there is a lack of governance and ethics. Secondly, tied into the ethical challenges, is regulatory control, especially since there is a need to verify and validate potential solutions during implementation. Finally, there is the issue of testing & validation of algorithms through open data sets. There is biases towards these algorithms, since there is lack of open data verification. This hampers good opportunities that we have. I am calling out governments to work together. Mr Pujari ended by noting a desire for governments to come to a regulatory solution together and address these AI issue.

Mr Guillaume Mascot, Head of Government Relations, APJ Nokia, began his intervention by responding to a question on how the private sector can be incentivised to practice self-regulation and consumer focused practices, what role should lawmakers play in creating these incentive structures. He noted how Nokia, as an infrastructure provider, is interested in AI and new technologies especially in the deployment of 5G and 6G, and in the criticalities of these networks and whether this is fully understood by other sectors. He noted how some countries take resilience and security very seriously, including Australia's critical infrastructure initiative. He highlighted the difficulties of this, especially in creating awareness among different sectors, without necessarily bringing more regulation. Mr Mascot noted how for policymakers' perspective, the question is how to mitigate the risk and to make company's aware of the issues from a security and reputation standpoint, and to create a modus operandi or basic principles to bring awareness together.

Dr Jirapon Sunkpho, Vice Rector for Information Technology, Thammasat University, began his intervention by responding to the question on how various stakeholders including women can be brought together, and how can dialogue be established to facilitate this process, especially with regards to the role of academia. Dr Sunkpho noted the importance of universities where in Thailand, they fulfil two roles: education and research. In education, he highlighted how there is a lot of resources available online, but that awareness needs to be

created, including through potentially creating a course on AI for lawmakers/government officials. This is also the role of research in universities. He noted how he wants to see more research in regions like Southeast Asia on how these software tools can give biases based on skin colour. Additionally, he noted how the discussions around cybersecurity can factor into this – when cybersecurity was first introduced previously, there was a lot of confusion among policymakers, but now most countries have laws on data privacy and cybersecurity. The example of how cybersecurity reached regulation and laws is one to learn from, when it comes to similar debates surrounding these new technologies.

Dr Stefan Winkler, Deputy Director, AI Singapore, Singapore, began his intervention by responding to a question on how Singapore raised the issue of critical technologies and AI, and how academia, civil society and the private sector can aid the process. He noted how AI Singapore has designed training programs for industry professionals and policy makers to learn more about AI, machine learning, and data science. He noted these courses are important and have been useful in working with regulators and providing guidelines on AI and data governance, especially with how the Singaporean government has been proactive with creating industry guidelines and frameworks. He highlighted how the concern is around the SMEs who are just being exposed to AI technologies but may not be fully aware of the risks around collecting and sharing data. Dr Winkler noted too how industry experts and academia write these guidelines together, and design certification programs for professionals to show professional recognition of this knowledge.

Ms Nguyen Thi Ngoc Trang, Senior Official of Department of Sciences and Technologies Ministry of Information and Communications Viet Nam, began her intervention by responding to a question around how to encourage the participation of female regulators and policy makers in the discussion on critical technology and make sure broad based multi sectoral debate. Ms Nguyen noted how Viet Nam is deploying new and critical technologies in the CIT field, including with the 2018 Prime Minister's decision on developing the national strategy on the industrial revolution by 2030. She highlighted the priority for research deployment and application, especially in high tech project policy development. In the sphere of AI, she noted how Viet Nam issued a National Strategy at the end of 2020, and issued a 5G National Strategy in 2019.

During the discussion panel, Mr Pujari answered the first question by highlighting the importance of Asia-Pacific programmes on telemedicine, telehealth and virtual care. He noted how they are trying to maximize outreach of healthcare services which actually have been impacted because of the pandemic. He also highlighted a recent survey on digital AI and virtual care medicine, and to explore specific topic areas including NCDs traditional care, pregnancy care, and other areas, as well as the potential to add on telecare services.

Mr Pujari also noted the importance of technology and infrastructure as the critical enabler. He noted how every country has different systems, e.g. EU GDPR and Singapore, and that data privacy is in line with the regulations of that country. He highlighted how most countries form a policy that data is born by individuals. Some countries have different mechanisms but it is possible to manage that situation and come to a win-win situation. He noted that the key is collaboration come together, see how things are addressed and address those based on that new approach for data privacy.

