BROADBAND COMMISSION
FOR DIGITAL DEVELOPMENT

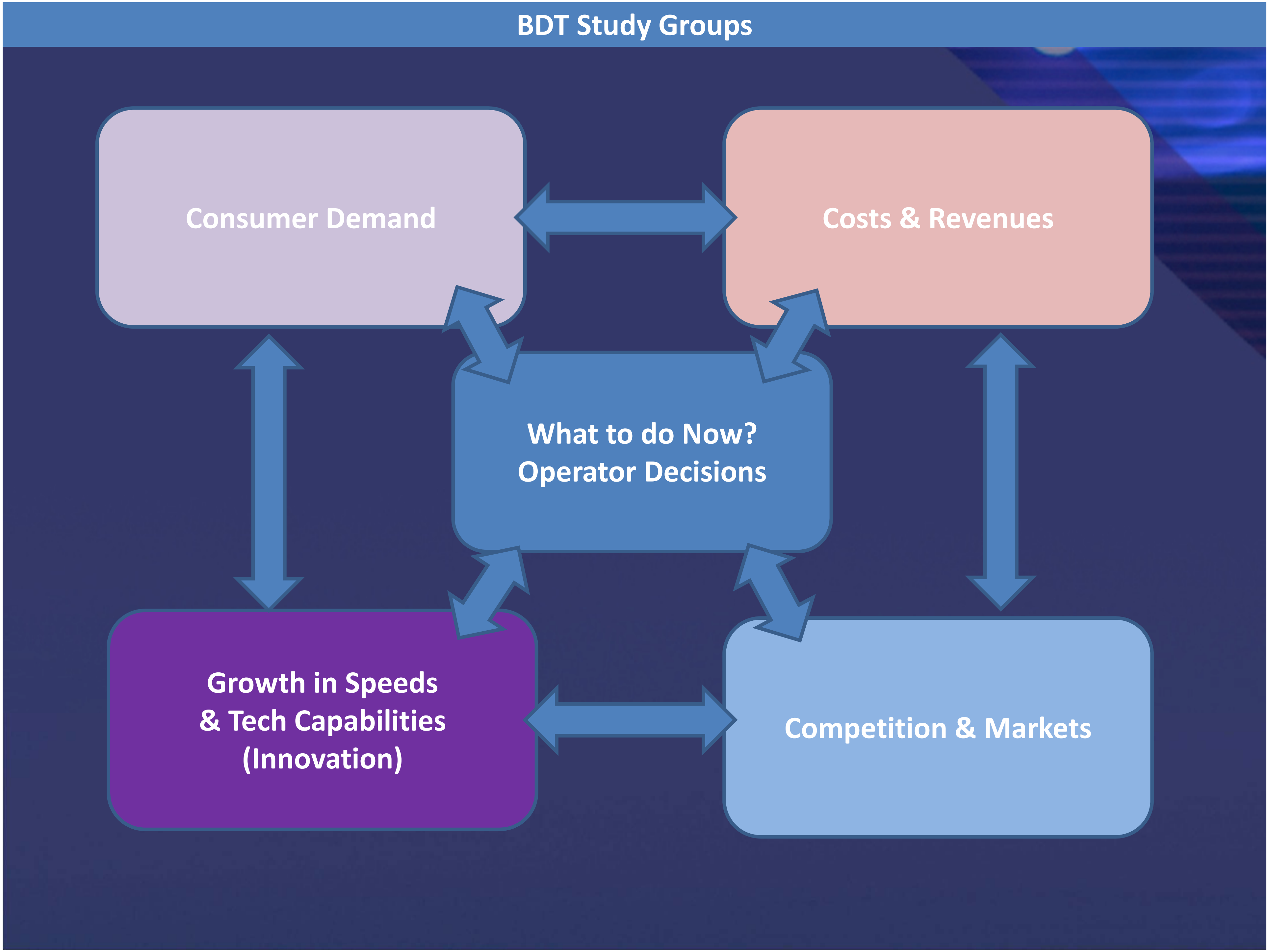
ITU-D Study Groups

Geneva, Wednesday 17 September 2014

The Changing Economics of Network Deployment: Playing Roulette with RoI

Agenda

1. Operator Decisions – getting more complex
2. Cost & Revenue bases – revenue displacement in a more competitive market
3. Growing Speed & Technological Capabilities – getting faster
4. Consumer Decisions


BDT Study Groups
Consumer Demand
Costs & Revenues
What to do Now?
Operator Decisions
Growth in Speeds
& Tech Capabilities
(Innovation)
Competition & Markets

Operator Decisions

1. Operator Objectives

SURVIVAL:

- Make money / compete / build market share;
- Reach more customers with higher speeds;
- Innovate:
  - Leverage existing installed base/infrastructure;
  - Offer new & premium services;
  - Increase bandwidth and distance;
  - Increase their digital serving area.

1. Operator Decisions

A number of **key factors** influence operators' investment decisions, including:

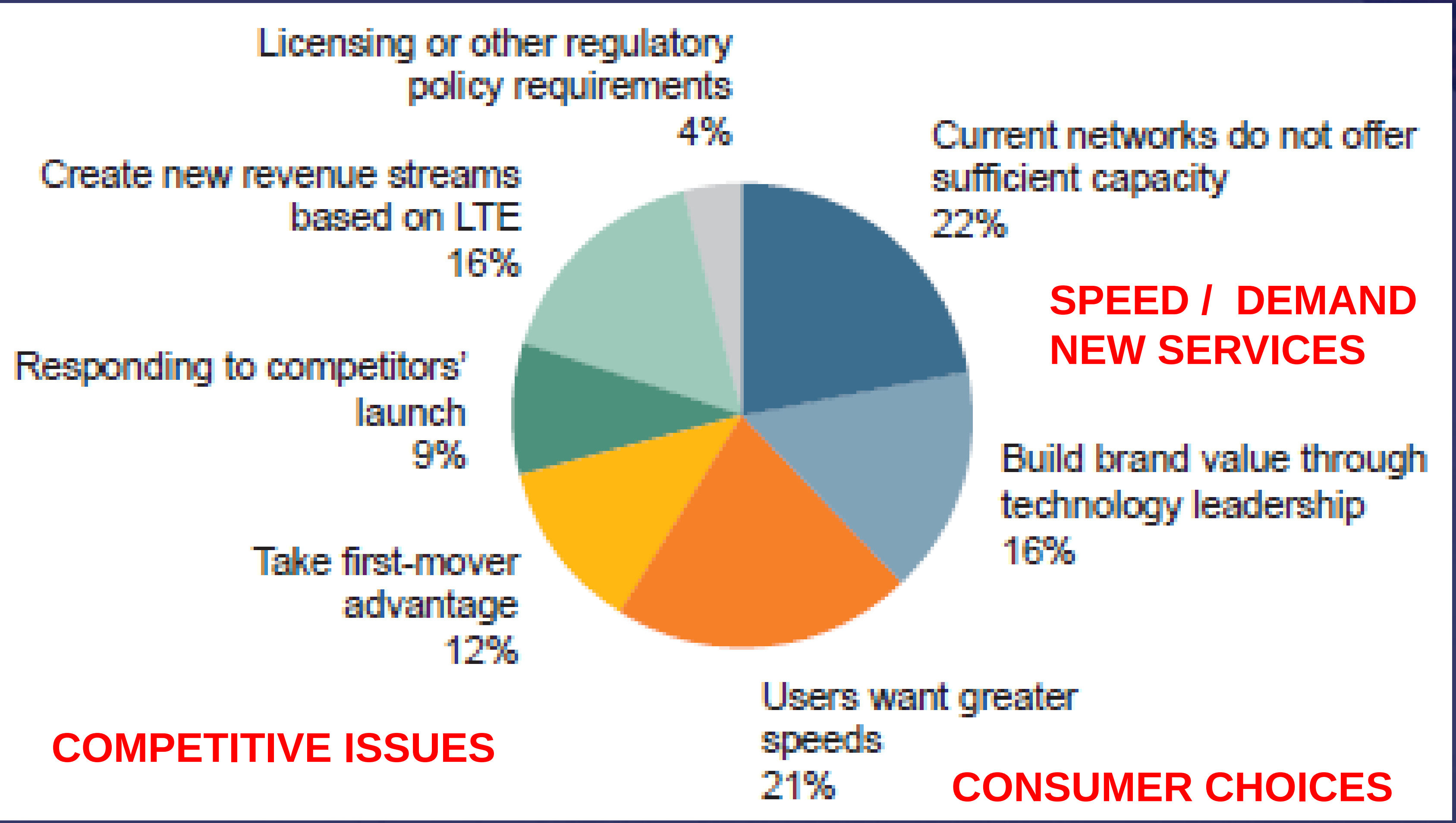
- Technological capabilities of new technologies.
- Age/availability of existing infrastructure (incl. civil)
- Population density (often referred to as urban, peri-urban and rural areas);
- User demand and service take-up;
- Industry structure – competitors & regulation;
- Likely profits (RoI) & levels of ARPU, affecting funding & resources available.

