
Connecting Humanity
Partnership, Cooperation and Innovation

# A story during the pandemic…

During the pandemic, an employee of Huawei Pakistan was allowed to work from home.

When he returned to his hometown in the rural mountain area, he found the nearest 4G base station is 20km far away from his dwell.

To carry his duty, he set up a tent in mountainside as his remote office and carried batteries back and forth between home and tent every working day…

# Challenges and supportive measures to enhance MBB connectivity

Coverage Gap

Usage Gap

## Key Barriers of MBB Connection

| 4 Enablers | 16 Dimensions |
|---|---|
| Infrastructure | • Network coverage<br>• Meaningful connectivity<br>• Cost of deployment<br>• Spectrum availability |
| Affordability | • Mobile tariffs<br>• Handset price<br>• Disposable income<br>• Taxation |
| Consumer Readiness | • Mobile ownership<br>• Digital literacy/skills<br>• Necessity/benefits<br>• Gender equality |
| Content & Service | • Availability<br>• Local relevance<br>• Payment/identification<br>• Online security |

## 4 Readiness

**Spectrum Ready**
- Dual Sub-1GHz bands
- IMT spectrum activated

**Site Ready**
- MBB coverage
- Site density

**User Ready**
- Affordable device
- Digital literacy for usage

**Service Ready**
- Affordable MBB packs
- Sufficient local content
- Mobile payment

## 3 Engines

**National Strategy**
- Long-term plan with clear objectives
- MBB as majority
- Driven by supply and demand sides

**Smart Funding**
- PPP model
- Financial aid by USF
- Financial sustainability

**Business Model**
- Industrial collaboration
- Innovative business/ revenue model
- Profit gain required

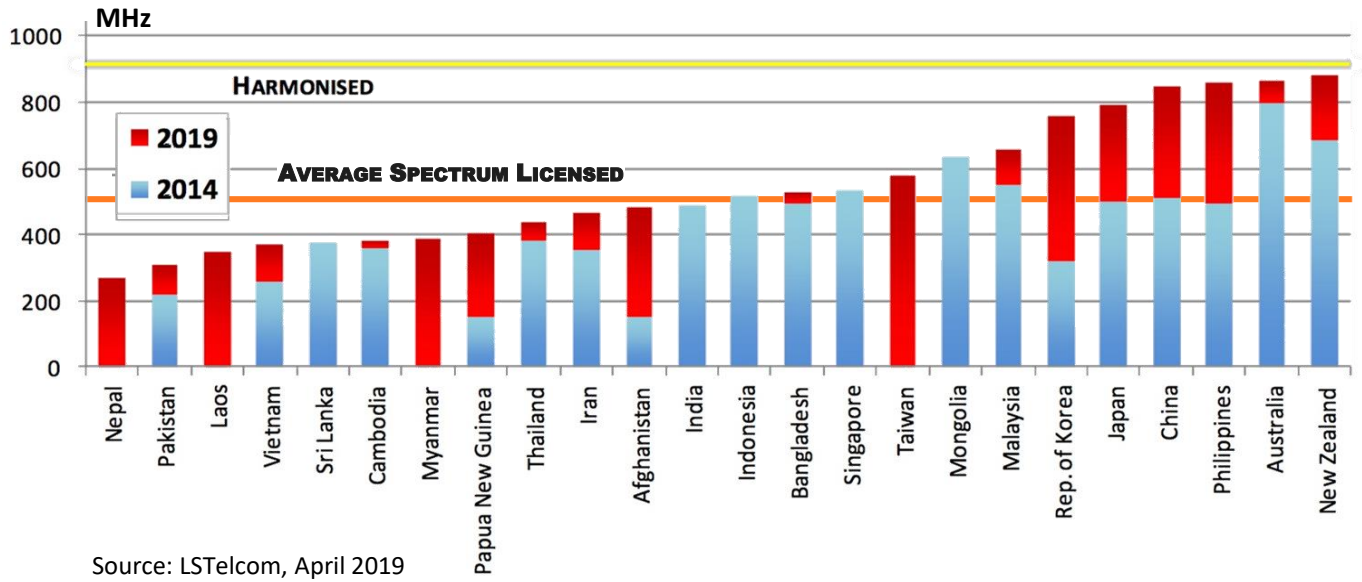
Source: GSMA, Huawei Intelligence

# Accelerate the assignment of available harmonized IMT spectrum

## Spectrum Licensed Situation by Region, 2019

| | Region1 EU/EFTA | Region 1 ASMG | Region 1 Africa | Region 1 CIS/Balkans | Region 2 | Region 3 |
|---|---|---|---|---|---|---|
| Average spectrum licensed | 757MHz | 556MHz | 477MHz | 430MHz | 426MHz | 549MHz |
| Percentage of harmonized spectrum licensed | 60% | 52% | 44% | 40% | 41% | 60% |
| Amount of spectrum yet to be licensed | 300-400MHz | 500-600MHz | 500-700MHz | 600-700MHz | 500-600MHz | 300-500MHz |

