



The series of five Ministerial Roundtables at ITU Digital World 2021 focused on the role of government in digital transformation from the perspectives of infrastructure, funding, and driving demand.

Human potential and digital skills can change a country's development potential today more than its geographical position or natural resources. Digitalization is critical to stay competitive and provide equal opportunity to all citizens. Governments should focus on infrastructure, investment, inclusiveness and innovation, working across sectors, regions and nations to close the divide in digital access, usage and opportunity.

“

All key decision makers must recognize the social and economic potential of digital transformation, broadband infrastructure and digital skills development.

Vojin Mitrovic, Minister of Communications and Transport, Bosnia and Herzegovina

”

Ministerial Roundtables: The Outcomes

Essentials

- **Digital technologies are understood and appreciated:** the role of information and communication technologies in our economies and societies has never been so valued.
- **COVID-19 has acted as a catalyst:** the global pandemic has forced digital transformation to accelerate, progressing in one month faster than one year pre-COVID-19. Better prepared countries fared better in response; sustaining the momentum of change is critical.
- **The digital divide is deepening:** digital transformation is far from equal. The gap in access to and usage of digital technologies, services and products across and within countries is widening.
- **Closing the opportunity gap** means bringing more people online and in reach of the opportunities opened up by digital technologies through infrastructure deployment, affordable devices and plans, relevant content and digital skills.
- **Government must take the lead:** government is the key driver of digital transformation and social and economic growth; policies should encourage investment, innovation and deployment of infrastructure, public private partnerships, digital public services to drive demand and digital skills training.
- **Whole-of-government approach:** digital transformation calls for a holistic and collaborative approach, encompassing all government departments, driven by committed leadership at the very top and joining up all levels of government from local to regional to national.
- **Supporting the private sector:** investment in updating old networks and building new technologies will come from the private sector, but the government must create favourable investment and regulatory environments for it to happen, including taxation and spectrum policies.

- **Innovating with regulatory sandboxes:** new regulatory approaches for a new digital era should include data governance, infrastructure sharing, promotion of innovation and SMEs, cybersecurity, trust and privacy.
- **Digital skills are paramount:** from kindergarten children through national curricula to technology students, business users, AI scientists and government staff, digital literacy and digital skills are critical – and should be inclusive of marginalized groups, the underrepresented and rural and remote communities.
- **A people-centric approach:** people are at the heart of digital transformation, including public services, health, education, transport, and smart cities. Digital transformation should centre on meeting citizens' needs and improving human lives.

 A whole of government approach is imperative to transform public services and provide much-needed citizen services online. 

Oshada Senanayake, Director General, Sri Lanka Telecommunications Regulatory Commission

 ICT services have become a key part of the infrastructure, like water or electricity. 

Ziyang Xu, Chief Executive Officer, ZTE Corporation

 Affordable access is everybody's responsibility. 

Houlin Zhao, Secretary General, ITU

Key proposals for government action

A summary of best practice and industry recommendations

- Update regulation to meet realities of digital sector, taking into account new players, new technologies and cross-border data flow
- Adopt a regulatory sandbox approach to test new options
- Flexible regulation to allow competition between network operators and content providers over last mile, and to encourage collaboration through network and infrastructure sharing
- Adapt universal service funds to support focus on infrastructure deployment
- Provide subsidies to end users for access plans and devices, educational content
- Ensure ICT sector proceeds are reinvested in broadband initiatives in a virtuous cycle
- Align local, state and federal taxation policies to reduce costs for network operators; reduce sector-specific fees
- Provide a favourable investment environment by allowing foreign investment, encouraging technology-agnostic innovation, providing incentives for investment in economically unviable areas
- Flexible spectrum policies to include increased length of spectrum tenure; lower fees; voluntary spectrum trading to open up underserved areas; coverage obligations in exchange for lower spectrum costs
- Reduce cost and complexity of access to rights of way and antenna or tower sites; make public land available for infrastructure sites
- Government provision of access and infrastructure in public buildings, streets, schools, hospitals, public buildings
- Partner with electricity companies on active and passive infrastructure sharing
- Encourage open access infrastructure sharing, reduce redundant infrastructure, increase rural tower sharing to catalyse broadband build out
- Digitalize networks to increase flexibility and efficiency, reduce costs through new technologies such as cloud services, AI
- Foster local innovation in public services through open data and APIs
- Take lead in promoting, testing and integrating new technologies such as HAPS, OpenRAN, AI, blockchain, robotics and 5G
- Focus on digitalization of SMEs through financing, startup hubs, simplified regulation and provision of digital skills



Private investment is the engine behind the growth of digital access, but we need additional funds for distant, remote and rural areas.