1. Operator Decisions

Operator decisions are becoming more complex:

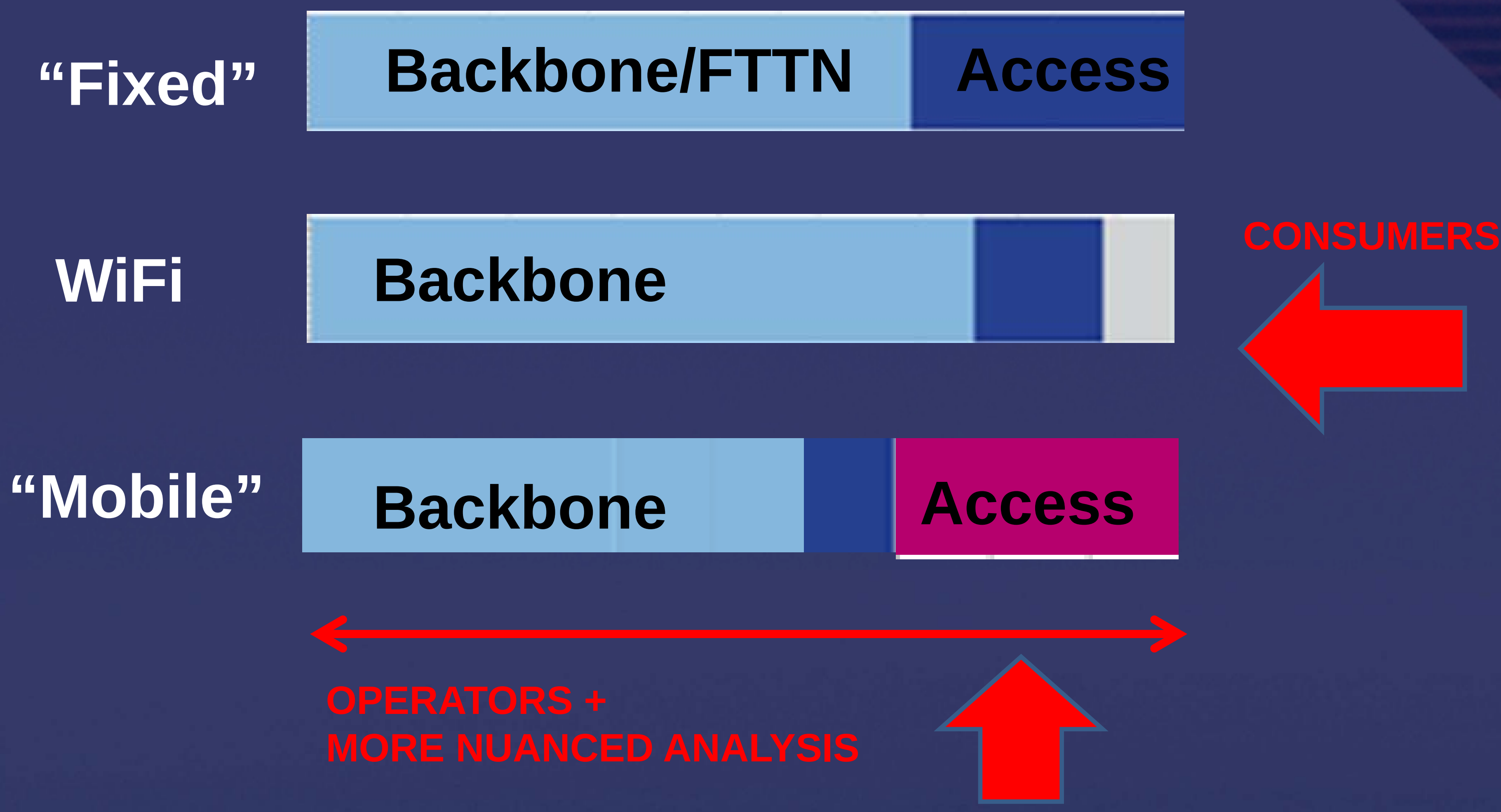
– Number of competing technologies (in particular, mobile v. fixed, DOCSIS 3.0);
– Growing number of competitors, including from other industries.
– OTT players – changing revenue streams;
– New and more varied services – voice, data, TV;
– Increased rate of technological obsolescence.

Why are Mobile Operators Deploying LTE?

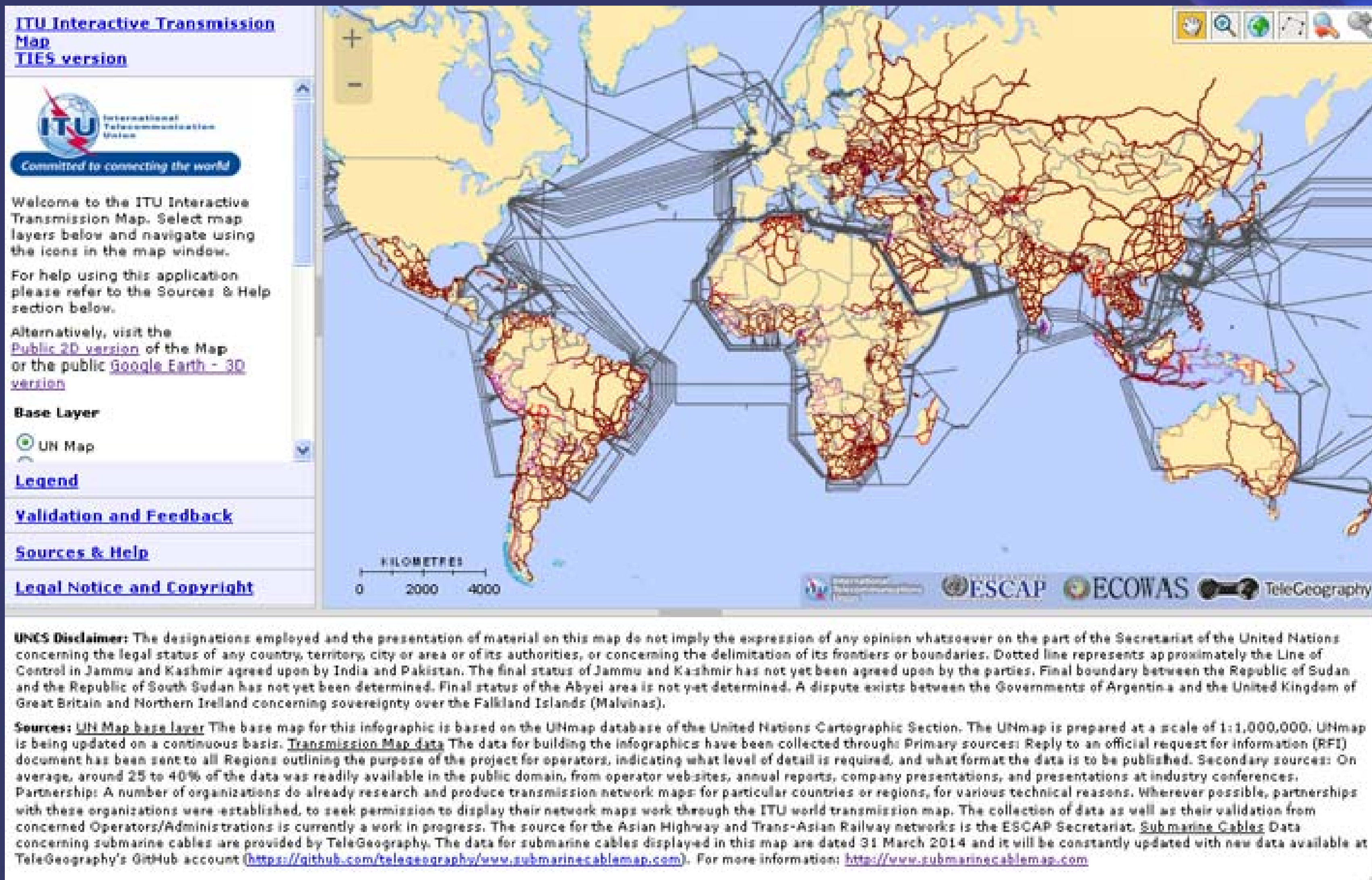


- Informa LTE Survey, 2014.

