Report by the Secretary-General

Report on the implementation of the Strategic Plan and the activities of the Union

May 2023-April 2024

ITU

Report on the implementation of the Strategic Plan and the activities of the Union

Report by the Secretary-General

May 2023-April 2024

Foreword

Dear members of the ITU family,

Digital technologies climbed to the top of the global agenda in 2023, taking centre stage at the G7, G20 and G77, as well as in key United Nations processes, such as the 5th UN Conference for the Least Developed Countries and the 2023 SDG Summit calling for accelerated progress towards the UN Sustainable Development Goals.

The International Telecommunication Union (ITU) is dedicated to expanding digital connectivity and using technologies to improve lives and livelihoods, including for the estimated 2.6 billion people who currently still lack Internet access.

Digital solutions can help tackle humanity's most pressing challenges – not least by accelerating inclusive sustainable development. This hinges, of course, on harnessing innovative technologies such as artificial intelligence (AI) for the good of all.

Despite real risks and mounting fears, digital transformation offers a ray of hope for a better future.

Around the world, digital progress is undeniable, whether in the technical or policy sphere. Yet the global digital divide persists, with access and usage varying considerably by region, gender, age, income, and other socio-economic variables.

Along with the completely unconnected, billions more people are on the wrong side of the divide due to slow Internet speeds, inadequate skills, lack of relevant content, or unaffordable access. Notably, 5G telecommunication networks, now prevalent in high-income countries, remain nearly absent in low-income countries.

Unfortunately, 2023 also brought humanitarian crises and conflicts, combined with economic uncertainties that have deepened global inequalities. Climate change has become a daily reality with floods, droughts, and new average temperature records exacerbating global challenges.

Through a difficult year, ITU – in its modern role as the UN agency for digital technologies – has stepped up landmark initiatives to unlock meaningful connectivity for everyone, everywhere. In late 2023, the World Radiocommunication Conference (WRC-23) achieved key global regulatory updates on radio spectrum allocation for wireless and other services.

More than ever, ITU's radiocommunication, standardization and development activities are helping connect the world inclusively and sustainably. A relentless focus on connectivity drives our global impact, motivates us to form innovative partnerships, and inspires us in our pursuit of organizational excellence.

To date, the ITU-led Partner2Connect initiative has gathered over USD 46 billion in pledges for meaningful connectivity and sustainable digital transformation projects worldwide. We continue

ramping up ambitions to tackle the notorious "last mile," mobilizing public- and private-sector commitments to bring digital benefits to the world's hardest-to-connect communities.

Giga – the joint ITU-UNICEF initiative to connect every school in the world to the Internet – represents another bold move to tackle major challenges through global partnerships.

We are similarly engaged with partners from the UN family and beyond in advancing the UN Secretary-General's Early Warnings for All initiative, as well as in monitoring and reducing electronic waste, tackling our own industry's greenhouse gas emissions, and laying the foundations for a green digital economy.

This annual report captures a key moment for ITU – the start of an ambitious new strategic plan. Our Strategic Plan 2024-2027 plan builds on the 2020-2024 plan and updates our Connect 2030 Agenda to focus on two overarching priorities: universal connectivity and sustainable digital transformation.

Our upcoming World Telecommunication Standardization Assembly (WTSA-24) will promote inclusive standards in line with sustainable development and climate action. The versatility and credibility of ITU standards is also a key asset as the Green Digital Action track continues for the next UN climate conference, COP29.

New and emerging technologies – including the generative AI applications that seized hold of public attention in 2023 – continue presenting an unprecedented combination of opportunities and challenges. Moving forward, ITU aims to ensure AI serves humanity, keep space sustainable for future generations, and ensure that everyone can benefit from quantum technologies.

The upcoming Summit of the Future represents a pivotal moment to set strong foundations for inclusive, resilient, and sustainable digital development for the years to come. Amid the discussions shaping the anticipated Global Digital Compact, ITU reaffirms its commitment to universal connectivity and sustainable digital transformation.

Together with our partners, we have a lot to offer, from standards cooperation on emerging technologies to global discussion on AI and internet governance issues. We look forward to further supporting this key Member State-led negotiating process.

As ITU prepares for the future, I am grateful for the support of our engaged membership, outstanding leadership team, and dedicated staff.

I invite you to explore what we've achieved together in 2023.

Doreen Bogdan-Martin
Secretary-General
International Telecommunication Union

Table of contents

**Report on the implementation
of the strategic plan and the
activities of the Union**

May 2023 ——— **April 2024**

Key takeaways

i.   Key takeaways

- ITU strives for universal connectivity and sustainable digital transformation, aiming to connect the last one-third of humanity – the 2.6 billion people globally who still lack Internet access.
- ITU's Strategic Plan 2024-2027 focuses on 12 targets for connectivity and transformation.
- ITU's Partner2Connect initiative has mobilized over USD 46 billion worth of pledges for inclusion, partnership, and sustainability-focused digital development by March 2024. The ITU-led initiative recognizes the need for multi-stakeholder collaboration to achieve universal, meaningful connectivity and sustainable digital transformation, including direct leadership by governments, policy-makers, and the regulatory community.

The global situation

- By the end of 2023, approximately 67 per cent of the world's population, or 5.4 billion people, were online, marking a 4.7 per cent increase since 2022.
- Despite progress, only 27 per cent of the population in low-income countries used the Internet in 2023, highlighting persistent challenges in bridging the digital divide.
- In 2023, the data-only mobile-broadband basket has become more affordable in all regions of the world and for all income groups. Affordability has improved by 36 per cent from 2017 to 2023.
- By the end of 2023, there were 250 million more men than women online worldwide, especially in Least Developed Countries, and the number of countries that have established a regulatory framework to ensure information and communication technology (ICT)accessibility for persons with disabilities has almost doubled since 2020: from 61 to 117.
- The latest Global E-Waste Monitor predicts that global e-waste will reach 74.7 Mt by 2030, almost double the 2014 figure, and the percentage of re-cycled e-Waste will drop to 20 per cent by 2030 due to the widening difference in recycling efforts relative to the staggering growth of e-waste generation worldwide, fuelled by higher electric and electronic consumption rates, shorter lifecycles and limited repair options.
- Despite the world's challenges in 2023, digital technologies emerged as a beacon of hope, reinforcing the increased ambition in ITU's strategic goals, global initiatives, and day to day work. SDG Digital Acceleration plan, launched in September 2023 by the UNDP and ITU in the lead up to the SDG Summit, has found that 70 per cent SDG targets can be boosted with digital technologies.
- By the end of 2023:

  o 81 countries had e-waste policies, legislation, or regulations in place (up from 78 in 2019), compared to a target of 97 countries.
  o 126 countries had cyber incident response teams (CIRTs), up from 109 in 2020; and 127 have national cybersecurity strategies and action plans, as compared to 107 in 2020.
  o 83 per cent of countries had national plans for emergency telecommunications, up from only 25 per cent in 2020.
  o The number of countries with policies fostering tech-centric innovation reached 97, up from 66 in 2020.

- Much of ITU's Strategic Plan 2020-2023 was fulfilled, with successful projects and initiatives in recent years focusing on growth, inclusiveness, sustainability, innovation and partnership.

- Challenges persist, particularly in bridging the digital gender gap and addressing e-waste and greenhouse gas emissions.
- ITU's work spans diverse, yet interrelated, aspects of connectivity, communications, and digital transformation – from terrestrial and space-based networks to accessible technology standards, as well as to ensuring people and communities all enjoy the necessary digital access and skills for full, meaningful socio-economic engagement and opportunities. All three ITU sectors work together to connect, everyone everywhere, and bring benefits of digital technologies to all.

Statutory conference

- The World Radiocommunication Conference (WRC-23) held in Dubai, UAE, achieved key global regulatory updates on radio spectrum allocation for wireless and other services, including additional spectrum for international mobile telecommunications (IMT), particularly mobile and fixed broadband; modernization of the Global Maritime Distress and Safety System (GMDSS), and regulations for satellite services.
- The preceding Radiocommunication Assembly (RA-23) set out future work programmes for the ITU Radiocommunication Sector (ITU-R) and approved a range of ITU-R Recommendations and Resolutions that will have a global impact on future radiocommunication technologies.
- Women constituted 22 per cent of WRC-23 delegates (up from 19 per cent at WRC-19), reflecting the progressive narrowing of the gender divide in ITU activities, including radiocommunication-related discussions.
- RA-23 adopted a resolution promoting gender equality in ITU's work in this field, as well as across the ITU Radiocommunication Sector (ITU-R) and industry-wide.

Critical progress in each sector

- The ITU Radiocommunication Sector (ITU-R) approved over 80 new or revised Recommendations, with comprehensive information available here.
- ITU received the Engineering, Science and Technology Emmy Award for its work on radiocommunication standards for High Dynamic Range Television (HDR-TV), in recognition of the organization's pivotal role in shaping the technologies of today and tomorrow. This marks the third Emmy Award granted for ITU's radiocommunications work – and the sixth Emmy for ITU as a whole.
- The ITU Standardization Sector (ITU-T) approved 286 new and revised Recommendations, with five active focus groups supporting related work on affordable data services, metaverse use cases, mobile telecom testbed harmonization, digital agriculture, and artificial intelligence (AI) for disaster management.
- Preparations are underway for the ITU-T's governing conference, the World Telecommunication Standardization Assembly (WTSA-24), which will take place in New Delhi, India, between 15 and 24 October 2024.
- The ITU Development Sector (ITU-D) carried out or continued ongoing work on 87 projects valued at a total of CHF 106.4 million, with 23 new project signings amounting to CHF 20.9 million in 2023.
- The influence of AI and machine learning on ITU standardization (ITU-T) work continues to grow, particularly in such areas as network orchestration and management, multimedia, service quality assessment, energy efficiency, protocols and test specifications, future networks, cable networks, network operations and maintenance, security, digital health, smart mobility, digital agriculture, and disaster management.
- The global, inclusive AI for Good community brings together the private sector, civil society, and public institutions for year-round insights on AI, machine learning, and machine-brain interface tools.

ITU-hosted AI governance discussions have begun delving deeply into how to manage risks, including the risk of a widening AI divide, and ensure AI benefits all of humanity.

Membership milestone

- ITU maintained near-global/universal scope at the political level with 193 Member States, while sector membership (companies, organizations, research institutes and other non-state entities focused on radiocommunication, standardization or digital development, according to their interests) reached a record-high of 1 000 members in the first quarter of 2024.
- Interest in ITU among non-state entities remained strong, with Sector Members accounting for 48 per cent, Associates for 36 per cent, and Academia for 16 per cent of new memberships.

Budget highlights

- ITU had a surplus at the end of 2023 amounting to 0.87 per cent of the budget.
- Forecasted extra-budgetary contributions increased slightly to over CHF 17 million per year (approximately USD 18.7 million at current exchange rates), demonstrating sustained financial support for ITU's initiatives.
- The organization continues to rely on relatively few budget contributors, with the 10-15 top-contributing Member States accounting for the bulk of revenue.

**Report on the implementation
of the strategic plan and the
activities of the Union**

May 2023 ———— **April 2024**

1 Introduction

1.   Introduction

The UN agency for digital technologies

The International Telecommunication Union (ITU) brings together 193 national governments and over 1 000 companies, universities, research institutes and international organizations with a common purpose – advancing global connectivity and shaping the future of digital technologies. With the depth provided by this unique membership, the organization coordinates radio frequencies on Earth and in space; produces widely recognized technology standards; and promotes digital development aimed at leaving no one behind.

ITU is the United Nations agency for digital technologies, dedicated to connecting the last one-third of humanity and harnessing digital technologies to ensure a better future for all.

Today's ITU

The world experienced growing humanitarian crises and conflicts in 2023, combined with economic uncertainties that have deepened divides and inequalities. The climate crisis has made itself felt around the world, with floods, droughts and average temperature hitting new records. Digital transformation offered a ray of hope.

Amid tough global times, ITU has stepped up landmark initiatives in pursuit of universal connectivity and sustainable digital transformation. As the organization takes on more ambitious priorities, it also takes pride in its own rejuvenation.

ITU's vision, mission, and goals

The ITU 2024-2027 strategic plan sets out two overarching goals:

- **Universal connectivity** – bringing the last 2.6 billion people online and bridging socio-economic divides through meaningful, affordable digital access.
- **Sustainable digital transformation** – aligning innovative tech with sustainable development and global climate action, while fostering equitable, inclusive digital development for all.

ITU's wide-ranging and ever-evolving work includes:

- Ensuring artificial intelligence (AI) serves humanity.
- Making standards work for all.
- Keeping space sustainable.

ITU promotes tech for good and tech for all – connecting everyone, everywhere.

Steady progress and persisting challenges

The present annual report covers ITU's activities from May 2023 to April 2024, focusing on universal connectivity and sustainable digital transformation. The period has witnessed progress in digital access and affordability globally. Even so, challenges persist, particularly in low-income countries, with gender disparities providing a notable example.

ITU's Strategic Plan 2024-2027 outlines 12 targets for universal connectivity and digital transformation, with ongoing efforts to improve data collection. ITU emphasizes digital inclusion, including gender equality initiatives and youth involvement in several initiatives.

Despite persistent and new global challenges, new partnerships and collaboration platforms have boosted ongoing and new digital connectivity projects worldwide.

Advancing towards universal connectivity

An estimated 67 per cent of the global population (5.4 billion people) had Internet access in 2023, a 4.7 per cent increase from 2022, with 93 per cent usage in high-income countries in 2023. While 167 countries had broadband plans, growth had clearly stagnated since 2019. Information and communication technology (ICT) prices having continued their declined (falling by 36 per cent overall between 2017 and 2023), enhancing data-only mobile broadband affordability.

In low-income countries, Internet usage rose to 27 per cent in 2023 from 24 per cent in 2022, with 37 per cent of Africa's population online, indicating regional disparities. Affordability remains a challenge, especially in low-income economies. Globally, men are 5 per cent more likely to use the Internet than women, with more pronounced disparities in Africa and least-developed countries.

Partnerships and pledges: USD 46 billion and counting

Partner2Connect (P2C) pledges reached USD 37 billion by the end of 2023 and USD 46 billion by March 2024, on the back of major new pledges from the mobile telecom industry. Overall, P2C saw increased numbers of pledges (albeit in smaller amounts), mobilizing USD about 7 billion in 2023 for projects aimed at achieving universal, meaningful connectivity and sustainable digital transformation for everyone, everywhere.

ITU continues ramping up public-private cooperation to bring the remaining 2.6 billion people online – and has set its sights on mobilizing P2C pledges worth USD 100 billion by 2026.

Spectrum management on Earth and in space

As custodian of the Radio Regulations international treaty, ITU coordinates the use of radio-frequency spectrum and satellite orbits. This also makes the organization a key platform for cooperation on vital space assets. Accordingly, ITU helps to promote sustainability both in, and from, space.

