

# **QSDG Workshop on Telecommunication Service Quality as Enabler of the Digital Economy**

Singapore, 19-21 August 2019

## **Telecommunication QoS's role in digital economy – A perspective from Vietnam**

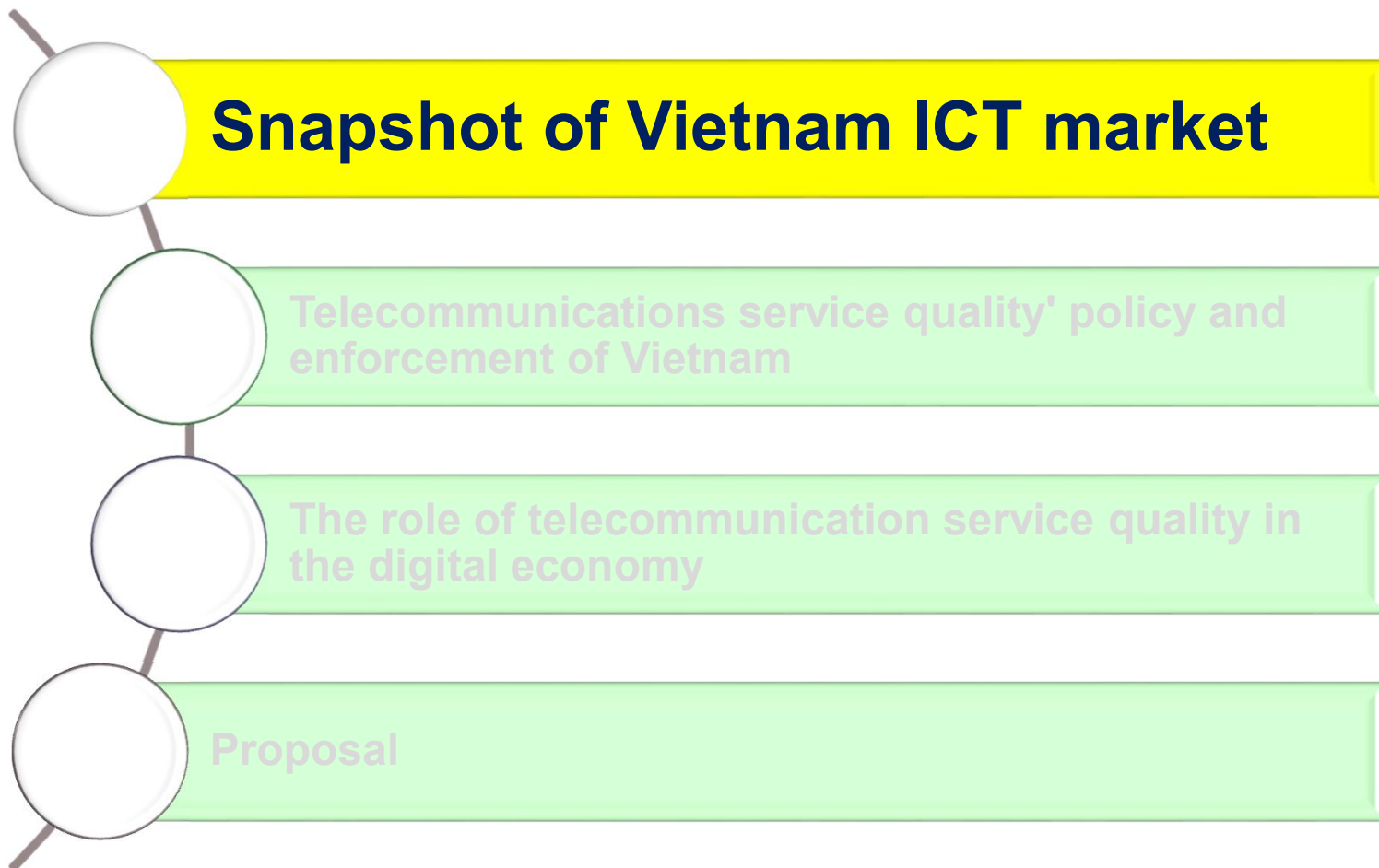


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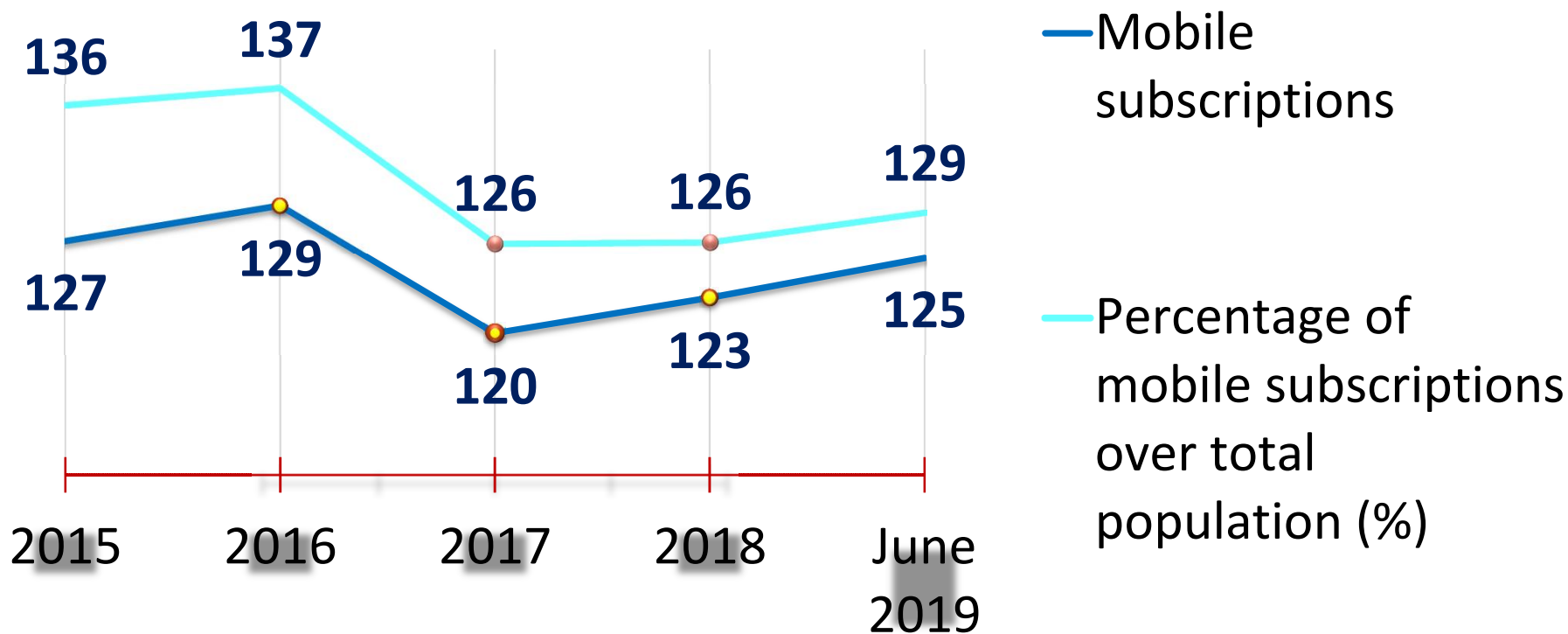






