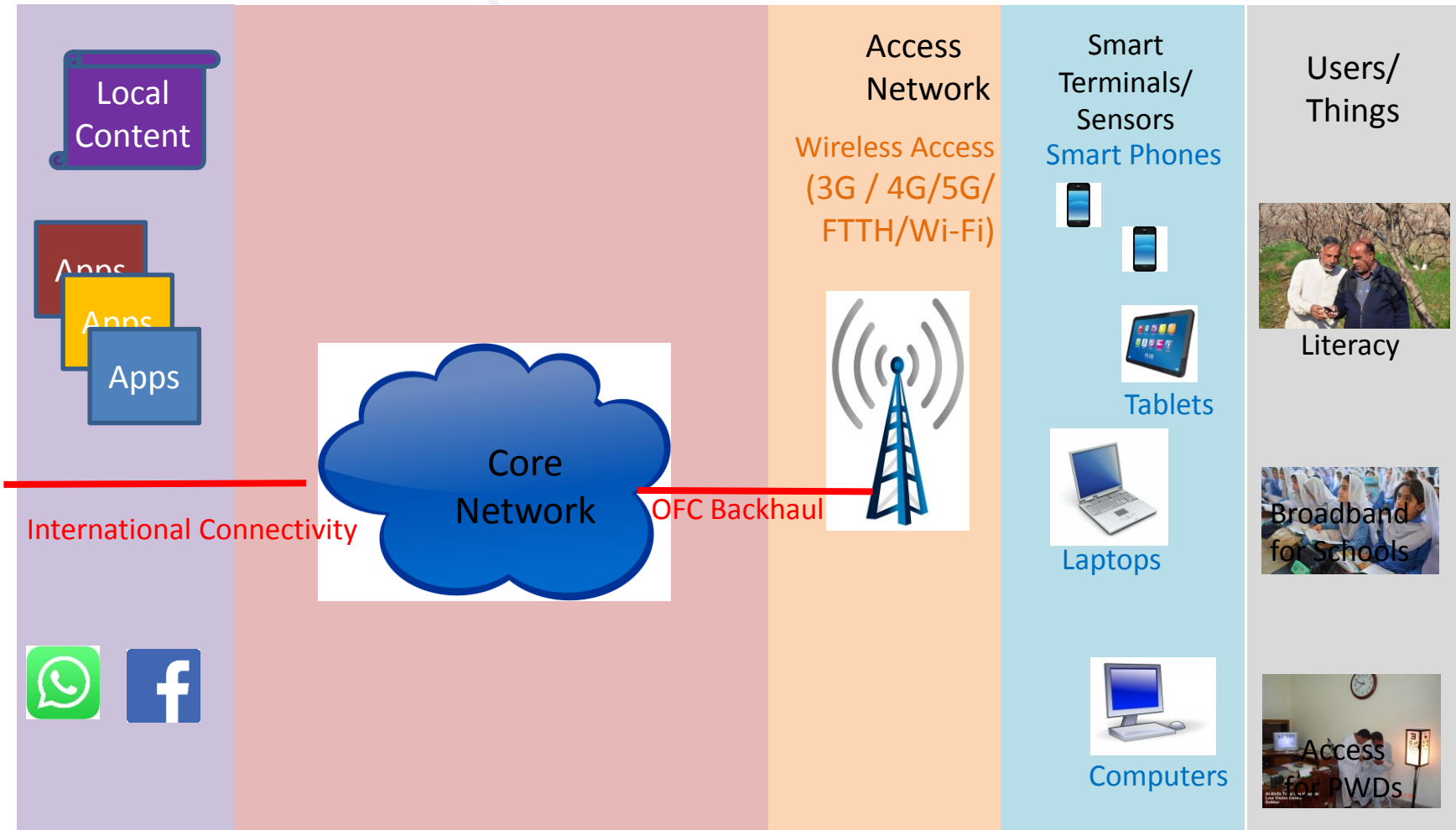# Hybrid Infrastructure and Technologies for Affordable Broadband Access

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Goal

- **Use of ICTs for making lives better**

- **Requirement**
  - **Technologies for Connectivity**
  - **Policies**
  - **Affordability**
    - **Devices**
    - **Connectivity**
  - **Applications**
    - **Communication/Entertainment**
    - **Services**
    - **Skills Development**
    - **Innovation**

Components of the Network

Local Content

Apps

Apps

Apps

International Connectivity

Core Network

OFC Backhaul

Access Network

Wireless Access (3G / 4G/5G/ FTTH/Wi-Fi)

Smart Terminals/ Sensors

Smart Phones

Tablets

Laptops

Computers

Users/ Things

Literacy

Broadband for Schools

Access for PWDs

Main Points

- **Last Mile: Technical Innovation:** Existing and new broadband technologies and infrastructure
  - mobile technologies, Cubesat for rural connectivity, Drone-based communications, Community networks, Satellite Communications, Others, e.g., Loon
- **Middle Mile: Connectivity**
  - Infrastructure projects for increased connectivity
  - Challenges and Best practices on infrastructure implementation
  - Maintaining/upgrading the networks/infrastructure
  - Financing the infrastructure
- **Affordability and accessibility** for developing countries and/or rural communities
  - Affordability and accessibility of various projects (e.g., rural communities)
  - What cost can make them more attractive for developing countries
  - What user personal devices are required
- **Usage and applications**
  - Local application development
  - Information gathering and validation to Increase Accuracy and advance development

Last Mile Technical Innovations

- Options differ from country to country (depending on what is available (power, backhaul, devices, etc)).

- Even within the country it depends on terrain

- Other panelists discussed different options

- In general these options are for backhaul, the last mile is usually cellular or Wi-Fi.

- In general if backhaul connectivity is not an issue, cellular technologies in conjunction with Wi-Fi, can be a good option for initial connectivity, but we do need the fixed network later)

- To use this option where it is feasible, we need
  - Good spectrum policies
  - Availability of low frequency bands at a lower cost
  - Availability of devices
  - Infrastructure sharing

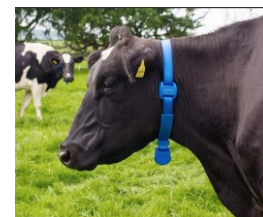# Affordable and Accessible Sustainable Connectivity

Digital Finance

Digital Security

Internet of Things (IoT), Big Data

Over-the-Top (OTT) Applications

Artificial Intelligence, Virtual/Augmented Reality

Beyond Connectivity

Policy Layer: Legislation, Enabling environment, Regulatory framework

Human Resource and Technology Layer: Users, Entrepreneurs, Technologies

Funding Layer: Investment, Business Models, Costs/Incomes

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Thank you