ITU's Radiocommunication Bureau (BR) processed 5 556 coordination and notification requests from 2019 to 2023, alongside 506 broadcasting-satellite plans and 281 fixed-satellite service plans. Terrestrial notices totalled 5 536. Software improvements streamlined coordination, database migration, and software modernization in the ITU Radiocommunication Sector (ITU-R).

Progress in terrestrial services included the geospatial project completion, and modernization of Maritime Service Publications. The BR Space Information Systems roadmap, initiated in 2019 by the Radiocommunication Advisory Group (RAG-19), saw advancement. Space-related ITU-R applications improved with E-Submission and E-Communication system implementation, while the Radiocommunication Bureau's International Frequency Information Circular (BR IFIC) moved to an online platform, enhancing operational efficiency.

Connectivity made meaningful

Worldwide in 2023, an estimated 2.6 billion people continued living without access to the Internet. ITU is working hard to help bring them all online. Along with promoting infrastructure enhancement, the organization is striving to ensure that everyone has the essential skills and content choices to make connectivity meaningful.

ITU remains committed to mainstreaming diversity and inclusion practices across its work. In the pursuit of its goals, ITU works to bridge the digital divide and build an inclusive digital society, by fostering telecommunication/ICT access, affordability and use in all countries and for all peoples, including women and girls, youth, indigenous peoples, older persons, persons with disabilities and persons with specific needs.

Digital inclusion efforts focus on gender equality, with women still facing disproportionate offline rates and lower mobile phone ownership. ITU initiatives like International Girls in ICT Day and the Networks of Women (NOW) aim to narrow this gap through trainings and mentorship, advocating for female representation in leadership positions.

Youth involvement is also emphasized, with ITU Kaleidoscope 2024 featuring sessions supporting the next generation in standards development. In 2023, work continued on Generation Connect – the overarching initiative of the ITU Youth Strategy that aims to amplify youth voices in the digital development dialogue – mandated through the updated World Telecommunication Development (WTDC) Resolution 76 (Rev. Kigali, 2022) and ITU Plenipotentiary Conference (PP) Resolution 198 (Rev. Bucharest, 2022).

Accessibility efforts target persons with disabilities, promoting awareness and mainstreaming accessibility in standards through revised publications. In addition, during the reporting period, many ITU members, stakeholders, and participants strengthened their knowledge in ICT/digital accessibility through a variety of activities. ITU-D provided ICT accessibility expert advice to support ITU members' efforts to foster digital inclusion through executive training for regional policy and decision-makers.

Internally, a Youth Task Force has been established to promote the active engagement and positive development of young people within the organisation. The Secretary-General has also set-up a Youth Advisory Board comprising 12 young experts from across the globe, who are providing diverse youth perspectives and concrete recommendations to enhance worldwide cooperation on bridging the digital divide.

The Bridging the Standardization Gap programme continued offering training and fellowships to enhance global participation.

Realizing sustainable digital transformation

Digital technologies offer the potential to accelerate socioeconomic progress and enable everyone, everywhere to build a better future. ITU has joined with partners across the UN system and beyond to promote digital transformation in line with the UN Sustainable Development Goals and help fulfil the promise of the 2030 Agenda.

Despite ITU's intensifying efforts, greenhouse gas (GHG) emissions and e-waste have yet to be reined in.

AI harnessed for humanity

In 2023, AI's rapid growth became a global concern, prompting ITU to serve as a vital forum for discussions on harnessing AI for humanity's collective benefit. AI holds promise for positively impacting 134 targets across all 17 Sustainable Development Goals.

ITU's AI for Good platform is a premier venue aligning technology with humanitarian and sustainability goals, exemplified by the AI for Good Global Summit. The 2023 summit, co-hosted with 40 UN agencies and Switzerland, marked a return to high-profile gatherings after the COVID-19 pandemic. A first-ever press conference with humanoid robots brought public attention to this growing field of ITU work, as well as showcasing AI's potential to drive sustainable development. AI and machine-learning (ML) competitions highlighted AI potential and the value of ITU's standardization work.

At the same time, acknowledging AI's risks, ITU has advocated for collaboration among governments, the private sector, and UN agencies to establish international norms. ITU's neutral platform fosters understanding and guides policy on emerging AI technologies. As ITU continues to address evolving challenges, it remains a key contributor to UN efforts in leveraging AI for Sustainable Development Goals.

Tech standards for everyone

ITU is renowned for setting widely recognized international standards, with considerable progress continuing to be achieved over the past year. The Telecommunication Standardization Sector (ITU-T) approved 286 new and revised Recommendations, with five active focus groups

supporting related work. ITU-R approved over 80 new or revised Recommendations, with comprehensive information available <u>here</u>.

ITU received the Engineering, Science and Technology Emmy Award for its work on radiocommunication standards for High Dynamic Range Television (HDR-TV). This recognition underscores the organization's pivotal role in shaping the technologies of today and tomorrow, ensuring global standards for telecommunications and radiocommunications.

Impact story

Emmy Award for HDR-TV

High dynamic range television (HDR-TV) has revolutionized television production and broadcasting, impacting the whole image processing chain, from how images are captured, to post-production and colour correction, and how they are displayed on HDR-capable TVs. The ITU radiocommunication recommendation outlining these innovations (<u>ITU-R BT.2100</u>), first published in 2016, earned an Emmy Award in 2023. The 2023 Engineering, Science & Technology Emmy Award for the HDR-TV recommendation brings to six the total number of Emmy Awards received by ITU.

<u>Learn more about the ITU-R study process behind HDR-TV</u>.

Guidance on policy and insights on technology

ITU promotes sustainable uptake of emerging technologies, including AI, quantum information technology and the metaverse. In the quantum IT field, ITU prioritizes network and security aspects, focusing on Quantum Key Distribution for secure encryption. The ITU-T Focus Group on the metaverse is fostering efforts towards standardization, covering various aspects like security, accessibility, and ethical considerations and frameworks.

Innovation

The number of countries with innovation policies increased from 66 to 97 by 2023.

Cybersecurity

Some 65 per cent of countries had Computer Incident Response Teams (CIRTS) in 2023, indicating improved cybersecurity readiness, while 83 per cent had National Emergency Telecommunication Plans in 2023. ITU leads WSIS Action Line C5, focusing on enhancing confidence and security in tech use.

Addressing emissions and e-waste

ITU spearheads environmental sustainability efforts, focusing on circular economies for e-waste and combating climate change through digital solutions and reducing the carbon footprint. ITU climate-related standards emphasize measurement, energy efficiency, and promoting a circular economy, aiding in monitoring net-zero emissions progress. A key standard on Global digital sustainable product passport, which supports opportunities to achieve a circular economy, was approved and further work is undergoing.

ITU is monitoring and showing digital companies how to cut their greenhouse gas emissions and make the industry a leader in addressing climate change. The Green Digital Action track at the UN climate conference, COP28, fostered industry commitments on emission reduction and e-waste regulation, as well as highlighting importance of international standards for this transition and generating commitment of the World Standard Cooperation, which brings together ISO, IEC and ITU, on principles of sustainability by design in the standard development process.

The global e-waste recycling rate reached 22.3 per cent in 2022, below the 30 per cent target. The UN's fourth Global E-waste Monitor (GEM) foresees a drop in the documented collection and recycling rate from 22.3 per cent in 2022 to 20 per cent by 2030 due to the widening difference in recycling efforts relative to the staggering growth of e-waste generation. Worldwide 81 countries had e-waste policies, nearing the 97-country goal. On the other hand, regarding the target on decreasing GHG emissions, telecommunication emissions remained stable at 133 million tCO2.

Global engagement and impact

ITU's strategic partnerships drive progress towards the Sustainable Development Goals (SDGs). ITU leads AI for Good, scaling AI solutions for SDGs.

ITU has leveraged its standards for the Internet of Things (IoT), digital twins, and AI, to facilitate sustainable digital development, particularly in the growth of smart and sustainable cities worldwide. Over 150 cities have adopted U4SSC (United for Smart Sustainable Cities) key performance indicators, showcasing results through reports and case studies, advancing sustainable urbanization.

The Broadband Commission for Sustainable Development – set up and maintained by ITU and the UN Educational, Scientific and Cultural Organization (UNESCO) engaged over 100 partners, issuing key publications and hosting advocacy events.

ITU is active in partnerships with various UN agencies, including the World Meteorological Organization (WMO), UN Environment Programme (UNEP), UN Food and Agriculture Organization (FAO), and World Health Organization (WHO), on initiatives like AI for natural disaster management and digital agriculture, as well as digitalization for circular economic

development. Also noteworthy is ITU's cybersecurity resilience toolkit for digital finance, adopted by East African and Southern African telecommunications organizations.

ITU's diverse engagements reflect its commitment to global connectivity, sustainability, and digital transformation. High-profile meetings like the WSIS Forum (building for 20 years on action lines from the World Summit on the Information Society) and a wide range of in-depth ITU-led seminars have continued fostering collaboration and addressing emerging trends.

The World Standards Cooperation, bringing ITU together with other key standards-making bodies, in particular ISO and IEC, has worked actively to advance sustainable international standards. The ITU Journal on Future and Evolving Technologies has continued exploring innovations in tech and networks through new research broadly supporting ITU technical standardization work.

World Radiocommunication Conference

The World Radiocommunication Conference (WRC-23) achieved significant outcomes. These include additional spectrum for broadband communications, modernization of the GMDSS, provisions for digitalization of aeronautical frequencies, regulations for satellite services, support for science services, and a resolution supporting Palestine's spectrum use. WRC-23 was attended by 3,986 participants from 163 Member States and 151 observer organizations.

The preceding RA-23 set future work programmes for ITU-R, revised Resolutions, approved Recommendations, and promoted gender equality and sustainable spectrum use.

Organizational excellence

ITU is undergoing a significant transformation to enhance efficiency, innovation, and inclusiveness across its operations. A comprehensive transformation roadmap, approved by the ITU Council, includes the establishment of a Transformation Team.

The organization promotes internal culture change, with one in eight staff members trained as ChangeMakers. Learning labs offer staff practical experience with emerging technologies, such as Quantum technologies and AI. Regular townhall meetings foster engagement and open communication with leadership. The establishment of the ITU Youth Advisory Board seeks fresh perspectives on global connectivity.

Council meetings focus on leadership during transformation, while briefings keep diplomats informed about ITU initiatives. The Demystifying Digital series aim to explain key technologies and technical cooperation processes for a predominantly non-technical audience. It brings together ITU staff and experts with members of the diplomatic community, facilitating a better understanding of emerging trends and fostering discussions on their potential impact Additionally, a toolkit assists newly appointed diplomats in navigating ITU affairs.

A new resource mobilization strategy aims to enhance funding through partnerships.

ITU continues to develop and implement an Environmental Management System with the aim to continuously improve its operational environment footprint. According to the Greening the Blue Report 2023, ITU's CO_2 emissions rose from 1 674 tonnes in 2021 to 1 969 tonnes in 2022. This was primarily due to increased official travel following the end of the Covid-19 pandemic.

Plans to upgrade the Geneva headquarters reflect ITU's continuing organizational evolution, readiness for the future, and unrelenting commitment to sustainable digital transformation.

Are you in?

ITU is entering an exciting period, with a key role in global decisions that will be decisive for the future of humanity and our planet. The upcoming UN Summit of the Future in September 2024 includes a prominent digital component, with discussions aimed at securing the first Global Digital Compact. ITU's wide ranging activities and clear strategic focus make it a key contributor in these processes.

ITU's next statutory conference, the World Telecommunication Standardization Assembly (WTSA-24) is set to take place from 15 to 24 October 2024 in New Delhi, India. This will be a key moment to promote inclusive standards in line with sustainable development and climate action. The versatility and credibility of ITU standards is also a key asset as the Green Digital Action track continues at COP29.

The global ITU community continues to seek new members and partners committed to connecting the world – and beyond.

The next four years are sure to bring new challenges, many not currently foreseeable. But ITU, as the UN agency for digital technologies, will remain dedicated to connecting all of humanity and shaping a better future for all.

2 Global statutory conferences in 2023
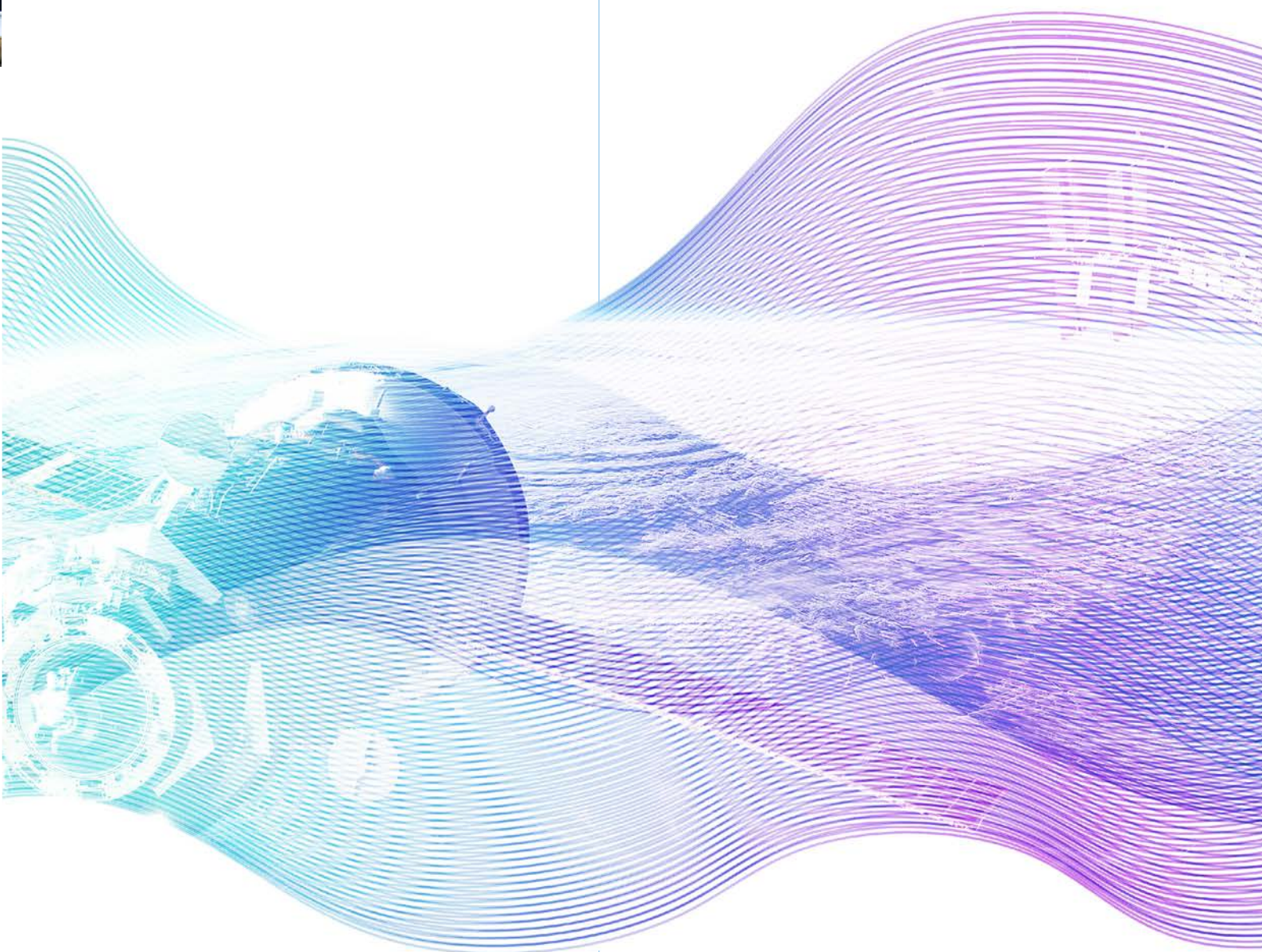
2.   Global statutory conferences in 2023

2.1   WRC-23

The World Radiocommunication Conference, WRC-23, produced key regulatory achievements on spectrum for space, science, and terrestrial radio services, building on the momentum of ITU's ongoing work to achieve universal connectivity and sustainable digital transformation.

