ITU電気通信標準化局(TSB)の動向について
～就任２年目への抱負～
- ITU and International Standardization -

尾上 誠蔵

ITU電気通信標準化局長

Seizo ONOE

Director of Telecommunication Standardization Bureau (TSB)

International Telecommunication Union (ITU)

Topics

- ITU
- Thought on Standardization
- History of Generations: 1G to 5G
- Future Beyond 6G toward 12G

ITU is global

ITU is the UN specialized agency for ICTs

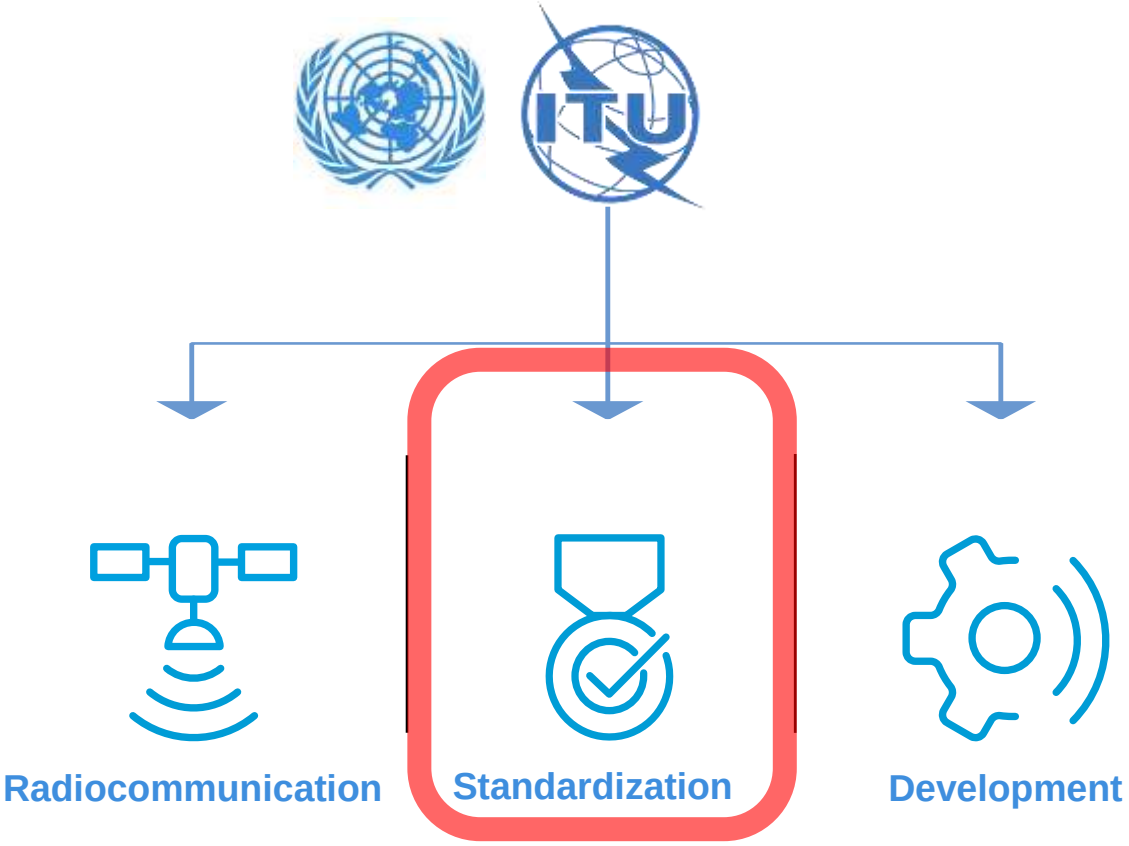
193 Member states

+800 Companies/ organizations

+160 Academia

Who we are

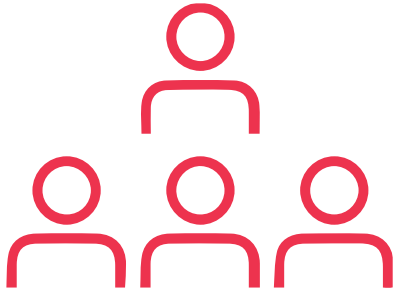
The UN specialized agency for ICT



ITU-T Study Groups (SG)

- SG2 - Operational aspects
- SG3 - Economic & policy issues
- SG5 – Environment, EMF & circular economy
- SG9 - Broadband cable & TV
- SG11 - Protocols, testing & combating counterfeiting
- SG12 - Performance, QoS & QoE
- SG13 - Future networks
- SG15 - Transport, access & home
- SG16 - Multimedia & digital technologies
- SG17 - Security
- SG20 - IoT, smart cities & communities

ITU standardization: Global community

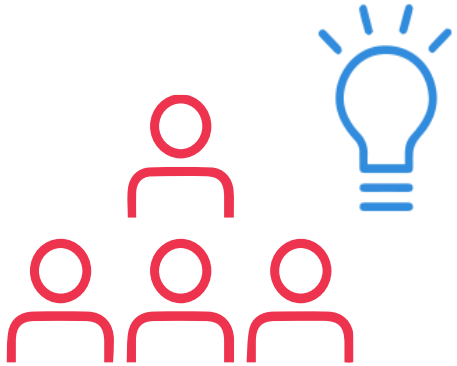


Study Groups

Membership-driven study groups develop international standards

Focus Groups

Open-to-all focus groups define new directions in ITU standardization



Workshops

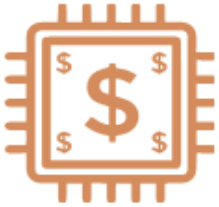
Open-to-all events analyze emerging trends and encourage peer-learning

ITU-T Focus Groups

Autonomous Networks
(FG-AN)

Testbeds Federations for IMT-2020 & beyond
(FG-TBFxG)

AI for Health
(FG-AI4H)



Costing Models for Affordable Data Services
(FG-CD)

Metaverse
(FG-MV)

AI for Natural Disaster Management
(FG-AI4NDM)

AI & IoT for Agriculture
(FG-AI4A)

FG-MV roadmap

1st meeting
8-9 March 2023, Riyadh, Saudi Arabia

2nd meeting
4-6 July 2023, Shanghai, China

1st special session
12 September 2023, Arusha, Tanzania

3rd meeting
3-5 October 2023, Geneva, Switzerland

2nd special session
18 October 2023, Riga, Latvia

4th meeting
4-7 December 2023, Geneva, Switzerland

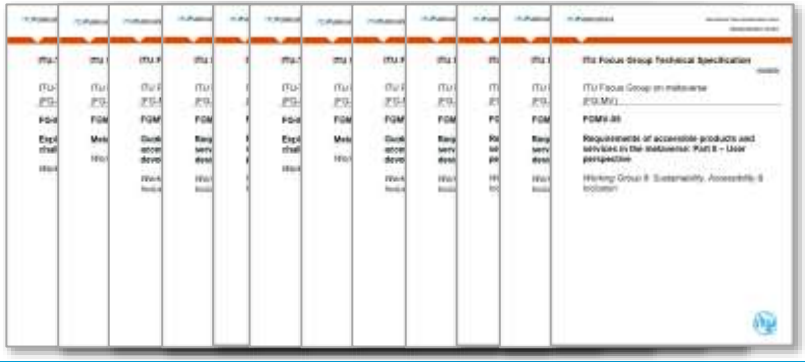
5th meeting
4-8 March 2024, Queretaro, Mexico

ITU Events

2nd Special Session of ITU Focus Group on metaverse (FG-MV)

18 October 2023
Riga, Latvia

www.itu.int/metaverse



22 Approved FG-MV deliverables

Document Type	Title
Technical Report	Exploring the metaverse: **opportunities and challenges**
Technical Report	Metaverse: an analysis of **definitions**
Technical Specification	**Definition** of metaverse
Technical Report	**Principles** for building concepts and definitions related to metaverse
Technical Report	**Power metaverse**: Use cases relevant to grid side and user side
Technical Specification	Capabilities and requirements of **generative artificial intelligence** in metaverse applications and services
Technical Specification	**Service scenarios and high-level requirements** for metaverse cross-platform interoperability
Technical Report	Guidelines for consideration of **ethical issues** in standards that build confidence and security in the metaverse
Technical Report	**Cyber risks, threats, and harms** in the metaverse
Technical Report	Embedding safety standards and the user control of **Personally Identifiable Information** (PII) in the development of the metaverse
Technical Report	**Children's age verification** in the metaverse
Technical Report	Responsible Use of **AI for Child Protection** in the metaverse
Technical Report	**Policy and regulation** opportunities and challenges in the metaverse
Technical Report	Regulatory and economic aspects in the metaverse: **Data protection-related**
Technical Report	Guidelines to **assess inclusion and accessibility** in metaverse standard development
Technical Specification	Requirements of accessible products and services in the metaverse: Part I – **System design perspective**
Technical Specification	Requirements of accessible products and services in the metaverse: Part II – **User perspective**
Technical Specification	**Design criteria and technical requirements** for sustainable metaverse ecosystems
Technical Specification	**Accessibility requirements** for metaverse services **supporting IoT**
Technical Report	**Accessibility** in a sustainable metaverse
Technical Report	Guidelines and requirements on **interpreting** in the metaverse
Technical Report	Guidance on how to **build a metaverse for all** – Part I: Legal Framework

AI for Good | AI for Good Global Summit 2023

AI for Good Global Summit

Accelerating the United Nations Sustainable Development Goals

30-31 May 2024

Geneva, Switzerland

AI for Good | 2024 Summit Snapshot

- Over 1500 registrations for the Summit (30-31 May)
  - 40% women
  - 117 countries, 34% developing countries or LDC
  - 40+ speakers and demos already confirmed
- The Summit will be preceded by
  - Machine Learning workshops (27-29 May) and
  - Governance Day (29 May)
- Launch of AI for Good Impact Initiative