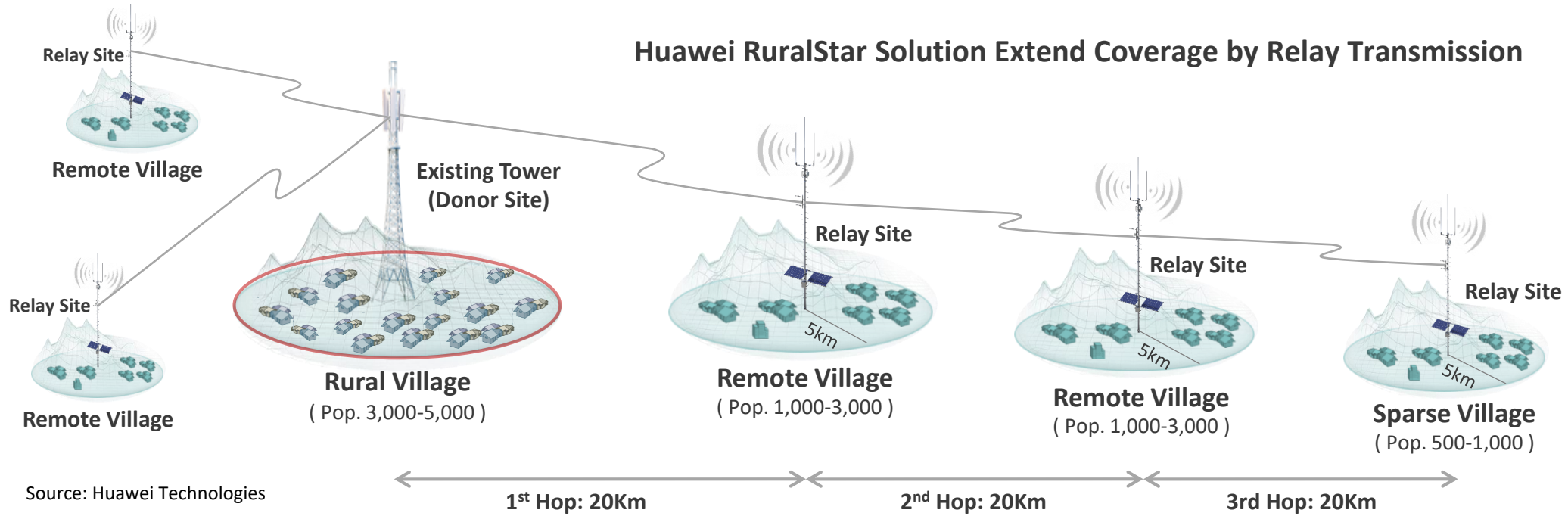
## Total IMT Spectrum Allocation by Country in Region 3




Source: LSTelcom, April 2019

- Only **40-60%** of spectrum harmonized for IMT usage has been licensed globally
- **300-700 MHz** of harmonized spectrum is yet to be licensed in each ITU region
- In region 3, **549MHz** out of 915MHz harmonized mobile bands has been licensed for IMT in 2019
- IMT spectrum licensed in most **South Asia** and **Southeast Asia** still below the region average
- **Sub-1GHz bands** (700/800/900MHz) are strategic important for its coverage **2.2X** larger than middle bands, better for removing coverage gap
- Policy on **dual sub-1GMHz bands** should put in place for better rural/indoor coverage, improving capacity in the post COVID-19 pandemic
- Imposing **technology neutrality** to encourage 900MHz refarming for LTE