ITU Member States agreed on updates to the Radio Regulations, identifying new spectrum resources to support technological innovation, deepen global connectivity, increase access to and equitable use of space-based radio resources, and enhance safety at sea, in the air, and on land. The conference took place in Dubai, UAE, between 20 November and 15 December 2023. WRC-23 – together with the preceding Radiocommunication Assembly, RA-23 – has helped to put the world on a path towards a more connected, sustainable, equitable and inclusive digital future for all.

WRC-23 attracted a total of 3 982 participants representing 163 ITU Member States, including 88 ministerial-level participants, and 151 observer organizations. Women made up 22 per cent of all WRC-23 delegates, an increase from 18 per cent at WRC-19 in 2019.

Main results of WRC-23

WRC-23 addressed over 30 topics related to frequency allocation and frequency sharing for the efficient use of spectrum and orbital resources. The following are the key outcomes:

Mobile and fixed broadband communications

WRC-23 identified a total of additional 1 300 MHz for International Mobile Telecommunications (IMT) and extension of IMT identification in the frequency ranges between 3 300 MHz and 10.5 GHz to accommodate worldwide demand for mid-band IMT spectrum. The bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 125 MHz and 10-10.5 GHz, or parts thereof, are identified for IMT on a regional or country basis with conditions for protection of the existing services such as radiolocation service or the fixed-satellite service. It retains some flexibility for the national and regional decisions on the designation of the 6 GHz band for Radio Local Area Networks (RLAN)s or IMT.

Additionally, WRC-23 allocated 470-694 MHz for mobile services in Region 1, enhancing rural and urban connectivity with safeguards for broadcasting. The band 614-694 MHz is designated for IMT in some Region 1 countries.

Furthermore, WRC-23 assigned bands like 1 710-1 980 MHz and 2 110-2 160 MHz globally for High Altitude Platform Stations (HIBS) as IMT base stations, along with other bands regionally, totalling 801 MHz. This supports HIBS development for extended mobile broadband and telecommunications in underserved communities, including disaster recovery communications.

GMDSS modernization and additional satellite GMDSS provider

WRC-23 introduced the results of modernization of the Global Maritime Distress and Safety System (GMDSS) into the Radio Regulations. This aligns the Radio Regulations with the recent International Maritime Organization (IMO) decisions and includes several emerging technologies. New Automatic Connection System (ACS) will ensure reliable access to radio links for mariners. Introduction of Digital navigational data system (NAVDAT) will assist in providing ships with up-to-date meteorological and navigation warning. The use of the automatic identification system search and rescue transmitters (AIS-SART) will facilitate locating of craft in distress for rescue purposes.

The Conference also provisionally recognized satellite BeiDou Message Service System (BDMSS) for use in GMDSS subject to successful completion of coordination with the existing networks and elimination interference.

Digitalization of HF aeronautical frequencies

WRC-23 added some provisions to the aeronautical frequency Plan for aeronautical mobile (Route) service in High Frequency (HF) bands contained in Radio Regulations Appendix 27 permitting the introduction of new digital wideband HF systems.

Spectrum for non-safety aeronautical applications

WRC-23 made allocation to the aeronautical mobile (OR) service in the frequency bands 15.41-15.7 GHz on a secondary basis and 22-22.2 GHz on a primary basis in Region 1 and in some countries of Region 3 on a non-interference basis with respect to the existing services.

Satellite Services

WRC-23 adopted regulatory, operational, and technical conditions under which earth stations in motion (ESIM) can communicate with geostationary-satellite orbit (GSO) space stations in the fixed-satellite service in the 12.75-13.25 GHz frequency band or with non-geostationary

satellite (non-GSO) systems in the 30/20 GHz frequency range. This decision will provide more available bandwidth for connectivity in ships or planes.

WRC-23 also devised a new mechanism under which inter-satellite links can be operated in the 20-30 GHz frequency range, which will enable transferring data gathered by scientific or experimental sensors quicker to the ground.

WRC-23 fine-tuned the regulatory framework concerning the bringing into use and the milestone-based approach for the deployment of non-GSO satellite constellations in specific frequency bands and services. Notably WRC-23 adopted a set of orbital tolerances around the notified values and agreed on a post-milestone mechanism. The approach will better qualify the accuracy of the Master International Frequency Register with respect to the actual deployment of non-GSO satellite systems. In making these decisions, WRC-23 a reinforced the balance found by WRC-19 between the prevention of spectrum warehousing, the proper functioning of coordination, notification and registration mechanisms, and the operational requirements related to the deployment of non-GSO systems.

WRC-23 also adopted measures reinforcing the equitable access to orbit and spectrum resources by guaranteeing the long-term protection of planned national uses in the broadcast satellite service (BSS), BSS feeder-links and fixed-satellite services (FSS), as well as by facilitating consultations of Appendices 30, 30A and 30B by new countries or for countries not using official ITU-R Lists yet. In the same vein, WRC-23 decided on the replacement of BSS planned resources for 41 countries previously having degraded resources in the BSS or BSS Feeder-links Plans and agreed on the inclusion in the FSS Plans of new national allotments for nine countries.

Support for the Science Services

WRC-23 allocated the frequency band 40-50 MHz for Earth Exploration-Satellite Services (EESS) (active) sensors to improve the observations of ice thickness in polar areas.

WRC-23 upgraded to primary the allocation to the space research service in the frequency band 14.8-15.35 GHz, so as to improve the regulatory status of the data relay satellite systems using this frequency band.

WRC-23 reorganized the allocations to the EESS (passive) in the frequency range 231.5-252 GHz to ensure alignment with the most up-to-date remote-sensing observation requirements. This reorganization entailed a consequential modification of allocations to the fixed and mobile services.

Concerning space weather, WRC-23 concluded that space weather sensors may operate under the Meteorological Aids service, with allocations in the "MetAids (space weather)" subset. Studies will continue until WRC-27 to identify the appropriate frequency bands for such allocations.

Finally, WRC-23 adopted an *e.i.r.p.* density limit per non-GSO space station to protect EESS (passive) sensors in the frequency band 36-37 GHz from non-GSO FSS systems operating in the 37.5-38 GHz band.

Palestine

WRC-23 adopted Resolution 12 (Rev.WRC-23) measures to ensure the continuous assistance and support to enable Palestine to manage and exploit its radio spectrum; modernize its telecommunication networks, including building and operating 4G and 5G networks; obtain and manage the necessary frequencies for microwave links, which are considered essential to the operation of 4G and 5G services; extend, install, own, manage and operate optical fibre broadband telecommunication networks (and optical fibre links) between governorates and major cities to ensure a more robust digital transformation; obtain VHF and UHF frequencies for fixed and mobile telecommunication services; and obtain FM frequencies for the broadcasting service.

The Revised Resolution also urges concerned parties to facilitate the import and deployment of equipment for the implementation of the agreement signed on 27 December 2022 with respect to the operation of 4G and 5G services and enable the establishment of Palestine's own international access networks, including satellite earth stations, submarine cables, optical fibre, and microwave systems in accordance with the Interim Agreement.

2.2   RA-23

The RA-23 was attended by 566 participants representing 95 Administrations and 41 Sector Members, 1 Academia and 2 specialized agencies of the United Nations. Charting future directions in radiocommunication systems and information and communication technologies, RA-23 set the future work programmes for the ITU-R and approved a range of ITU-R Recommendations and Resolutions that will have a global impact on future radiocommunication technologies.

Main Results of RA-23

In total, RA-23 revised 26 ITU-R Resolutions, including:

- **Resolution ITU-R 1** "Working methods for the Radiocommunication Assembly, the Radiocommunication Study Groups, the Radiocommunication Advisory Group and other groups of the Radiocommunication Sector" was revised.
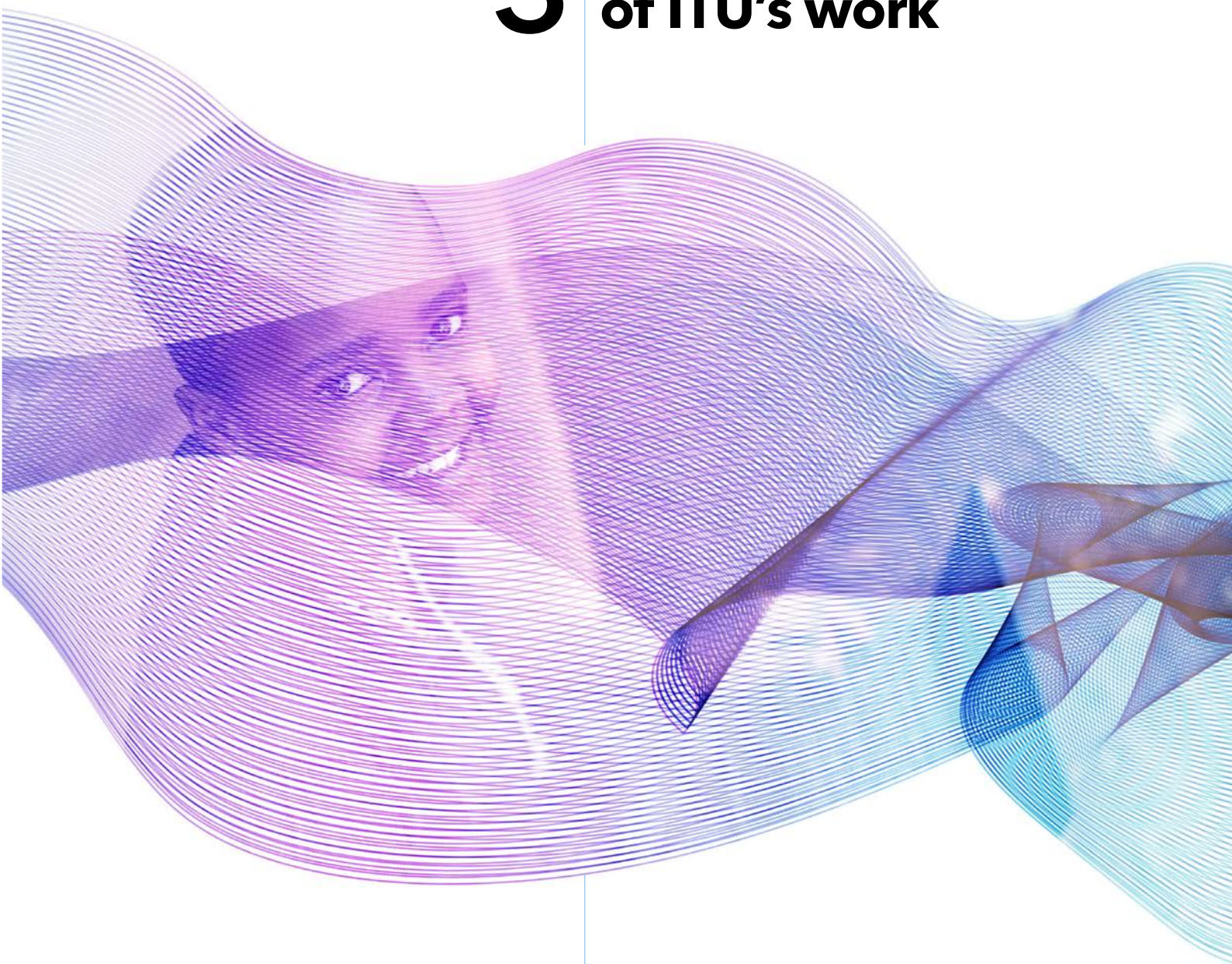- The structure of the ITU-R Study Groups has been maintained.

- RA-23 approved the work programme and Questions of the Radiocommunication Study Groups (see **Resolution ITU-R 5**) as well as four ITU-R Recommendations.
- **Resolution ITU-R 56** on "Naming for International Mobile Telecommunications" was also significantly revised to include the term "IMT-2030" and reference to Recommendation ITU-R M.2160 that describes the framework and overall objectives for the future development of "IMT for 2030 and beyond".
- **Resolution ITU-R 65** on "Principles for the process of future development of IMT-2020 and IMT-2030" was also revised to include the same concepts as in Res ITU-R 56.

Additionally, four new ITU-R Resolutions were approved:

- **Resolution ITU-R 72** – Promoting gender equality and equity and bridging the contribution and participation gap between women and men in ITU-R activities.
- **Resolution ITU-R 73** – Use of International Mobile Telecommunications technologies for fixed wireless broadband in the frequency bands allocated to the fixed service on a primary basis.
- **Resolution ITU-R 74** – Activities related to the sustainable use of radio-frequency spectrum and associated satellite-orbit resources used by space services.
- **Resolution ITU-R 75** – Strengthening coordination and cooperation among the three ITU Sectors on matters of mutual interest. This new Resolution consolidates the texts of Resolutions ITU-R 6, ITU-R 7 and ITU-R 48 that were subsequently suppressed.

The decisions of RA-23 relevant to WRC-23 were reported in Document **WRC-23/217**.

Report on the implementation
of the strategic plan and the
activities of the Union

May 2023 ———— April 2024

3 Measuring the impact of ITU's work

3. Impact of ITU's work: Progress towards fulfilling the Connect 2030 Agenda

ITU's new 2024-2027 strategic plan focuses on two overarching strategic goals: universal connectivity and sustainable digital transformation.

3.1 Strategic Plan 2020-2023- (Final results)

This section summarizes the main results and progress achieved in relation to the broad goals and specific 2023 targets set up in the Strategic Plan for the Union 2020-2023, to which Member States have committed in ITU Resolution 200 (Rev. Bucharest, 2022), representing the latest iteration of the Connect 2030 Agenda. All relevant charts are shown on the Dashboards here.