Ramiro Camacho, Commissioner, IFT, Mexico

Key findings

Impact of COVID-19 crisis

The COVID-19 pandemic and ensuing crisis represented a paradigm shift in digital transformation. The importance and impact of digitalization, and the foundational role of digital technologies in modern economies and societies, has been highlighted and widely understood. The need to ensure business continuity and education, provide critical information and health care, and deliver socially distanced government services accelerated the adoption of a new digital normal and disrupted existing ecosystems.

 The digital future envisioned in a pre-pandemic environment is here now.

Hassel Larry Bacchus, Minister of Digital Transformation, Trinidad and Tobago

As the first pandemic in the era of digital communications, COVID-19 has brought both great sorrow and great opportunity to humanity. Global awareness of the critical nature of digital infrastructure and services has forced governments everywhere to rethink the relationships between the state and technology, focusing on solutions to drive economic growth and provide essential citizen-centric public services.

Better prepared nations with more advanced digital strategies in place before the pandemic fared better throughout the crisis; but developing countries may have an advantage in moving swiftly to digitalization as there is an opportunity to leapfrog without having to replace or update outdated technologies or infrastructure.

Sustaining the momentum and maintaining digital adoption beyond COVID-19 is imperative. The challenge is to build on gains in fields such as digital finance, education and health, and the uptake of digital services and content in general, rather than returning to traditional ways of doing business.

Digital networks and the services they enable are increasingly a key part of basic infrastructure, like water and electricity. But the need to upgrade ageing infrastructure and invest in new technologies must be balanced against the financial fallout from the pandemic; and lack of access, affordability of devices and services and lack of digital skills threaten to widen the opportunity gap.

 The experience of the pandemic is a powerful reminder of digital technology as a unifying force at the centre of the interconnected world.

Chaesub Lee, Director, ITU Telecommunication Standardization Bureau

The digital paradox

The digital divide has come sharply into focus, as the crisis has laid bare the structural inequalities and underlying disparities between developed and developing nations, and between the connected and underserved communities within each country.

The world will not be digital until the other, unconnected half of the global population is brought online. The diversity of needs and varying paces of digital evolution in different geographies, societies and groups of people should be addressed.

 We urgently need to reimagine our world as one where digital inequality and exclusion are excluded.

Jean Philbert Nsengimana, Honorary Chairperson,
Alliance for Affordable Internet (World Wide Web Foundation)

Ministerial Roundtables: The Outcomes

Digital transformation is a mindset

Digital transformation is a fundamental change of societal behaviour, adapting government sectors, industry and individual lives to a business model dependent on digital technologies for projects and services. It is a mindset or cultural transformation as much as a technological one. Beyond simply adding capability, digitalisation opens the door to the fourth industrial revolution, increasing productivity and efficiency through the automation of processes, operations, business and government services.

To be successful, digital transformation must be driven from the very top. Leadership must understand the importance and potential of new technologies such as 5G, and be fully committed to finding innovative ways to bring people and technology together.

A whole-of-government approach is essential, working across ministries, departments, federal, regional and local government structures rather than in silos. Digital transformation must be a core element of national development plans, unifying efforts in key sectors such as health and education to deliver efficient, effective public services. Prioritizing citizens' needs means consulting with local government to better understand activities and requirements on the ground.

 For a company, success in digital transformation depends on the CEO, not the CIO; for a country, on the Prime Minister, not the ICT minister. 

Nguyen Manh Hung, Minister of Information and Communications, Viet Nam

Central role of government

Government is the single most important stakeholder in digital transformation, acting as customer, procurer, regulator, enabler, provider of services and content, behavioural model and driver of digital transformation.

Government transforms public services into digital services; supports digitalization in crucial sectors such as healthcare, finance, education and transport; creates enabling environments for innovation, infrastructure and technology players; provides appropriate legal frameworks, standards and guidelines; mitigates threats such as cybersecurity; increases digital literacy and access; and brings together all stakeholders in the digital economy.

Digital transformation is dependent upon connectivity and access, skills and content, all of which are enabled by government. Digital public goods in particular are a powerful equalizer. Governments also establish and maintain trust in the digital environment through regulation and legal protection to ensure safety, transparency, privacy and cybersecurity.

Government is the main funder of high quality infrastructure to reach all citizens and enable new 5G opportunities, as well as closing the usage gap created by affordability, lack of skills or lack of relevant content. Unified national strategies can drive demand by working with multiple stakeholders to provide impactful, citizen-centric solutions and taking into consideration wider societal factors such as tax, electricity and education.

 **Government plays a key role in setting direction, policy, support and coordination.** 

Yuhong Huang, Secretary-General, GTI & Deputy General Manager,
China Mobile Research Institute, China GTI

Digital governance creates better conditions for businesses and citizens, allowing for innovation and competitiveness. Streamlining government services, delivery and processes through digitalization increases efficiency and reduces public spending. E-government platforms should include an ecosystem of shared APIs, open standards, reliable data sets and services, with governance processes built on top to ensure safety, accountability and sustainability in all sectors. Open data facilitates access to public policy and the development of public services, allowing wider participation, convenient and cost-effective public processes, and the integration of regional and local activities.