A Word About Definitions/Categories



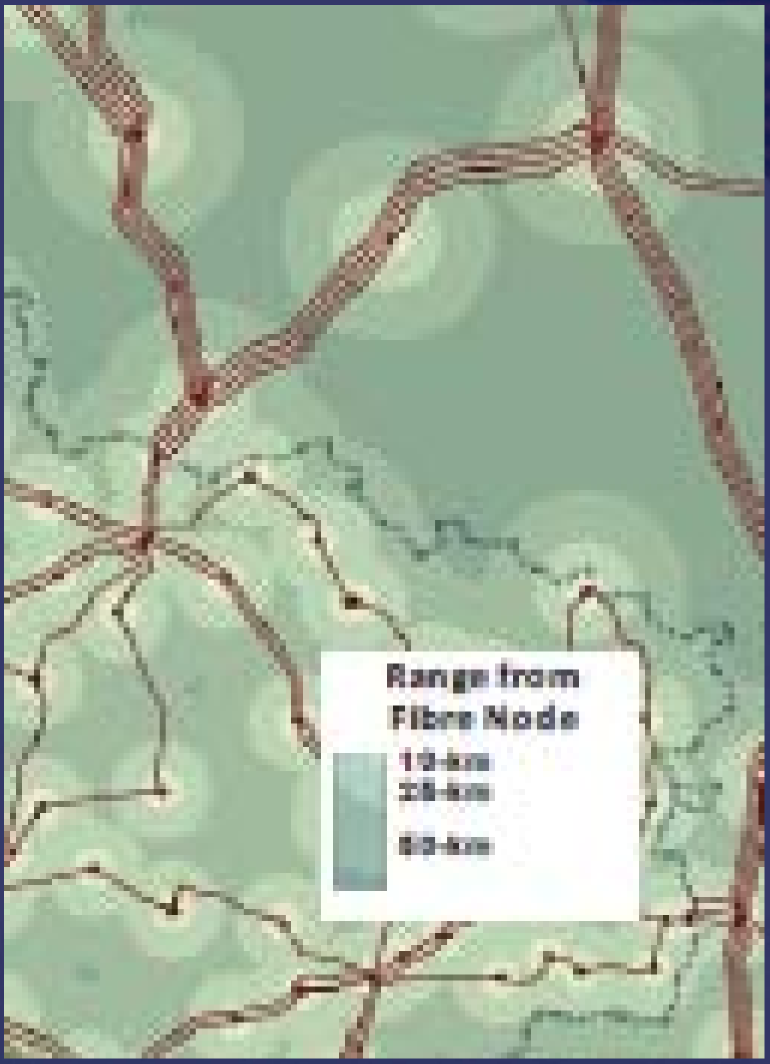
BDT Work Mapping the Backbone



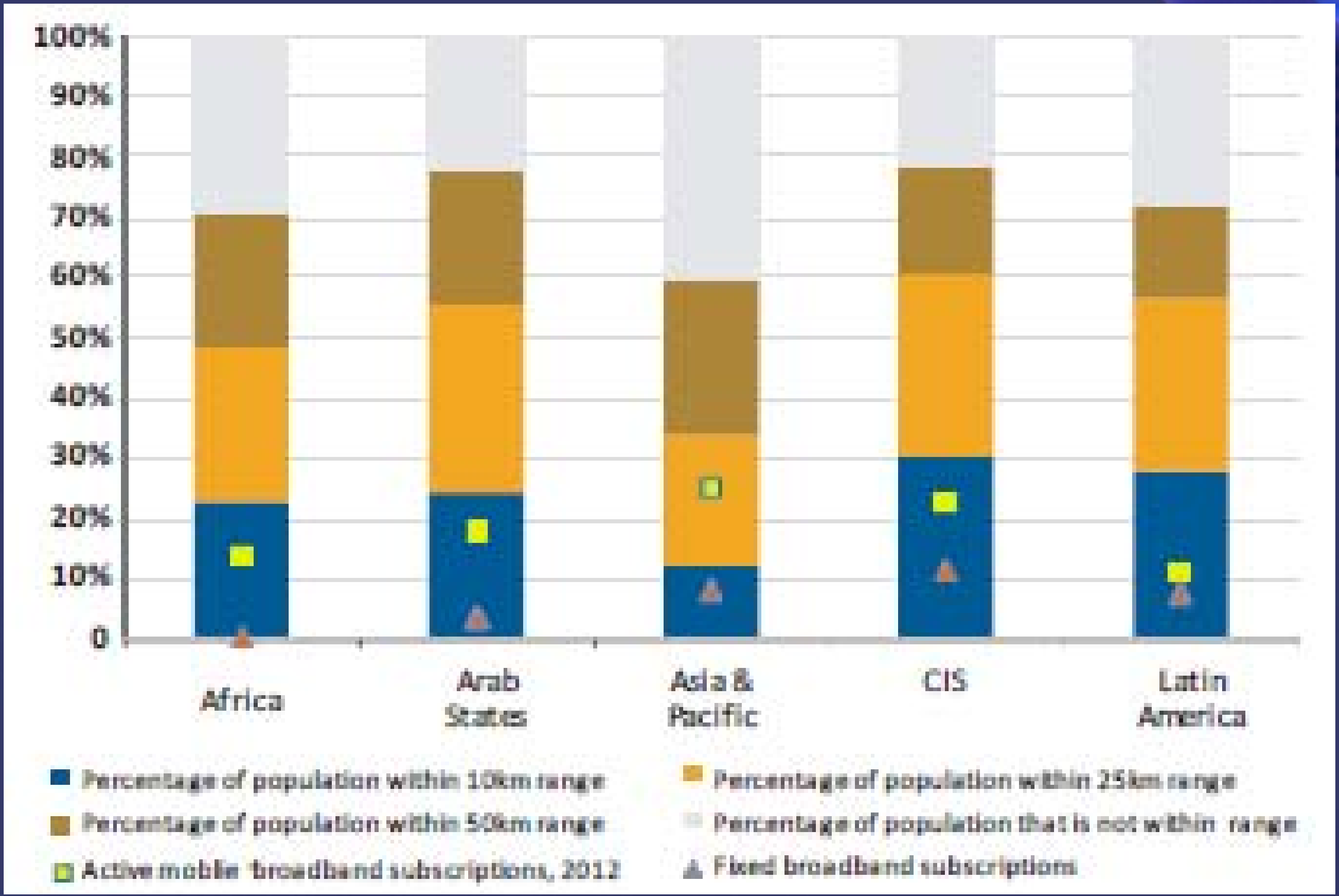
- ITU at www.itu.int/itu-d/tnd-map-public/

BDT's Backbone Indicators

#1: Transmission network length (km)
#2: Node locations
#3: Equipment type of terrestrial transmission network
#4: Network capacity (bit rate)
#5: Number of optical fibres in the cable
#6: Operational status of transmission network
#7a: % population in reach of networks
#7b: % area within reach of transmission networks



Population within reach of Backbone Nodes



- Chap 1, Trends in Telecommunication Reform report 2013.