- 25,000+ Neural Network users (Active AI4G Community)
- 500+ online events produced since 2020
  - 40+ sessions in the pipeline so far for 2024

Setting the standard

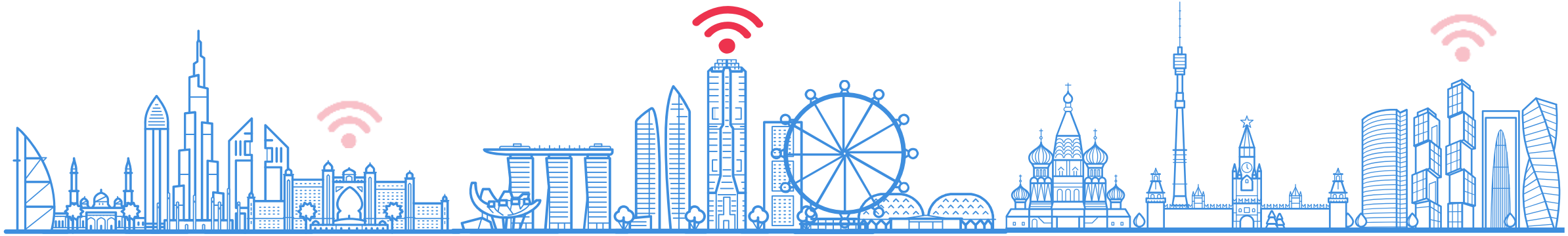
Smart cities and communities

United for Smart Sustainable Cities (U4SSC): Homepage >

- U4SSC initiative backed by 19 UN partners committed to SDG11
- 150+ cities evaluating progress towards smart-city objectives and the SDGs with U4SSC Key Performance Indicators based on ITU standards
- 7th U4SSC meeting held online in June and appointed new U4SSC management team
- Meeting also announced new U4SSC Country Hub in Kyebi, Ghana, the first in Africa
- Three new U4SSC publications in 2023 >
- Five new ITU publications in 2023 >

Digital transformation webinars

- All episodes >
- Reshaped as Digital Transformation Dialogues in 2024: Webinars, fireside chats, ask the expert sessions…



SUSTAINABLE DEVELOPMENT GOALS

Setting the standard

Digital financial inclusion and fintech

Overview web page >

New cybersecurity resilience assessment toolkit

- New cybersecurity resilience assessment toolkit for DFS critical infrastructure published in October

DFS security recommendations adopted at regional level in 2023

- Formally adopted by the East African Communications Organisation (EACO) and the Communication Regulators Association of Southern Africa (CRASA)
- Discussions ongoing with the West Africa Telecommunications Regulators Assembly (WATRA)

DFS Security Lab

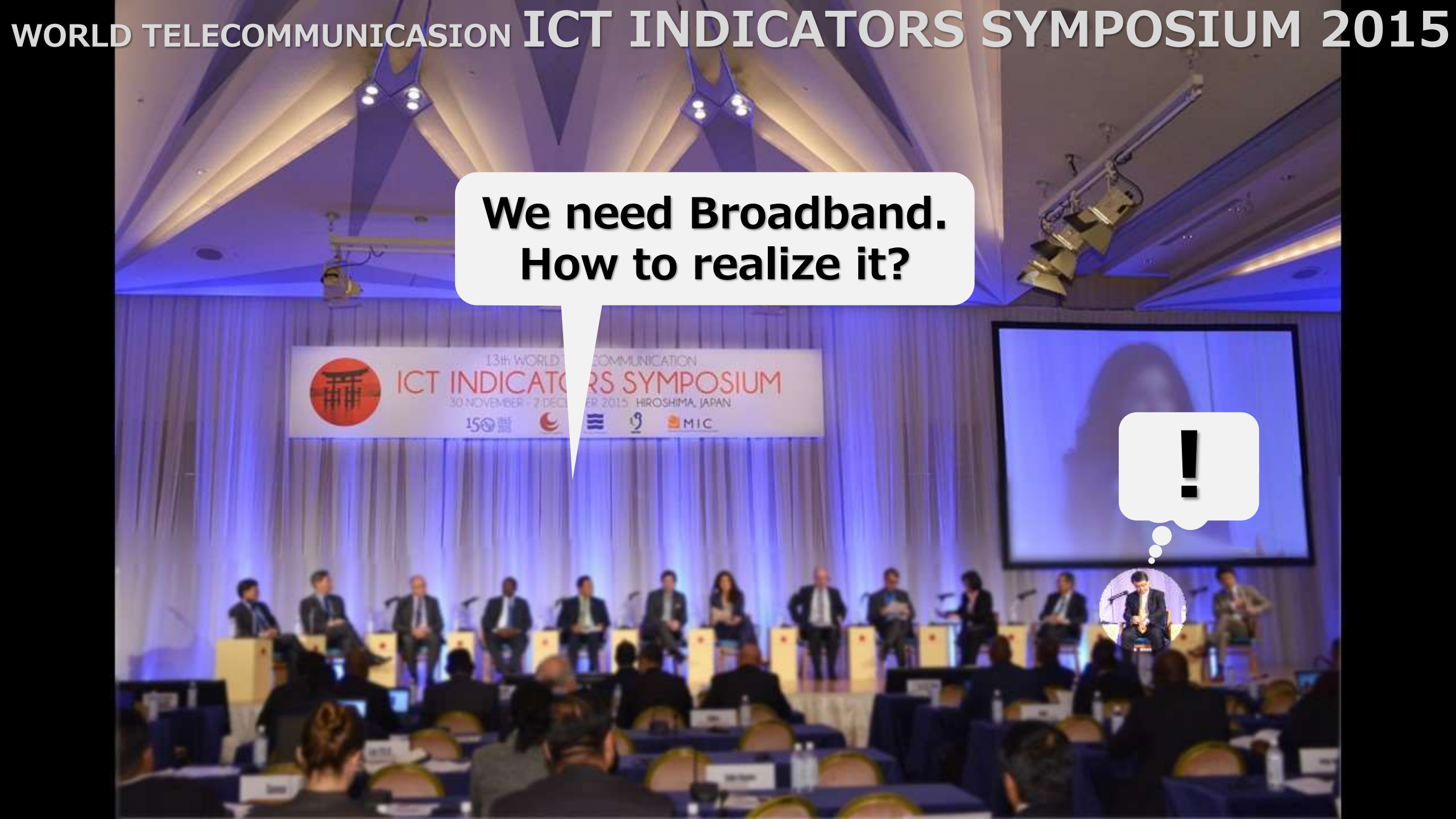
- Security clinics conducted in the reporting period >
- Knowledge transfer programme support telecom regulators in emerging economies
- Knowledge sharing platform launched in October
- One-year partnership with FNSV Korea launched in August to promote passwordless technology in mobile payments using blockchain secure authentication
- 2023 activities supported by funding from Deutsche Gesellschaft für Internationale Zusammenarbei (GIZ) and the Republic of Korea's Ministry of Science and ICT

Topics

- ITU
- Thought on Standardization
- History of Generations: 1G to 5G
- Future Beyond 6G toward 12G

