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| Contribution by Rwanda (Republic of) |
| DRAFT OPINION ON BUILDING DIGITAL TRANSFORMATION, CLIMATE, AND ENVIRONMENTAL SUSTAINABILITY; RESILIENCE OF TELECOMMUNICATION; AND BRIDGING DIGITAL DIVIDES, PARTICULARLY ON GENDER AND AGE, AS WELL AS SKILLS AND CONNECTIVITY |
| **Purpose**Draft Opinion on opportunities, challenges and policy recommendations on Building digital transformation, climate, and environmental sustainability; resilience of telecommunication; and bridging digital divides, particularly on gender and age, as well as skills and connectivity, for its inclusion in the Report by the ITU Secretary-General for the Seventh World Telecommunication/Information and Communication Technology Policy Forum 2026.**Action required**The Informal Expert Group on WTPF-26 is invited to **note**, **consider** and **approve** this document and include in the Report by the ITU Secretary-General for the Seventh World Telecommunication / Information and Communication Technology Policy Forum 2026. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**References**[*IEG-WTPF-26 webpage*](https://www.itu.int/en/council/Pages/ieg-wtpf-26.aspx)*;* [*https://unctad.org/publication/digital-economy-report-2024*](https://unctad.org/publication/digital-economy-report-2024) |

The theme of the next WTPF-2026 has been approved and it is in line with the trend in Telecommunication/ICT. The five sub-themes have been also approved and the Informal expert Group has the mandate to strategize how to come up with the draft opinions.

During the next round of the Informal Expert Group on WTPF-2026, participants will submit their contributions on different opinions.

Draft opinion 1: Building digital transformation, climate, and environmental sustainability

There is a direct environmental impact of our increased reliance on digital tools from raw material depletion, water and energy use, air quality, pollution, and waste generation. These are accentuated by emerging technologies such as artificial intelligence and the Internet of Things.

The information and communications technology sector’s carbon footprint in 2020, was estimated at between 0.69 and 1.6 gigatons of carbon dioxide (CO2) equivalent emissions, accounted for 1.5 to 3.2 per cent of global greenhouse gas emissions —at the upper range, slightly below the entire shipping industry’s contribution to CO2 emissions. The production of a single 2 kg computer requires the extraction of a staggering 800 kg of raw materials.

These figures are only set to rise, with the production of minerals essential for the digital transition, such as graphite, lithium and cobalt, projected to surge by 500 per cent by 2050 to meet the growing demand for digital and low-carbon technologies.

Data centres, the backbone of the digital world, consumed an estimated 460 TWh of electricity in 2022, a figure projected to double by 2026. The number of semiconductor units quadrupled from 2001 to 2022 and continues to grow. Fifth-generation mobile broadband coverage is expected to increase from 25 per cent of the population in 2021 to 85 per cent by 2028, while the number of Internet of Things devices is projected to grow from 16 billion in 2023 to 39 billion in 2029. This expansion, coupled with the growing popularity of e-commerce, which saw business sales rise from $17 trillion in 2016 to $27 trillion in 2022 in 43 countries, paints a complex picture of the digital economy’s environmental impact.

The environmental impact of digitalization is a global issue, but its effects are not evenly distributed. Developing countries, often rich in the resources needed for digital technologies, bear a disproportionate burden of its costs while reaping limited benefits.

The Internet of Things (IoT) are being used to enhance urban management, reduce waste, optimize energy usage, and improve sustainability efforts.

Member states will continue to leverage AI and big data for climate predictions, natural disaster preparedness, and environmental protection.

However, there are some challenges like increased data centres and telecommunication infrastructure that can lead to high energy consumption and carbon emissions if they are not managed sustainably. Moreover, the rapid development of technology leads to increased electronic waste, which poses environmental hazards. There are also economic disparities related to the countries that may lack the infrastructure and resources to implement the sustainable digital transformation.

The Governments around the world should develop policies that promote energy-efficient technologies, such as using green energy in data centres, which can contribute to reducing the sector's carbon footprint.

In addition, the Governments and organizations should adopt e-waste management policies, including recycling programs and responsible disposal of old electronics. The Government must harness the power of digitalization to advance inclusive and sustainable development, while mitigating its negative environmental impacts. This requires a shift towards a circular digital economy, characterized by responsible consumption and production, renewable energy use and comprehensive e-waste management.