# Snapshot of Vietnam ICT market

## Mobile subscriptions



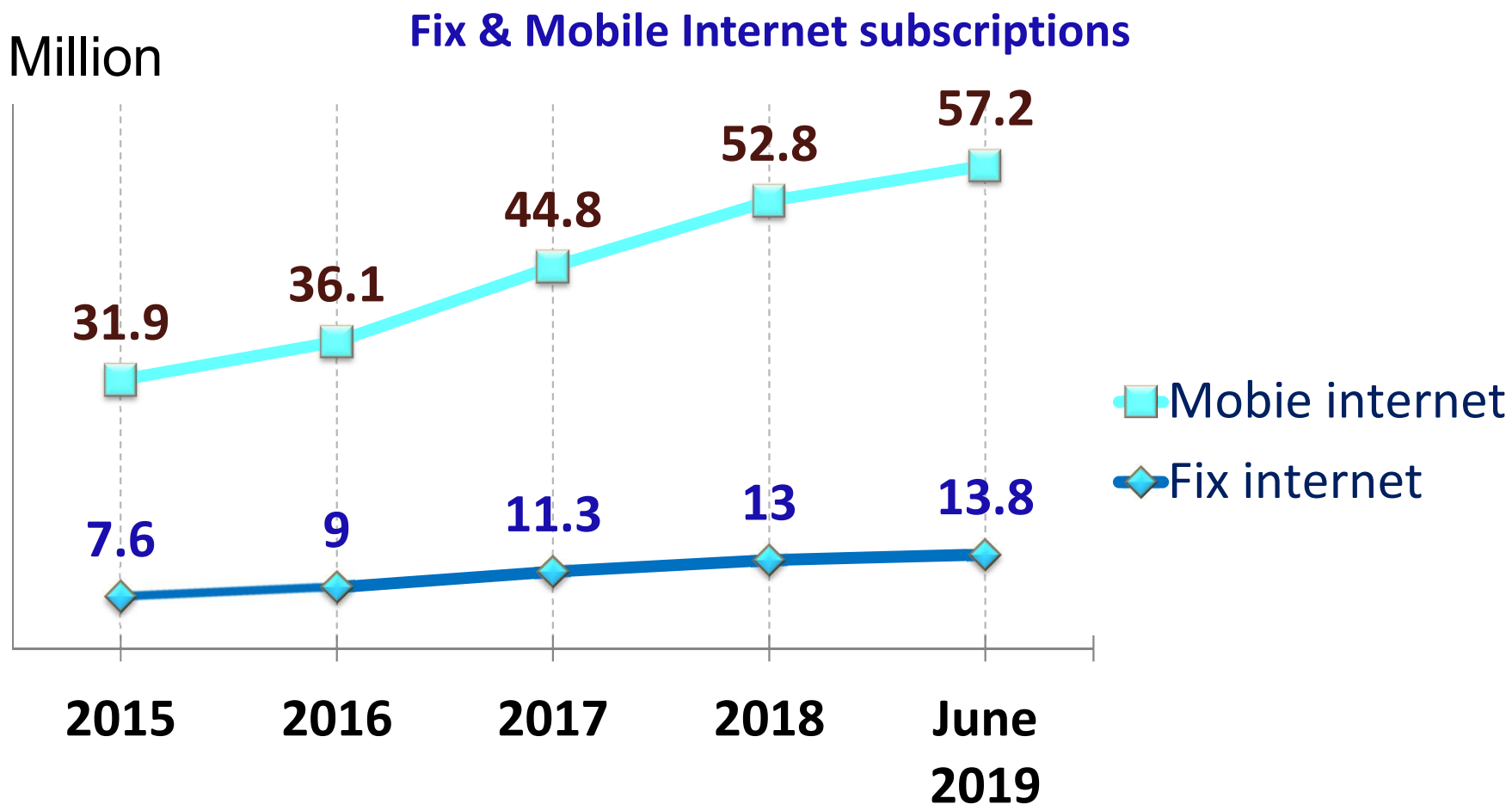
*SMP service provider: Viettel*

*(Source: [vnta.gov.vn](http://vnta.gov.vn))*





# Snapshot of Vietnam ICT market



(Source: [vnta.gov.vn](http://vnta.gov.vn))



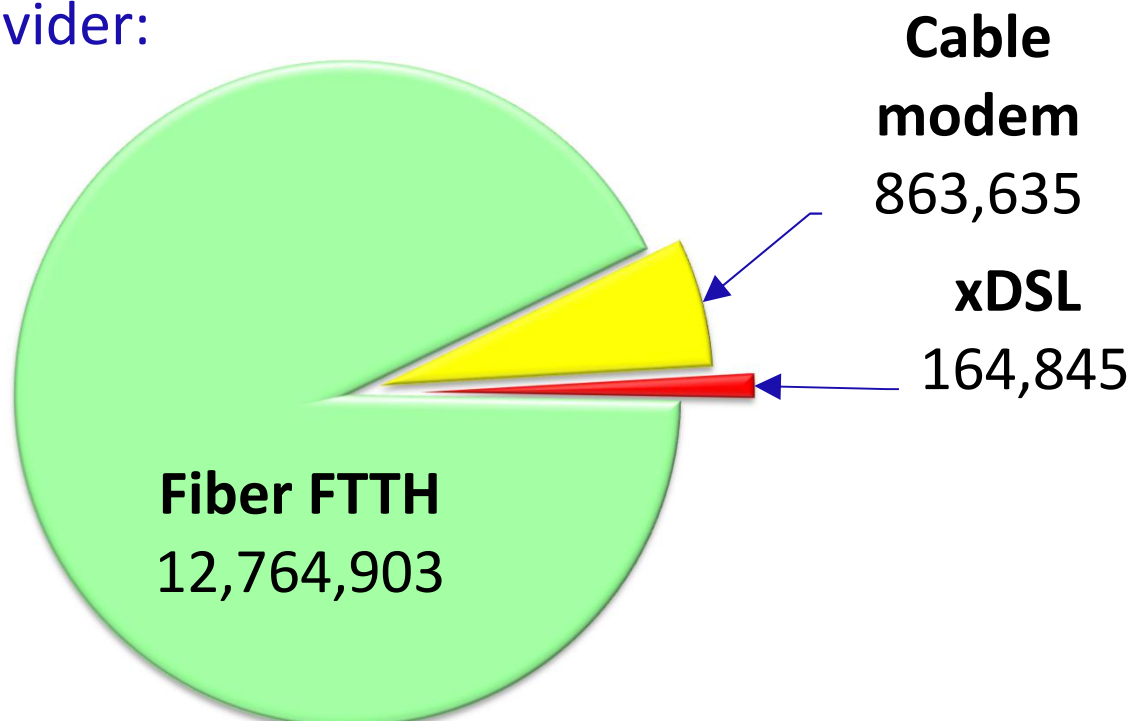


# Snapshot of Vietnam ICT market

## Fix broadband subscriptions (June 2019)

SMP service provider:

- Viettel
- VNPT
- FPT



“SMP: Significant Market Power”

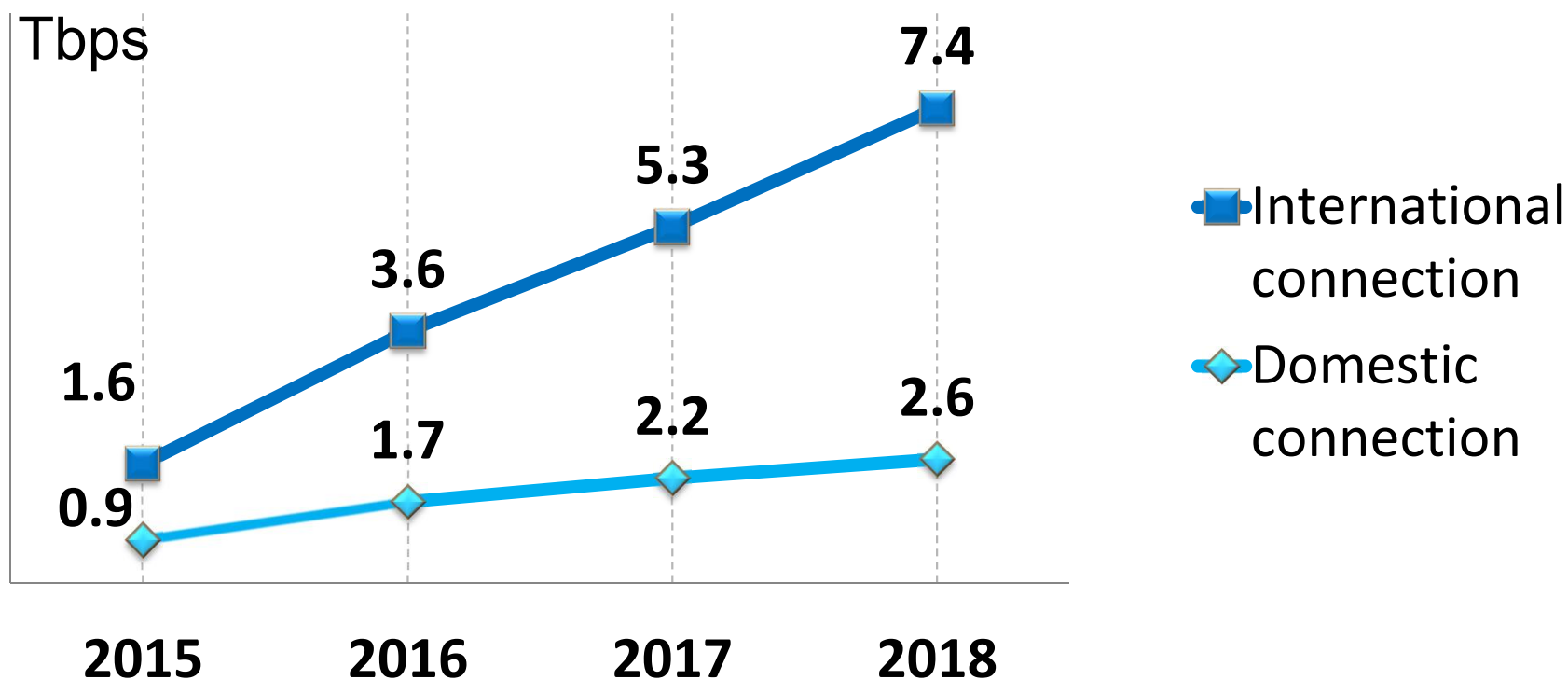
(Source: [vnta.gov.vn](http://vnta.gov.vn))