3.1.1 Growth (Internet access & affordability)

Access- At the close of 2023, approximately sixty-seven per cent of the global population, or 5.4 billion people, were online, marking a growth of 4.7 percent since 2022, an increase from the 3.5 per cent recorded from 2021 to 2022. The number of offline individuals decreased to an estimated 2.6 billion, representing thirty-three per cent of the global population. Internet usage in high-income countries reached ninety-three percent in 2023. While 167 countries had broadband plans or digital strategies in 2023, this figure has stalled since 2019 and decreased from 2022 (170). Further efforts are needed to encourage the remaining ~20-30 countries to develop and adopt their national broadband plans.

Affordability - The downward trend in ICT prices persisted in 2023, with data-only mobile broadband becoming more affordable globally and across income groups. Over the period from 2017 (baseline year) to 2023, there was a 36 per cent drop in prices measured in terms of GNI per capita for countries with available data.

Regarding subscription growth, target 1.5 of ITU's Strategic Plan 2020-2023 aimed for a 50 per cent increase from 2017 to 2023. Fixed broadband subscriptions increased by 45.6 per cent during this period. Growth rates varied by income level: 56.5 per cent for low-income countries, 100.8 per cent for lower-middle-income countries, 56.7 per cent for upper-middle-income countries, and 20.4 per cent for high-income countries. Mobile broadband subscriptions grew by 48.2 per cent, with varying growth rates: 130.3 per cent for low-income countries, 99.9 per cent for lower-middle-income countries, 31.6 per cent for upper-middle-income countries, and 31.1 per cent for high-income countries. Although the target for this indicator was not met, broadband subscriptions grew significantly, particularly in low-income countries.

3.1.2 Inclusiveness (closing the gaps)

Access- In low-income countries, 27 per cent of the population uses the Internet, up from 24 per cent in 2022. In low-income countries, the share of Internet users has grown by 44 per cent since 2020, and by 14 per cent in the past year alone. For low- and middle-income countries (a similar set of countries to the previous *Developing countries* group), 63 per cent of the population use the Internet in 2023. However, wide gaps in Internet use also remain between regions. Internet users make up just 37 per cent of the population in Africa. Universal connectivity also remains a distant prospect in least developed countries (LDCs) and landlocked developing countries (LLDCs), where only 35 and 39 per cent of the population are online, respectively.

Affordability - Despite the downward trend in prices, lack of affordability continues to be a key barrier to Internet access particularly in low-income economies. However, considering the pool of countries with data for the period between 2017 (baseline year) to 2023, the difference between high-income and lower-middle-income-economies has been reduced by 42 per cent.

Gender - Worldwide, 70 per cent of men and 65 per cent of women used the Internet in 2023, resulting in nearly 250 million more men than women online. The gender parity score has increased from 0.90 in 2019 to 0.92 in 2023, indicating progress towards parity. However, significant disparities persist, especially in Africa, where men are over 30 per cent more likely than women to use the Internet. Least Developed Countries and Landlocked Developing Countries also face challenges in achieving gender parity despite recent progress. Landlocked Developing Countries have shown only limited progress towards gender parity since 2019. Regarding phone ownership, women are 8 percent less likely to own a mobile phone than men, outnumbering men non-owners by 35 percent.

Accessibility – The number of countries having established a regulatory framework to ensure ICT accessibility for persons with disabilities has almost doubled from 61 in 2018 to 117 in 2023.

3.1.3   Sustainability

Overall, more data is required to fully assess progress towards ITU's sustainability targets.

The global e-waste recycling rate was measured at 20 per cent in 2017 and fell to around 17 per cent in 2019, before the COVID-19 crisis. By 2022, it increased to 22.3 per cent (see the latest Global E-Waste Monitor). This represents good progress but still far from the 30 per cent target: the formal collection and recycling rate would have to increase at a much faster pace to hit that target. Furthermore, a record 53.6 million metric tonnes (Mt) of e-waste – discarded products with a battery or plug such as computers and mobile phones - is reported generated worldwide in 2019, up 9.2 Mt in five years. A new report also predicts global e-waste will reach 74.7 Mt by 2030, almost double the 2014 figure, fuelled by higher electric and electronic consumption rates, shorter life cycles and limited repair options. The Global E-waste Monitor foresees a drop in the documented collection and recycling rate from 22.3 per cent in 2022 to 20 per cent by 2030 due to the widening difference in recycling efforts relative to the staggering growth of e-waste generation worldwide.

On the other hand, good progress has been achieved on the target for 50 per cent of countries (around 97) to have an e-waste policy, legislation, or regulation in place by 2023, with growth from 48 countries in 2016 to about 81 in 2023.

Regarding climate impact (for which the target in Strategic Plan 2020-2023 focused on net telecommunication/ICT-enabled greenhouse gas abatement), ITU has developed standards based on science-based targets to achieve net-zero ICT emissions and to measure the enablement effect of ICT solutions to reduce GHG emissions in other sectors (L-series standards mentioned in section 1). However, they have not yet been systematically applied to measure progress. Work is ongoing on the development of a standardized methodology for the development of a database on GHG emissions at the national and worldwide level; and on emission factors. Moreover, ITU, together with over 40 partners spanning governments, businesses, civil society and fellow UN agencies, launched Green Digital Action (GDA) at COP28 to step up digital climate action. In particular GDA Working Group on Green standards implementation.

In the meantime, data from a [joint report]() by ITU and the World Bank (as a contribution to Green Digital Action) provides a useful proxy. The report provides comprehensive GHG emissions and energy consumption data for the ICT sector in the 30 highest emitting countries, particularly for telecommunications and data centres. The latest results show that the total telecom emissions (millions tCO_2) remained stable, dipping slightly from 135 in 2020 to 133 in 2023. The report also presents case studies from several countries which report on ICT emissions and energy use, in order to delve into regulatory approaches and policy implications inferred from the data.

In relation to the Target on [cybersecurity]() ("improve cybersecurity preparedness of countries, with key capabilities: presence of strategy, national computer incident/emergency response teams and legislation"), the percentage of countries having CIRTs/CERTs has increased from about 55 per cent in 2018 to 65 per cent in 2023, while those having National Cybersecurity Strategies and Action Plans has increased to 127 countries in 2023 as compared to 107 in 2020.

The percentage of countries with a National Emergency Telecommunication Plan as part of their national and local [disaster risk reduction strategy]() increased from 66 per cent in 2020 to 83 per cent in 2023 – substantial, but far short of the 2023 target ("All countries").

Impact story

Emergency telecom response in Papua New Guinea

ITU delivered vital satellite telecommunications equipment to support humanitarian work in Papua New Guinea after the devastation caused by the July 2023 eruption of Mount Bagana. The delivery of Iridium satellite phones and Inmarsat BGAN terminals helped to help restore essential communications and facilitated coordinated evacuation for communities at risk. Digital technologies are key for the timely flow of information in the aftermath of disasters, reducing key risks and saving lives.

Learn more about ITU's equipment deployment.

3.1.4   Innovation

The 2023 Target assessing progress toward this Goal reads "All countries should have policies/ strategies fostering telecommunication/ICT-centric innovation". The actual data collected refers to the "Number of Countries having policies/strategies fostering innovation" (not specifically "telecommunication/ICT-centric"). With this caveat, the number of countries has increased from 66 countries in 2016 to 97 (about 50 per cent of countries) in 2023, with still a substantial way to go to the "All" Target (i.e. be over 90-95 per cent).

3.1.5   Partnership

As a proxy to assess the "increased effective partnerships with stakeholders and cooperation with other organizations and entities in the telecommunication/ICT environment" a qualitative measurement from ITU's annual membership survey has been used.

Results from the survey suggest that members' perception of the importance of partnership/ collaboration is high and has increased since 2019 (in 2023, 61 per cent of respondents agreed

or strongly agreed). They also believe that their organization is benefiting from increased synergies by working with others (around 70 per cent in 2023).

Notably, in the new strategic plan (2024-2027), innovation and partnership are no longer characterized as goals but rather as key means to achieve ITU's strategic goals of universal connectivity and sustainable digital transformation.

3.2   Benchmarking the targets from ITU's Strategic Plan 2024-2027

The SP 2024-2027 includes 12 strategic targets, seven for the strategic goal on Universal connectivity, and five for the one on Sustainable digital transformation, as follows:

Goal	Target
Universal Connectivity	1.1: Universal broadband coverage
	1.2: Broadband services to be affordable for all
	1.3: Broadband access to every household
	1.4: Ownership of and access to Internet-enabled devices
	1.5: Access to the Internet for all schools
	1.6: Improved cybersecurity preparedness of countries (with key capabilities: presence of strategy, CIRT/CERT and legislation)
	1.7: Universal access to the Internet by all individuals
Sustainable Digital Transformation	2.1: All digital gaps to be bridged (particularly gender, age, and urban/rural)
	2.2: Majority of individuals to have digital skills
	2.3: Universal usage of Internet services by businesses
	2.4: Majority of individuals accessing government services online
	2.5: Significant improvement of ICTs' contribution to climate and environmental action

The analysis of existing data shows that indicators showing progress towards many targets are available. Still some new data must be gathered for some others. Section 3.2.1 below discuss availability of data for the strategic goal on Universal connectivity, and Section 3.2.2 for the strategic goal on Sustainable Digital Transformation.

3.2.1   Strategic targets related to Universal connectivity

Data on broadband coverage and affordability is available (Targets 1.1 and 1.2).

Regarding *Broadband access to every household* (Target 1.3), only 57 Member States provided data for 2020 or later, indicating low availability. Given that broadband Internet has become the baseline for Internet access in much of the world, a proxy measure could be the share of households with Internet access. While ITU is coordinating with UN DESA's Population Division to collect these data in the future, a globally comparable dataset on household numbers is not expected until at least 2027.

With smartphones serving as a primary device used to access the Internet, data on *Ownership of and access to Internet-enabled devices* (Target 1.4) can be measured by the share of individuals owning a smartphone. In this case again data availability is insufficient to measure at the global level – only 32 Member States have provided data on this indicator for 2020 or later. Alternatively, data on the share of individuals owning a mobile phone are available and disseminated regularly through the annual [Facts and Figures publication](#). However, these data include non-Internet enabled devices.

Concerning the cybersecurity preparedness of countries, ITU has been providing data on countries with CIRTS (assessments, establishments, and/or enhancements), countries benefited from ITU's CyberDrills programmes, and countries with National Cybersecurity Strategies and Action Plans. A good baseline is therefore available for assessing progress towards this target.

The availability of data on access to Internet by individuals has been discussed in section 3.1.1. This target is therefore well covered, data is available, and the assessment of progress can be undertaken from the very first year of entry into force of the new strategic plan (2024).

3.2.2   Sustainable Digital Transformation

To assess progress towards target 2.1 (*All digital gaps to be bridged*) an important amount of data is required. Currently, data on gender gap (see 3.1.2 above) is available, as well as data on access to internet broken-down by age and urban/rural; and disaggregated by level of development). This target is therefore well covered and available data should allow for proper assessment of progress. More efforts would be required to properly assess progress towards closing the gaps related to youth, indigenous people, ageing population, rural population, etc.

Measuring progress on digital skills (Target 2.2: *Majority of individuals to have digital skills*) presents two distinct challenges. The first is that "digital skills" is a broad concept that cannot

be measured by a single indicator. Consequently, individuals are surveyed on whether they partake in a wide range of activities. ITU's Expert Group on ICT Household Indicators (EGH) has recently recommended several improvements in measuring digital skills that countries are implementing. Activities are now organized into five skill areas: (1) Communication and collaboration; (2) Information and data literacy; (3) Digital content creation; (4) Problem solving; and (5) Safety. For the first time in 2024 data will be collected on the share of individuals with *basic* and *above basic* skills for each of these skill areas. The second challenge is again data availability – less than half of Member States have provided sufficient data to measure any digital skills.

On the usage of Internet services by businesses (Target 2.3) relevant data is available from UNCTAD, and therefore the assessment can be done. On the other hand, data availability for *Majority of individuals accessing government services online* (Target 2.4) remains poor. Data from 2020 or later for this indicator are available for only 46 Member States. ITU continues to emphasize the importance of this indicator and encourage Member States to include this question in their future ICT household surveys.

Regarding Target 2.5, ICTs' contribution to climate and environment action, the availability of relevant data, as well as the plans to collect missing data in the future, have already been discussed in section 3.1.3.

Report on the implementation
of the strategic plan and the
activities of the Union

May 2023 ———— April 2024

4 Key themes of ITU's work

4.   Key themes of ITU's work

ITU's work over has continued to focus heavily on managing the world's radio spectrum; establishing sustainable inclusive technology standards; shaping emerging technologies for the good of humanity; and addressing the climate and environmental impact of rapidly accelerating tech uptake. Ongoing ITU-led projects and initiatives serve to strengthen cooperation on cybersecurity, ensure inclusive, equal digital access; and build impactful partnerships to fulfil the UN Sustainable Development Goals. Much of this work is carried out through in-depth workshops, as well as through high-profile international meetings.

4.1   Spectrum and orbit regulation and management

ITU maintains the Radio Regulations – the key international treaty governing the use of the radio-frequency spectrum and satellite orbits for all kinds of wireless communications. In upholding the regulations and facilitating related international cooperation, the organization supports equitable access to and rational use of spectrum and orbits as finite natural resources. Through ITU, national administrations agree on radio frequency assignments and management, while maintaining continuous coordination to avoid harmful radio interference. ITU and its Radiocommunication Bureau enable these activities, supporting Member States worldwide with data and expertise on communications on land, at sea, in the air, and in space.

Results of the processing of space notices and other related activities

From 2019 to 2023 5 556 Coordination and notification requests were processed (1 147 in 2023). For broadcasting-satellite and associated feeder links Plans, 506 requests were also processed (113 in 2023, including 82 requests pursuant to Resolution 559 (WRC-19)). For fixed-satellite service Plan, requests in the same period were 281. For the exact figures per year, see Dashboards here.

Terrestrial notices

Regarding Terrestrial notices, all results can be seen in the Dashboard here.

For example, in 2023, 71 083 Notices were recorded in the MIFR (25 263 Plans), 58 322 Review of findings for terrestrial stations were recorded in the MIFR, 9 442 Notifications of coast and ship stations were received for recording in the ITU maritime database, and more than 5 500 reports of harmful interference were treated.

Improvement of ITU-R software

The Radiocommunication Bureau (BR) continues to produce software applications and databases to best facilitate the use of outputs by ITU Radiocommunication Sector (ITU-R) membership. In 2022, BR continued to update the software that enables users to query and analyse the Table of Frequency Allocations (TFA) in Article 5 of the Radio Regulation, as well as other texts including WRC resolutions, referenced ITU-R Recommendations and rules of procedure. This application extracts regional and country-specific regulations for the presentation of regional or national tables of frequency allocations.

Progress in terrestrial services

The progress in terrestrial services can be found here: https://www.itu.int/en/ITU-R/terrestrial/Pages/default.aspx. Details on the specific improvement can also be found in document C23/35.