WORLD TELECOMMUNICASION ICT INDICATORS SYMPOSIUM 2015

WORLD TELECOMMUNICASION ICT INDICATORS SYMPOSIUM 2015



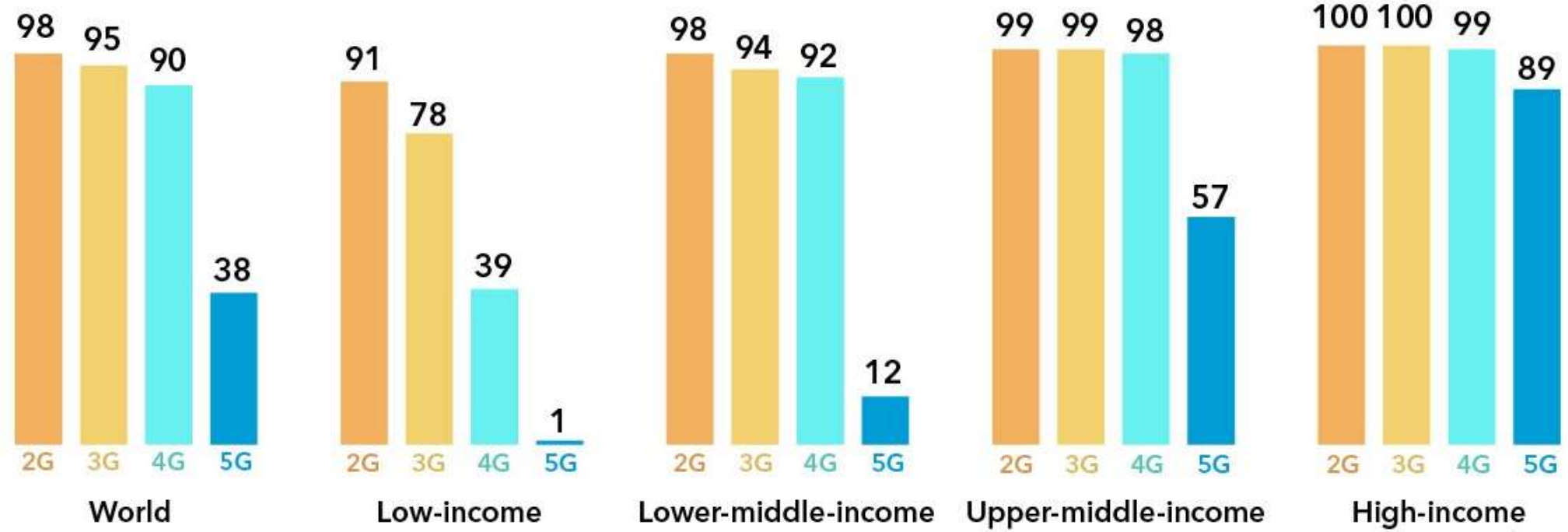
Measuring digital development

Facts and Figures

2023

Mobile network coverage by income group

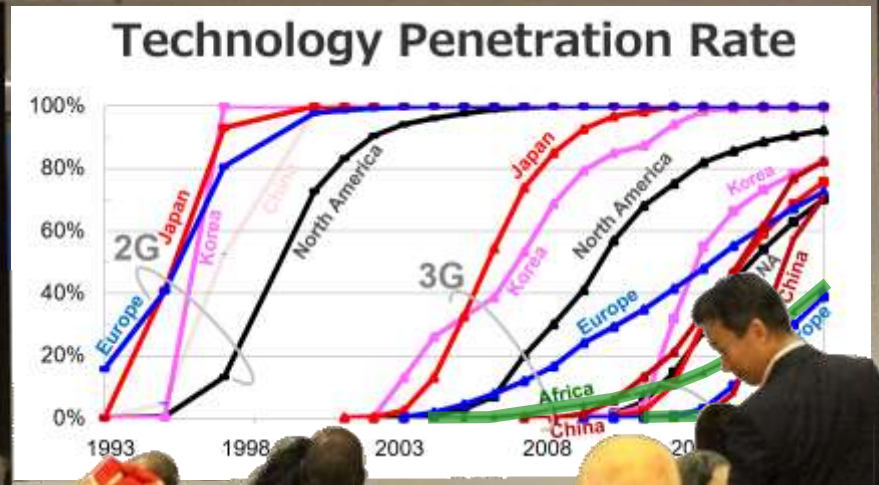
Percentage of population covered by type of mobile network in 2023



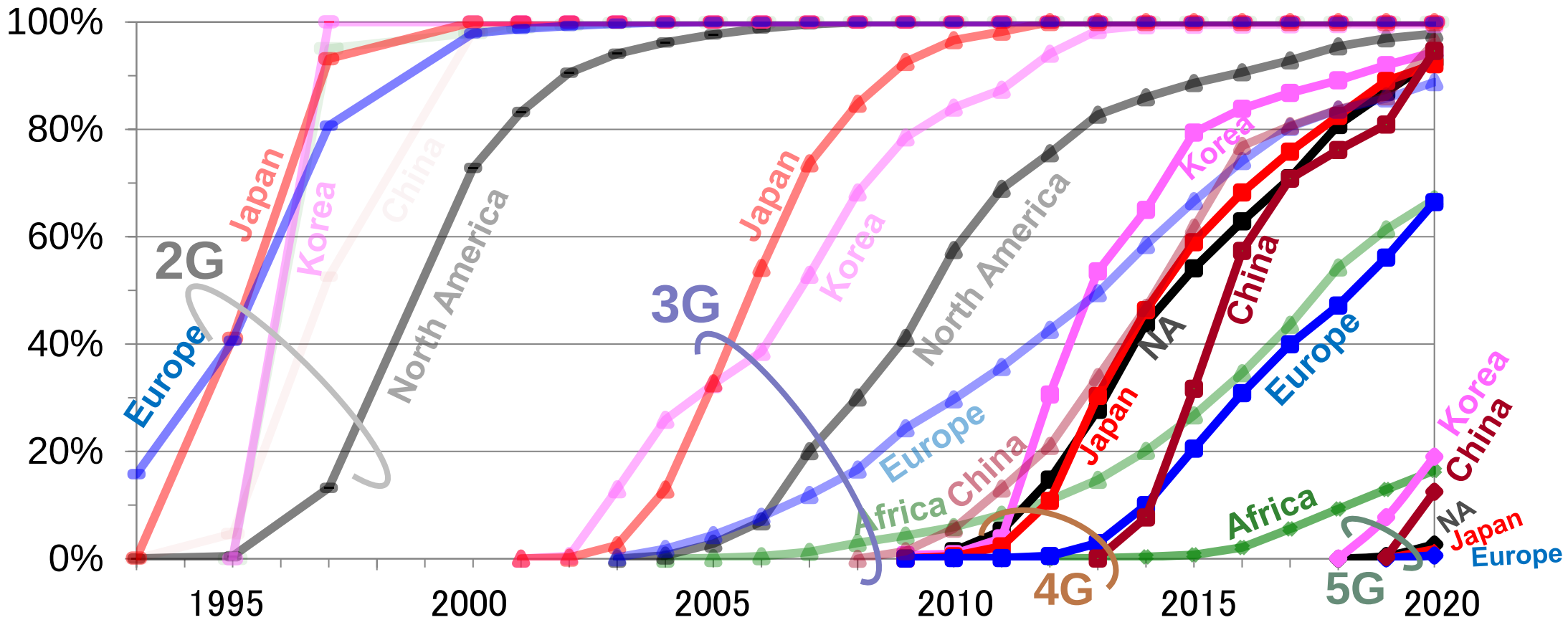
Source : ITU, *Facts and Figures 2023*

WWRF 5G HUDDLE 2018
in DURBAN, SOUTH AFRICA

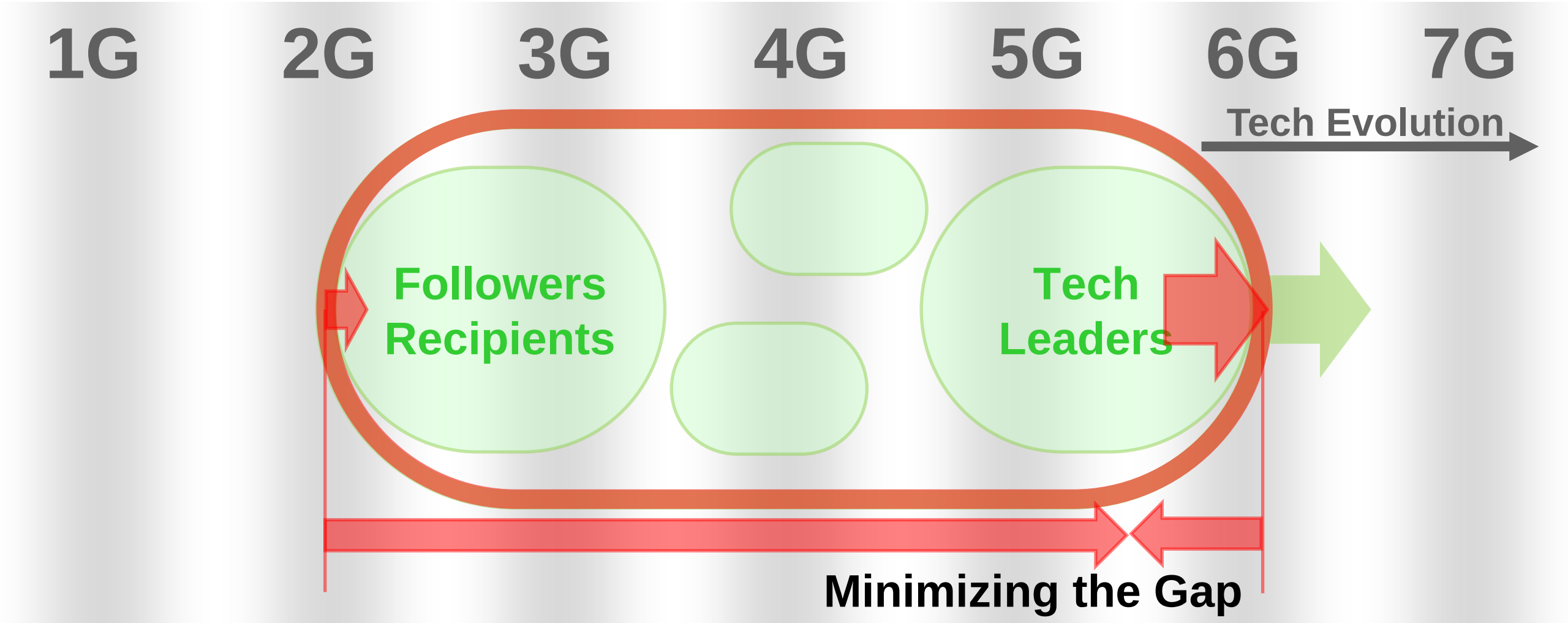
WIRELESS WORLD RESEARCH FORUM
5G HUDDLE 2018
5G FOR ALL
29 & 30 May 2018 / DURBAN . SOUTH AFRICA