# Snapshot of Vietnam ICT market

## Domestic & International connection



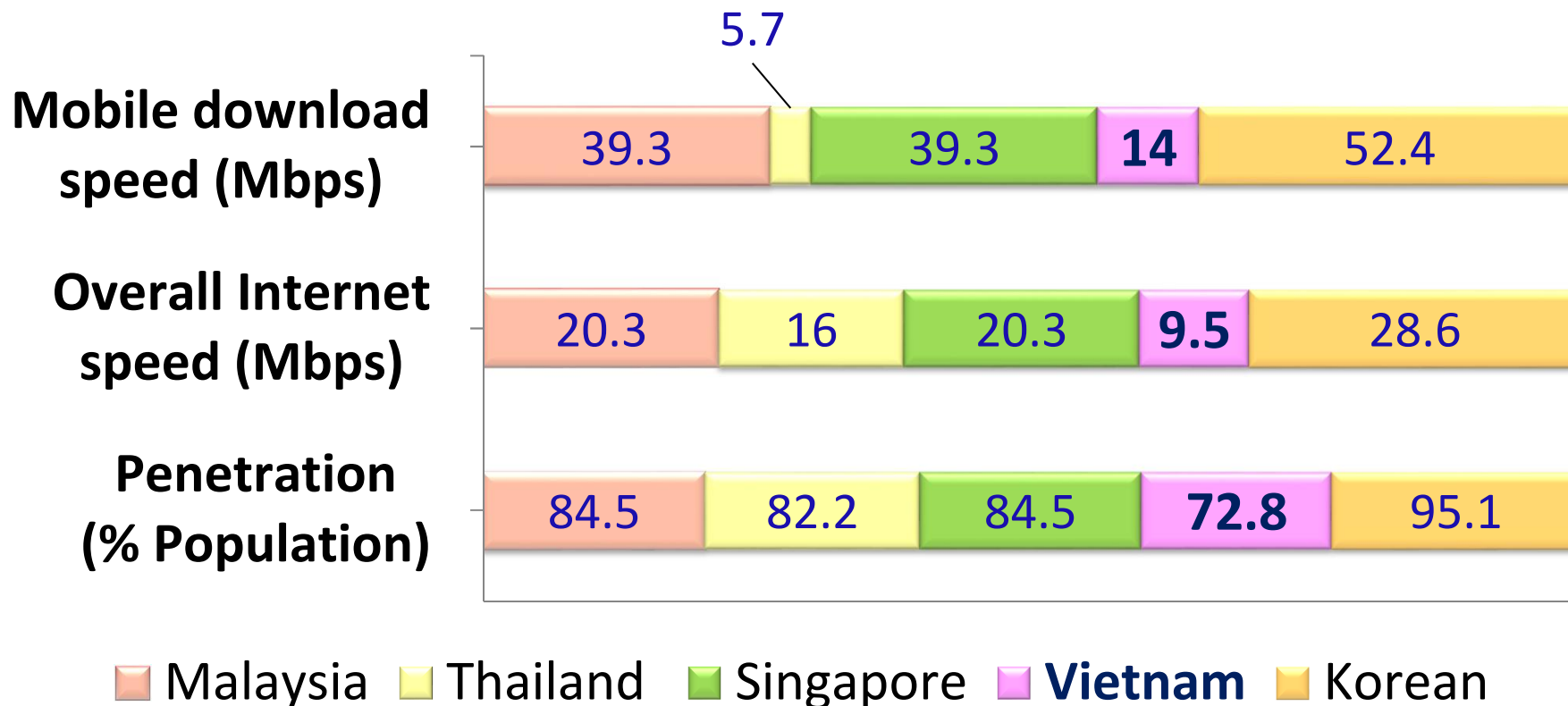
(Source: [vnta.gov.vn](http://vnta.gov.vn))





# Snapshot of Vietnam ICT market

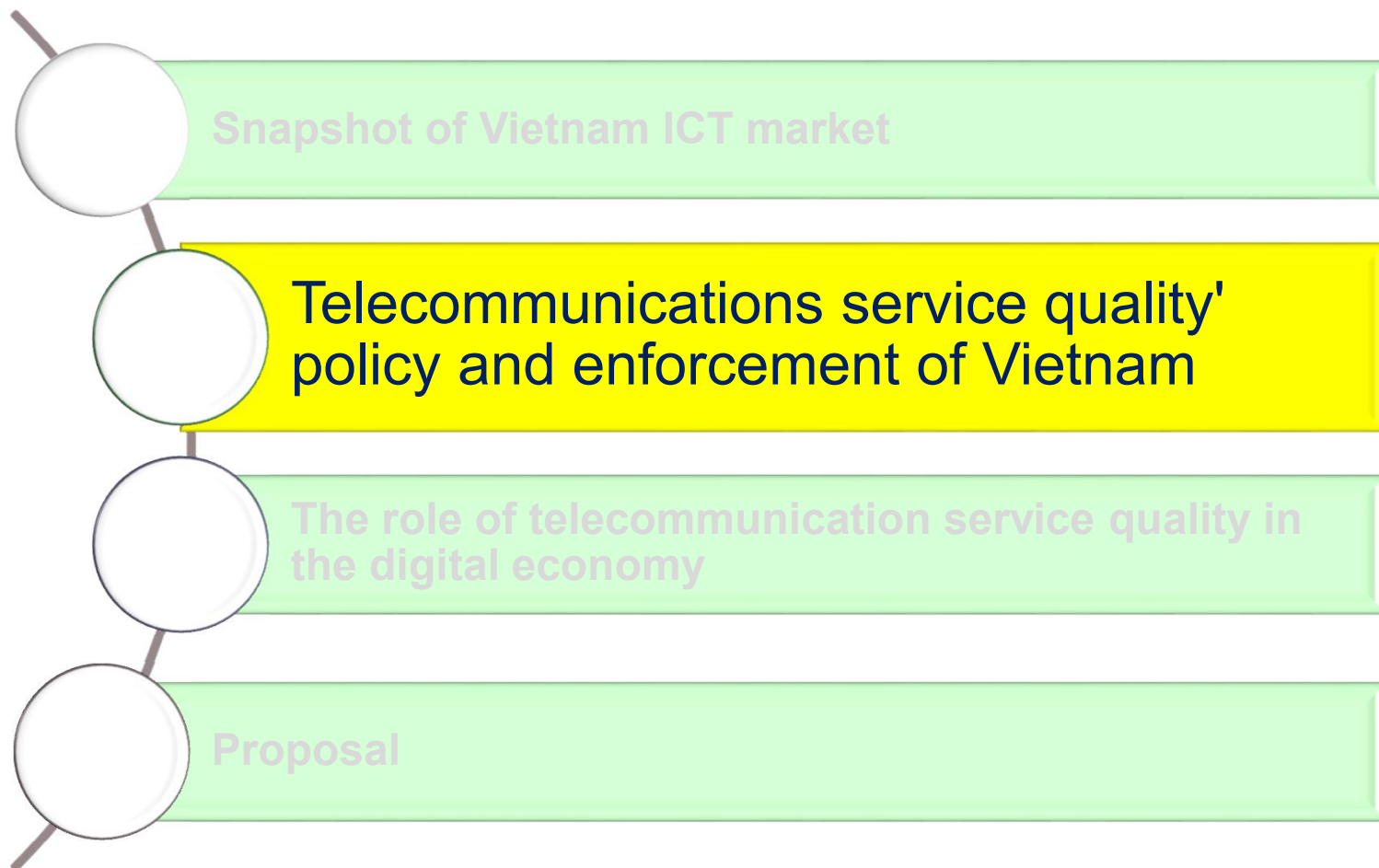
## Internet statistics in selected countries



