e-health and e-learning

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Agenda

- Digital Strategies
- e-health, e-learning strategies
- Use cases and examples
- Conclusion

Key Success factors for Digital Strategies

- Political support and coordination between different Ministries
- National and regional plans including financing mechanisms
- High-speed, high-quality digital infrastructure and services
- Implementation of new technologies
- Demand creation (including digital skill programs)

National Strategies

- Digital Strategy (including health and education)
- e-health and e-learning strategies
- Digital Infrastructure and Broadband Strategy
- Strategies for new technologies (AI, 5G, Wi-Fi 6 etc.)

Strategies for e-health and e-learning

- Development and implementation of national strategies
- Implementation of new technologies (AI, IoT, 5G, Wi-Fi 6 networks, and other technologies)
- Digital Infrastructure, high-speed broadband connectivity (including digital hospitals, digital schools)
- Affordable Device Programs (especially for low-income students and households)
- Digital content, platform development and service provision
- Digital Skill Programs
- Financing Mechanisms (including Universal Service Funds, Development Banks)

National and Global e-health Strategies

- WHO Global Strategy on Digital Health and National eHealth Strategy Toolkit i) https://www.who.int/docs/default-source/documents/gs4dhdaa2a9f352b0445bafbc79ca799dce4d.pdf ii) https://apps.who.int/iris/handle/10665/75211
- USAID's Vision for Action in Digital Health https://www.usaid.gov/policy/digital-health-vision
- South Africa National Digital Health Strategy https://www.health.gov.za/wp-content/uploads/2020/11/national-digital-strategy-for-south-africa-2019-2024-b.pdf
- Saudi Arabia Digital Health Strategy; https://www.moh.gov.sa/Ministry/vro/eHealth/Documents/MoH-Digital-Health-Strategy-Update.pdf
- Australia National Digital Health Strategy; https://www.digitalhealth.gov.au/sites/default/files/2020-11/Australia%27s%20National%20Digital%20Health%20Strategy%20-%20Safe%2C%20seamless%20and%20secure.pdf
- Brazil National Digital Health Strategy https://bvsms.saude.gov.br/bvs/publicacoes/strategy_health_digital_brazilian.pdf

Use Cases for AI in Healthcare and Life Sciences

AI in Medical Imaging

Precision Medicine

Predictive Analytics

Lab Automation

AI-Enabled Robotics

AI in Telemedicine

5G Connected Health Use Cases

Remote Specialty Treatment

Connected Ambulances

Collaborative Care

Continuous Health and Wellness

Italy - 5G Demos in Milan

5G connected ambulance

Live remote-operated surgery

https://www.vodafone.com/business/news-and-insights/blog/gigabit-thinking/remote-surgery-robotics-and-more-how-5g-is-helping-transform-healthcare

Digital Learning Strategies

UNESCO

- Digital technology has become a social necessity to ensure education as a basic human right.
- UNESCO Supports its Member States to design, integrate and implement effective national policies and masterplans on digital learning with a special focus on disadvantaged populations.
- Half of the total number of students (826 million) – kept out of the classroom by the COVID-19 pandemic, do not have access to a household computer and 43% (706 million) have no internet at home.
- Guidelines for ICT in education policies and masterplans; https://unesdoc.unesco.org/ark:/48223/pf0000380926

BROADBAND COMMISSION REPORT ON DIGITAL LEARNING (Hybrid Learning)
https://www.broadbandcommission.org/working-groups/digital-learning-2021

- Hybrid learning enables students to study in flexible ways, online (remote) or face-to-face.

Recommendations include;

- Promote hybrid learning to recover from the pandemic, reimagine education, and narrow the digital divide; Hybrid learning combines face-to-face instruction with computer-mediated pedagogies. Models of hybrid learning should be developed to support inclusive education as a public, common good.
- Adopt a national strategy for digital skills development for life, work and lifelong learning; To overcome the social and economic dimensions of the digital divide, national stakeholders should define system-wide strategies to develop a skilled and digitally ready society.

African Union - Digital Education Plan

https://au.int/en/documents/20221125/digital-education-strategyand-implementation-plan

Digital Education Strategy and Implementation Plan (covers the period 2023-2028)