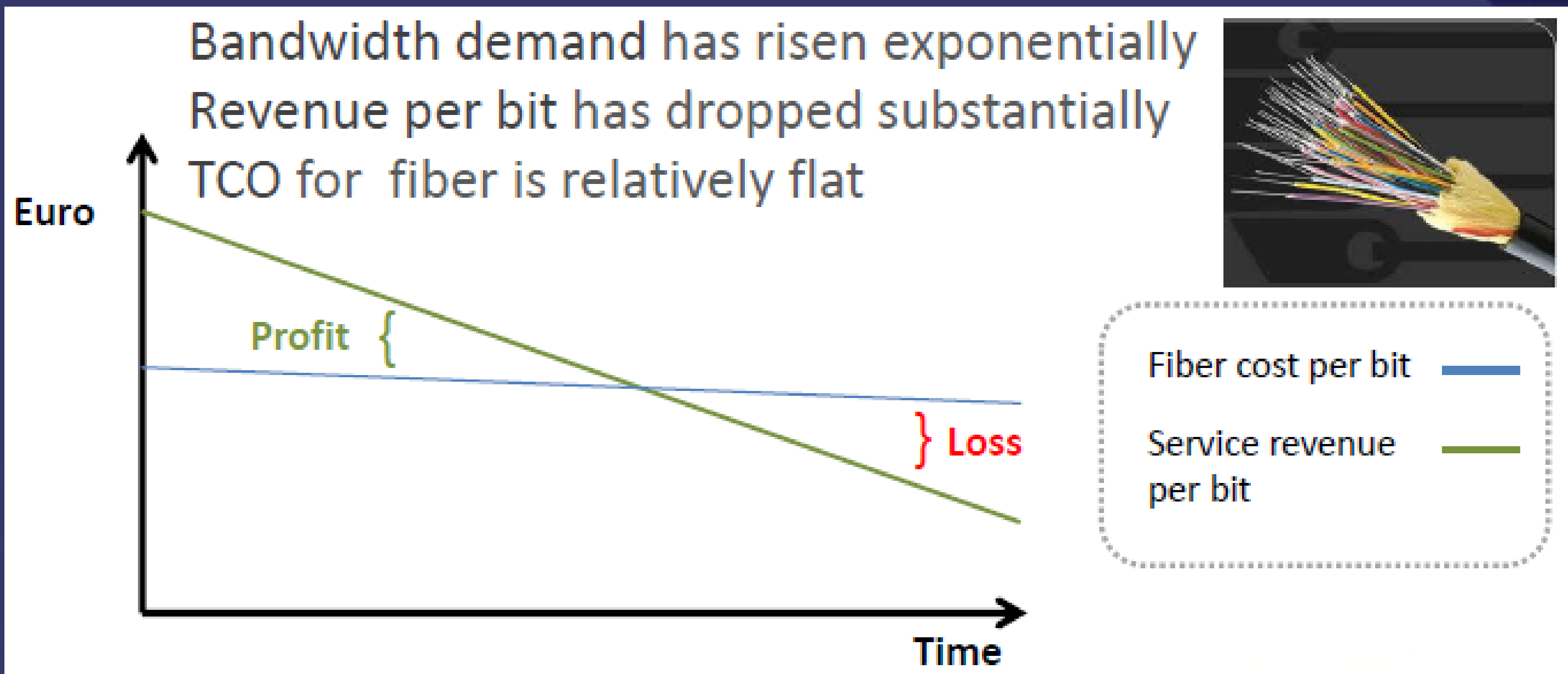
Access Technologies Side by Side

	VDSL2 Vectoring	VDSL2 FTTdp	G.Fast FTTdp	FTTH
DS/US Mbps	200/50	300/50	500/200	2000/1000
Reach	< 500m	< 200 m	< 100 m	~10km
TTM	Today	Today	Future	Today
Relative Capex	Low	Medium	Medium	Very High
CPE Re-use	(Yes)	(Yes)	No	No

- Lantiq.