(Source: Akamai Q1-2017 report, Opensignal May 2019, Internet World Stats )

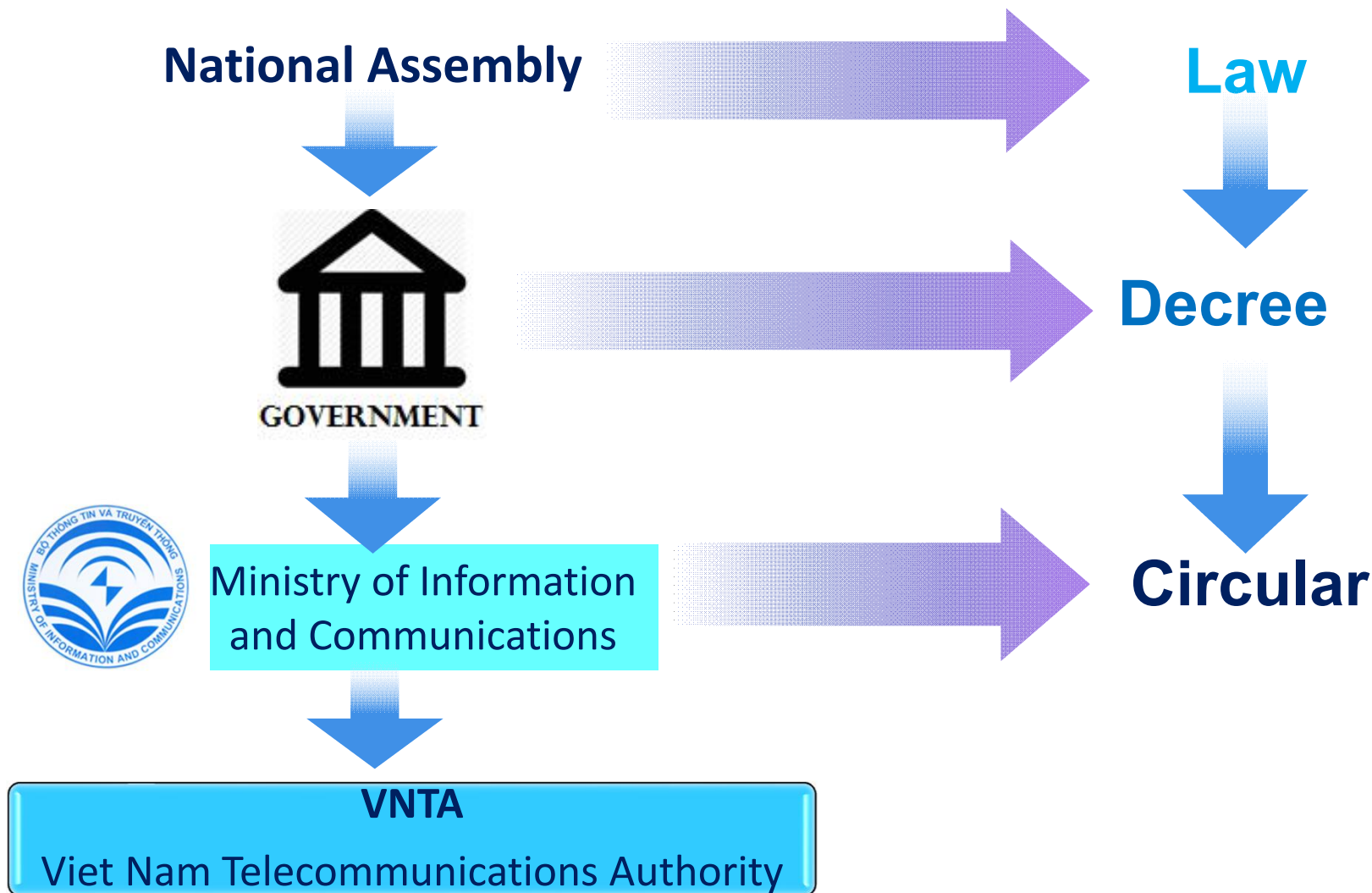






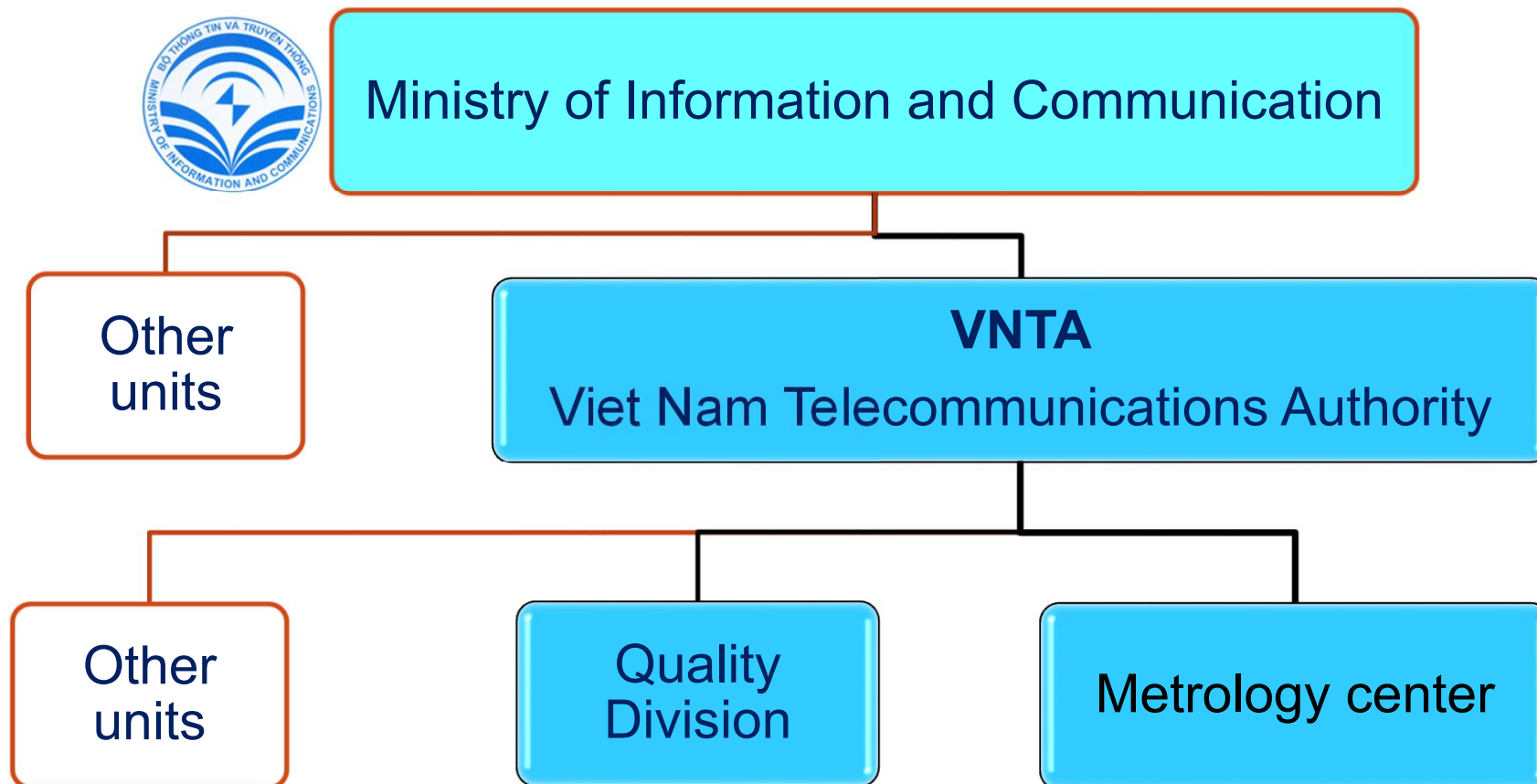


# Legislative documents and Organizations





# Telecommunication regulators





# Regulation on telecommunication service quality

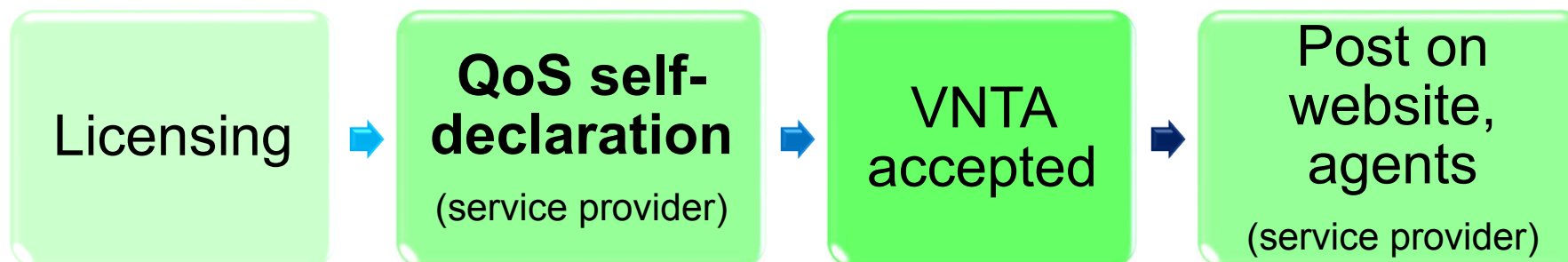
## Legal documents:

- ✓ Law on Telecommunications (2009) and Decree No.25/2011/ND-CP guiding this Law
- ✓ Circular 08/2013/TT-BTTTT on telecommunications service quality control, amended by Circular No.11/2017/TT-BTTTT
- ✓ Circular 35/2015/TT-BTTTT regulating the List of telecom services subject to quality control