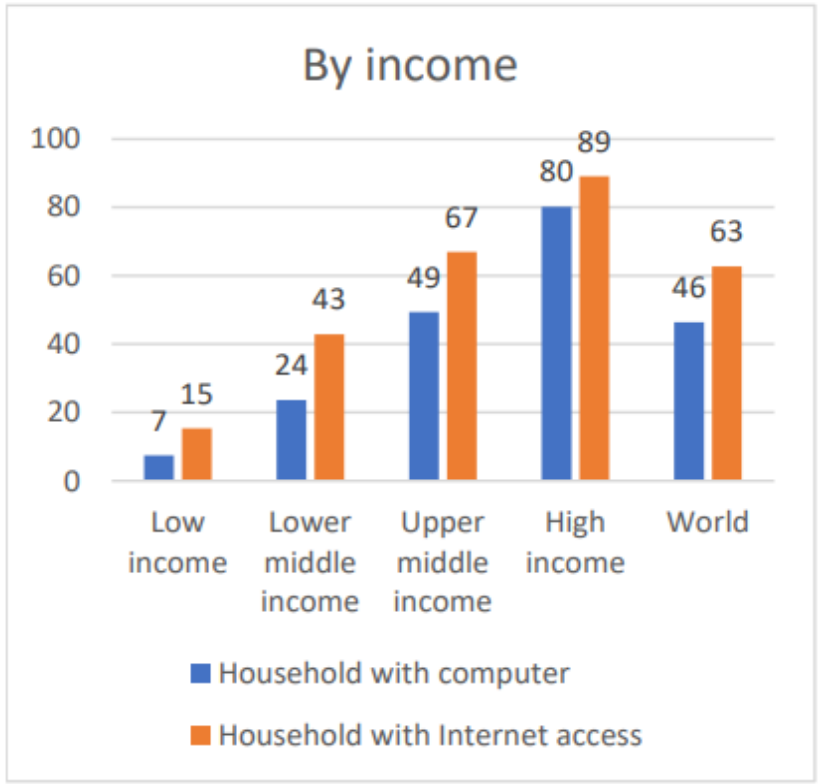
Three focus areas, nine strategic objectives and fourteen measures:

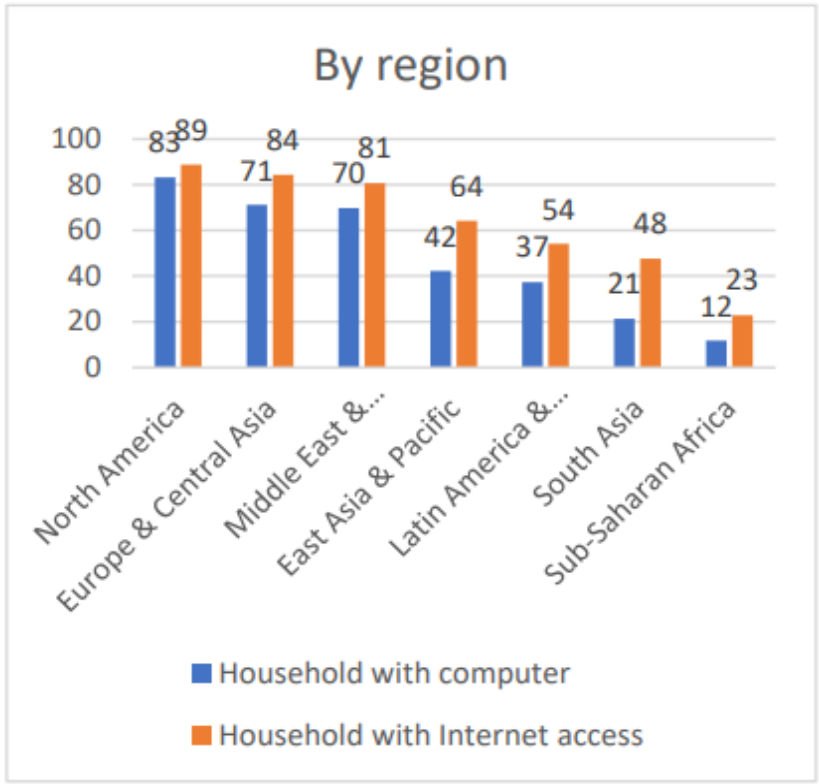
The focus areas are:

- Digital technology appropriation in education – accelerating the adoption of digital technologies for teaching, learning, research, assessment and administration,
- Education in digital technology for digitally empowered citizens/ for the digital economy and society – strengthening digital literacy and skills for all, especially for teachers and students and,
- Building the capacity of AU Member states in digital infrastructure (networks and devices) for digital education.

Importance of Broadband and Computers for e-learning

Figure 1.9: Households with a computer and Internet access (%), 2020 or latest available data





Note: Country averages.

Source: ITU.

Broadband Commission: the State of Broadband 2022

Digital Education with new Technologies in Schools

Prepare students to succeed in the world of tomorrow with educational technology solutions

Computers for Education

Artificial Intelligence

Interactive Whiteboards

Smart Classroom

Costa Rica - Connected Homes Program

- Program has been active since 2015. An ITU WSIS Prize Winner Project. Provides subsidized Internet connections and computers to low-income households (up to 80 percent of subsidy for computer and broadband).
- Financed by National Telecommunications Fund (FONATEL- Universal Service Fund in Costa Rica) is part of Telecommunications Superintendence (SUTEL), the Costa Rican telecommunications regulator.
- During COVID-19, extended the coverage of program by 46,462 additional households, thus surpassing the goal of 140,496 beneficiary households to 186,958 households
- SUTEL has also launched "Bicentennial Educational Network" for creating a broadband network throughout the country to serve all public schools and high schools (with internet service with speeds between 15 and 500 Mbps, this speed will be increased up to 1 Gbps in the coming years)

Wi-Fi 6: Government Strategies for Education

Cloud-based apps, solutions, immersive learning technologies like augmented and virtual reality require more internet connected devices than ever in schools, colleges and classrooms.