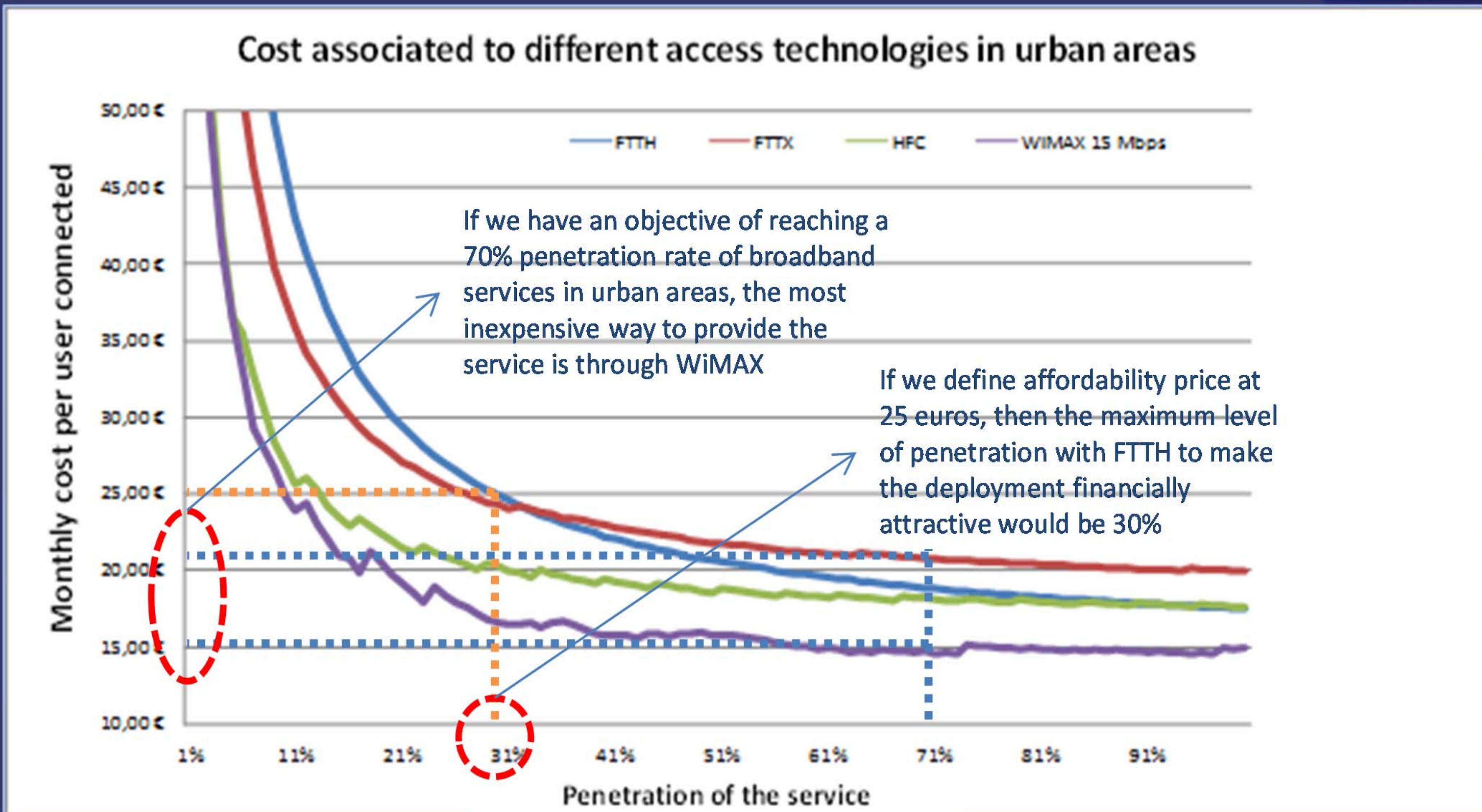
Costs versus
Changing Revenue Streams

Changing Economics from Operator's Viewpt



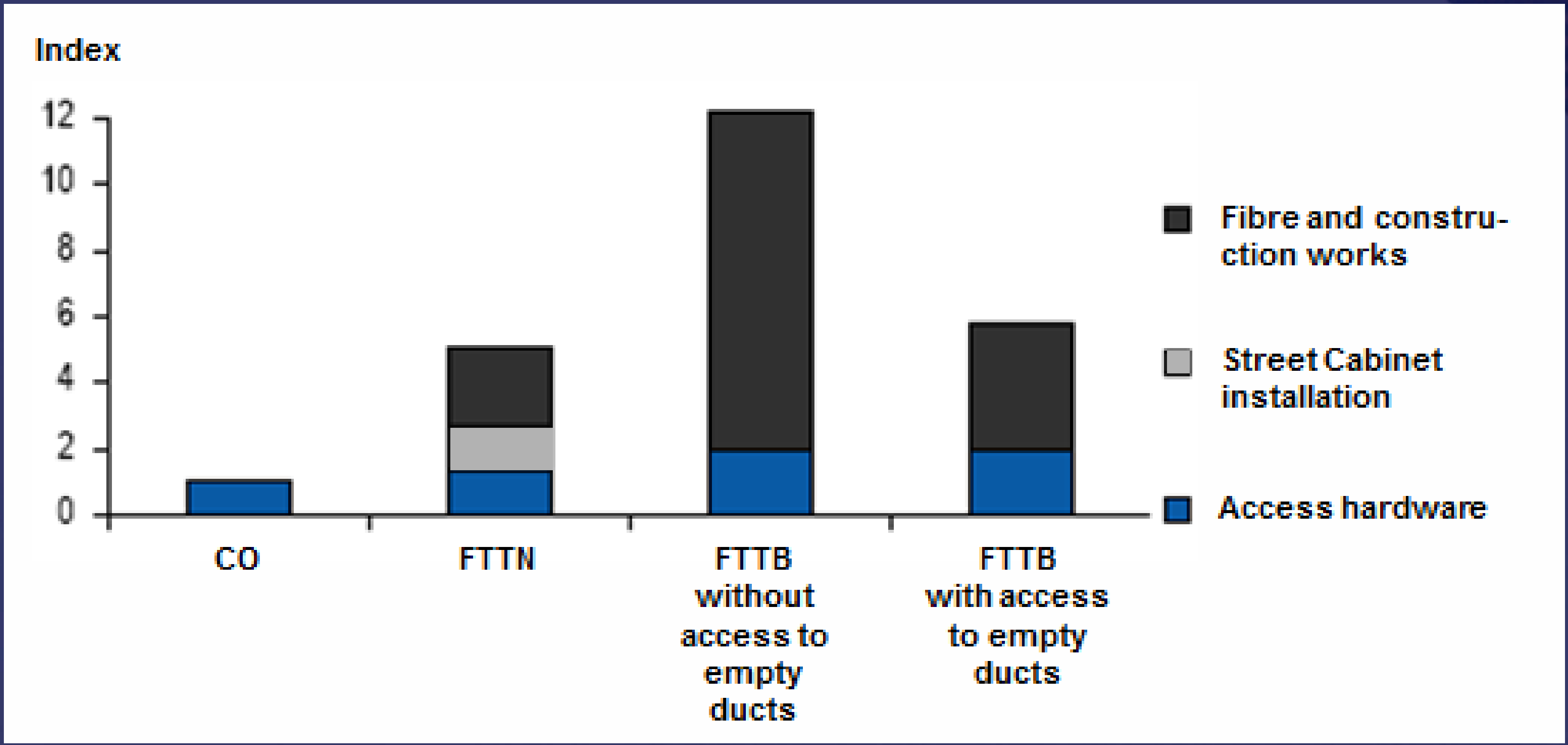
- Actelis Networks.

Costs depend on Objectives



- World Bank.

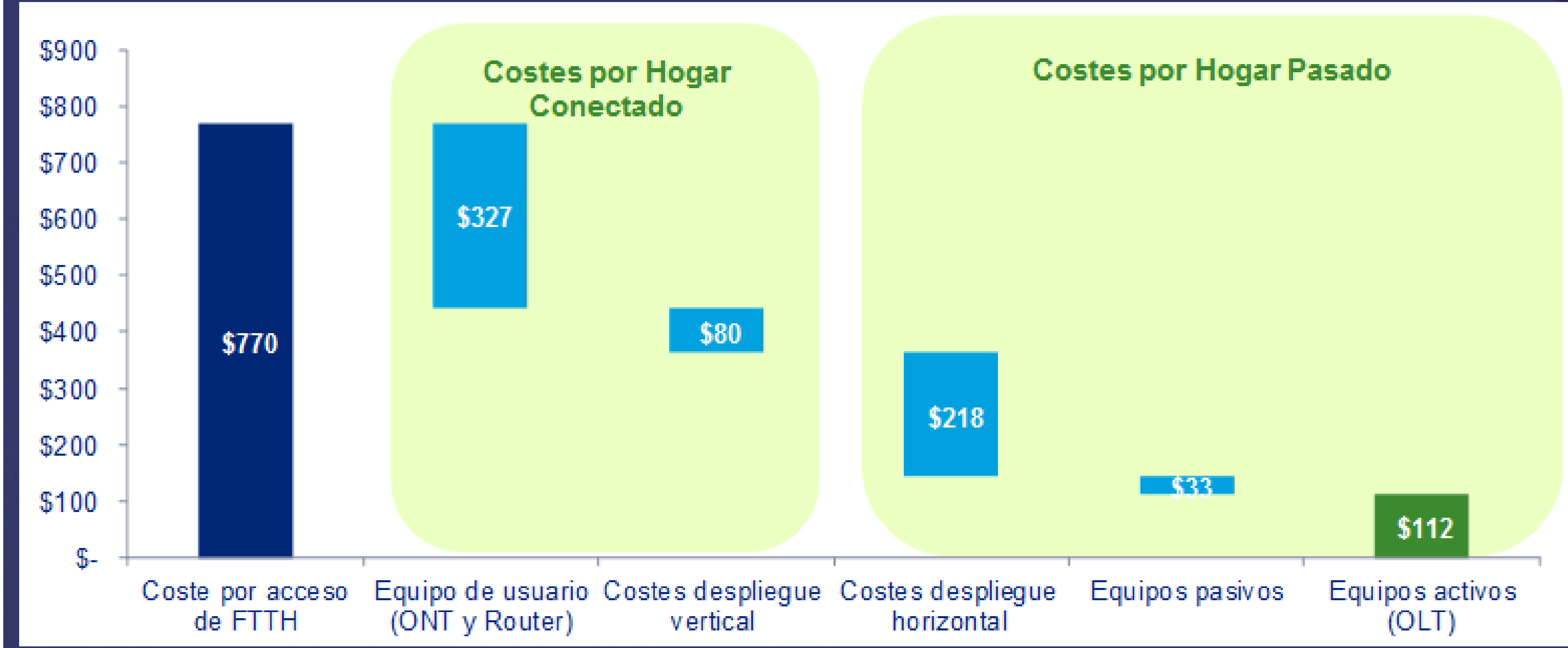
Majority of fixed broadband costs – civil works



- Alcatel, JP Morgan (2006).

Cost of FTTH

- Europe - $2,000-2,500 per household passed.
- Developing country (Bolivia):