- ✓ Technical regulation on quality of Internet access service on the IMT-2000 Public Land Mobile Network - QCVN 81:2014/BTTTT
- ✓ Technical regulation on quality of fixed land broadband Internet Access Service - QCVN 34:2014/BTTTT

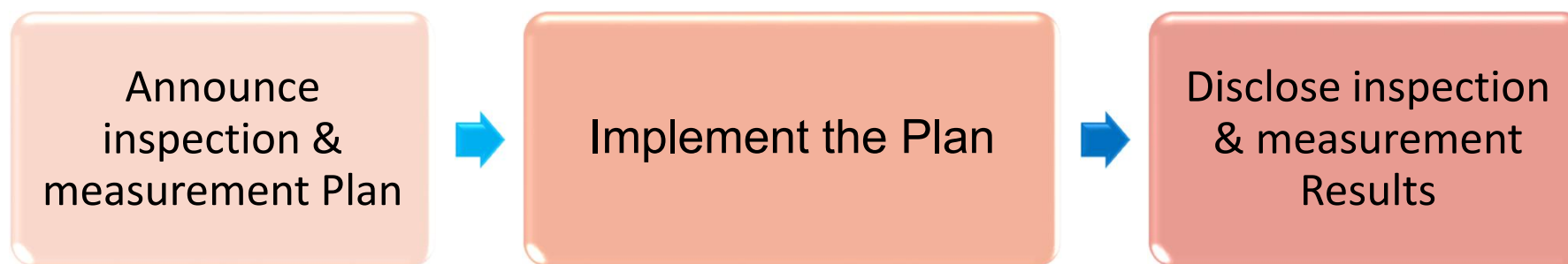


# Regulators enforcement

- QoS self-declaration



- Regulators' QoS inspection
- Regulators' QoS measurement





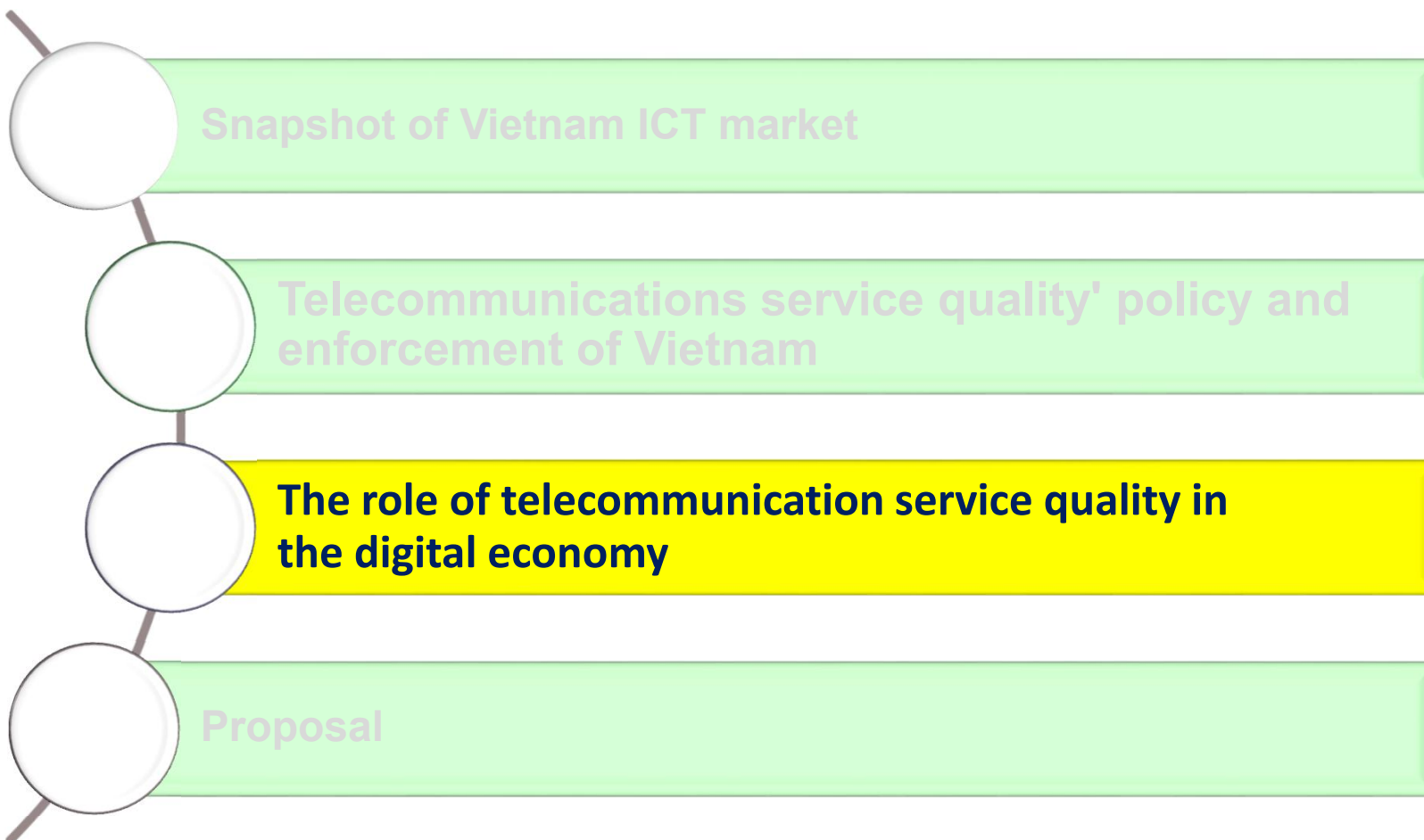
## Broadband QoS KPI

### Fix broadband KPIs

- Network available (%)
- Successful log-in ratio (%)
- Login time (s)
- Data transfer dropped (%)
- Upload/Download speed
- Customer complaint parameters

