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Broadcasting trends

Terrestrial Services

Radiocommunication Bureau

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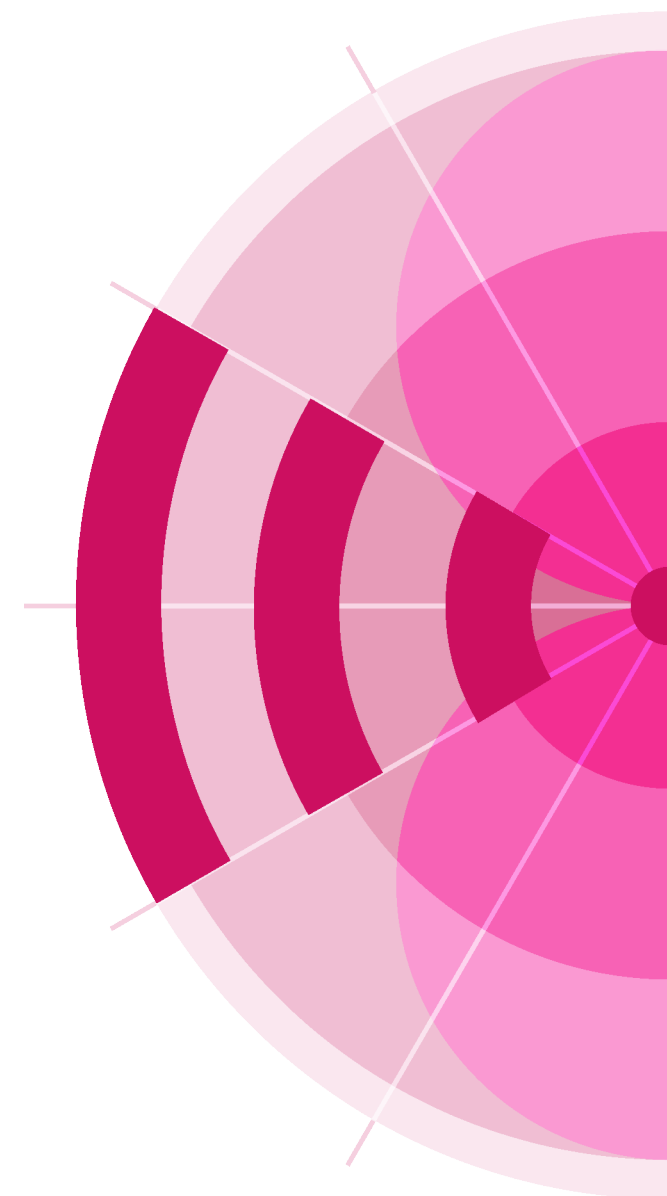
Summary

- The digital revolution
- Digital broadcasting advantages
- Achievements in Digital broadcast
- Looking at the future
- Role of Radio and TV in COVID-19 pandemic

Digital Broadcasting

➢ **For regulators**

  ➢ fair competition: To develop a terrestrial platform competitive with the other platforms,

  ➢ efficiency of spectrum (1 frequency for multiple programs) that provides the possibility to free a part of the band for other usage.

➢ For **TV operators and content providers:** significant decrease in

  ➢ transmission (operation) costs comparing to analogue,

  ➢ investment and transmission costs and permits the development of new innovative services without spectrum constraints (mobile TV , data, games, interactivity, VoD,...), UHD, Hybrid TV Integrated Broadcast-Broadband (IBB) systems, Artificial Intelligence, AR/VR, etc…

➢ For **users**:

  ➢ Additional number of programs

  ➢ Additional reception modes (fixed, portable, mobile…)

  ➢ Improved quality of image and sound

  ➢ Additional type of services: interactivity, Electronic Program Guides, etc.