Technology Penetration Rate



Standardization Gap



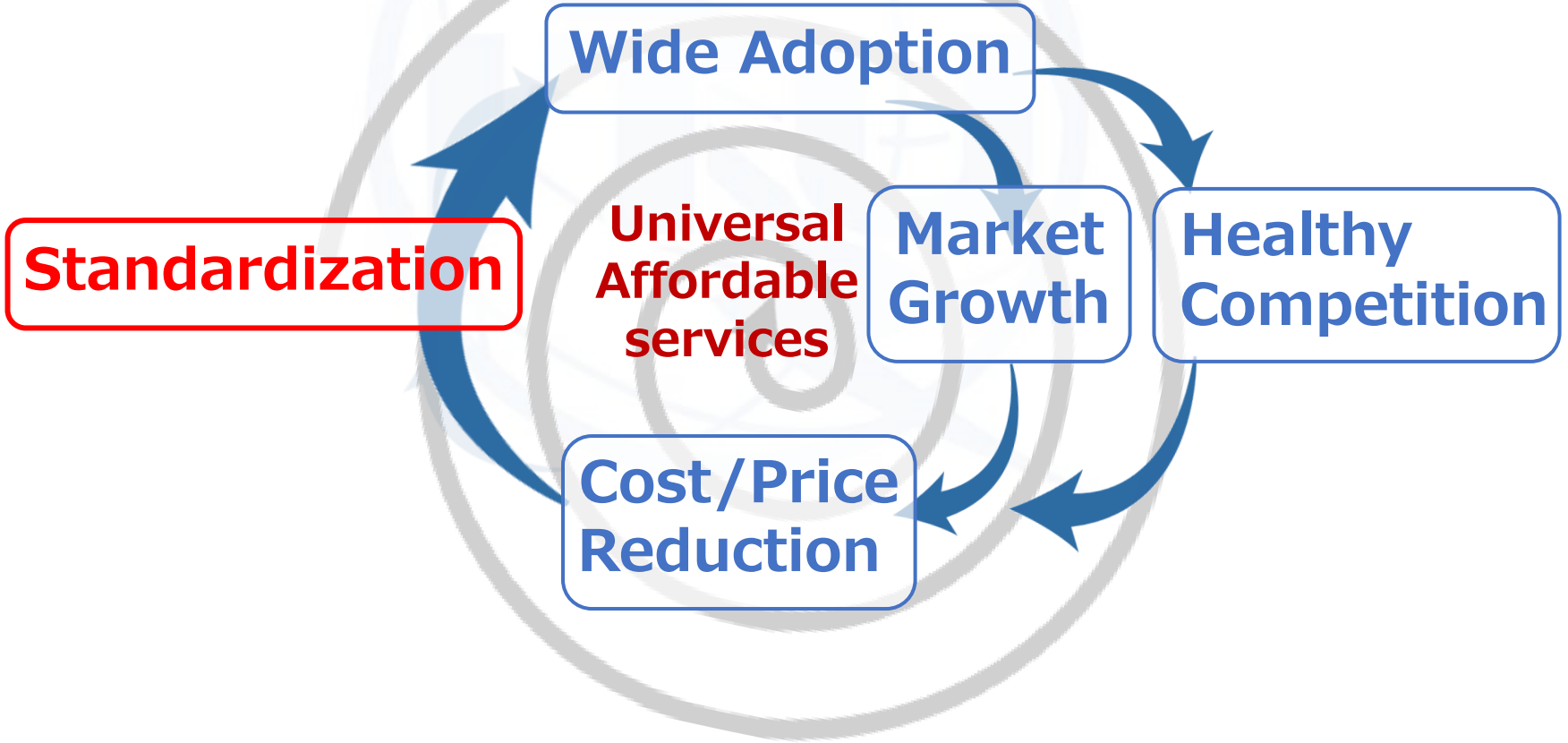
My Vision

Outreach worldwide

“Standards and technologies are meaningful only after people could use them. Enabling people around the world to benefit from technology – that’s what we do.”

Value of standardization

- Standardization becomes truly valuable and meaningful only when the standards are widely spread.



But How?

Strengthening Cooperation

*By **strengthening cooperation between multiple standardization bodies**.*

Collaboration leveraging each other's strengths is crucial. ITU's greatest advantage lies in its global reach.

To respond to rapid technological advancements and the expanding landscape of technical fields, we are increasingly collaborating with diverse roles and expertise to collaborate, rather than doing everything in a single organization.

Industry Engagement

*Through **industry engagement** and the **implementation of standards** by industry.*

The industry play a role in implementing the standards and contributing to technology diffusion. The industry engagement drives the development of implementable standards and their adoption in practice.

Bridging the Standardization Gap

*ITU-T **Bridging the Standardization Gap (BSG)** as essential tool for the dissemination of standards.*

Bringing the benefits of technology to the world by strengthening standard-making capabilities and assisting the application of standards in developing countries.

World Standards Cooperation(WSC)

Standardization Programme Coordination Group (SPCG)

– Review standardization activities in IEC, ISO and ITU-T and identify areas where coordination is required and/ or could be enhanced
– Provide recommendations and mechanisms for coordination, collaboration and joint work

World Standards Day

– Each year on 14 October, the members of IEC, ISO and ITU celebrate World Standards Day

G20: International Standards Summit

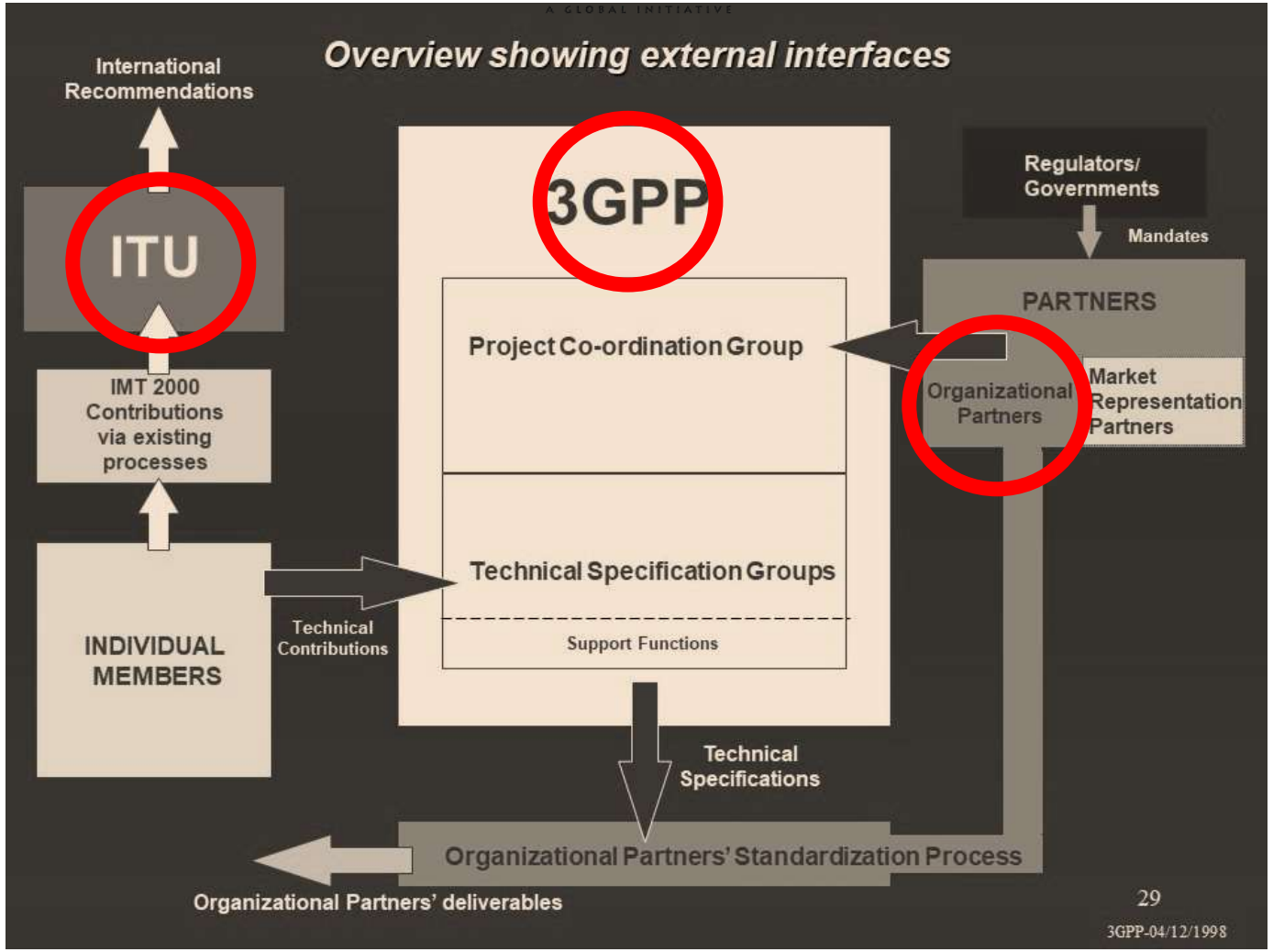
– Under the G20 Presidency, the standardization bodies together with the IEC, ISO and ITU, are organizing the International Standards Summit

Green Digital Action@COP28

– WSC hold the session on International Standards for sustainable digital tech

3GPP framework for 3G and beyond

with 3GPP, regional SDOs and ITU



But How?

Strengthening Cooperation

*By **strengthening cooperation between multiple standardization bodies**.*

To respond to rapid technological advancements and the expanding landscape of technical fields, we are now in an era where organizations with diverse roles and expertise to collaborate, rather than doing everything in a single organization.

Industry Engagement

*Through **industry engagement** and the **implementation of standards** by industry.*

The industry play a role in implementing the standards and contributing to technology diffusion. The industry engagement drives the development of implementable standards and their adoption in practice.