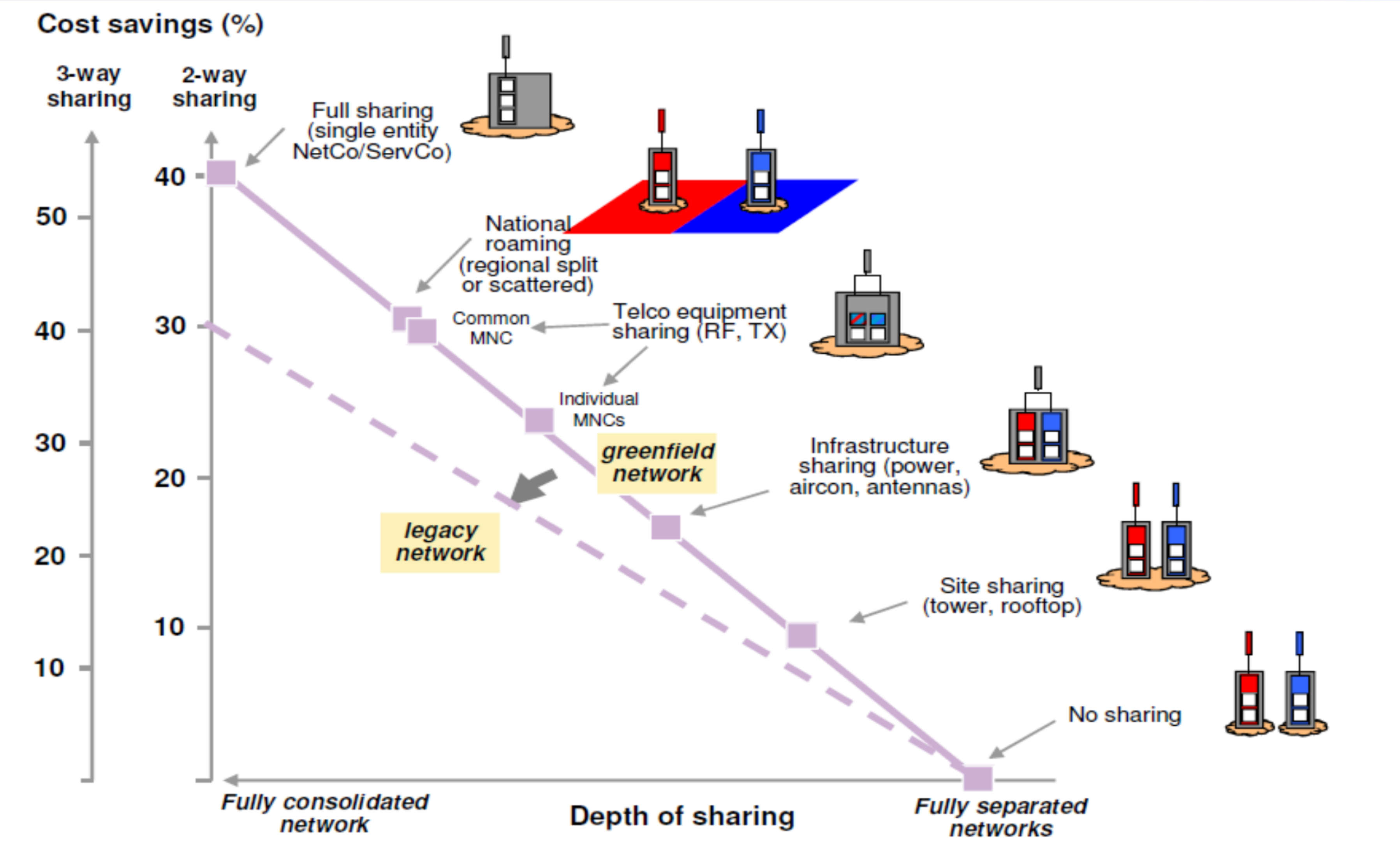
- IADB

Estimates of Regional Inv't Needs

Region/ Country	Amount	Comments	Source
Latin America & Caribbean	US$ 340 million	Next-generation networks	AHCIET
MENA	EUR 20-25 billion	Estimated for 10 Mbps for 100% of population and 30 Mbps for 50% of population, using a combination of FTTC and LTE technologies.	World Bank
Europe	EUR180-270 bn	To achieve Digital Agenda targets	EC
Europe	€82 billion	Universal Next-Generation Access	Point Topic

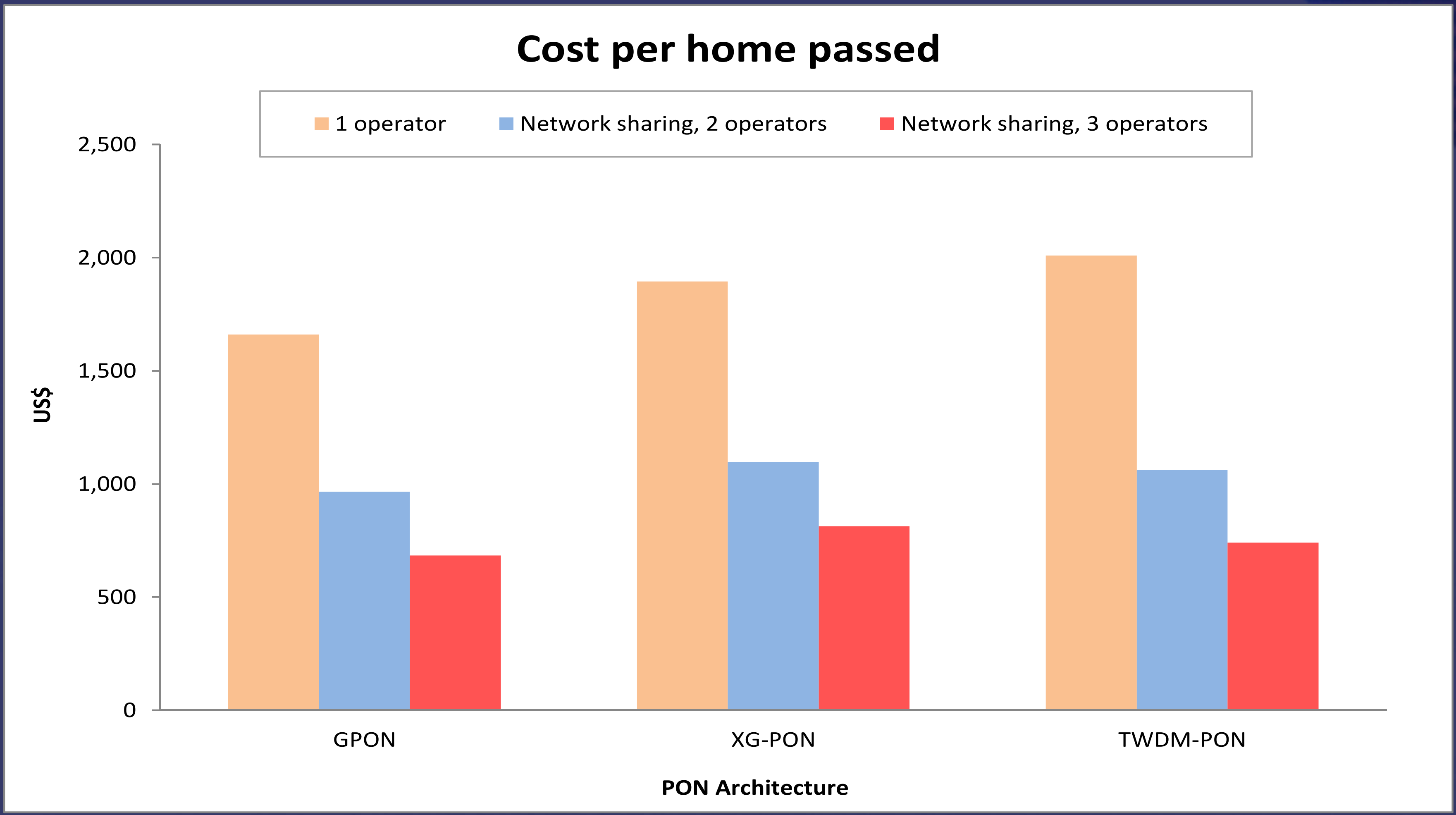
- Report of the WG on Financing & Investment, Sept 2014.

Infrastructure Sharing (1)



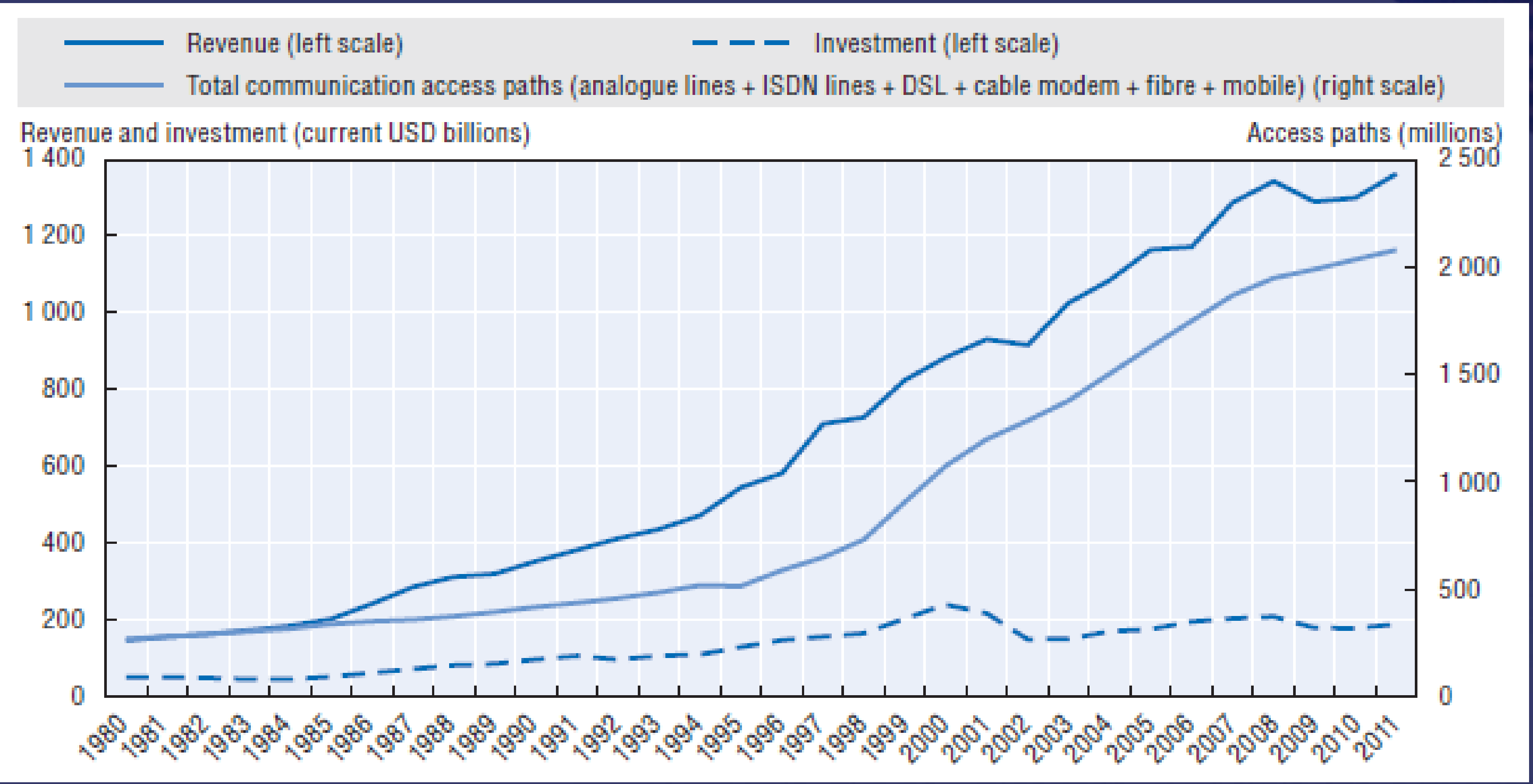
Vodafone, www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/06/Vodafone1.pdf