Progress in fulfilling the BR Space Information Systems roadmap (RAG-19, 2012)

- Rewrite legacy software for technical examination: a modernized version of PXT software is under user acceptance testing, migration of GIMS Fortran components is ongoing.
- Design and development of the BR Space Information System (BR SIS): BRSIS-Capture development is ongoing, migration of SNS database on Ingres to SQL Server to be finalized by end of 2024, SNS Online and SNL Online to be replaced by ITU Space Explorer by mid-2024.

Achievements resulting from activities for space applications

- E-Submission system (implementation of Resolution 908 (Rev.WRC-15)):

    o September 2023: Introduction of the new status "Published in BR IFIC": when a notice is published on a BR IFIC (Space Services) in a special section or Part I-S in accordance with the Radio Regulations, the status of the notice on e-Submission changes from "Published As-Received" to "Published in BR IFIC".
    o October 2023: New online examination tool "e-Examination" to assist administrations (or operators) in verifying the compliance to PFD and EIRP limits specified in the Radio Regulations when submitting their satellite network filings to the Bureau (or Administrations).
    o December 2023: To meet the immediate needs concerning new submissions based on the decisions of WRC-23, the system was modified to accept data items adopted by WRC-23 and which entered into force at the end of the conference due to the rule of procedure on receivability.

- E-Communication system (implementation of Resolution 907 (Rev.WRC-15)): a new function to integrate with the e-Submission system that will facilitate the tracking of correspondence between the Bureau and the notifying administration relating to correspondence on receivability is under development and is expected to be introduced in 2024.
- Migration of the BRIFIC (Space services) from a DVD format to an online mechanism: the BR IFIC (Space services) web application was released in production in January 2024.

4.2 Emerging techs: Shaping frameworks for sustainable digital transformation

In working to shape accelerating tech development, ITU has focused closely on artificial intelligence (AI), quantum information technology, and the potential of the metaverse, or virtual worlds, to support inclusive and sustainable digital transformation worldwide.

4.2.1 Artificial intelligence

ITU provides a global platform for all stakeholders to address the opportunities and challenges relating to the safe and inclusive development of AI technologies and applications.

The rise of increasingly powerful AI systems brings a striking mix of risks and benefits. AI tools can improve people's lives and livelihoods, strengthen the global response to climate change,

and drive sustainable development for everyone. Yet with billions of people digitally excluded, the AI revolution threatens to widen global inequalities.

ITU's work related to AI development includes:

- AI in standardization, including the relevant ITU-T focus groups (see Section 4.2 for further detail).
- AI for Good.
- AI/ML Competitions ("Challenges"): In the reporting period, the competitions addressed communication networks, geospatial data analysis, climate change and fusion energy.

The influence of AI/ML on ITU standardization work continues to grow, particularly in relation to network orchestration and management, multimedia, service quality assessment, energy efficiency, protocols and test specifications, future networks, cable networks, network operations and maintenance, security, digital health, smart mobility, digital agriculture, and disaster management.

The global, inclusive AI for Good community brings together the private sector, civil society, and public institutions for year-round insights on AI, machine learning, and machine-brain interface tools.

In parallel, ITU-hosted governance discussions have begun delving deeply into how to manage risks, including the risk of a widening digital divide, and ensure AI benefits all of humanity.

4.2.2   Quantum information technology

ITU standardization work is addressing network and security aspects of quantum information technologies with an initial focus on Quantum Key Distribution (QKD), a means of enabling quantum-secure encryption and authentication. ITU standards for QKD networks will enable

the integration of QKD technology into large-scale ICT networks and provide for the security of these QKD networks.

4.2.3   Metaverse

The ITU-T Focus Group on metaverse (FG-MV) has produced 37 deliverables to date, including a definition of the metaverse and standardization roadmap. Deliverables also address generative AI in the metaverse, cross-platform interoperability, security and trust, accessibility, energy efficiency and sustainability, metaverse applications for cities and industrial settings, IoT, digital twins, ethical issues for consideration in metaverse standardization work, and considerations relevant to policy and regulation.

Impact Story

Montenegro's transition to IPv6.

Migration to the latest Internet protocol, IPv6, boosts the digital economy, enables faster innovation, and can greatly enhance socio-economic capacity and resilience. The University of Montenegro's inauguration of a new IPv6 Laboratory marks a key step in the country's accelerating digital transformation. ITU provided technical support for Montenegro's upgrade from IPv4 to IPv6. The new IPv6 Laboratory aims to foster innovation, build digital capacity, and enhance digital infrastructure in the country.

Learn more about the IPv6-lab

4.3   Climate and environment: Monitoring and cutting emissions and e-waste

In addition to the climate and environment related results of WRC-23 outlined in section 2, ITU is at the forefront of global initiatives to build circular digital economies, reduce e-waste and greenhouse gas emissions, and put the booming digital industry at the forefront of climate and environmental action.

The Green Digital Action track at COP28, produced commitments from key industry players to cut emissions and build a global, industry-wide monitoring framework. An ongoing project supports digital transformation in smart cities and communities through standards for IoT, digital twins, and AI. With climate-related disasters becoming increasingly frequent and severe, ITU is active in the UN Secretary-General's Early Warnings for All initiative.

Through the circular economy and climate change projects and activities at the ITU-D, several key milestones were reached between March 2023 and March 2024. Notably, these include the following impacts:

- The 4th edition of the Global E-waste Monitor was released on 20th March 2024. Of the 81 countries covered by a national e-waste policy, legislation, or regulation, 67 applied the Extended Producer Responsibility (EPR) principle, 46 had enshrined national e-waste collection targets in their regulations, and 36 had done so for e-waste recycling targets at the national level. Within the first 12 hours of its release, the mainstream media coverage included 955 articles captured from 813 different news sites in 27 languages across 65 countries. To this end, total potential impressions were estimated to be 3.3 billion. Notable coverage of the Global E-Waste Monitor appeared in AP, and Reuters, and Deutsche Presse Agentur news wire stories, as well as on CNN and in the Daily Mail, Die Welt, Le Monde, Le Temps, and other outlets.

- ITU and the World Benchmarking Alliance strengthened the monitoring of GHG emissions, energy use and climate commitments of 200 leading tech companies via an annual industry assessment report titled Greening digital companies 2023: Monitoring emissions and climate commitments.

- A report prepared by ITU and the World Bank, titled Measuring the Emission & Energy Footprint of the ICT Sector, was released in March 2024. It provides comprehensive greenhouse gas emissions and energy consumption data for the ICT sector from 30 high emitting countries, and presents case studies from several countries which report on ICT emissions and energy use, in order to delve into regulatory approaches and policy implications inferred from the data.

- In the area of e-waste regulation, ITU's Telecommunication Development Bureau (BDT) supported several countries, including Malawi, Botswana, Niger, Uganda, Zambia, and Dominican Republic. As a result of a project between delivered by ITU and the UN Environment Programme, the President of the Dominican Republic issued the Decree with regulations for the comprehensive management of electronic waste on 25 July 2023.

- Through the ITU Academy, ITU has made three e-learnings available related to e-waste policy, regulation and circular economy, two e-learnings on measuring e-waste data and statistics, as well as courses on greening data centers, and green and digital entrepreneurship for women.

- Under the GreenGovStack project, the 'Green Data Centers: towards a sustainable digital transformation - A practitioner's guide' and the 'Circular and Sustainable Public Procurement Guide for ICTs' guides were launched, along with e-learning courses.

- ITU has strengthened the capacity of national statistics offices, ICT regulators and ministries, and ministries of environment in the delivery of training to the 6 Member States of the East African Communications Organisation and produced a study titled 'Towards the harmonization of data collection – A baseline study for e-waste in East Africa'. Also at the regional level, ITU and partners released the Regional E-waste Monitor for the Western Balkans, as well as National E-waste Monitors for Kazakhstan, Namibia and Botswana.

The report from BDT to the ITU's Telecommunication Development Advisory Group (TDAG) provided further details on activities and results on:

- **Building circular economies for e-waste around the world.**
- **Climate change.**

- **ICTs: reducing risk, improving crisis response, early warnings, and emergency telecommunications.**

These are also available on the and the web page [Creating a circular economy for electronics and greening digital transformation.](#)

Impact story

National-level consultations on Early Warnings for All

National rollouts have begun for the UN Secretary-General's Early Warnings for All (EW4All) initiative, with ITU-led workshops emphasizing the critical role of early warning systems in disaster prevention, aiming to save lives by providing timely alerts before disasters strike. The national consultations have focused on multi-stakeholder collaboration to strengthen emergency response capabilities, with participants identifying gaps and formulating strategic plans to enhance early warning infrastructure and bolster resilience against natural disasters. Depending on each country's needs and risks, the discussions helped to identify infrastructure gaps, prepare response plans, strengthen multi-hazard early warning systems, and address climate and disaster challenges. The first workshops took place in Comoros, Cambodia, Lao PDR, Nepal, Madagascar, the Maldives, Tajikistan, Ethiopia, Barbados, Somalia, Uganda, Bangladesh, and Mozambique, South Sudan, Haiti, Antigua & Barbuda, and Mauritius, with national EW4All rollouts continuing worldwide in 2024.

[Learn more about ITU's EW4All consultation workshops](#)

Standards for environmental sustainability

ITU standards address three key areas of environmental sustainability: measurement, energy efficiency, and circular economy.

ITU standards provide tools to monitor progress towards net-zero emissions, both for digital technologies themselves and their contribution to emission reduction in other industries. For example, important work is ongoing on the ICT impact on biodiversity.

ITU standards define how big data and AI can support smart energy control for that gives priority to renewable and low-carbon energy sources. ITU standards also support the introduction of new cooling solutions for data centres and provide best practices for green data centres. ITU standards are also helping to assess the GHG emissions of software and virtual meetings.

ITU standards for circular economy provide tools to improve material efficiency, limit e-waste and dispose of e-waste sustainably. A new standard is available on Global digital sustainable product passport opportunities to achieve a circular economy, and further work is undergoing.

Additionally, assessment scorings are being developed to assess the circularity of ICT goods such as smartphones.

Green Digital Action at COP28

See Section 6.

Digital transformation for smart cities and communities

The United for Smart Sustainable Cities (U4SSC) initiative is supported by 19 UN bodies with the aim of achieving UN Sustainable Development Goal 11 ("Make cities and human settlements inclusive, safe, resilient and sustainable"). Over 150 cities have adopted U4SSC Key Performance Indicators based on ITU standards. The results of these evaluations are shared by city snapshots, factsheets, verification reports and case studies.

The seventh U4SSC meeting was held online on 20 June 2023. Highlights of the meeting included the appointment of the new U4SSC management team and the announcement of a new U4SSC Country Hub in Kyebi, Ghana.

See U4SSC reports and ITU reports on smart cities. See also ITU Digital Transformation Dialogues.

Impact story

Smart seas for Caribbean fishing communities

Small-scale fishing communities in the Caribbean need digital tools and connectivity to keep in contact and stay safe at sea. The Smart Seas Toolkit for Disaster Resilience led by ITU in partnership with the Telecommunications Authority of Trinidad and Tobago (TATT) and the Caribbean Telecommunications Union (CTU) addresses vulnerabilities faced by small-scale fishers, who are vital the region's economy and food security but are highly exposed to hazards at sea, such as tropical storms and piracy. The project is active in Barbados, Grenada, and St. Vincent and the Grenadines, as well as in Trinidad and Tobago.

Learn more about Smart Seas project.

Play the video

4.4   Cybersecurity: Building confidence and security in ICTs

ITU works to build confidence and security in the use of new and emerging technologies, particularly through support for countries to develop national strategies and set up cyber incident response teams (CIRTs). ITU's child online protection programme helps raise awareness of online dangers and ensure a safe environment for young digital technology users.

Document C24/18 summarizes ITU's activities in 2023-2024 in relation to Resolution 130 (Rev. Bucharest, 2022), ITU's role as sole facilitator for WSIS Action Line C5, and other decisions by the membership on strengthening the role of ITU in building confidence and security in the use of ICTs. See also the page ITU Cybersecurity activities.

Progress has been identified on preparedness of administrations to face Cyberthreats (126 countries had CIRTS by 2023, up from 109 in 2020; and 127 have National Cybersecurity Strategies and Action Plans, as compared to 107 in 2020), and on National plans for emergency telecommunications (83 per cent of countries had such plans at the end of 2023, up from only 25 per cent in 2020).

4.5   Digital inclusion: Ensuring equal access and use of technologies for all

ITU actively promotes gender equality and strives to close gender divides in digital access worldwide. Dedicated initiatives incorporate youth perspectives into all areas of ITU's work, as well as addressing the needs and perspectives on indigenous peoples, ageing populations,

and other vulnerable groups. In accordance with UN principles, ITU also supports digital access for persons with disabilities through inclusive standards, policy guidance, awareness-raising, and education.

4.5.1   Gender

Report C24/6 provides further details on gender activities.

Progress in closing the gender digital divide remains uneven. Despite slight increases from 2022 figures, women still account for a disproportionate share of the global offline population, outnumbering male non-users by 17 per cent. Regarding phone ownership, women are 8 per cent less likely to own a mobile phone than men, outnumbering men non-owners by 35 per cent.

ITU is actively working to close this gap, including in ICT professions. Girls and young women are encouraged to pursue ICT careers and studies, with access to digital technology training and mentoring through initiatives such as International Girls in ICT Day, EQUALS, and Her Cyber Track.

Training and capacity building efforts include two new self-paced online trainings: one on gender analysis for digital inclusion, and the other, the Handbook on mainstreaming gender in digital policies, designed to support the inclusion of gender equality in policy-making. A list of gender-related trainings is accessible from the website.

ITU's "Network of Women" (NOW) communities for each sector (ITU-R, ITU-T, ITU-D) focus on representation of women in ITU's work and decision-making, providing a supportive environment for women delegates. NOW4WRC23 played a significant role in the newly adopted ITU-R Resolution 72 promoting gender equality and bridging the participation gap. Women accounted for 22 percent of RA-WRC participants, up from 18 percent at the previous 2019 event. The Network of Women in the ITU Standardization Sector (NOW in ITU-T) is accelerating efforts for WTSA later this year.

ITU reports annually to the UN system-wide action plan for gender equality and mainstreaming (UN-SWAP) based on 17 performance indicators. The 2022 UN-SWAP report card reflects the challenges faced in delivering without additional resources.

Equal representation of staff is achieved at the D2 level, yet overall representation of women in leadership (P5-D1-D2) posts remains a challenge. HR efforts to address this are detailed in C24. The spotlight is on accountability for leaders and fostering a healthy organizational culture to attract and retain top talent.

For further information, visit www.itu.int/gender and www.itu.int/genderdashboard.

The NOW in ITU-T and NOW4WTSA24 campaign, launched at the Network of Women Breakfast at TSAG in January 2024, are encouraging the ITU community to appoint more women in ITU-T leadership positions and as delegates and heads of delegations to WTSA-24.