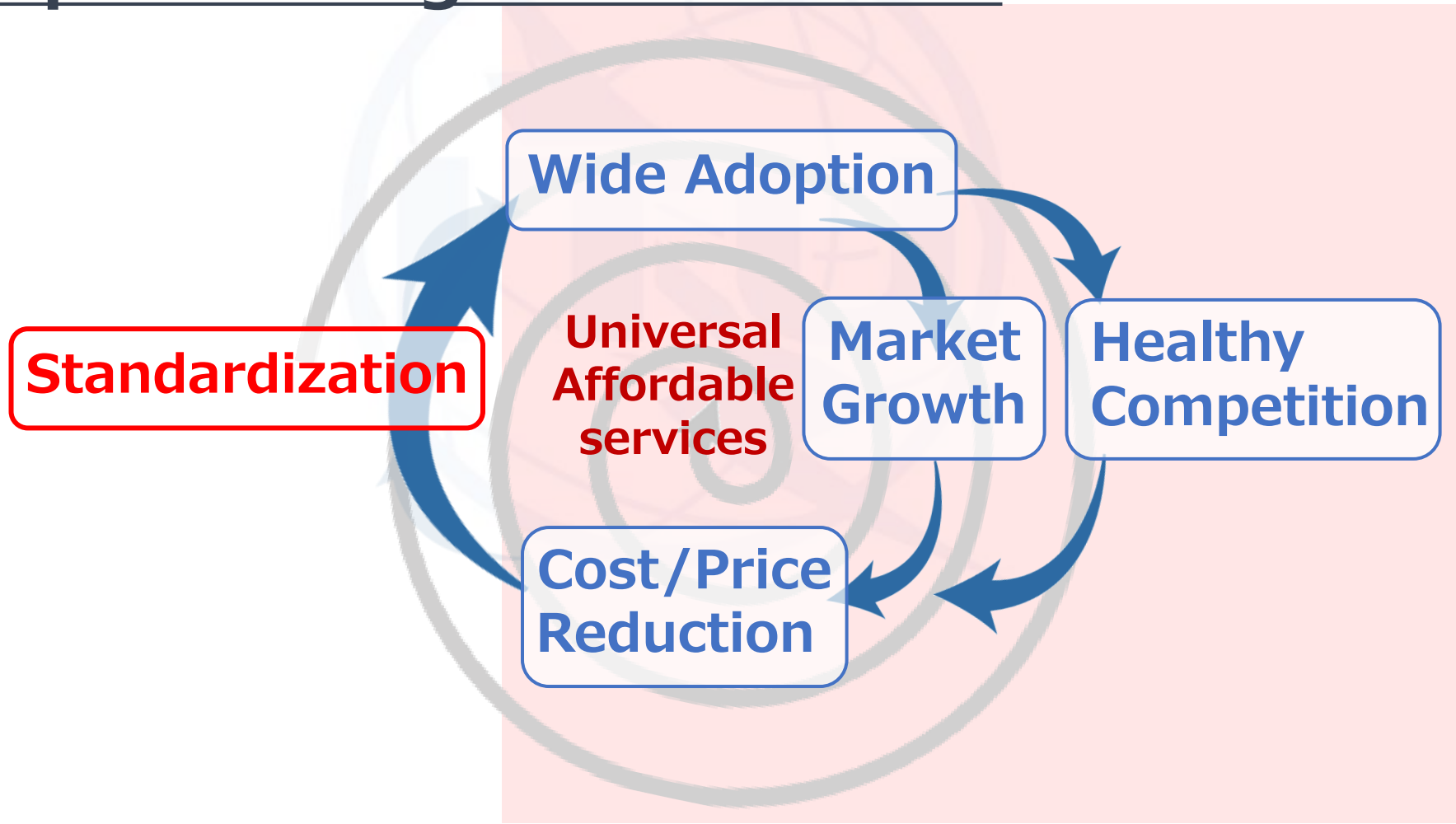
Bridging the Standardization Gap

*ITU-T **Bridging the Standardization Gap (BSG)** as essential tool for the dissemination of standards.*

Bringing the benefits of technology to the world by strengthening standard-making capabilities and assisting the application of standards in developing countries.

Value of standardization

- **Industry engagement is crucial for implementing the standards.**



ITU Journal Webinars

New WEBINAR SERIES with CTOs

6 June 2023

The journey from 5G to 6G: Toward a well-being society

Naoki Tani

Executive Vice President and Chief Technology Officer, NTT DOCOMO

27 June 2023

AI, machine learning RAN intelligent controller for 6G

Alex Jinsung Choi

Senior Vice President, Deutsche Telekom

4 July 2023

Transformation in the 5G era

Alex Sinclair

Chief Technology Officer, GSMA

ITU Journal

Future and evolving technologies

9 November 2023

Creating the foundation for 6G: Laying the groundwork for the network of the future

Nishant Batra

Chief Strategy and Technology Officer, Nokia

21 November 2023

Aimed at transformation: Telecom network technology development

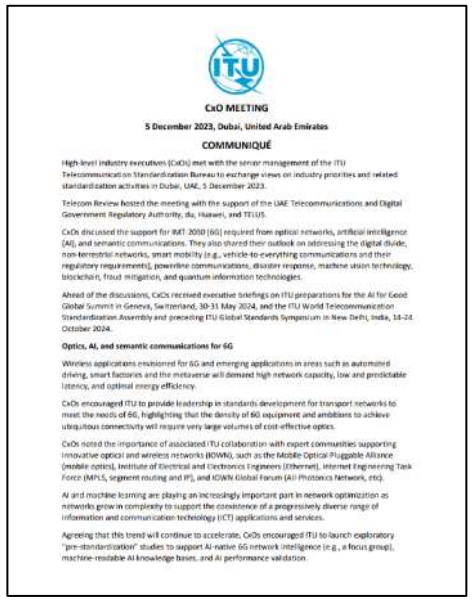
Wang Xiaoyun

Chief Scientist and Deputy Chief Engineer, China Mobile

CxO Roundtable (Dubai, 5 December 2023)

34 C-level executives
present in person

Communiqué



CxO MEETING

5 December 2023, Dubai, United Arab Emirates

COMMUNIQUÉ

High-level industry executives (CxOs) met with the senior management of the ITU Telecommunication Standardization Bureau to exchange views on industry priorities and related standardization activities in Dubai, UAE, 5 December 2023.

Telecom Review hosted the meeting with the support of the UAE Telecommunications and Digital Government Regulatory Authority, du, Huawei, and TELUS.

CxOs discussed the support for IMT-2030 (6G) required from optical networks, artificial intelligence (AI), and semantic communications. They also shared their outlook on addressing the digital divide, non-terrestrial networks, smart mobility (e.g., vehicle-to-everything communications and their regulatory requirements), powerline communications, disaster response, machine vision technology, blockchain, fraud mitigation, and quantum information technologies.

Ahead of the discussions, CxOs received executive briefings on ITU preparations for the AI for Good Global Summit in Geneva, Switzerland, 30-31 May 2024, and the ITU World Telecommunication Standardization Assembly and preceding ITU Global Standards Symposium in New Delhi, India, 14-24 October 2024.

Optics, AI, and semantic communications for 6G

Wireless applications envisioned for 6G and emerging applications in areas such as automated driving, smart factories and the metaverse will demand high network capacity, low and predictable latency, and optimal energy efficiency.

CxOs encouraged ITU to provide leadership in standards development for transport networks to meet the needs of 6G, highlighting that the density of 6G equipment and ambitions to achieve ubiquitous connectivity will require very large volumes of cost-effective optics.

CxOs noted the importance of associated ITU collaboration with expert communities supporting innovative optical and wireless networks (IOWN), such as the Mobile Optical Pluggable Alliance (mobile optics), Institute of Electrical and Electronics Engineers (Ethernet), Internet Engineering Task Force (MPLS, segment routing and IP), and IOWN Global Forum (All-Photonics Network, etc).

AI and machine learning are playing an increasingly important part in network optimization as networks grow in complexity to support the coexistence of a progressively diverse range of information and communication technology (ICT) applications and services.

Agreeing that this trend will continue to accelerate, CxOs encouraged ITU to launch exploratory "pre-standardization" studies to support AI-native 6G network intelligence (e.g., a focus group), machine-readable AI knowledge bases, and AI performance validation.

- Support for **IMT-2030 (6G)** required from optical networks, AI, and semantic communications
  - **transport networks to meet the needs of 6G**, **AI-native 6G network intelligence**, **machine-readable AI knowledge bases**, **AI performance validation** and **the architecture and framework needed for wireless networks to integrate semantic communications**
- + Digital divide, non-terrestrial networks, smart mobility, powerline communications, disaster response, machine vision technology, blockchain, fraud mitigation, and quantum information technologies

But How?

Strengthening Cooperation

*By **strengthening cooperation between multiple standardization bodies**.*

To respond to rapid technological advancements and the expanding landscape of technical fields, we are now in an era where organizations with diverse roles and expertise to collaborate, rather than doing everything in a single organization.

Industry Engagement

*Through **industry engagement** and the **implementation of standards** by industry.*

The industry play a role in implementing the standards and contributing to technology diffusion. The industry engagement drives the development of implementable standards and their adoption in practice.

Bridging the Standardization Gap

*ITU-T **Bridging the Standardization Gap (BSG)** as essential tool for the dissemination of standards.*

Bringing the benefits of technology to the world by strengthening standard-making capabilities and assisting the application of standards in developing countries.

Why BSG?

Bridging the standardization gap between developing and developed countries is in our constitution.

PP Resolution 123

Calls for collaboration with relevant academia, in close collaboration between ITU-T, ITU-R, while also taking into consideration the activities conducted through ITU Academy Training Centres and other capacity-building initiatives of BDT.

WTSA Resolution 44

Recognizes that it is of high importance for developing countries to increase their participation in the establishment and widespread use of telecommunication standards, and to enhance their contribution in ITU-T study groups.

Outreach Worldwide

It's crucial to disseminate standards to every corner globally.

New BSG Program

NEW

- ✓ Thematic initiatives in implementation of standards (DFS, U4SSC, CDCP, MLS etc.)
- ✓ Tools, Data Analytics & Survey/Quiz
- ✓ Strategic Events, Resource Mobilization & Outreaching

Launch new BSG website!