### Mobile broadband KPIs

- Successful log-in ratio (%)
- Upload/Download speed
- Average usage (%)
- Customer complaint parameters





# Impact of broadband in digital economy

## 10 percentage point increase in fixed broadband penetration

% increase in GDP	Source/ Authors
<b>1.2-1.4</b>	Qiang et al. 2009
<b>0.9-1.5</b>	Czernich et al. 2009
<b>0.3-0.9</b>	Koutroumpis 2009
<b>3.2</b>	Zaballos and LópezRivas 2012

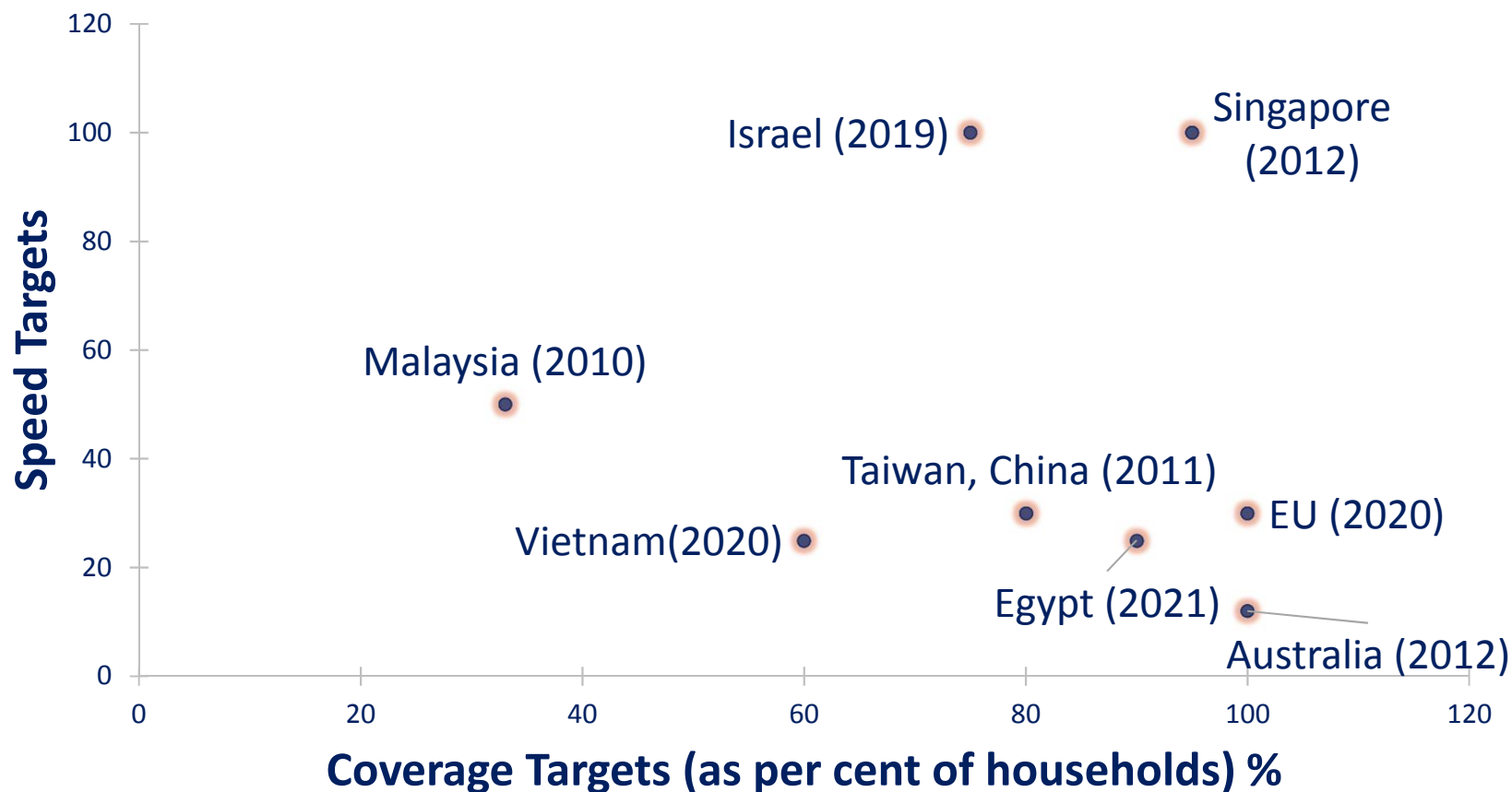
## 10 percentage point increase in mobile broadband penetration

Countries	% increase in GDP	Source/ Authors
China	<b>2.14</b>	Feng and Ma 2013
Germany	<b>0.255</b>	Katz et al. 2010
Philippines	<b>0.32</b>	Katz and Koutroumpis 2012
United States	<b>0.161</b>	Crandall et al. 2007
Panama	<b>0.45</b>	Katz and Koutroumpis 2012