Infrastructure Sharing (2)



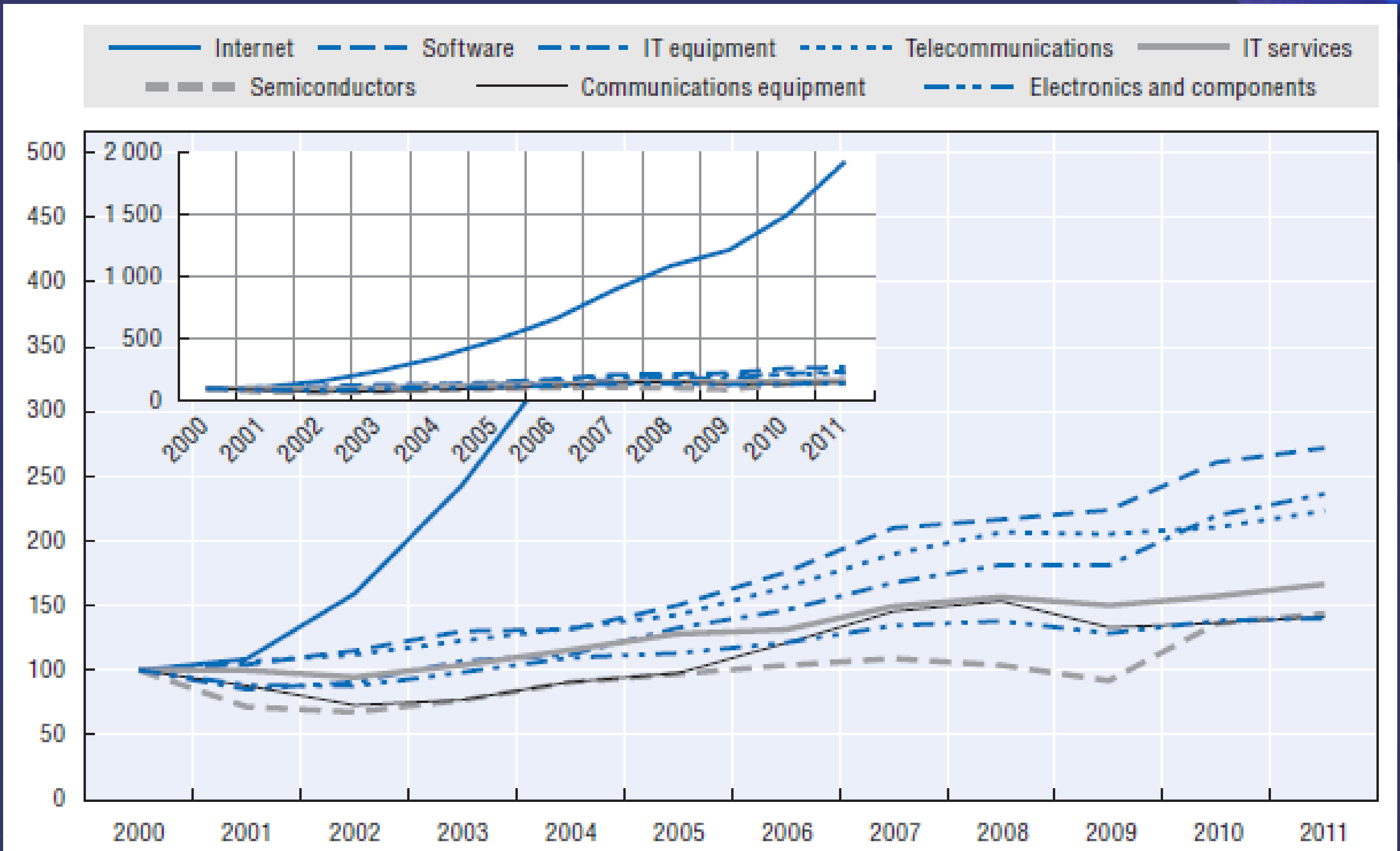
Source: Huawei, Figure 12 in The State of Broadband 2014 report: Broadband for All.

Access, Revenues & Investment 1980-2011



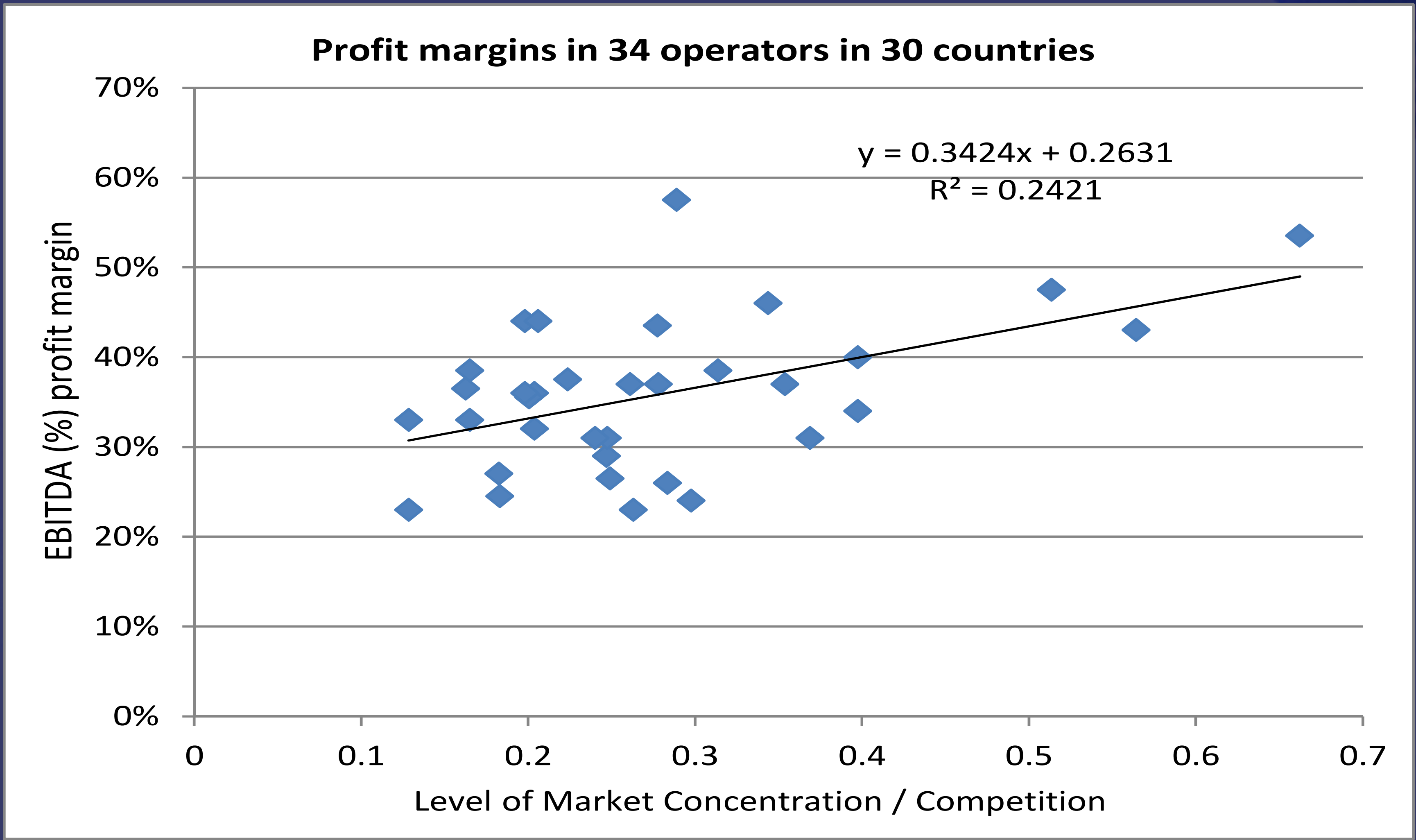
- OECD IT Outlook 2013.