Ministerial Roundtables: The Outcomes

Health and education: sectors with impact

Two key sectors have experienced tremendous progress in digitalization due to the demands of the COVID-19 pandemic: health and education. Building on this progress means digitalizing both national curricula and education delivery, innovating throughout the educational system from pre-school to university to equip students today with the digital skills needed tomorrow. Connecting schools and communities to government networks or educational content will provide work opportunities for all.

Big data, AI and 5G can support the digitalization of healthcare services, transforming the entire system. Government must balance regulation and governance to keep people safe whilst fostering innovation. Access to digital health services is not a luxury, but often a matter of life or death. Popular government services provided digitally during the pandemic, such as vaccine campaigns, can open the door to acceptance and widespread use of other services; there is an opportunity to build long-term success from the sandbox of e-health solutions arising in response to the pandemic.

Making connectivity meaningful: digital skills and content

The provision of infrastructure, access and affordable devices is not enough. Connectivity must be accompanied by digital skills and relevant content in local languages skills for it to transform social, economic and personal development.

 At the centre of the debate is meaningful connectivity, which is achieved when everyone can use the internet every day using an appropriate device with enough data and fast connection.

Rashad Nabiyyev, Minister of Transport, Communications and High Technologies, Azerbaijan

The coverage gap has lessened, falling from 1.8 billion without access to 450 million over the past six years. But the usage gap remains, due to lack of digital skills, literacy and affordability. New business models are needed to reach the unconnected.

Government must take a leading role in mobilizing awareness of digital services, their potential and relevance; and in promoting digital literacy initiatives, technology-neutral digital skills and training, and relevant content. Increased numbers of users will generate demand for more services and more markets in a virtuous circle of investment.

Digital literacy must be developed at every level, from kindergarten children to national curricula, from university students to data scientists and government officials. Developing human resources and digital skills is a key component of digital transformation.

 The cost of connecting the unconnected is a burden that cannot be borne by governments alone or operators alone: we need broad collaboration between industry, governments, banks, development financing institutions, and international organizations.

Doreen Bogdan-Martin, Director, ITU Telecommunication Development Bureau

Ministerial Roundtables: The Outcomes

The importance of a human-centric approach

A human-centric strategy puts people at the heart of digital transformation. Digital government and digital public services should be user friendly, adapted to citizens' needs and enable everyone to actively participate in, and reap the benefits of, digital transformation. All citizens should have equal access to public services and the right training and skills development. Governments must communicate this approach and the benefits of digital transformation across the ecosystem from government departments to industry, civil society and individuals.

 Digital transformation must revolve around people as the subject and object for development.

Pham Minh Chinh, Prime Minister, Viet Nam 

The need for a collective effort

Digital transformation is a global agenda, calling for multi-stakeholder collaboration, a whole-of-government approach, and international collaboration. It is a collective effort, especially given the cross border complexity of the digital landscape. Neither governments nor industry can do it alone. The costs of infrastructure deployment should be borne by a broad coalition including banks, development financing institutions and international organizations.

 Only when we all bring our own specific competencies to the table, avoid duplication of effort and pool our resources will we succeed in accelerating digital transformation for everyone, everywhere.

Malcolm Johnson, Deputy Secretary-General, ITU 

Governments must adopt a multi-lateral approach to transfer technologies, build skills and capacity and attract investment. Sharing lessons learnt and best practice at regional and local level, and working across governments and industry sectors, will pool resources and avoid duplication of efforts.

Promoting digital infrastructure and services: concrete measures

New regulatory and policy approaches are needed to drive digital transformation, focusing on increased network deployment, affordable access, relevant content and services and digital literacy.

A favourable investment environment

Government must work with the private sector to facilitate investment in ICT infrastructure, updating networks, extending reach and rolling out new technologies and services. Creating a conducive investment environment and promoting deployment in rural and remote regions or amongst underserved communities is key. Measures may include allowing foreign investment for national operators struggling with liquidity; enabling public private partnerships; reforming universal service strategies and funds to focus on infrastructure in economically unviable areas; and providing long term financing at lower interest rates for smaller private sector players.

A holistic approach to government would allow support for network deployment and industry innovation to be balanced against national revenue plans. Taxation measures may include ensuring ICT sector proceeds are reinvested in supporting broadband initiatives; tax reductions on services such as IoT, VSAT and M2M; decreasing sector-specific fees; exempting sales taxes on ICT equipment and machinery; and tackling multiple taxation by aligning local, state and federal taxation policies.