# Innovative solution extend MBB coverage with extremely low cost

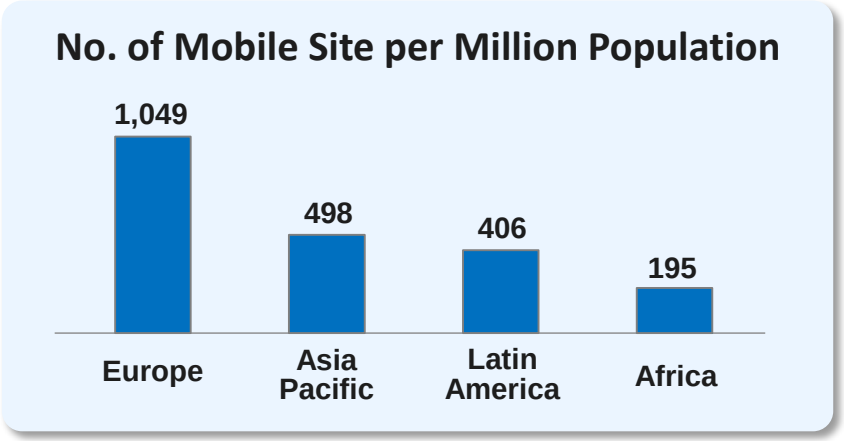


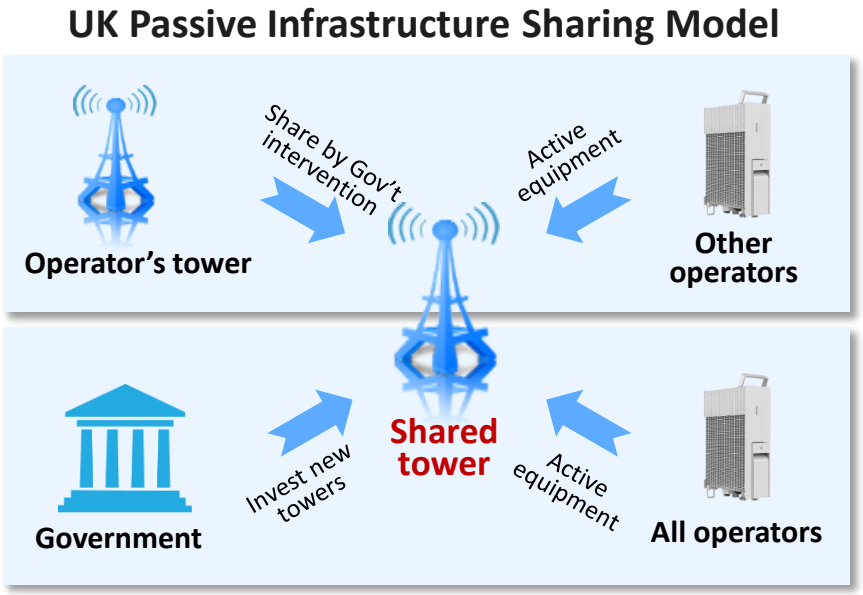

Source: Huawei Technologies

- LTE relay transmits data **60Km** away from LTE macro site through 3 relay sites, saving **30%** transmission cost compared to VSAT and MW
- NLOS relay enables simple and lower-height guyed poles available and fast deployment in **5 days**, saving **70%** cost compared to traditional tower
- In-band and out-of-band flexibility by leveraging spectrum resource, relay throughput and service quality
- Solar power and low power BTS achieves **35%** cost down compared to D.G. powered BTS

**Backhaul:** LTE NLOS relay
**Distance:** max. 60Km@3 hops
**Capacity:** max. 80Mbps@20MHz
**Spectrum:** in band / out of band
**Infrastructure:** monopole/guyed pole
**Power:** solar
**Relay BTS:** radius 3-5Km/GUL
**Cell edge throughput:** max. 10Mbps
**Service type:** MBB / FWA
**O&M:** visual remote management