Mr Majid noted how in the Malaysian context, the question of data is a journey that most organizations are undergoing. He highlighted the need for collaboration at local, state, and national levels to leverage the opportunities and understand the concerns around data

especially when it comes to individual data privacy. He noted the importance of knowing what data can be shared, in investments and technology such as AI.

Mr Mascot also responded to this question by noting there is a country-by-country approach, and how it is on the end user to be comfortable and aware. He noted that one needs to consider how the end user/customer can be made aware of how the data is being used, how it is transferred, and the transparency surrounding data use. He highlighted the example of California and Silicon Valley in the use of data, and noted the importance of trust and awareness in bringing confidence in technology, to avoid mistrust and conspiracy theories.

Dr Jirapon noted how in terms of data privacy, the law will never be able to keep up. He stated that privacy needs to be looked at in a new perspective. If the use of data does not produce a negative consequence, then it should be allowed to be used if there may be positive benefits.

Dr Winkler noted how at AI Singapore, there is a large healthcare project at the national level which has led to issues providing researchers access to the data, especially at the international level. He elaborated on the bureaucracy in enabling data access currently, and the ethical and legal issues that need to be resolved. However, he highlighted Singapore's development of data sharing platforms that will allow companies, researchers, and professionals in certain sectors to share data through enabling platforms, that may allow for federated learning mechanism and active API calls. He noted that putting the platform in place, once ready, is the first step, with the next step afterwards getting people to trust and use the platform.

Ms Nguyen next responded to a question surrounding the 5G standards in Viet Nam. She noted that through 5G, information can be used for AI and the Internet of Things. However, she noted how AI is still an open question and Viet Nam does not have regulations on how to collect data for AI or protect personal data. The government is preparing a new law but the scope is still to be determined, so Ms Nguyen reiterated a desire to see and learn from experiences of other countries.

Mr Majid next answered a question surrounding data centralization and the related data localisation and data sovereignty issues, as well as how to manage data privacy when data comes from multiple devices. He noted that this is a perennial debate about decentralised vs centralised., He highlighted how metadata allows for the best of both worlds, where there is a centralized system, but the actual data is still under lock and key by the owner. This will facilitate discovery access and also removes a single point of failure.

Mr Pujari also noted how in **particle** physics, 97% of the data is open source especially with distributed data through metadata. This structure is one that has potential for other sectors to learn from too.

The moderator concluded this session by thanking all the panellists for their interventions. She summarized how the panel discussed collaborative regulations and the proposed approaches of sandboxes. Ms Okuda also highlighted how to use and protect data while raising the awareness by both policymakers and the general public. Finally she noted the role of academia and industry in all of this, especially in self-regulation.

8. CLOSING

Ms Atsuko Okuda closed GSR-21 ASP by expressing her sincere appreciation to all the speakers who have shared to support the ITU global symposium for regulators, regional roundtable and regional national economic dialogue for Asia and Pacific as well as participants to take part in the sessions, including the two closed sessions. She reiterated how GSR-21 ASP was designed

as a platform to co-create policy and regulation good practices in Asia and the Pacific. As such, the agenda for the entire GSR for Asia Pacific was programmed with less presentations and more discussions.

She then shared a few key highlights over the last two days. She noted how on Day One, the importance of focus on regulatory enablers through trackers was highlighted, to monitor digital transformation. She highlighted how USFs and National broadband funding programs were mentioned by multiple speakers, including how the best policies are the ones that get implemented. She also noted how data has become an important area to look at and is the basis for regulatory policy decisions. Finally, she mentioned how a whole-of-government approach was repeatedly brought up, as well as ensuring digital inclusion and digital empowerment remain at the center of policies.

In Day 2, Ms Okuda highlighted discussions on greater engagement to address the digital divide and quality of access. Greater collaboration, business models, and the importance of a wide range of technologies that support connectivity were all addressed. She also noted the last session and the discussions around critical technologies like AI, and potentially a new paradigm in collaboration and in policymaking and regulation. She also noted the consumer focus and enabling industry and to also include different societal segments such as civil society, industry, and academia.

Finally, she ended by highlighting upcoming events like the Emerging Technology Week on 11-16 July 2021, and the 21-25 June 2021 GSR-21 Global sessions. She closed by thanking all colleagues and participants again for joining.