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Broadcasting Standards

FIXED TERRESTRIAL DTT: ATSC, ATSC3.0, DTMB, DVB-T, DVB-T2, ISDB-T…

MOBILE/HANDHELD DTT: ATSC-M/H, DTMB, DVB-H, DVB-T2 LITE, ISDBT-MM, T-DMB…

RADIO (DSB): DRM, DRM+, DAB, DAB+, ISDBT-TSB, T-DMB, HD RADIO, IBOC,…

COMPRESSION TECHNIQUES: MPEG4/H.264, HEVC/H.265, VVC/H.266

NEW

VVC/H.266: Versatile Video Coding

Half the bit rate of HEVC. → will reduce the amount of data necessary to enable high-quality video for an unprecedented range of new and existing applications. Ex: same bit rate to deliver UHD as it is for HD today.

HYBRID TV
INTEGRATED BROADCAST-BROADBAND (IBB) SYSTEMS

- Based on the combination of the technologies of both **broadband and broadcasting**.

- **Different standards** such as HbbTV, hybridcasdt or MHEG-5

- **Typical hybrid devices** are: Internet-connected TV sets and set-top-boxes, PCs with broadcast tuners and mobile phones with broadcast receivers

Recommendations ITU-R :

- BT.2037: General requirements of IBB systems

- BT.2053: Technical requirements for IBB systems and various aspects of IBB systems including App. types and App. control are analyzed and defined

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BETTER VIEWER EXPERIENCE

- Ultra High Definition Television (UHDTV)

- High Dynamic Range (HDR): result will be a greater sense of realism for viewers, giving television images a richer and more dynamic quality

- Wide Colour Gamut and High Frame Rate (Recommendation ITU-R BT.2020)

HDR+ off   HDR+ on

World's First High Frame Rate HLG, HDR Designed
Rendering 100/120 Frames per Second

ADVANCED IMMERSIVE AUDIO-VISUAL (AIAV) SYSTEMS, INCLUDING VIRTUAL REALITY AND AUGMENTED REALITY (VR/AR)

- Trials have taken place at major international events such as the 2016 Rio Olympics, the 2018 PyeongChang Winter Olympics and of course, the recent 2018 Football World Cup in Russia…

- Inclusion of 360-degree live video

- Report ITU-R BT.2420 describes the technical background and the definitions used for AIAV systems.

- Recommendation ITU-R BS.2051, Advanced sound systems for programme production, to include headphones associated with metadata, which are a vital part of the AIAV systems experience.

Users will have immersive experiences with "an unprecedented degree of presence" caused by tricking the brain's perceptual systems so users believe they are really somewhere else or even someone else.

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Radio types

- Analogue Radio:
  - FM Radio, LF/MF, HFBC
- Digital Radio is the delivery of radio content using digital technologies, both digital broadcasting technology and Broadband
  - DAB/DAB+, DRM, …, and
  - streaming of radio services over internet.
  - Radio receivers in Smartphones/tablets (Free, No need for Mobile data, no need for connection, saving battery energy,…)

BROADCASTING: LOOKING AT THE FUTURE

ARTIFICIAL INTELLIGENCE AND BROADCASTING (1/2)

- Artificial Intelligence (AI) refers to the capacity of computers, machines and devices to process and treat information in a similar way to humans including learning processes, decision making and problem resolution.

Uses of AI in broadcasting-related fields:

- Programme production:
    - Big data analyses
    - Automatic translation
    - Text-voice/voice-text conversion
    - Object tracking
    - …

ARTIFICIAL INTELLIGENCE AND BROADCASTING (2/2)

- **Audio and visual aspects**

• Metadata: AI, through speech and image recognition can create metadata information associated with any content. AI takes metadata to the next level through machine learning, providing classification or groupings of content. This can be further improved by creating trends using **neural networks**; for example, associating content with its popularity among age groups. [If you doubt the ability of AI in this field, remember the UK Royal Wedding where each celebrity was tagged in real time based on AI]

  ▪ Subtitling and Close captioning

  ▪ Break Structure or Advertising: Identifying relevant advert placement alongside content.