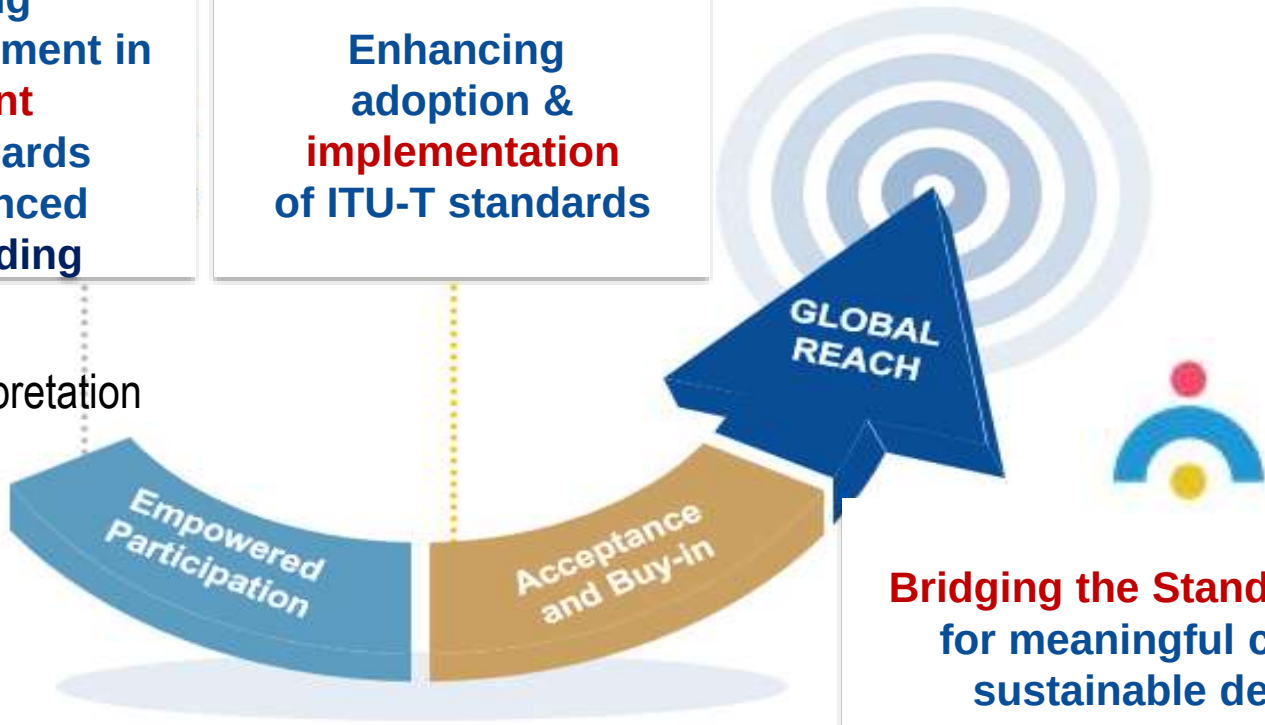
https://www.itu.int/bsg/

Empowering effective engagement in development of ITU-T standards through enhanced capacity building

Enhancing adoption & implementation of ITU-T standards

NEW

- ✓ Updated BSG trainings
- ✓ Fellowship & Language/Interpretation

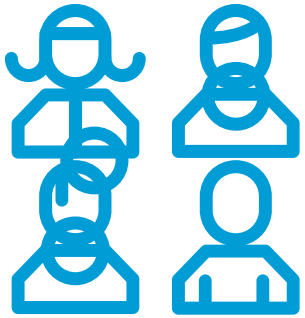


NEW

- ✓ Cooperation & Partnership
- ✓ Funding support

Bridging the Standardization Gap for meaningful connectivity & sustainable development through ITU-T standards

What lies at the foundation



Open and Inclusive

*Promoting **diversity** by encouraging multi-stakeholder participation in standardization processes.*
Diverse members need to be involved, including developed/developing countries, regions, gender, large/small enterprises, etc.

Efficient, Effective and Transparent

*Implementing **effective organizational management** through efficient resource allocation in a **transparent** manner.*
Improve organizational performance, including setting priorities, reducing waste and improving processes.

My vision and goals as TSB Director

To achieve **universal meaningful connectivity** and **sustainable digital transformation** **through standardization.**

Outreach Worldwide

Standardization becomes truly valuable and meaningful only when the standards are widely spread.

Strengthening Cooperation

Industry Engagement

Bridging the Standardization Gap

Open and Inclusive

Efficient, Effective and Transparent

2024

30-31 May

AI for Good Global Summit

14-24 Oct.

ITU WTSA NEW DELHI2024

World Telecommunication Standardization Assembly

ITU GSS NEW DELHI2024

Global Standards Symposium

TSAG

Study Groups

SG2 SG3 SG5 SG9 SG11 SG12 SG13 SG15 SG16 SG17 SG20

Focus Groups

FG-CD FG-AI4A FG-MV FG-AI4NDM FG-TBFxG FG-AN

Reginal Groups

Webinar

AI for Good ITU Journal Digital Transformation

Global Initiative

GI-AI4H U4SSC

CxO Roundtable

WSC (with ISO/IEC)

. . .

World Telecommunication Standardization Assembly

- First WTSA in Asia**,** 1’500++ participants expected
- Side events: Network of Women, Kaleidoscope, Expo, Indian Mobile Congress & UN Day

Global Standards Symposium

- Theme: Charting the Next Digital Wave: Emerging Technologies, Innovation, and International Standards
- High Level Segment: Ministers and CEOs

WTSA-24, 15-24 October, preceded by GSS-24, 14 October: Website >

Highlights of the 3rd TSAG meeting
(Geneva, 22–26 January 2024)

- **<u>Study Group Restructuring</u>**

  - There was a wide support for consolidating SG9 and SG16 at the TSAG meeting

  - SG9 and SG16 are encouraged to consider the way forward

- **<u>FG-MV(Metaverse)</u>**

  - TSAG agreed to extend the FG-MV's lifetime until June 2024 and sent for information or allocated the deliverables received by the FG-MV

- **<u>Industry Engagement</u>**

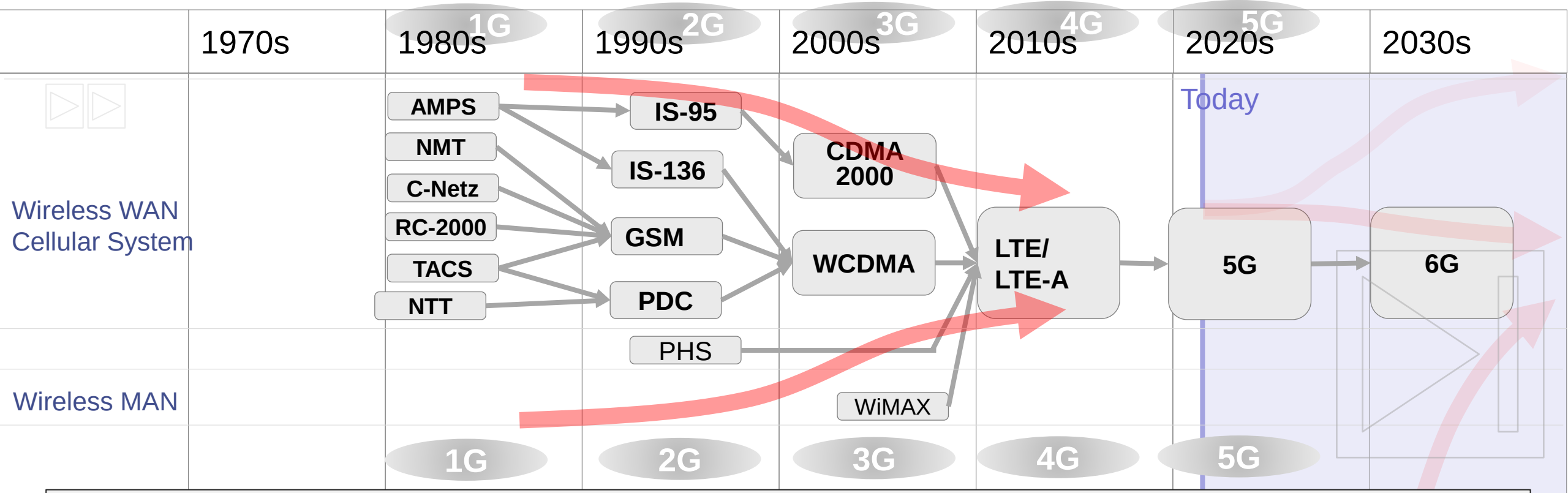
  - TSAG agreed the date for *the Industry Engagement workshop*, 19 April 2024, Geneva

Network of Women Breakfast

The session of BSG New program

Topics

- ITU
- Thought on Standardization
- History of Mobile Communication Generations: 1G to 5G
- Future Beyond 6G toward 12G



"Throughout its long history, telecom standardization has helped make people's lives more convenient and society more efficient."

- Global coverage of services
- Cost reduction by economies of scale and competition principle

More effort is needed to achieve a truly affordable and even better ecosystem.