- UK Department of Education

  Guidance for wireless network standards for schools and colleges;

  -Use the Latest Wireless Standard approved by Wi-Fi Alliance

  -You should ask your supplier or in-house support team to provide a wireless solution that uses the Wi-Fi 6 standard.

- New Zealand Ministry of Education: 38,000 Wi-Fi 6 access points in 2500 New Zealand Schools

- Argentina Telecom Regulator (ENACOM), Ministry of Education and National University Council: Deployment of Wi-Fi 6 within the country's 58 national universities.

University of Michigan Wi-Fi 6E Network

(https://michigan.it.umich.edu/news/2022/06/28/u-m-first-in-nation-to-offer-wifi-6e-universitywide-accomplishment-is-an-investment-in-the-future)

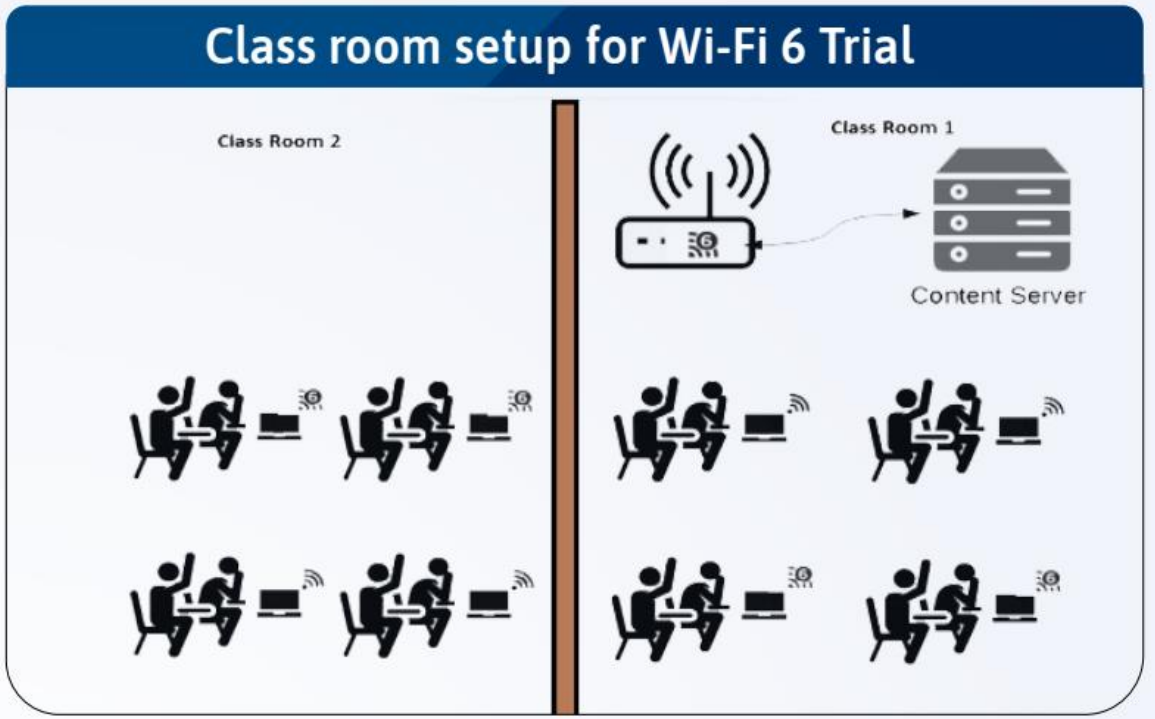
- First university in the U.S. to deploy Wi-Fi 6E, world's largest Wi-Fi 6E network with more than 16,000 access points across 225 buildings and outdoor areas.

- Delivers the performance required for all devices to access an HD video stream even in densely populated settings, such as classrooms and auditoriums. The increased performance will significantly reduce lag experienced when using real-time applications, including video conferencing and video games.

- Wi-Fi 6E will not only give community the flexibility to work anywhere on campus with a wireless connection, but also allow the university to reduce the number of wired ports and reduce its electronic waste and carbon footprint.

Wi-Fi 6 Trial in India – Education in Rural Areas

- C-DOT and Intel ran this trial which focuses on the capability of Wi-Fi 6
- 1.7 Gbps is achieved in 160 MHz
- It is recommended to upgrade the legacy network to Wi-Fi 6 network



Conclusion

- Develop and implement national e-health, e-learning strategies (digitize health and education)
- Get political support for national e-health, e-learning strategies
- Implement new ICT technologies, platforms and applications in health and education（AI, 5G, Wi-Fi 6E etc.）
- Provide high-quality, high-speed digital infrastructure (including hospitals, schools, households)
- Implement affordable broadband connectivity and device programs (such as computers) especially for low-income students and households
- Ensure the adoption and use of e-health and e-learning services by all people（digital equity）
- Implement digital skill development programs (including AI, coding for young generation)
- Develop Financing Mechanisms (including Universal Service Fund and Development Banks)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