  ▪ Presenting the News (by a humanoid AI, and even react to breaking news)

- **Programme assembling and access: AI-powered indexing and searching,** Audio and video data compression, Early warning of emergencies, Access service for people with disabilities, …

- **Broadcast emission:** Network planning, System monitoring and diagnosis, …

- **Report ITU-R BT.2447**: Artificial intelligence systems for programme production and exchange

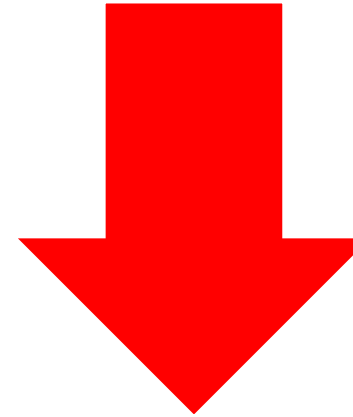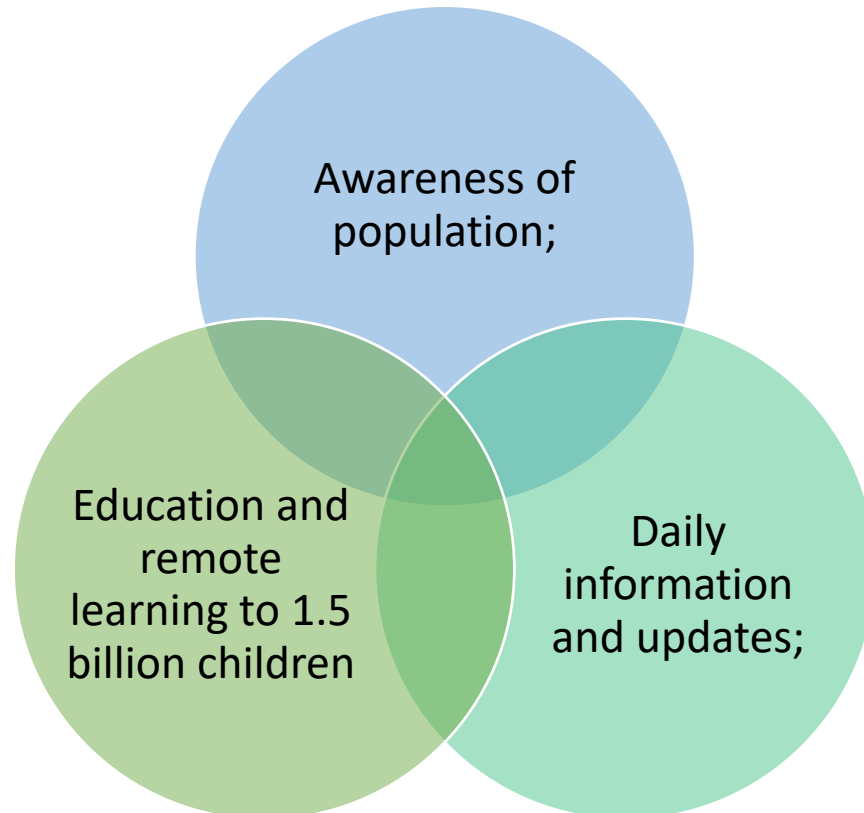**ITUWRS** ONLINE2020
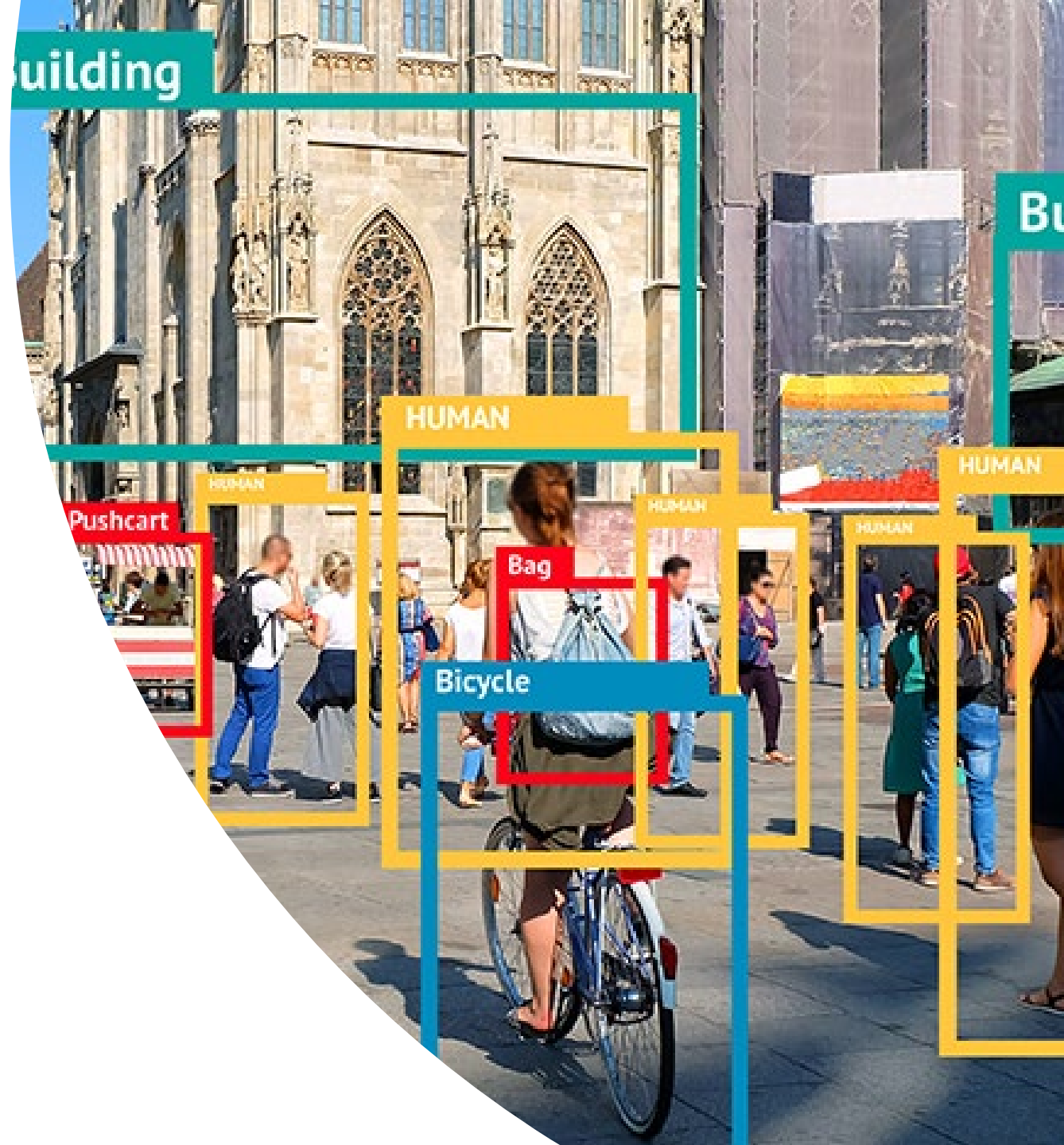
Terrestrial Radio and TV