5G

5G

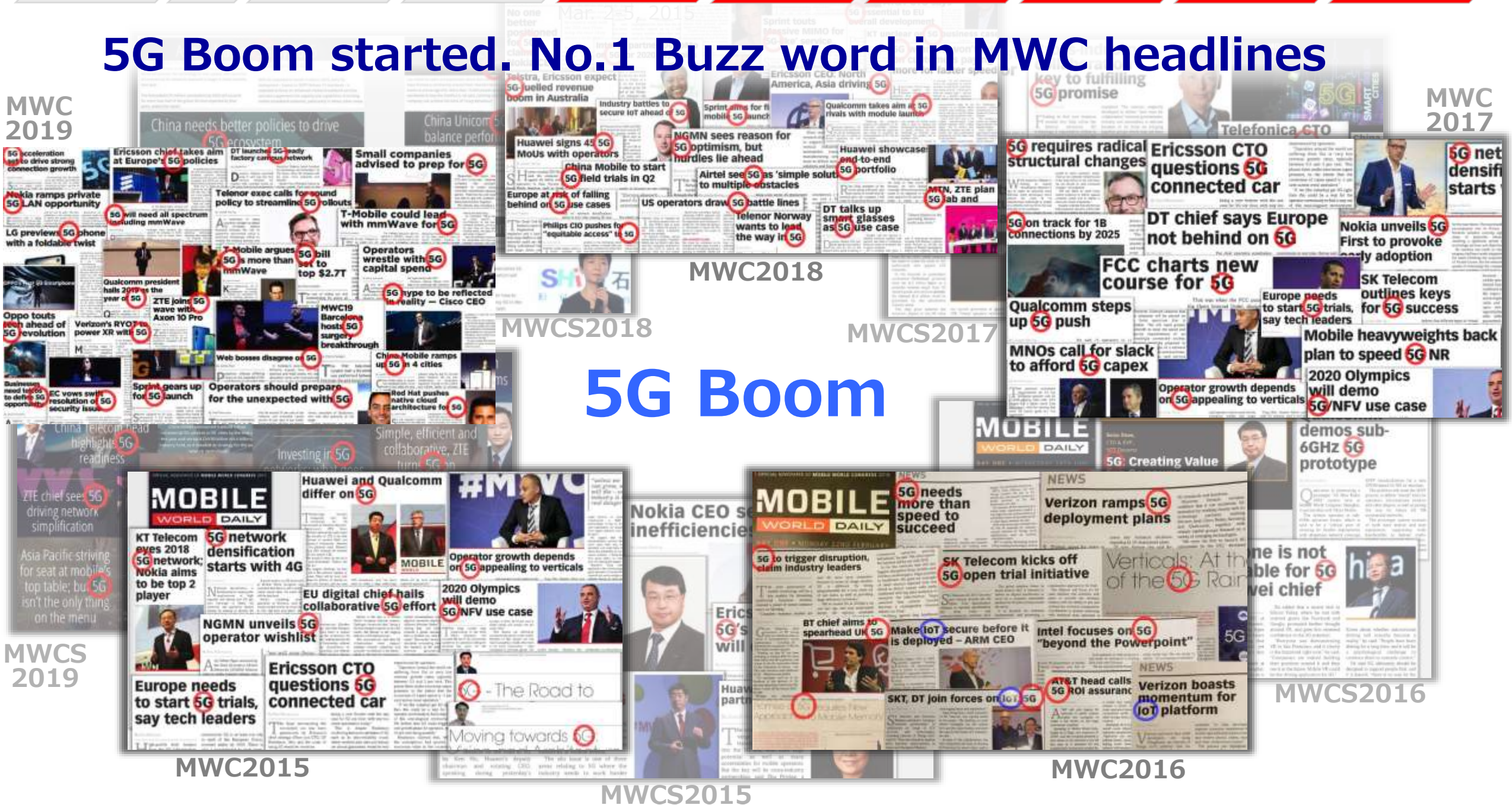
5G standard was developed based on LTE, attracting attention from various industries, and is expected to create new businesses.

A natural evolution from 4G LTE

Positive/negative aspect by 5G boom

2010 ·· 2013 2014 2015 2016 2017 2018 2019 2020

5G Boom started. No.1 Buzz word in MWC headlines



Myths about 5G

5G SIM

5G Encryption

5G Spectra

5G Roaming

5G Core Network?

People are trying to jump on the 5G bandwagon.

- **For 5G, all things need something new.**
- **5G needs significant investment.**

ITUPP
BUCHAREST2022
26 September - 14 October 2022
Bucharest, Romania
ITUPP
BUCHAREST2022
ITUPP
BUCHAREST2022

5G Bandwagon

5G

5G SIM

5G Encryption

5G Spectra

5G Roaming

5G Core Network?

Let’s get on the 5G bandwagon

and create new business models through the collaborations across industries.

The cross-industry collaboration will be the key to success for 5G.
6G discussion has begun: Hope to discuss standards for sustainable further evolution for 6G and after.

Topics

- ITU
- Thought on Standardization
- History of Generations: 1G to 5G
- Future Beyond 6G toward 12G
- A thought on
  Mobile networks and Generation

ITU-R M.2160 on the "IMT-2030 Framework" (November 2023)

FIGURE 1

Usage scenarios and overarching aspects of IMT-2030

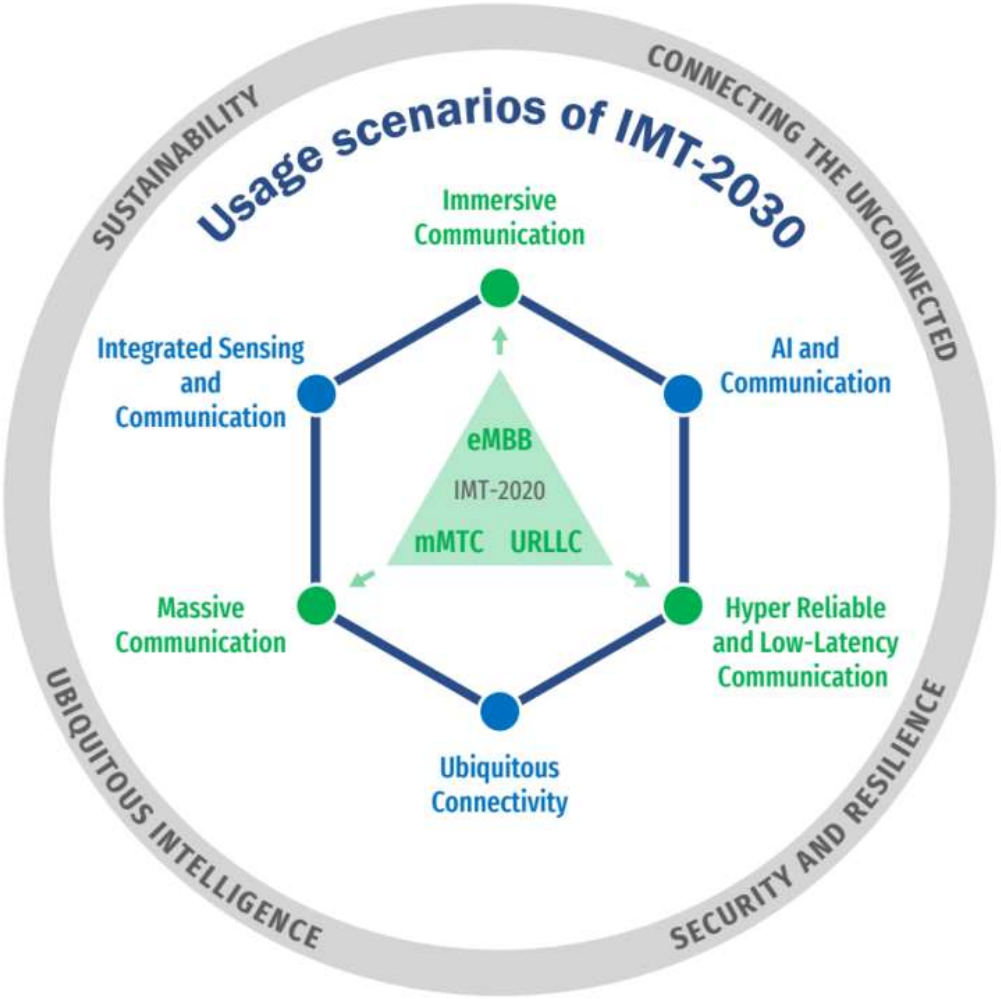
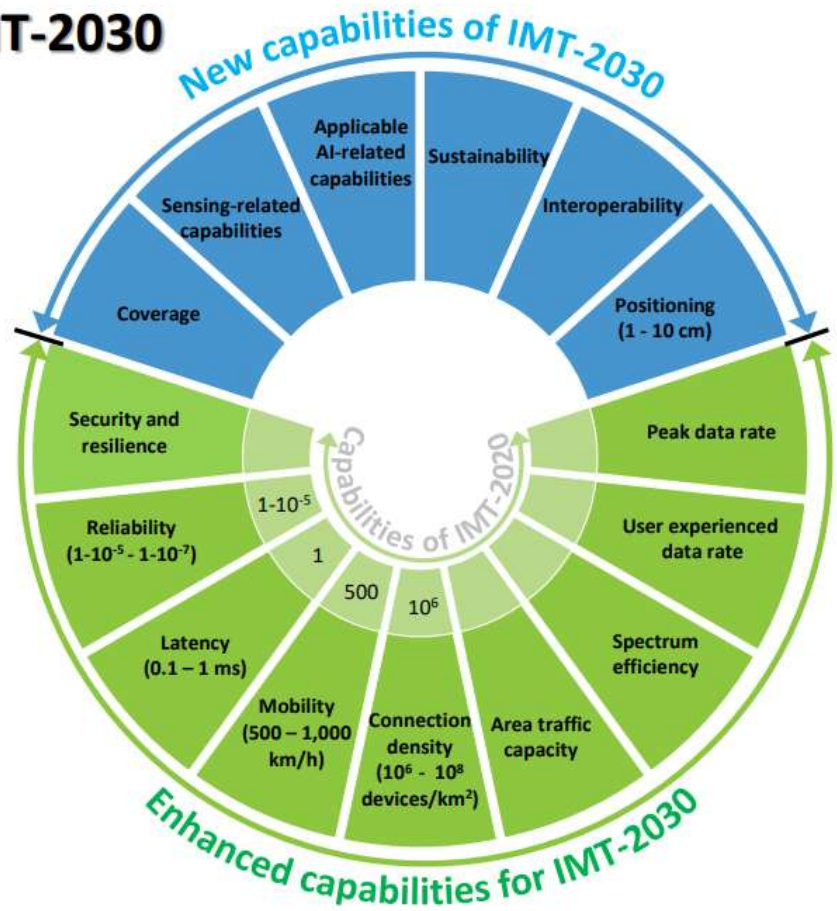
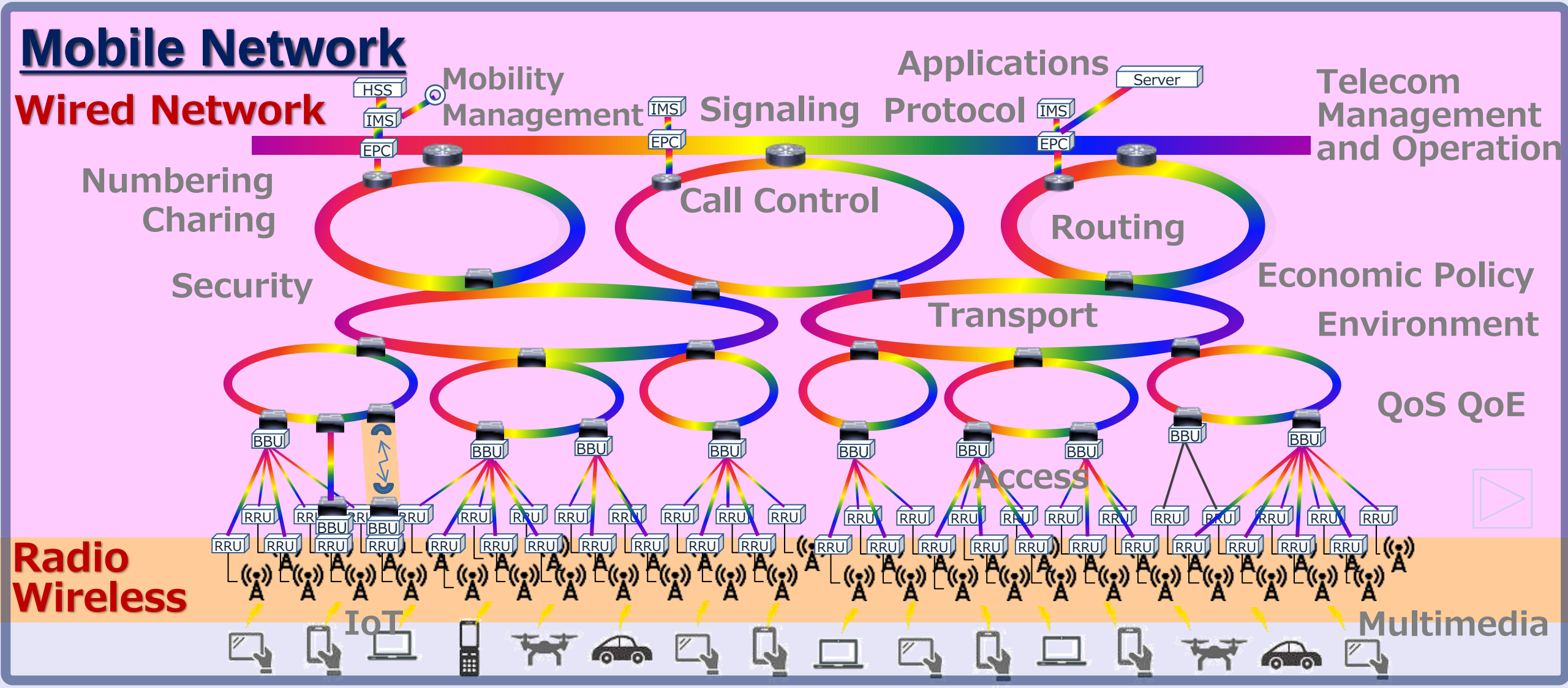