# Enforcing government intervention on infrastructure sharing



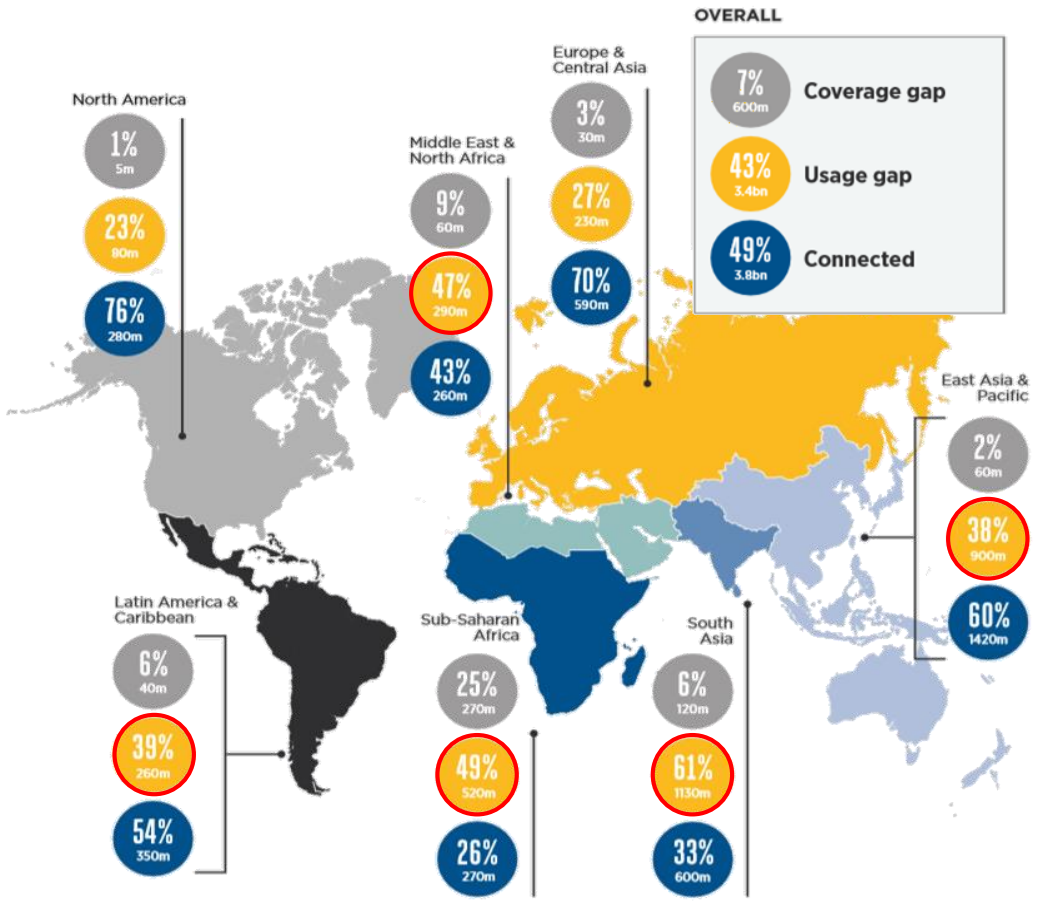




Source: Huawei Intelligence

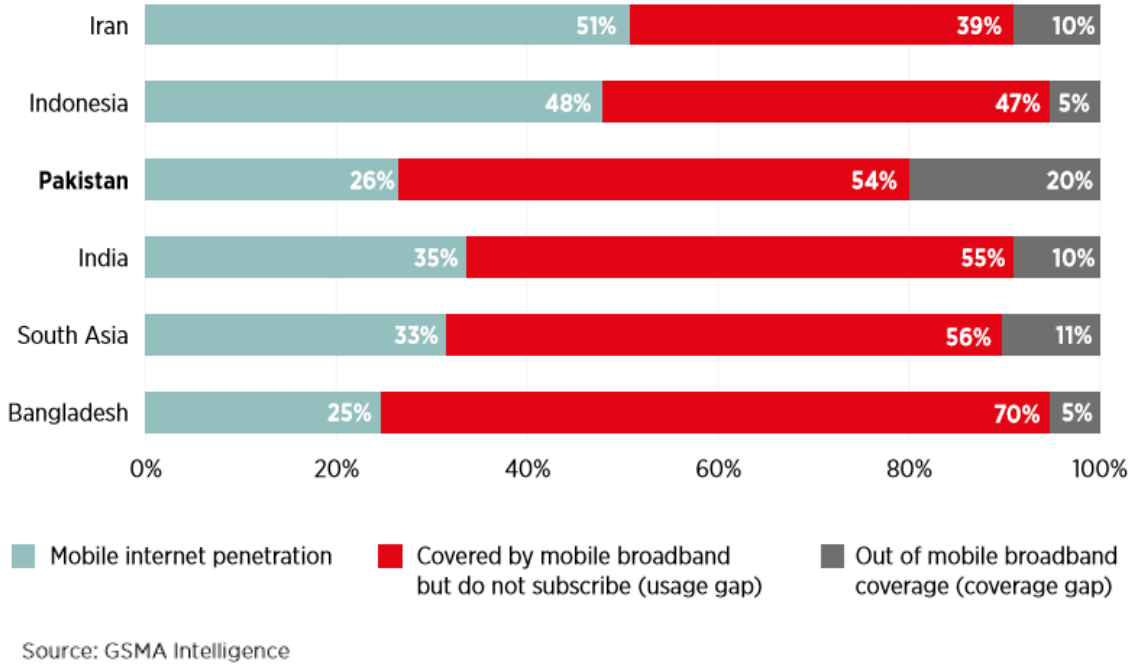
- The **sites density** of mobile base station largely influence the quality of mobile internet and services network could support
- The site density in Europe is equivalent to **2x** of which in Asia Pacific, also reflect the level of user affordability and difficulty of site acquisition
- **Tower sharing** should be enforced by government intervention by means of imposing **infrastructure sharing obligation** or regulatory incentives such as **public subsidy**, **spectrum fee reduction** to encourage operator sharing their resources
- UK Ofcom provides spectrum fee reduction on 700MHz in exchange of tower sharing of each operator
- **Public funding** on passive infrastructure in the white area are popular in rural NBN projects to provide FBB or MBB services
- Active infrastructure sharing such as RAM sharing has already piloted in several countries