The NOW4WTSA24 campaign also aims for women's participation in WTSA to exceed 35 percent, considering the 32 percent women's participation in WTSA-20.

NOW in ITU-T activities also include a training programme to help women maximize the value of their participation in WTSA and ITU standardization work.

Approximately 28 per cent of ITU-T standardization experts are now women, and women now hold around 25 per cent of ITU-T leadership positions.

4.5.2   Youth

In 2023 and 2024, the ITU secretariat continued to work towards implementation of the Resolution 198 (Rev. Bucharest, 2022) of the Plenipotentiary Conference, on empowerment of youth through telecommunication/information and communication technology and ensuring that the youth perspective is incorporated in the work programmes, management approaches, and human resources development activities of ITU. To empower ITU's youth staff, a Youth Task Force was established. This staff-led initiative comprises approximately 20 members from all sectors and the General Secretariat (GS).

To promote and mainstream youth-related activities, various initiatives have been undertaken, with some of the highlights outlined below: The ITU Secretary-General's Youth Advisory Board was established as a dynamic and forward-thinking initiative that empowers young individuals to shape the future of global connectivity, Generation Connect Young Leadership Programme (GCYLP) was developed as leadership programme designed to empower and inspire young digital changemakers. Through the GCYLP, guidance, training, and financial support will be provided to 30 young fellows each year, enabling them to practically implement their own digital development projects in their diverse communities across the world.

In 2023 and 2024, ITU increased youth participation in ITU events and initiatives such as AI for Good Summit, Regional Development Forums, Study Group sessions, the EQUALS in Tech Awards, Girls in ICT Day, and more. ITU's Development and Standardization bureaux (BDT and TSB) championed meaningful youth engagement on AI; created an AI for Good-Generation Connect Consultation Group; jointly developed a Neural Network webinar: How ChatGPT will change the classroom – teachers and students discuss; co-created AI for Good and Generation

Connect Global Survey on AI and Youth; co-created the session titled: The impact of AI on youth: opportunities and challenges at the AI for Good Global Summit 2023; and organized a joint AI for Good / Generation Connect session on *AI for Good and Prompt Engineering* delivered at the Misk Global Forum 2023 in Riyadh, Saudi Arabia

The ITU secretariat is also working to strengthen relations with academic institutions in terms of research support and student engagement. More Information about youth related activities is provided in the ITU Council document C24/31.

Information on preparations for ITU's Global Youth Summit can be found in the document C24/32.

Impact story

E-learning in rural Zimbabwe

A new ITU e-learning project at Ndlovu Secondary School in Victoria Falls, Zimbabwe, aims to unlock new opportunities and horizons by equipping children with digital skills, as well as keeping children safe online. At the April 2023 project inauguration, parents and teachers in rural Zimbabwe shared their hopes and dreams for the next generation's digital future.

Learn more about the community's digital aspirations

Moreover, *ITU Kaleidoscope 2024: Innovation and digital transformation for a sustainable world* will run from 21 to 23 October in New Delhi, India, alongside the World Telecommunication

Standardization Assembly. Kaleidoscope 2024 will include a special session on involving more young people in standards development and how ITU can support the next generation of consensus builders.

ITU Development Sector (ITU-D) activities addressing youth are described in the Telecommunication Development Bureau (BDT) report to TDAG.

4.5.3   ICT/Accessibility

ITU works to increase access to ICTs for persons with disabilities by raising awareness of their right to access ICTs, mainstreaming accessibility in the development of international technical standards, and providing education and training on key accessibility issues. In addition, during the reporting period, many ITU members, stakeholders, and participants strengthened their knowledge in ICT/digital accessibility through a variety of activities. ITU-D provided ICT accessibility expert advice to support ITU members' efforts to foster digital inclusion through executive training for regional policy and decision-makers.

For an overview of all ITU activities relevant to accessibility, see ITU and Accessibility.

ITU-D

ITU-D accessibility activities are described in the BDT report to TDAG. See also the ICT digital accessibility web page.

ITU-T

For an overview of activities related to accessibility in the ITU's Standardization Sector (ITU-T) and Telecommunication Standardization Bureau (TSB), see ITU-T and Accessibility.

ITU-R

Five ITU-R publications that take into consideration various aspects of accessibility were revised and approved during 2023. These came in response to Resolution ITU-R 67-2 on "Telecommunication/ICT accessibility for persons with disabilities and persons with specific needs" (approved by RA-23 on 17/11/2023); and Recommendation ITU-R BT.1702-3 on "Guidance for the reduction of photosensitive epileptic seizures caused by television" (approved on 22/11/2023 – responsible group SG 6 (WP 6C)).

Additional information regarding the work of ITU-R on accessibility issues is available here.

4.5.4   Indigenous people

ITU-D activities related to the needs of indigenous people are described in the report to TDAG.

4.5.5   Ageing populations

A report on the role of digital technologies in aging and health (April 2023) developed by ITU and the Pan American Health Organization describes opportunities to improve the lives of older persons with the help of inclusive technology solutions.

ITU-D activities on ageing populations are described in the report to TDAG.

4.5.6   Bridging the standardization gap

ITU's Bridging the Standardization Gap (BSG) programme aims to enhance the ability of all countries, in particular developing countries, to participate in the development and implementation of ITU-T standards. Japan's Ministry of Internal Affairs and Communications (MIC) funded the BSG programme in 2023.

Hands-on study group effectiveness trainings offering coaching in practical skills valuable to participation in ITU standardization. Fellowships offer financial support to delegates from eligible developing countries. Regional groups within ITU-T study groups help to ensure that ITU standards are globally applicable. An online training course offers guidance on ITU standardization working method. Regional and interregional forums address working methods and topics under study. ITU guidelines on National Standardization Secretariats outline methods to create national frameworks for effective participation in ITU standardization.

Report on the implementation
of the strategic plan and the
activities of the Union

May 2023 ———— April 2024

5 Standardization: Foundations to shape technologies of today and tomorrow
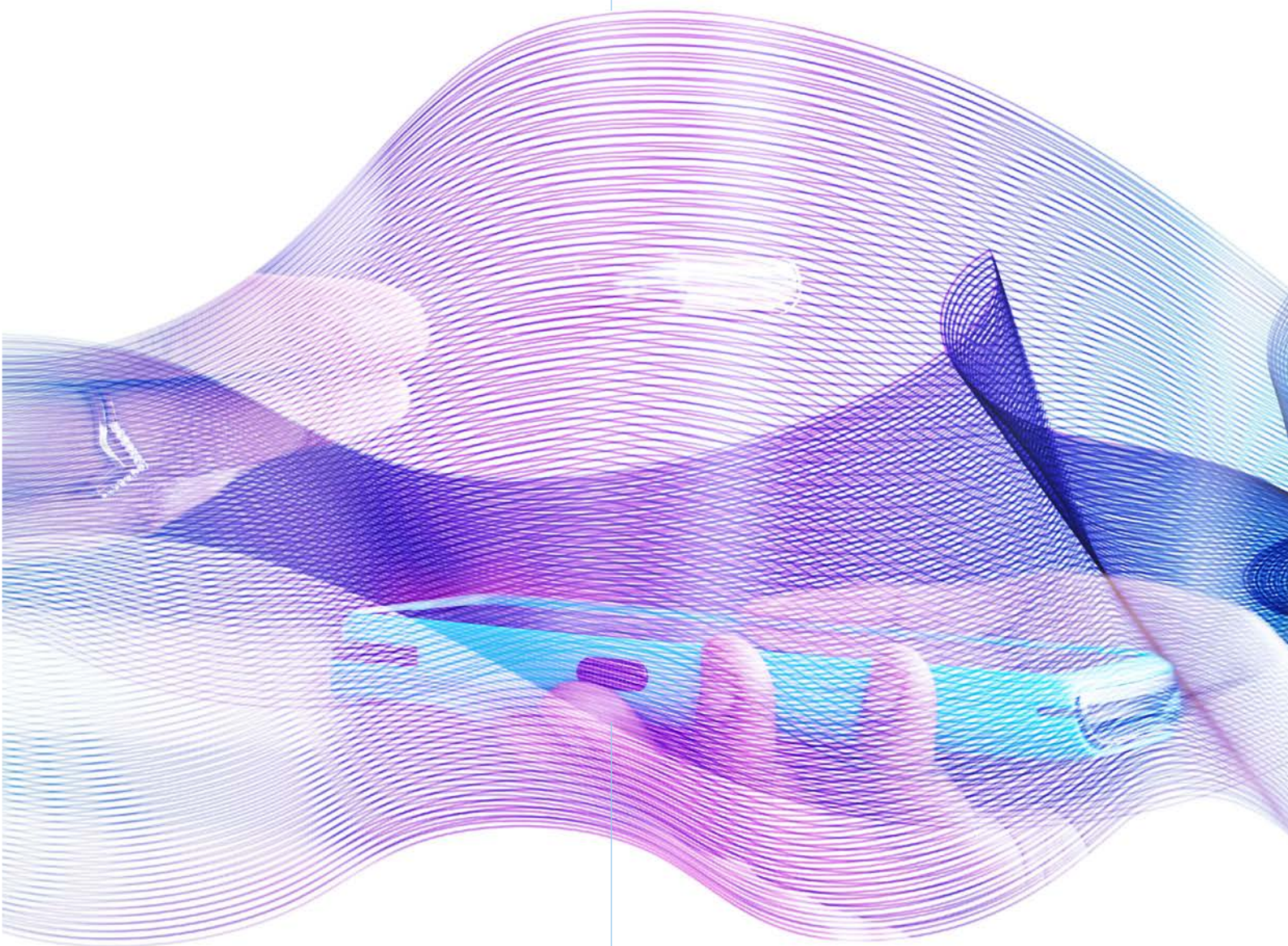
5.   Standardization: Foundations to shape technologies of today and tomorrow

Inclusive technologies, built to universal specifications, work smoothly for everyone, with an unwavering commitment to interoperability, accessibility, security, affordability, and sustainability ensuring that ITU's standards work for the whole world. Through ITU technical standards, local devices link seamlessly with global networks. Safe connections, within reach for all, give communities access to vital information and help reduce climate impact.

ITU standards are developed by ITU's Telecommunication Standardization Sector and Radiocommunication Sector, being issued, respectively, as ITU-T Recommendations and ITU-R Recommendations.

ITU-T Recommendations

In the Telecommunication Standardization Sector (ITU-T), the organization's Member States approved 286 new and revised ITU-T Recommendations and related texts in the reporting period (as of 28 February 2024). For all such decisions currently in force, see the catalogue of ITU-T Recommendations. Executive summaries of study group meetings can be found on ITU-T study group homepages.

Five ITU-T focus groups are active. Focus groups lay the groundwork for related standardization work in ITU-T study groups. Information on focus group activities and deliverables of can be found on ITU-T focus group homepages.

ITU-R Recommendations

During the period of May 2023 to December 2023, the ITU Radiocommunication Sector (ITU-R) approved more than 80 new or revised ITU-R Recommendations. See full set of ITU-R Recommendations.

In 2023, ITU was honoured with the Engineering, Science & Technology Emmy Award for developing the radiocommunication standard for High Dynamic Range Television (HDR-TV). Presented by the Television Academy, the award acknowledges the pioneering efforts of engineers and specialists within ITU-R Study Group 6 in creating a global HDR-TV standard that enhances viewers' visual experience. This marks the third Emmy Award granted to ITU-R study groups – and the sixth Emmy for ITU as a whole.

Impact story

Resilient clock synchronization

Digital clock errors can disrupt industries, organizations, and people's daily lives. ITU has developed high-precision synchronization standards to withstand timing disruptions in the Global Satellite Navigation System (GNSS). The enhanced Primary Reference Time Clock defined by ITU standard G.8272.1 ensures accuracy better than 100 nanoseconds for up to 40 days after GNSS signal loss. The new G.8272.2 standard introduces combines interconnected clock outputs with a timescale algorithm across telecom networks. These accessible standards help maintain Coordinated Universal Time (UTC) worldwide.

Learn more about the new clock concept.

6 Strategic partnerships for sustainable development

6.   Strategic partnerships for sustainable development

Partner2Connect

The Partner2Connect Digital Coalition (P2C) is ITU's global multistakeholder platform for mobilizing resources, partnerships, and commitments to foster universal meaningful connectivity and sustainable digital transformation. At the Annual Meeting in Geneva in December 2023, P2C reported an increase of 53 per cent in the number of pledges submitted when compared with the 2022 Annual Report figures, and an increase of nearly 55 per cent in the number of entities that had joined the Coalition. In 2023 P2C mobilized an additional USD 7 billion worth of global connectivity projects and launched targeted pledging campaigns to address the connectivity needs of LDCs' citizens and displaced people, aiming to pave the way for sustainable digital transformation. In regard to implementation of the pledges, in 2023, 33 per cent of the total pledges were reported on by 35 per cent of all pledgers. 73 per cent of all reported pledges were in progress and 12 per cent were already completed. Data from the P2C Annual Report 2023 also indicates that approximately USD 4.8 billion had already been spent towards the implementation of those 275 pledges that were reported on.

At the end of 2023, P2C had mobilized 845 pledges valued at USD 36.78 billion from 408 entities representing 138 countries around the globe. The first quarter of 2024 started with very good news for the Coalition. At the Mobile World Congress in Barcelona, USD 9 billion in connectivity pledges were announced bringing the total value of pledges to about USD 46 billion. Currently, 875 pledges from 426 entities in 141 countries have been submitted to the platform.

SDG Digital – promoting solutions to accelerate progress

Digital technologies are key to achieving the UN Sustainable Development Goals (SDGs). This was the moment – ahead of the 2023 SDG Digital Summit – to take stock of achievements, gaps, and opportunities, catalyse action, and step up digital support for the 2030 Agenda.

On 17 September 2023, ITU worked with the United Nations Development Programme (UNDP) and various supporting partners to convene "SDG Digital**"** at United Nations Headquarters in New York.

As part of the SDG Action Weekend, the event focused on bringing digital SDG solutions to scale, including through new High Impact Initiatives for sustainable, inclusive digital transformation.

Broadband Commission – putting broadband firmly on the international policy agenda

In 2023, the Broadband Commission community engaged over 100 diverse partners, including 50+ Commissioners (9 new members joining in 2024), more than 40 external experts of the Working Groups, and over 10 strategic partners.

The Commission hosted and its members attended 30+ international advocacy events, issued 8 thought leadership publications, launched 3 original advocacy campaigns, and completed 2 Commissioner-led Working Groups. The Annual Fall Meeting 2023 addressing the theme: "Digital connectivity: a transformative opportunity" was hosted in New York on 16 September under the auspices of the 78th Session of the United Nations General Assembly and "SDG Digital" event led by ITU and the United Nations Development Programme (UNDP).

The Broadband Commission participated in UN agency-led events (including CSW68, WSIS Forum 2023, STI Forum 2023, UNCTAD e-Week 2023, etc.) and private sector conferences (including the 2023 SAMENA Leaders' Summit etc.).