FIGURE 2

Capabilities of IMT-2030



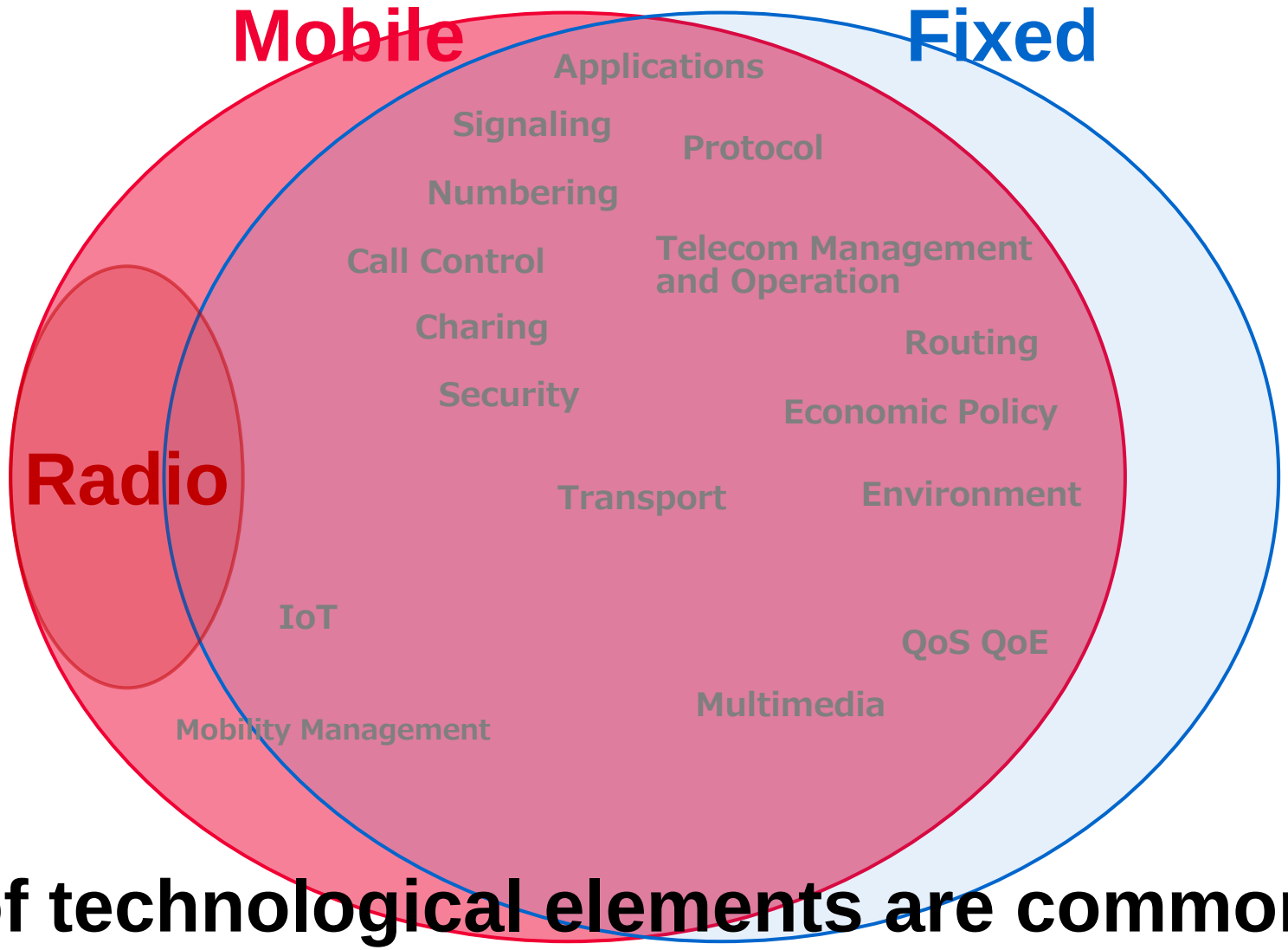
Mobile in Telecom Networks



Mobile networks consist of many technological elements.

Many of them are evolved independently of generations.

Mobile and Fixed Network



Resolution 92

Most of technological elements are commonly used for Mobile and Fixed network services.

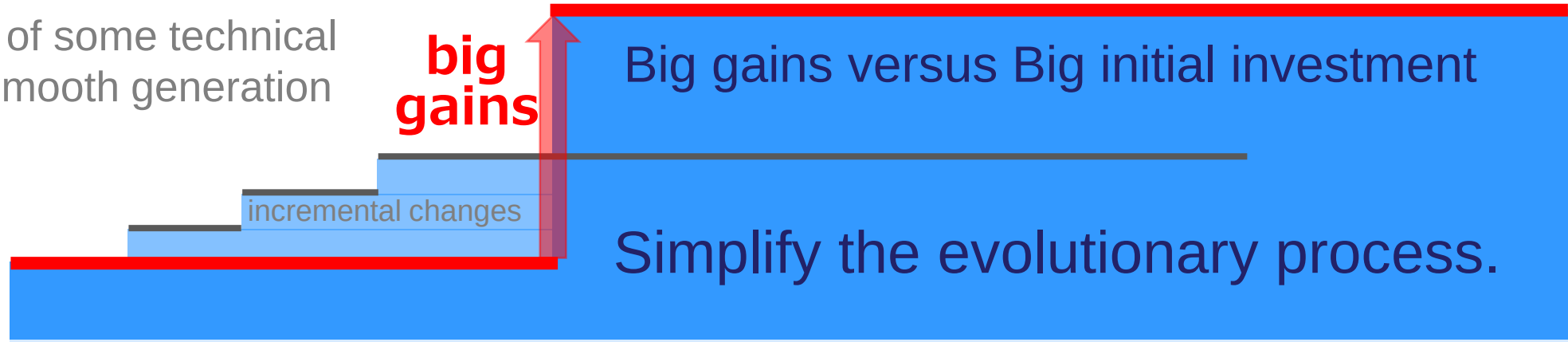
➢ A thought on Generation

Generation: A set of technologies for big gains

New generations serve as opportunities to introduce new technologies and are expected to evolve with substantial gains collectively in a single step, rather than making incremental changes over multiple steps.

The greater the past investment, the greater the value of asset reuse.
Independent evolution of each element becomes increasingly important

Independent evolution of some technical elements may help a smooth generation transition.



Generation: Marketing gimmicks to make boom,

stimulate investment, attract interest, create business opportunities.

Conclusion

- Outreach worldwide: Standardization becomes meaningful only when standards are widely spread.
- Pursue the sustainable and meaningful evolution of the mobile generation without being misled by marketing.
- Contribute to the evolution of generations by pursuing the evolution of generation-agnostic technological elements.

Thank you