# Usage gap should be tackled immediately in the developing world

### State of Mobile Internet Connectivity by Region, 2019

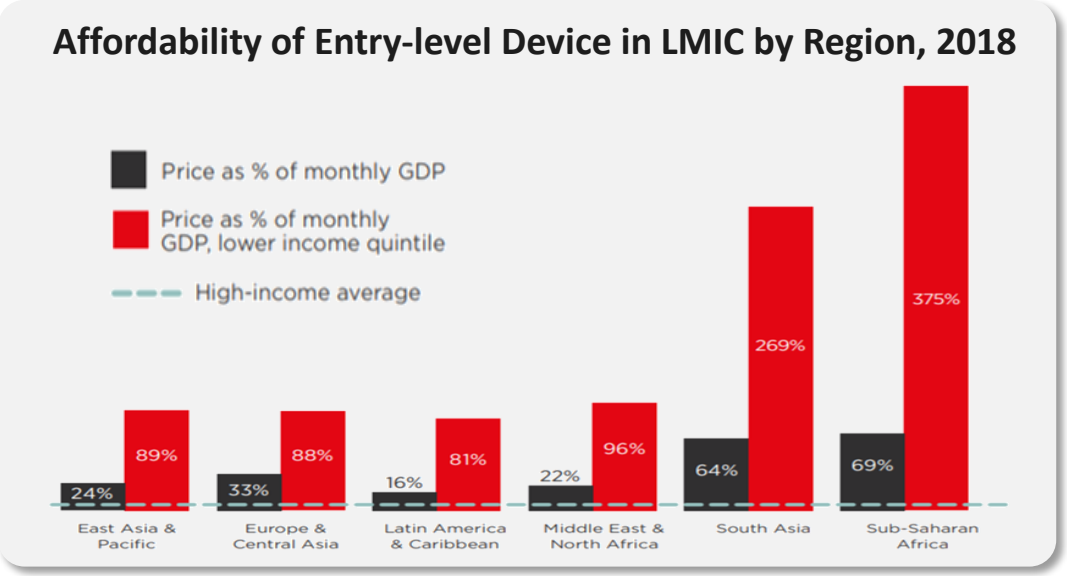



### State of Mobile Internet Connectivity in South Asia, 2019




Source: GSMA Intelligence

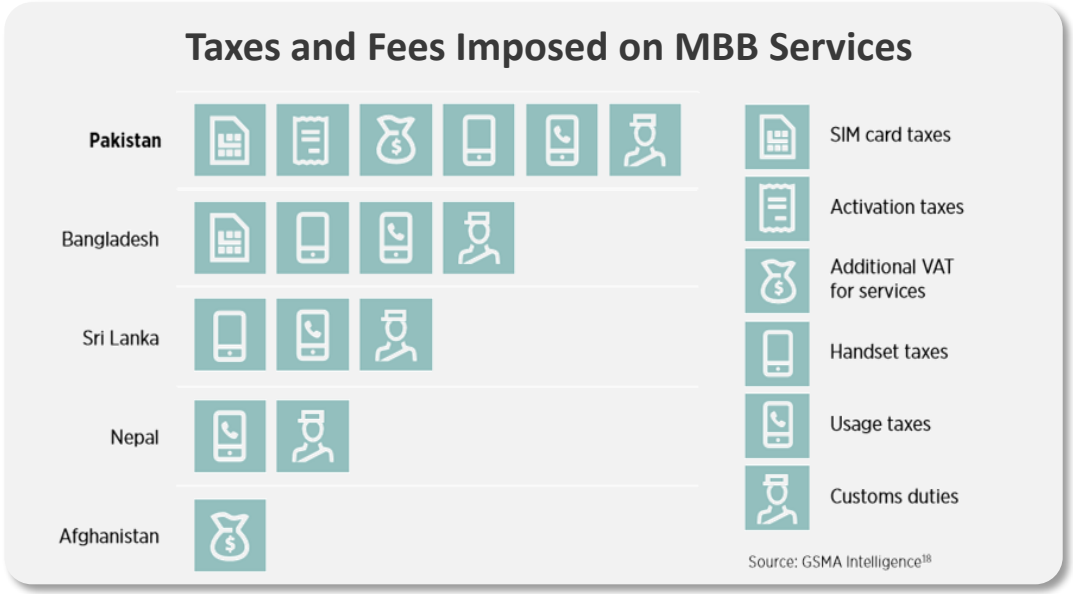
# Lowering MBB entry barrier by cooperating the industry



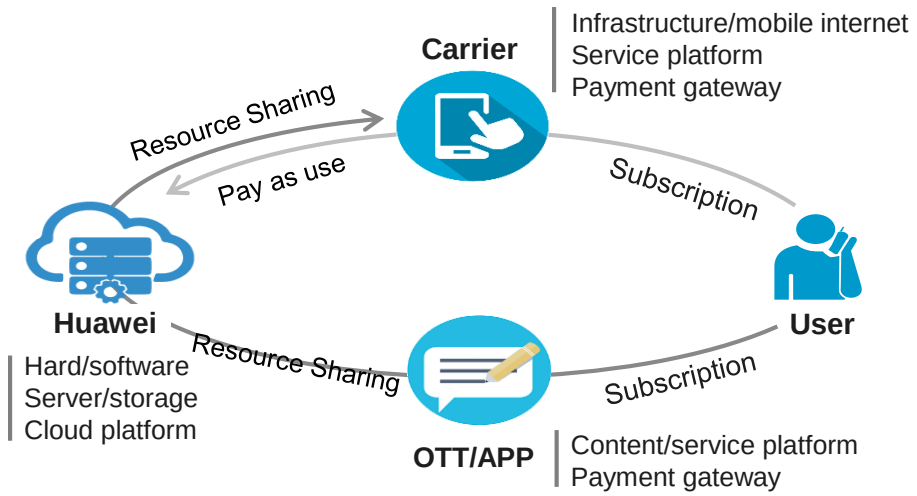

Source: GSMA, the State of Mobile Internet Connectivity 2019


Source: Huawei Intelligence

- Huawei manufactures handsets above **$50** and help carriers with ability to sell entry-level handsets to low income customers by cooperating the industry
- Bridge carriers/distributors and local brands or OEM/ODM manufacturers to provide carrier- or distributor-brand handsets, saving marketing and channel costs
- Urge government to simplify taxation and reduce cost of tax, especially custom duty and GST, which account **20-30% of TCMO** in some Asian countries (global average 19%)



# Business model innovation turning over the digital inequality





- Cooperating with OTT/APP players and local carriers to provide service packs attracting **unconnected users**
- **Resource and revenue sharing** model instead of contract sales to reduce user barrier on accessing useful information and services
- Infotainment **UGCs** such as video-sharing social network, live stream video, gaming as the pilot
- Free accessing **PGCs** such as e-Government, e-Education, e-Health, e-Agriculture services could be included in phase 2
- **Free** or **government paid** public services as anchor revenue enabling project financial feasibility
- Huawei Tech4All initiative enables people living in rural area with digital skill to access internet by partnership with UNESCO and NGOs
- The "**skills on wheels**" provides connectivity and digital training courses through ICT-equipped mobile classrooms converted from shipping containers or training buses
- Huawei ICT solution + carrier network + designed course + trained teachers together enable rural people and women digital skills for more employment opportunity

# Thank you

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