## Countries' broadband target

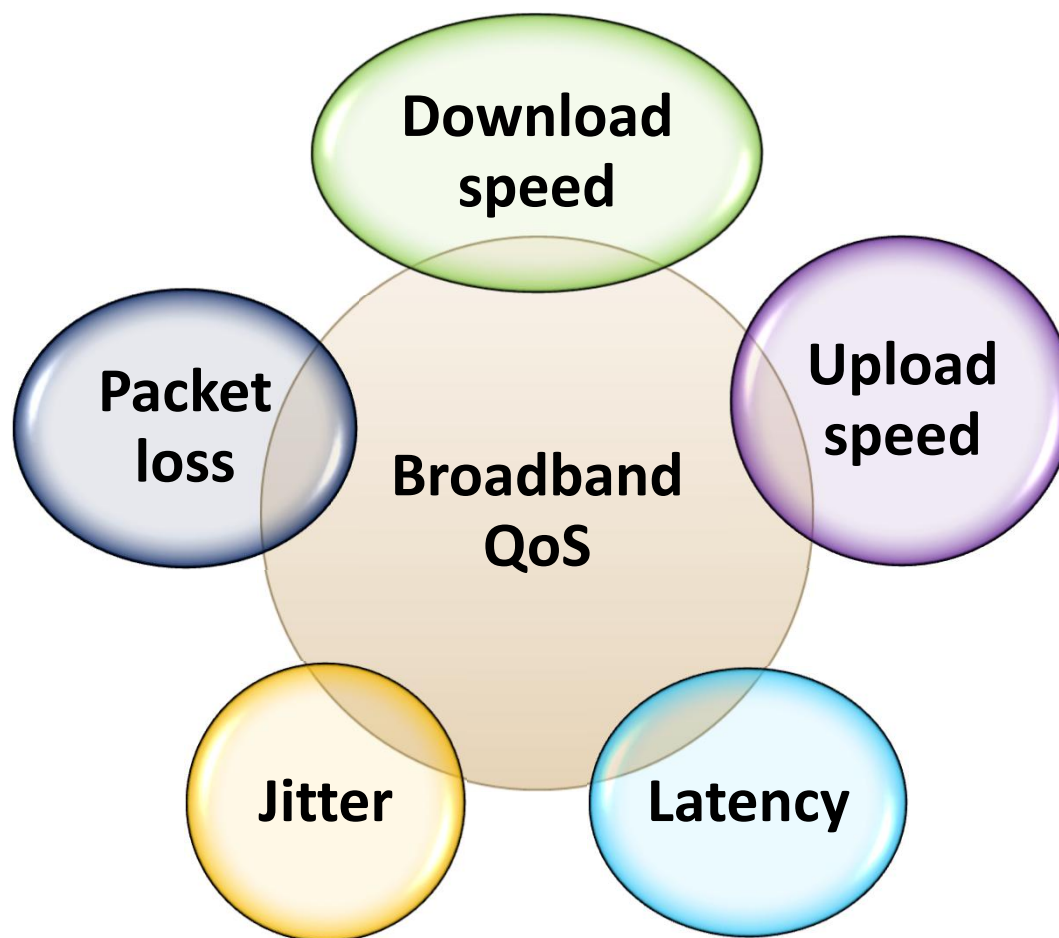


*(Source: Worldbank, Akamai)*





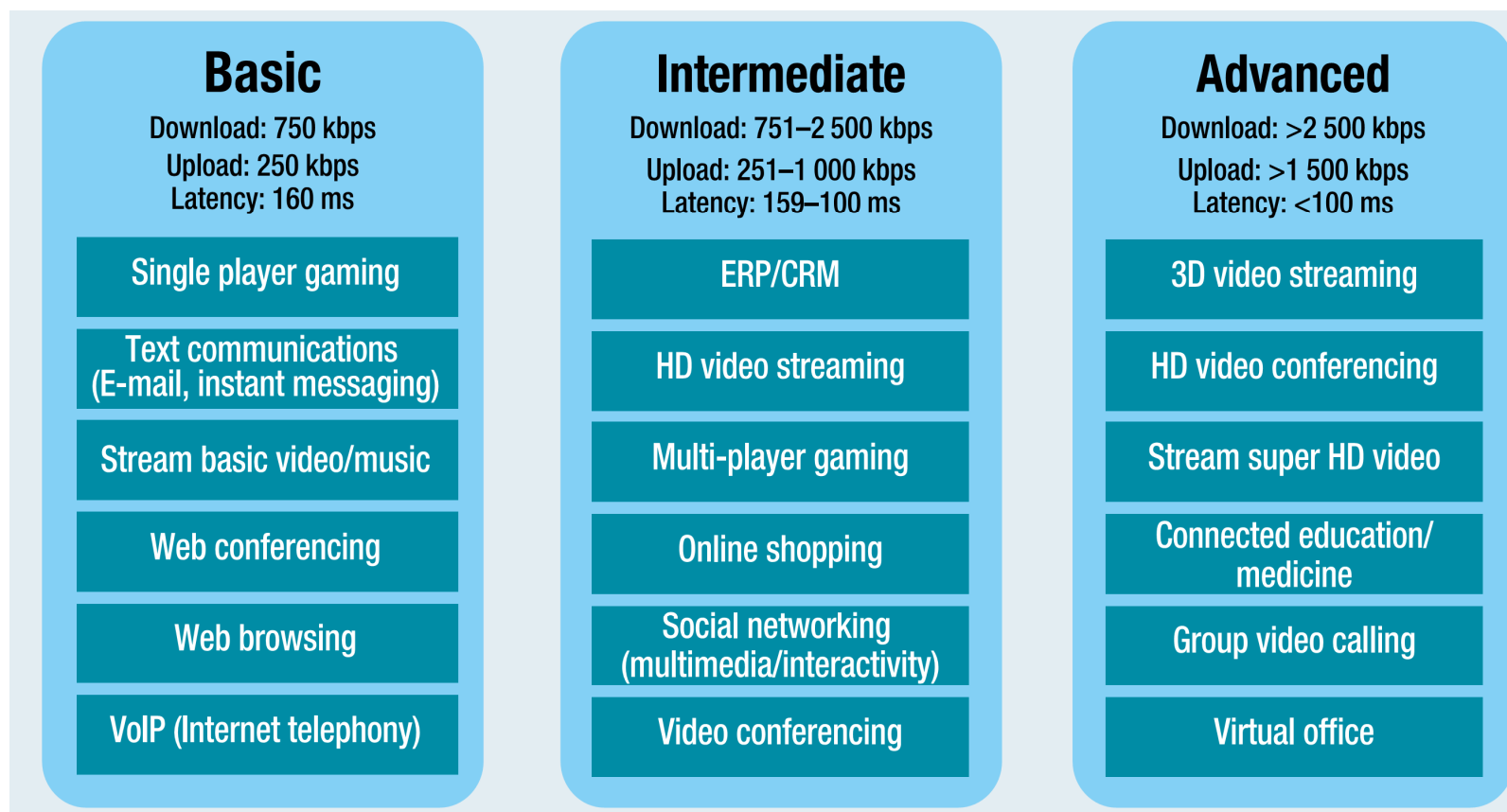
## Major broadband QoS indicators





# Major broadband QoS indicators

## QoS requirements for selected online services/applications



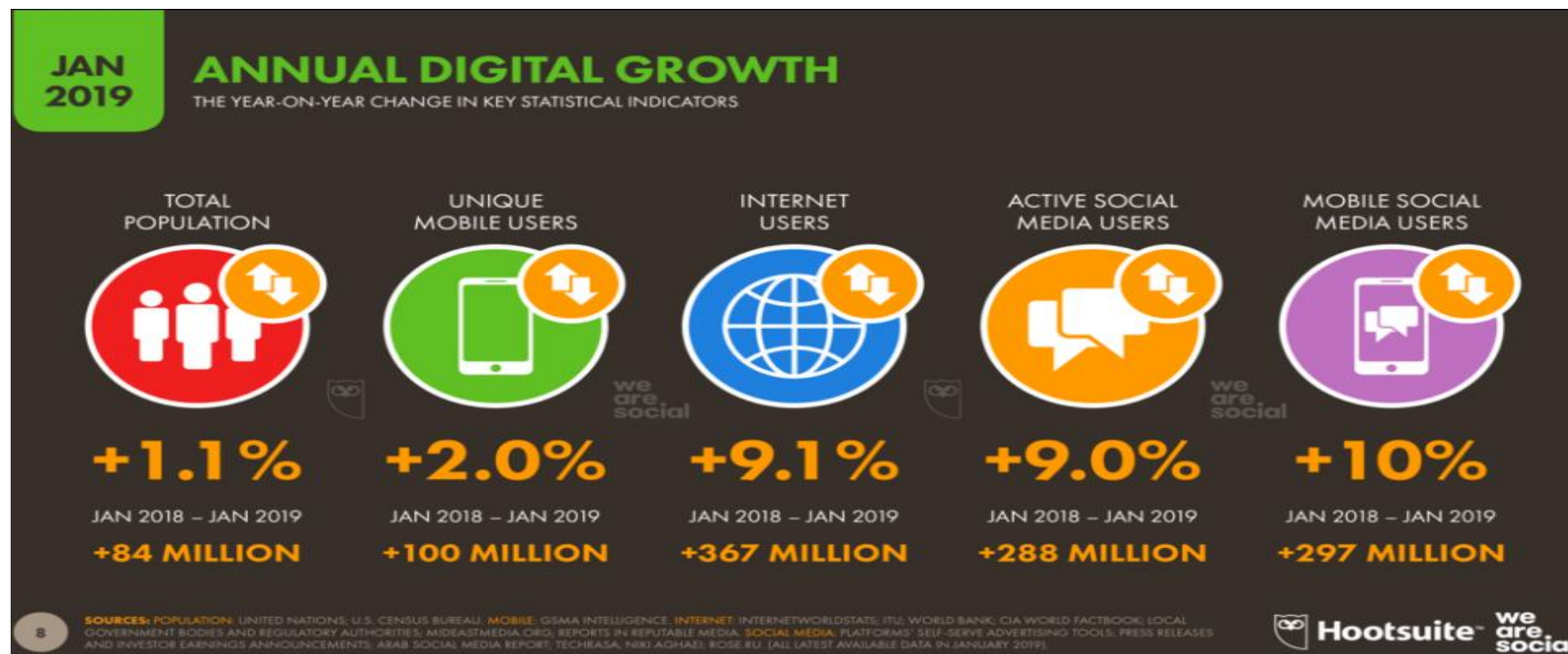
(Source: Cisco, UNCTAD report)





## Major broadband QoS indicators

- **Download speed (Mbps):** The time taken to transfer data packets from a server to an end-user device.
- More growth of broadband → more contents and applications → more demand in download speed