Publications, working group reports, open statements/contributions, and SDG-related research across the reporting period include:

The State of Broadband Report 2023, Digital connectivity – A Transformative opportunity, the Commission's annual flagship report providing with key considerations required to support the next stage of connectivity for digital transformation.

Open statements to UN processes and events (e.g. Global Digital Compact, WSIS, HLPF2023).

Two Working Groups reports: Data for learning led by UNESCO and connectivity for MSMEs led by GSMA and ITC.

Strategic outreach: the Commission gained over 700 newsletter subscribers, has more than 16 000 combined followers on X (Twitter), LinkedIn, and Facebook. Over 31 000 readers have downloaded Commission reports in 2023.

EQUALS – promoting access, skills, and ICT leadership for women and girls.

Reverse the increasing gender digital divide by: Providing opportunities for collaboration; maximizing impact and supporting the scaling up of successful projects; creating a networking platform for practitioners to leverage and strengthen current efforts to bridge the gender digital divide; and measuring progress towards the goals in the partnership vision as a vehicle to accelerate the implementation of Sustainable Development Goal 5, especially Target 5B.

2023 marks the 10th anniversary of the EQUALS in Tech Awards and the 15 finalists have been selected from the 132 nominated initiatives from 54 countries across the globe.

Giga – working since 2019 to connect every school to the Internet.

Since its launch in 2019 Giga has: mapped more than 2 million schools across 140 countries, connected more than 5 561 schools, et provided connection to more than 2 million students worldwide.

AI for Good

AI for Good is the primary platform for artificial intelligence (AI) discussions and demonstrations in the UN system. AI for Good is led by ITU and supported by 40 UN partners and a range of industry sponsors. It is co-convened by the Government of Switzerland.

AI for Good identifies practical applications of AI to accelerate progress toward the SDGs and connects AI innovators with public and private-sector decision-makers to help scale up AI solutions globally.

The AI for Good Global Summit 2023 in Geneva, 6-7 July 2023, featured renowned experts in AI and humanitarian action and the world's largest-ever gathering of humanoid and specialized robots. The Summit was preceded by expert-oriented ML workshops, 4-5 July, drawing on expertise from the AI for Good Discovery programme.

AI for Good is presented as a year-round digital platform featuring near-daily programming. The AI for Good Neural Network now includes over 25 000 professionals.

AI for Health

The Global Initiative on AI for Health driven by ITU, WHO and WIPO aims to step up AI's contribution to health and create universal access to the resulting benefits.

The global initiative aims to develop technical standards and policy guidance, facilitate knowledge and data sharing, and support evidence-based decisions on the introduction of AI solutions for health.

It will also promote collaborative mechanisms for AI solutions to reach underserved communities, and its scaling programme will assist low- and middle-income countries in adopting AI solutions for health.

The initiative, announced at the AI for Good Global Summit 2023, builds on the momentum of the ITU-WHO Focus Group on AI for Health.

Impact story

AI-enhanced ultrasound analysis

Innovation Factory winner Ultrasound AI has produced a pioneering platform to analyse pregnant patients and reduce pre-term births. The solution from the woman-led start-up underscores how artificial intelligence (AI) can improve human healthcare. "Women and babies deserve quality healthcare, and that's what we are trying to do," said Marissa Fayer from Ultrasound AI, presenting the winning innovation on the Robotics for Good stage at the ITU-led AI for Good Global Summit.

Learn more about the Innovation Factory and its 2023 finalists.

Secure digital finance

ITU's new cybersecurity resilience assessment toolkit provides expert guidance in assessing and guarding against cybersecurity risks to infrastructure critical to digital financial services. The toolkit is a product of the ITU Security Lab for Digital Financial Services, developed with the collaboration of Deloitte Consulting.

ITU's Security Lab for Digital Financial Services runs Security Clinics that offer coaching in the adoption of the recommendations for secure digital finance developed by the Financial Inclusion Global Initiative.

The technical assistance provided by the lab empowers regulators to conduct security audits of mobile payment applications to determine their compliance with the security recommendations.

The lab's knowledge-transfer programme is helping regulators in emerging economies to establish their own security labs to test the security of their countries' mobile payment applications.

The programme, extended in 2023 to include cyber resilience assessment, is benefitting regulators in Uganda, Tanzania, and Peru, and will soon also serve The Gambia, Zimbabwe, and Rwanda.

The programme also helps countries coordinate their regulatory actions for secure digital finance, with the support of an ITU-recommended Memorandum of Understanding between a country's ICT regulator and central bank.

To date, the countries in Africa that have implemented the recommended MoU between the telecom regulator and central bank for DFS security are Nigeria, Lesotho, Sierra Leone, Tanzania, Kenya, and Zimbabwe.

Digital transformation for smart cities and communities

The United for Smart Sustainable Cities (U4SSC) initiative is supported by 19 UN bodies with the aim of achieving the SDG11 ("Make cities and human settlements inclusive, safe, resilient and sustainable").

Over 150 cities worldwide are evaluating their progress towards smart city objectives and the SDGs using U4SSC Key Performance Indicators for Smart Sustainable Cities based on ITU standards. The results of the KPI evaluations are shared by city snapshots, factsheets, verification reports and case studies.

U4SSC is providing expert guidance (see U4SSC reports) in six thematic areas:

- City platforms
- Building urban economic resilience at the city level
- AI in cities
- Enabling people-centred cities through digital transformation
- Procurement for smart sustainable cities
- Digital wellbeing

The seventh U4SSC meeting was held online on 20 June 2023. Highlights of the meeting included the appointment of the new U4SSC management team and the announcement of a new U4SSC Country Hub in Kyebi, Ghana.

See U4SSC reports.

Intelligent transport systems

The ITU-UNECE Future Networked Car Symposium brings together experts from industry and government to examine the latest advances in vehicle automation and connectivity.

The ITU-led Collaboration on ITS Communication Standards (CITS) includes all standards bodies working on intelligent transport. CITS database of key standards.

CITS has launched a new expert group on communications technology for automated driving.

New ITU web portal on intelligent transport.

CTO and CxO meetings

CTO and CxO meetings convene industry executives to discuss industry priorities and related standardization activities with senior management of ITU's Telecommunication Standardization Bureau (TSB). Resulting communiqués highlight innovation areas benefiting from new ITU standards.

The most recent CxO Roundtable was held on 5 December 2023 at the Telecom Review Leader's Summit in Dubai, UAE, with additional participation online.

CxOs discussed support for IMT-2030 (6G) from optical networks, AI, and semantic communications. They also addressed digital divide, non-terrestrial networks, smart mobility, powerline communications, disaster response, machine vision technology, blockchain, fraud mitigation, and quantum information technologies. meeting communiqué.

Green Digital Action at COP28

ITU convened the Green Digital Action track at the UN climate conference (COP28) held in Dubai, United Arabi Emirates, between 30 November and 13 December 2023. ITU organized this vital track of meetings and discussions together with partners spanning governments, companies, industry associations, civil society, fellow UN agencies and multilateral banks.

Among the outcomes of Green Digital Action at COP28 are:

- Corporate agreements on reducing greenhouse gas emissions following science-based targets aligned with the goal of limiting climate warming to 1.5°C and creating transition plans as well as increasing transparency on emissions data across the tech industry.
- Cross-country collaboration to develop e-waste regulation as a key vehicle to foster a circular tech industry.
- Joint statement by ITU, ISO and IEC on the importance of sustainability being built into technical standards development by design, and standards helping the world reach net-zero emissions and achieve a resource-efficient circular and low-carbon economy.
- Strengthening of industry and country collaboration on the implementation of environmental sustainability standards through an action plan.
- Pledge from the mobile telecommunication and satellite industry to support the Early Warnings for All initiative through cell-broadcast and direct-to-device services to protect everyone through life-saving disaster alerts by 2027. A public sector pledge to implement cell-broadcast using a regulatory approach was also made.

The AI/ML Solutions for Climate Change challenge also culminated at COP28. The challenge was supported by supported by ITU, the International Atomic Energy Agency (IAEA), the UN

Food and Agriculture Organization (FAO), the UN Educational, Scientific and Cultural Organization (UNESCO), and the World Bank. The competitions were facilitated by a stream of the AI for Good Innovation Factory led by ITU and IAEA.

World Standards Cooperation

The World Standards Cooperation (WSC) is a partnership of ITU, the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) to advance the voluntary consensus-based international standardization system.

- World Standards Day, 14 October: ITU, ISO and IEC lead the celebrations of "A Shared Vision for a Better World". All past editions of World Standards Day.
- Joint statement at COP28: ITU, ISO and IEC issued a joint statement at COP28 on the importance of sustainability being built into technical standards development by design, and standards helping the world reach net-zero emissions and achieve a resource-efficient circular and low-carbon economy.

ITU, World Meteorological Organization and UNEP are examining the potential of leveraging AI for natural disaster management

The ITU-WMO-UNEP Focus Group on AI for Natural Disaster Management

ITU and Food and Agriculture Organization cooperate closely on AI and IoT for Digital Agriculture

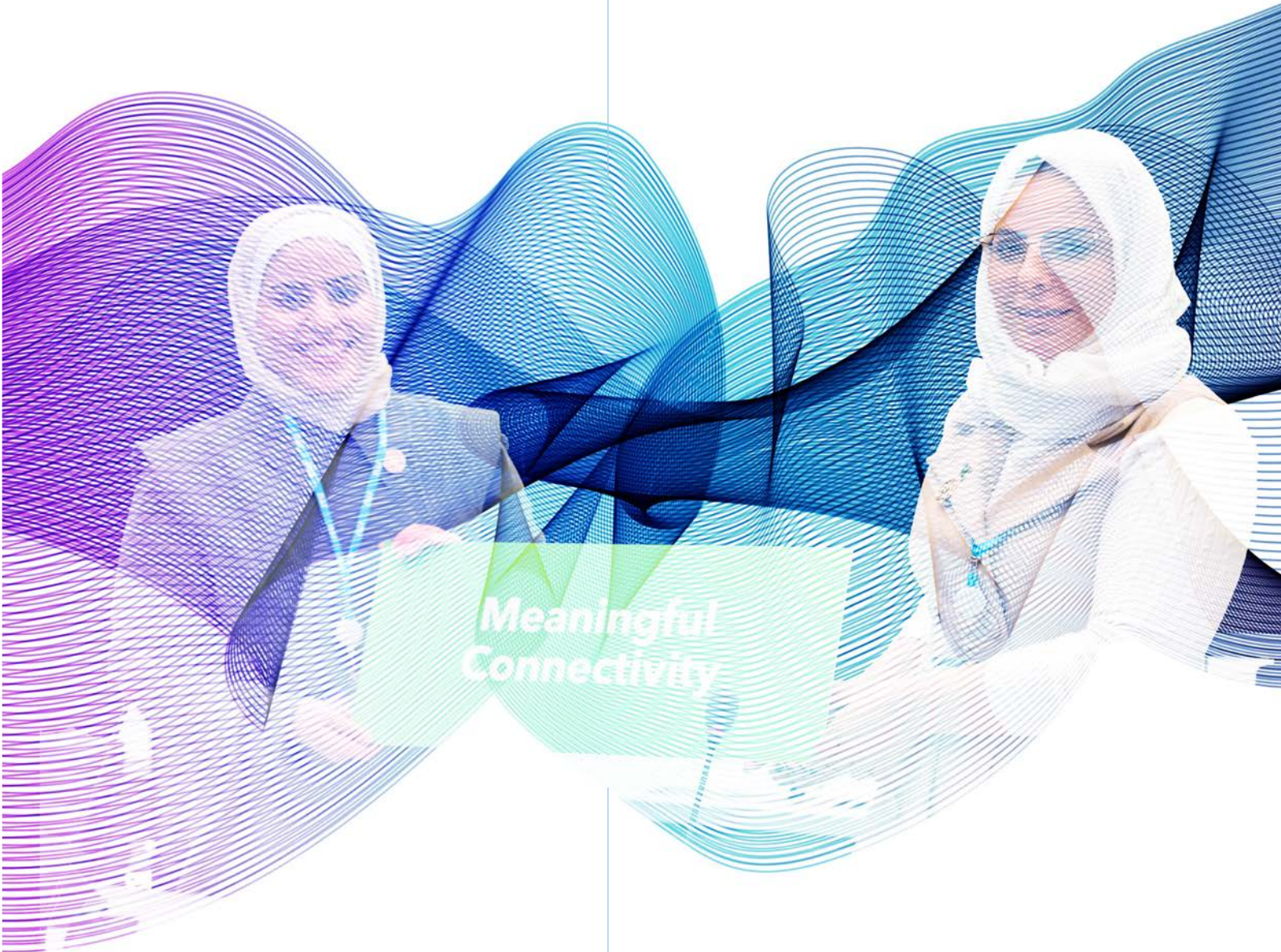The ITU-FAO Focus Group on AI and IoT for Digital Agriculture

WSIS

The WSIS+20 Forum High-Level Event will take place from 27 to 31 May 2024 in Geneva Its programme will cover a range of themes, highlighting the 20-year achievements of WSIS implementation, presenting case studies on digital for development, and showcasing the role of ICTs in achieving the global goals.

A resolution by ITU's last Plenipotentiary Conference (Resolution 140 (Rev. Bucharest, 2022) branded the 2024 WSIS Forum as the WSIS+20 Forum High-Level Event, highlighting the high-level nature of participation and the role of this event in the WSIS+20 review process. The event will benefit from ITU's contribution on the implementation of WSIS Action Lines, where ITU is the sole facilitator and implementer as listed in the 2023 edition of ITU's WSIS Action Lines Roadmaps.

Other ITU-led activities at the WSIS+20 Forum HLE will include, among others the reporting on the 20-years of WSIS Stocktaking, the WSIS Prizes 2024 winners and champions will be celebrated at the special ceremony during the HLE, including other WSIS Special Prizes, the series of WSIS&SDG TalkX will be hosted, including the Hackathon and the special day dedicated to Youth. These activities are all aligned with the SDGs and will continue reflecting on the WSIS-SDG Matrix developed by UN agencies. The outcomes of the WSIS+20 Forum High-Level Event will be reported at ITU Council 2025.

Report on the implementation
of the strategic plan and the
activities of the Union

May 2023 ——— April 2024

7 Connecting people and ideas

Meaningful
Connectivity

7. Connecting people and ideas

7.1 High-profile meetings: Connecting people and ideas

Alongside the four-year cycle of statutory conferences for ITU and each of its sectors, the organization convenes high-profile meetings and maintains continuous, active stakeholder engagement to advance digital transformation in line with sustainable development.

Global Symposium for Regulators

ITU's latest Global Symposium for Regulators (GSR-23) took place under the theme "Regulation for a sustainable digital future." The event featured thematic sessions bringing together regulators, policy makers and other digital stakeholders from around the world, providing a global platform for knowledge exchange. Learn more.