 (If) a favourable investment climate is not created, it is not possible for the private sector to create the environment of the future. 

Mustafa Jabbar, Minister of Posts, Telecommunications and Information Technology, Bangladesh

Ministerial Roundtables: The Outcomes

Innovative regulation

Regulation should be fit for purpose, moving beyond traditional regulatory frameworks to better reflect the new realities of the fast-moving digital sector. Flexible regulatory approaches would embrace collaborative participation, encouraging innovative new business models with a mix of technologies and stakeholders. Smart regulation can increase affordability of access, devices and service plans to the end user, including reducing internet data costs in developing markets where lack of competition and limited market size may lead to high market prices.

Regulatory sandboxes allow for small scale experimentation and innovation in regulatory mechanisms and the tech sector alike.

Infrastructure sharing

Active and passive infrastructure sharing will catalyse rural and remote broadband reach, whether over national fibre optic networks, public private wholesale networks or tower sharing. Encouraging multi-stakeholder engagement over an open infrastructure sharing model will allow operators to offer last mile services at affordable prices, reduce prohibitive investment costs and decrease redundant infrastructure.

Governments can promote and facilitate infrastructure in public buildings and streets, provide community internet services in hospitals, schools and public buildings, and partner with other utility infrastructure providers such as electricity companies.

Reducing the costs of right of way and antenna sites, making public sites available at low or no cost and reducing the complexity of permitting at local government level will enable network operators to accelerate penetration.

Spectrum is key

Affordable, available spectrum is essential to mobile operators, in particular in the move towards deploying 5G services. Spectrum policy should form a part of the strategic approach of every government to allow telcos to deploy lower cost services. Concrete measures could include lower spectrum fees; technology-neutral spectrum licencing based on market forces; voluntary spectrum trading to open up underserved areas; increasing spectrum tenure to incentivise longer term investment; and awarding credit for spectrum licence fees in exchange for infrastructure deployment in rural or remote areas.

Ongoing spectrum research strategies should provide a continuous allocation of spectrum to operators, reduced cost burdens, innovative and effective uses of spectrum, and regulatory certainty.



Let's think in a bolder way on spectrum, and look at it as part of the strategic approach of every government to allow every telco operator to deploy services at a lower cost.

Karim Lesina, EVP Chief External Affairs Officer, Millicom



Choosing technology neutral spectrum licensing is the best way to encourage innovation in the market and use the market forces to really drive scale.

Erik Ekudden, CTO, Ericsson

Ministerial Roundtables: The Outcomes

Prioritizing SMEs

Simplified, tailored regulatory policies should focus on fostering small and medium enterprises (SMEs) in the tech sector as the source of creativity and innovation, and the engine of economic growth around the world. Digitalizing SMEs is a priority to share the benefits of digital transformation, enable growth, innovative tech solutions and competitiveness on the global stage. Open data and access to simplified government procurement processes will enable SMEs to build relevant, targeted solutions, innovating with agility and impact.



SME digitization is critical as SMEs make up the backbone of any economy.

Paula Ingabire, Minister, Information Communication Technology and Innovation, Rwanda

New technologies

Regulatory bodies and policy makers must legislate for and encourage a mix of technologies and new solutions to mitigate the digital divide and drive digitalization. These include national fibre optic networks, 4G and 5G mobile networks, fixed wireless access, cloud services, AI, big data, blockchain, robotics, IoT, HAPS (high altitude platform systems) and OpenRAN.



If SMEs remain disconnected from digital solutions, the benefits of these technologies will not be shared broadly across countries. SMEs need a strong supportive ecosystem and related conducive policies supporting access.

Anders Aeroe, Director, Division of Enterprises and Institutions, International Trade Centre

AI is the key driver to the information society of the future, reducing costs, increasing flexibility and driving economic development. Smart government is built on AI, 5G, big data and IoT to increase wellbeing and convenience throughout society. Open data and APIs will foster local innovation. Governments must support new technologies in areas such as research and testbeds, the establishment of international standards and laws on cybersecurity to protect data, ensure privacy and establish trust amongst populations.



Infrastructure, investment, inclusiveness and innovation are the four key foundations for successful inclusive digital transformation.

Tin Aung San, Union Minister, Ministry of Transport and Communications, Myanmar



Without timely investments in 5G and fibre, the digital divide may grow, not just between those connected and disconnected but also those with basic connectivity versus those with enhanced conductivity.

Melissa Schoeb, Chief Corporate Affairs Officer, Nokia



The promise of digital transformation should leave no one behind.

Mario Maniewicz, Director, ITU Radiocommunication Bureau



Online, Sept-Dec

Contact us to find out more at
participate.telecom@itu.int
+41 22 730 6161

[Sign up for our event newsletter](#)

#ituworld
digital-world.itu.int