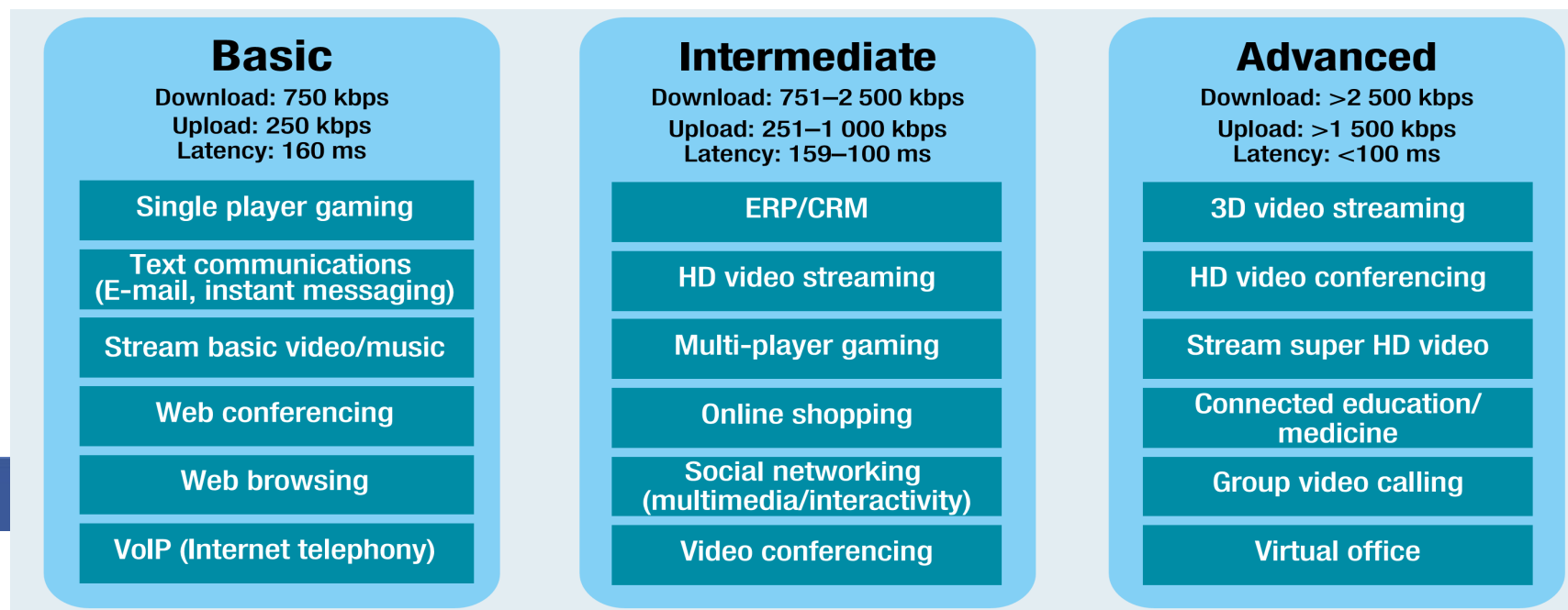
## Major broadband QoS indicators

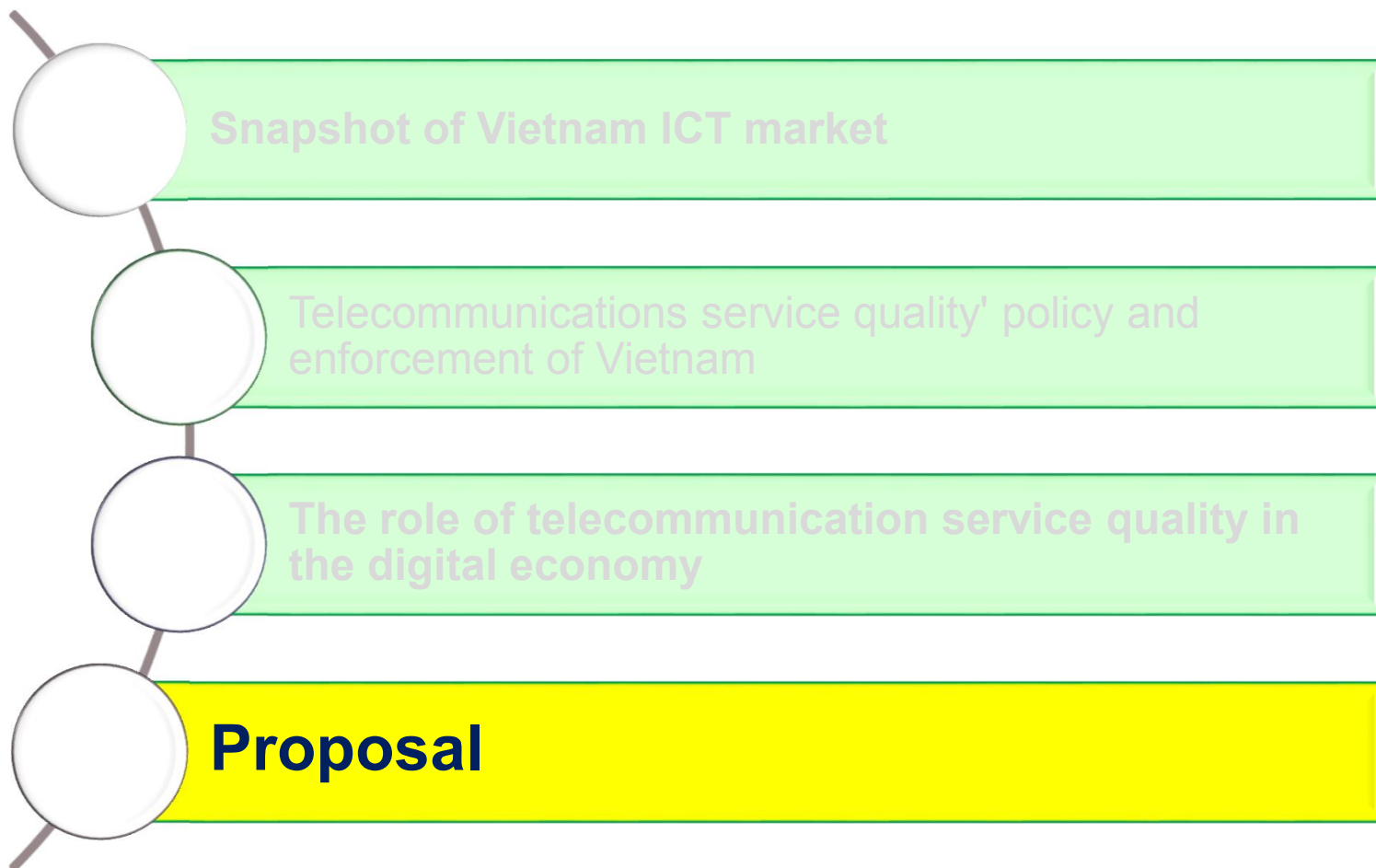
- **Upload speed (Mbps):** The time taken to transfer data packets from an end-user device to a server.
- Previously, user demand is mainly download → Service providers' broadband plans, broadband technologies designed so that downlinks have greater bandwidth and are faster than uplink.
- More offline storage , file sharing and back-up services → more demand in upload speed. Upload speeds and data capacity are critical elements when assessing the ability of a broadband network.



# Major broadband QoS indicators

- **Latency (ms):** Time taken for a packet to reach the destination server and return to end-user device.
- Less latency make a web page or document loads faster. Latency can be a key bottleneck for the adoption of cloud services.
- Many countries do not meet the latency requirement for intermediate (159-100ms) and advanced (<100ms) requirements for online service/applications [UNCTAD].







## Proposal

- More offline storage , file sharing and back-up services → more demand in upload speed. Upload speeds and data capacity are critical elements when assessing the ability of a broadband.
- Not only download speeds are important in that context, but higher symmetry (much higher upload speeds) and lower latency may be required for innovative services and applications [European Commission 2010].
- For **increase upload speed** purpose, need to further promote QoS standards to the develop of symmetric access networks or faster upload speeds compared to downloads to meet the demand.





# Proposal

- For **reduce latency** purpose, data centres should be located within countries or nearby to get optimal performance for broadband services (also reduce cost of broadband access)

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**THANK YOU**

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