WSIS+20 Forum High-Level Event

See Section 4.7.

7.2 Seminars and workshops: Diving deeper

In-depth seminars and workshops are vital to ITU's engagement across the radiocommunication, standardization and development sectors.

ITU-R

RRS-23

ITU held two Regional Radiocommunication Seminars in 2023: for the Americas and for Africa. These seminars dealt with the use of radio-frequency spectrum and satellite orbits, and focused on the application of the ITU Radio Regulations.

Workshops

Three workshops were held by ITU:

- Inter-regional Workshop on WRC-23 preparation
- "ITU in Service of Space"
- "Broadcasting in times of crisis"

ITU-T

89 ITU-T workshops, symposia and webinars were organized in 2023, in addition to the weekly programming of the year-round AI for Good digital platform. A listing of all past and planned events can be found on the ITU-T workshops homepage.

ITU-T workshops, symposia and webinars discuss emerging trends in standardization, increase the visibility of ITU-T work, enhance ITU-T collaboration with other bodies, attract and recruit new ITU-T members, and encourage peer-learning relevant to the development and implementation of international standards.

ITU-D

The report from BDT to TDAG provides information on this item.

7.3   Engaging academia in ITU's work

ITU Academia membership, the ITU Journal on Future and Evolving Technologies, and ITU Kaleidoscope conferences form key avenues for academics to engage in ITU's work. They support growing collaboration between academia and industry in research and development, as well as in bringing the latest innovations to market.

ITU Journal

The ITU Journal on Future and Evolving Technologies (ITU J-FET) – free of charge to both readers and authors – offers comprehensive coverage of communications and networking. The online journal welcomes research submissions on all topics, all year long.

The journal includes recorded webinar discussions with researchers and industry leaders. The special series of journal webinars with industry leaders, launched in June 2023, has hosted talks from NTT DOCOMO, O-RAN Alliance, GSMA, Nokia and China Mobile.

The ITU Journal (Volume 4 (2023), Issue 4) focuses on innovations to power the metaverse and AI for accessibility. The same edition also features research on vehicle-to-everything communications, edge computing, and low-earth orbit satellite networking.

Kaleidoscope academic conference

The ITU Kaleidoscope series of peer-reviewed academic conferences – organized with the technical co-sponsorship of the Institute of Electrical and Electronics Engineers (IEEE) and the IEEE Communications Society – highlights emerging research trends and their implications for international standardization.

Report on the implementation
of the strategic plan and the
activities of the Union

May 2023 ——— April 2024

8 Technical assistance

8.   Technical assistance

Along with providing extensive technical expertise and coordination as a UN specialized agency, ITU serves as an executing agency for digital development projects aimed at ensuring connectivity benefits everyone, everywhere.

The ITU Development Sector (ITU-D) has the key function of implementing projects under arrangements established with funding partners. Such projects aim to facilitate and enhance telecommunication development by offering, organizing, and coordinating technical cooperation and assistance activities.

In this vein, 87 projects were implemented during 2023, valued at CHF 106.4 million. The table below presents the overall distribution of this portfolio by region and the overview of (1) the funds mobilized to support the implementation of these projects, (2) the seed funding allocated by ITU from either the ICT Development Fund (ICT-DF), or other ITU Funds to support the implementation of Regional Initiatives endorsed at the World Telecommunication Development Conference in 2017 and 2022.

ITU signed a total of 23 new projects in 2023, valued at CHF 20.9 million. These figures confirm the positive trend experimented since 2017 in the increase of funds mobilized in support of projects.

More details and data on project implementation can be found in the Projects portal and the new dashboard for ITU membership on status of projects (TIES protected).

Overview of on-going ITU projects by region (figures in k CHF)

Region	Number of Projects	Funding from partners	ITU funds (ICT-DF)	ITU funds (RIs)	Total project funding
AFR	13	11,732.4	938.7	670.0	**13,913.1**
AMS	15	40,112.6	158.6	667.5	**41,008.4**
ARB	7	4,311.1	662.2	88.0	**5,061.3**
ASP	14	6,948.8	345.4	440.0	**7,909.2**
CIS	3	253.7		443.8	**697.5**
EUR	2	3,642.5		47.5	**3,690.1**
MUL (*)	33	27,794.1	4,394.6	1,551.8	**34,122.8**
Total	**87**	**94,795.3**	**6,499.5**	**3,908.7**	**106,402.4**

(*) Multi-regional projects benefiting all regions.

The **ITU Area Office and Innovation Centre** was officially opened in New Delhi, India, on 22 March, providing an expanded presence for the International Telecommunication Union (ITU) to promote tech and sustainable development in South Asia. The inclusion of ITU's first on-site centre for innovation positions the new office in India's capital as a hub for promoting advanced technologies within the region and beyond.

Report on the implementation
of the strategic plan and the
activities of the Union

May 2023 ———— April 2024

9 ITU's membership-driven approach
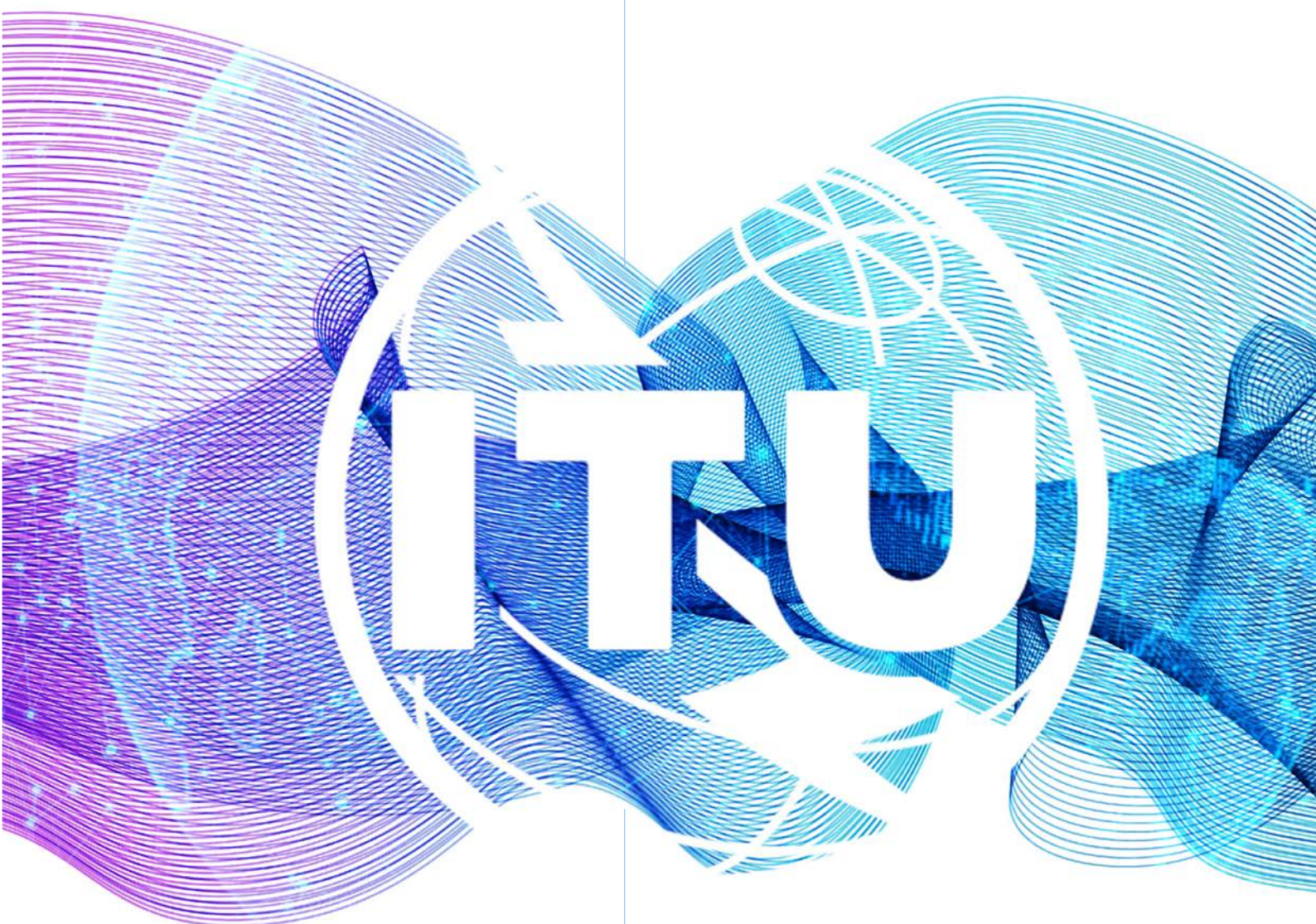
9.   ITU's membership-driven approach

First and foremost, ITU serves the needs of its 193 Member States, along with the 1 000-plus companies, organizations and academic institutes participating as ITU Sector members. This membership-driven approach keeps the organization's work focused, timely and relevant, while helping to meet specific requests or requirements as they arise.

Membership Annual Report 2023 Overview					Members **989**	Memberships **1324**		Members of all 3 Sectors **106**		Associates with SME fees **88**
Membership Type	ITU-R	ITU-T	ITU-D	Academia	Total	Membership Type	ITU-R	ITU-T	ITU-D	Academia	Total
Sector member	283	270	313		866	Sector member	6,640,900	6,224,850	1,474,725		14,340,475
Associate	44	226	19		289	Associate	308,725	1,893,425	47,700		2,249,850
Academia				169	169	Academia				437,250	437,250
Total	327	496	332	169	1324	Total	6,949,625	8,118,275	1,522,425	437,250	17,027,575

ITU has reached 989 distinct member entities (+93/+29 net new entities in a year) either Sector Members, Associates or Academia. Almost all new memberships were from new entities: 108 new entities joined in 2023 while 7 members expanded or upgraded their membership.
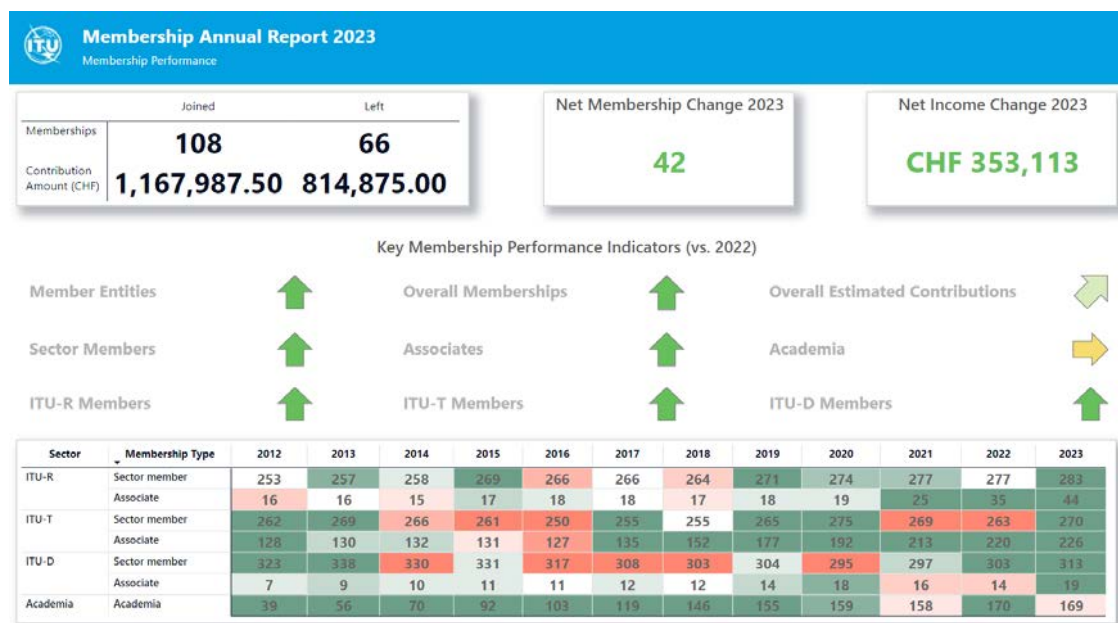
- 1 324 memberships across all Sectors: +108 new and -66 either denounced or excluded.
- Sector Members accounted for 48 per cent of all new memberships (31 per cent in 2022), Associates for 36 per cent (46 per cent in 2022) and Academia for 16 per cent (23 per cent in 2022).
- Positive/stable trend across all sectors: ITU-R (+15 net new memberships), ITU-T (+13 net new memberships), ITU-D (+15 net new memberships), Academia (-1 net new memberships).
- As opposed to 2022. Where memberships growth was driven by Europe (+22 net new memberships) and Asia & the Pacific (+16 net new memberships), 2023 saw growth spreads across almost all regions: Americas (+12), International (+12), Asia & the Pacific (+10), Arab States (+5), Europe (+4), and Africa (+2)
- Forecasted contribution increased only slightly to over 17 million CHF, despite net growth in memberships. This is due to growth in low fee categories and exempted entities. However, in 2023 there was an encouraging increase in Sector Members paying ½ unit contributions (+8 net new memberships)
- The community of SME's is growing, through at a slightly reduced pace compared 2022. Associates with SME reduced fees option (available from January 2020): 88 memberships (66 from ITU-T and 22 from ITU-R) have benefited from the reduced fees +15 net new entities in 2023 (+24 net new entities in 2022).

Looking ahead for 2024:

- Many prospects in the pipeline: 66 applications in Admin Approval and 31 Pending Payment.
- Retention continues to be a challenge: ITU lost 66 memberships in 2023.

Financial risks:

- 130 member entities account for 50 per cent of overall membership revenue, representing CHF 8.5 million.
- 38 memberships Suspended and 25 Frozen, representing CHF 582k.

Membership Annual Report 2023
Membership Performance

	Joined	Left
Memberships	108	66
Contribution Amount (CHF)	1,167,987.50	814,875.00

Net Membership Change 2023: **42**

Net Income Change 2023: **CHF 353,113**

Key Membership Performance Indicators (vs. 2022)

Member Entities ↑ | Overall Memberships ↑ | Overall Estimated Contributions ↗
Sector Members ↑ | Associates ↑ | Academia →
ITU-R Members ↑ | ITU-T Members ↑ | ITU-D Members ↑

Sector	Membership Type	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ITU-R	Sector member	253	257	258	269	266	266	264	271	274	277	277	283
	Associate	16	16	15	17	18	18	17	18	19	25	35	44
ITU-T	Sector member	262	269	266	261	250	255	255	265	275	269	263	270
	Associate	128	130	132	131	127	135	152	177	192	213	220	226
ITU-D	Sector member	323	338	330	331	317	308	303	304	295	297	303	313
	Associate	7	9	10	11	11	12	12	14	18	16	14	19
Academia	Academia	39	56	70	92	103	119	146	155	159	158	170	169

10. Implementation of the Resolutions from the Plenipotentiary Conference

The status of implementation of PP Resolutions can be found in the dedicated Web platform here.