- **Strengths**
  - Free to air
  - public warning, disaster mitigation and relief (**Report ITU-R BT.2299-0**).
    - It is an extremely effective way of delivering information in rural and remote areas where information can educate, and even save lives in emergency situations such as the current COVID-19 pandemic.
  - wide public, reception is always possible, both in cities and rural areas.

- **Challenges**
  - the expansion of radio whether analogue or Digital is hampered by lack of frequencies (congestion).
  - for UHF television in Region 1, a.i. 1.5 of WRC23 (Review the spectrum use and spectrum needs of existing services in 470-960 MHz).

Radio and Television during COVID-19

Awareness of population;

Education and remote learning to 1.5 billion children

Daily information and updates;

An estimated 3.6 billion people remain without access to the internet
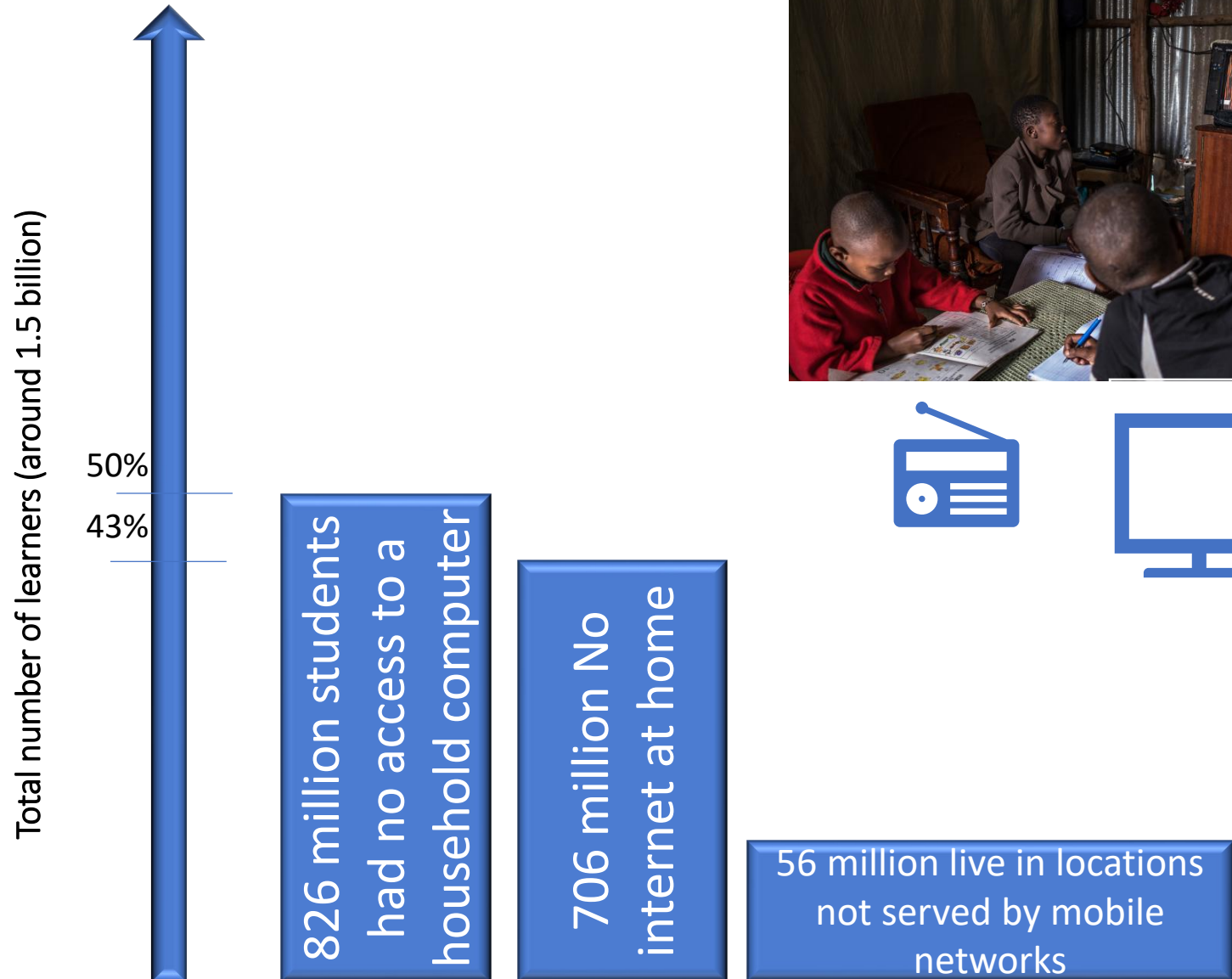
among those currently counted as being 'connected', a number still lack access to devices, affordable packages and speed of service.

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Radio and Television during COVID-19

Due to insufficient connectivity and technological divide, 'traditional' mass media channels, have been recognized to reach a wider number of learners, particularly the most vulnerable and as a result, globally, 92 countries have reported using television or radio programmes. Specifically, in the LAC region, 36% of countries are using TV and 15% of countries radio solutions.

Source:

Total number of learners (around 1.5 billion)

50%

43%

826 million students had no access to a household computer

706 million No internet at home

56 million live in locations not served by mobile networks

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Thank you!

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Questions to brmail@itu.int
or brbcd@itu.int

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