The Governments should incentivize the reduction of emissions through carbon taxes or credits to encourage sustainable practices in digital industries.

As countries navigate this complex landscape, international cooperation is paramount. Countries must strive for equitable distribution of the benefits and costs of digitalization, ensuring that no one is left behind in the digital age. Countries must work together to establish comprehensive global governance frameworks that promote sustainable digital practices and empower developing countries to participate fully in the digital economy.

Draft opinion 2: Resilience of telecommunication

There are opportunities brought by the implementation of the 5G networks, fibre optics and low Earth orbit (LEO) satellite communications technology. 5G technology offers faster and more reliable connectivity, which is critical for ensuring resilience, especially during natural disasters.

There is also a need to connect national backbones to international fibre links with multiple redundancy in order to avoid the single failure when there is a fibre cut.

Countries have also to invest in content delivery networks and Internet exchange points in order to keep the local content in the country. The establishment of the CDN and IXP goes hand in hand with the implementation of the cloud data centres. To connect more systems that are hosting critical services to the exchange point to keep the access to the services when there is international Internet links outage.

The telecommunication operators and Internet service providers should build the redundant telecommunication infrastructures that can minimize downtime during crises, ensuring business continuity.

The telecommunication operators and Internet service providers should also focus on cyber-resilience that can help protect the infrastructure from digital threats like cyberattacks, which can disrupt communications.

There are so many challenges faced by telecom operators and the general public related to cybersecurity threats. As telecommunications become more digital and reliant on cloud-based systems, they are vulnerable to cyberattacks, data breaches, and malicious actors. There are also challenges related to natural disasters like hurricanes, earthquakes, and other natural disasters that can damage telecommunication infrastructure, leading to significant downtime.

There are also the challenges related to the infrastructure maintenance costs. Maintaining a resilient telecommunication infrastructure requires ongoing investment, especially in regions with challenging geographies.

There is a need to establish high-capacity subsea cable systems to complement the existing networks to allow for automated traffic rerouting if there are cuts or outages to address these risks.

Submarine cable operators employ specialized ships and remotely operated vehicles (ROVs) to inspect and repair damaged cables. These maintenance activities include periodic checks for wear and tear, strengthening cable protection, and ensuring proper burial depth to safeguard against accidental damage.

Given the potential for intentional sabotage, security measures are crucial to protect submarine fibre optic cables. These measures include surveillance systems, underwater sensors, and cooperation between law enforcement agencies and cable operators to detect and prevent malicious activities.

In case of international fibre cut, Telecoms are requested to switch to other submarines cables to maintain the service through their upstream provider/carrier and this requirement should be contractual.

The Governments through Universal Access Fund to continue providing incentives to promote the exchange point and encouraging institutions to join the exchange point.

The Governments and telecommunication firms need to develop robust disaster recovery and business continuity plans to ensure minimal disruption in services.

The implementation of the stringent cybersecurity standards and enforcing compliance among telecom providers can enhance the sector’s resilience.

The Government support for resilient infrastructure, especially in underserved or disaster-prone areas, can be crucial in maintaining continuous connectivity.

Draft opinion 3: Bridging digital divides, particularly on gender and age as well as skills and connectivity

There are opportunities linked with the digital inclusion programs. The efforts on increasing digital literacy and accessibility, especially for women, the elderly, and underserved communities, can bridge the digital divide.

The rise of remote work and learning can offer more flexibility, but only if there is equal access to the necessary technology and skills.

The tailored digital devices and platforms designed with considerations for age, disability, or socio-economic status can cater to diverse populations and improve inclusivity.

There are still challenges related to gender inequality. In many parts of the world, women and girls have less access to digital tools, education, and Internet connectivity, leading to a widened digital divide.

The older generations may struggle with digital literacy, and without tailored support, they may remain excluded from the benefits of digitalization. Moreover, there is often a lack of adequate training programs that can address the digital skills gap, particularly in developing regions.

The Government should implement the gender-specific programs. The policies that promote gender equality in the digital space, such as offering scholarships or training programs tailored for women and girls.

The Governments and educational institutions can also promote digital literacy campaigns aimed at older adults and underserved communities to reduce the skills gap.

The Governments should work towards policies that ensure affordable, reliable Internet access in rural or underserved areas to bridge the connectivity divide.

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