Revenues, Top 250 ICT Firms, 2000-2011



- OECD.

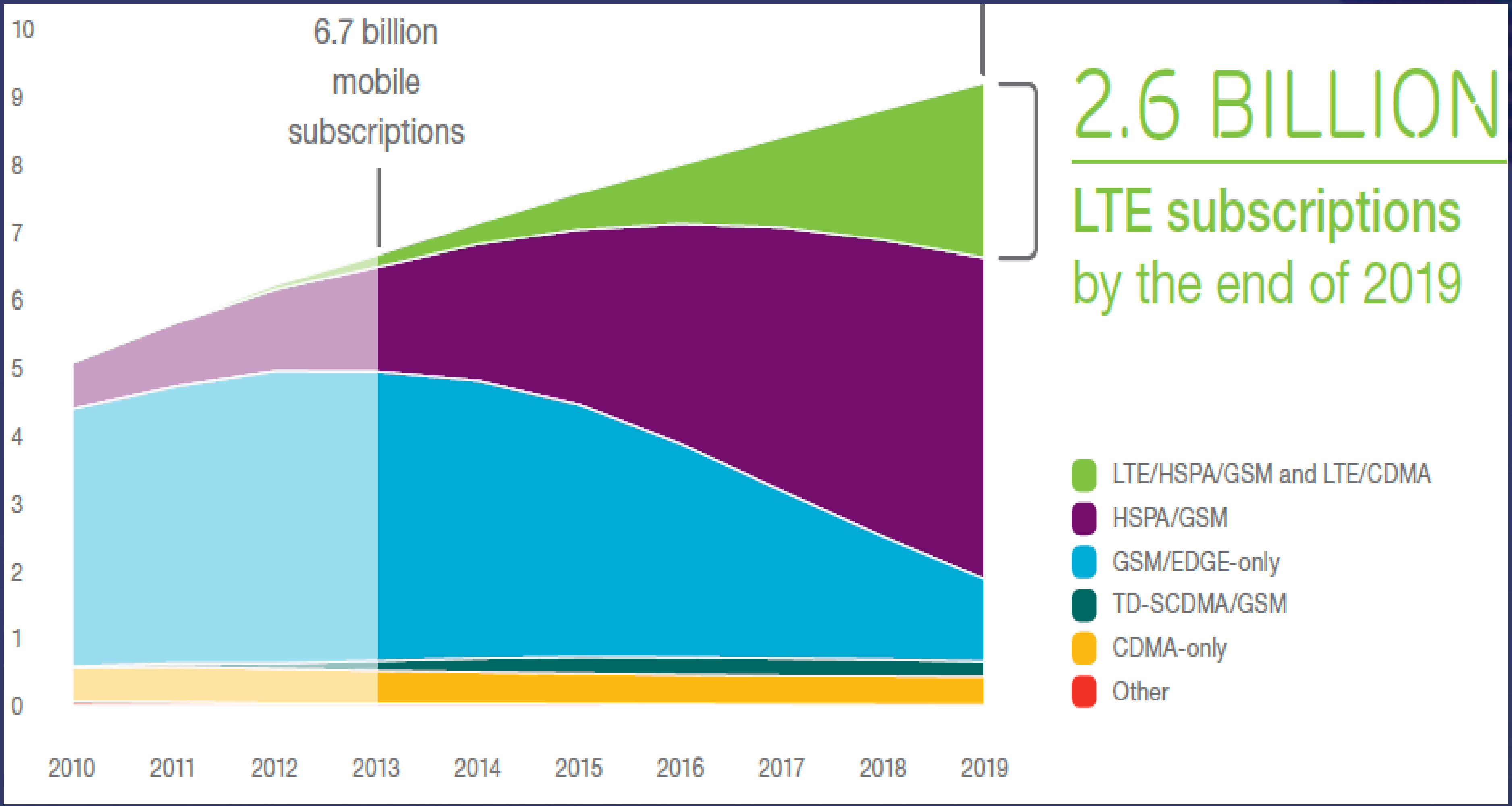
Profitability in Competitive Markets



- ITU.

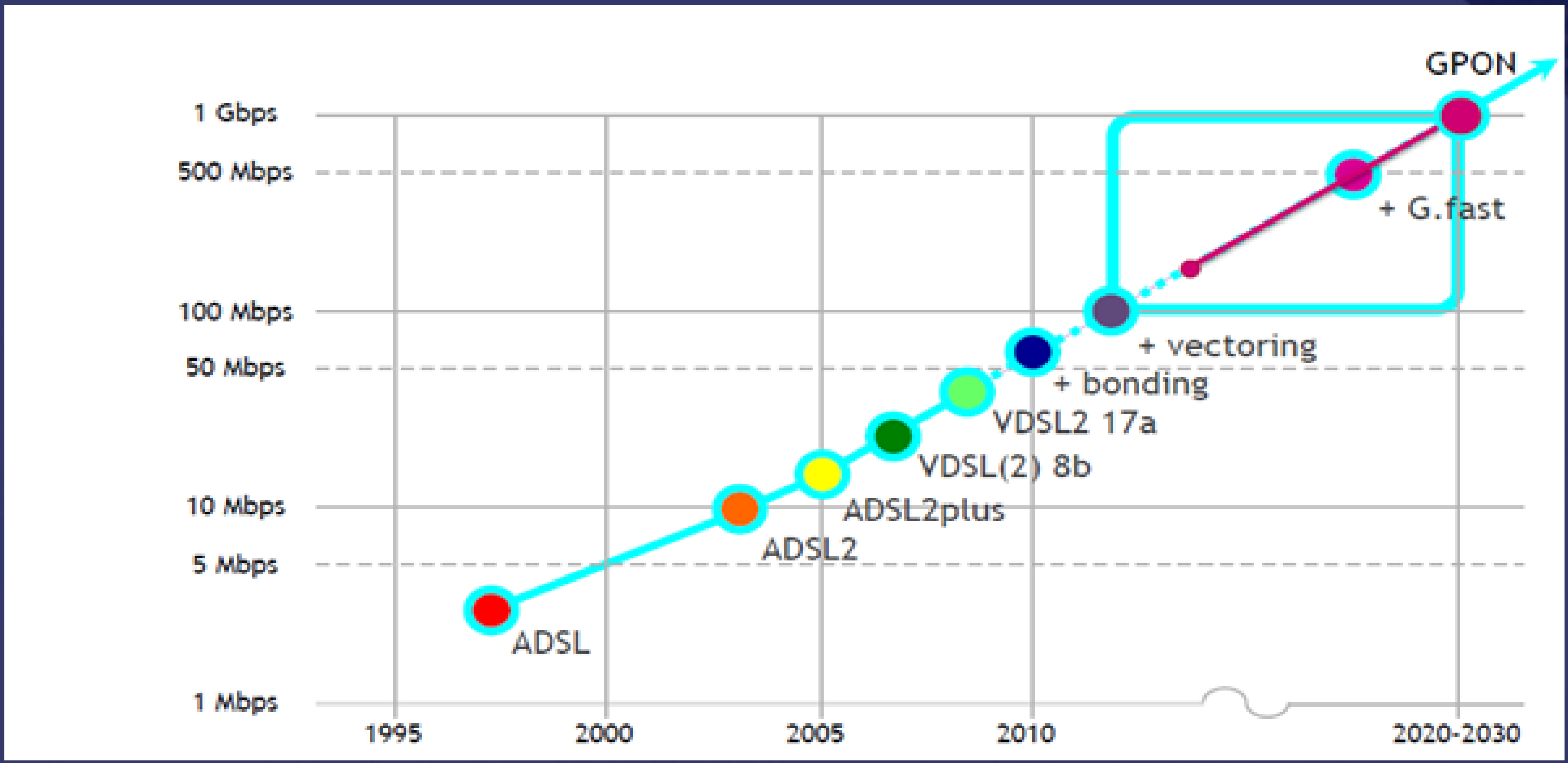
Speed & Technological Capabilities

Evolution in Mobile Subscriptions, by tech



- Ericsson Mobility Report, June 2014.

Growth in Speeds for Copper – bridging the gap between xDSL & fibre speeds



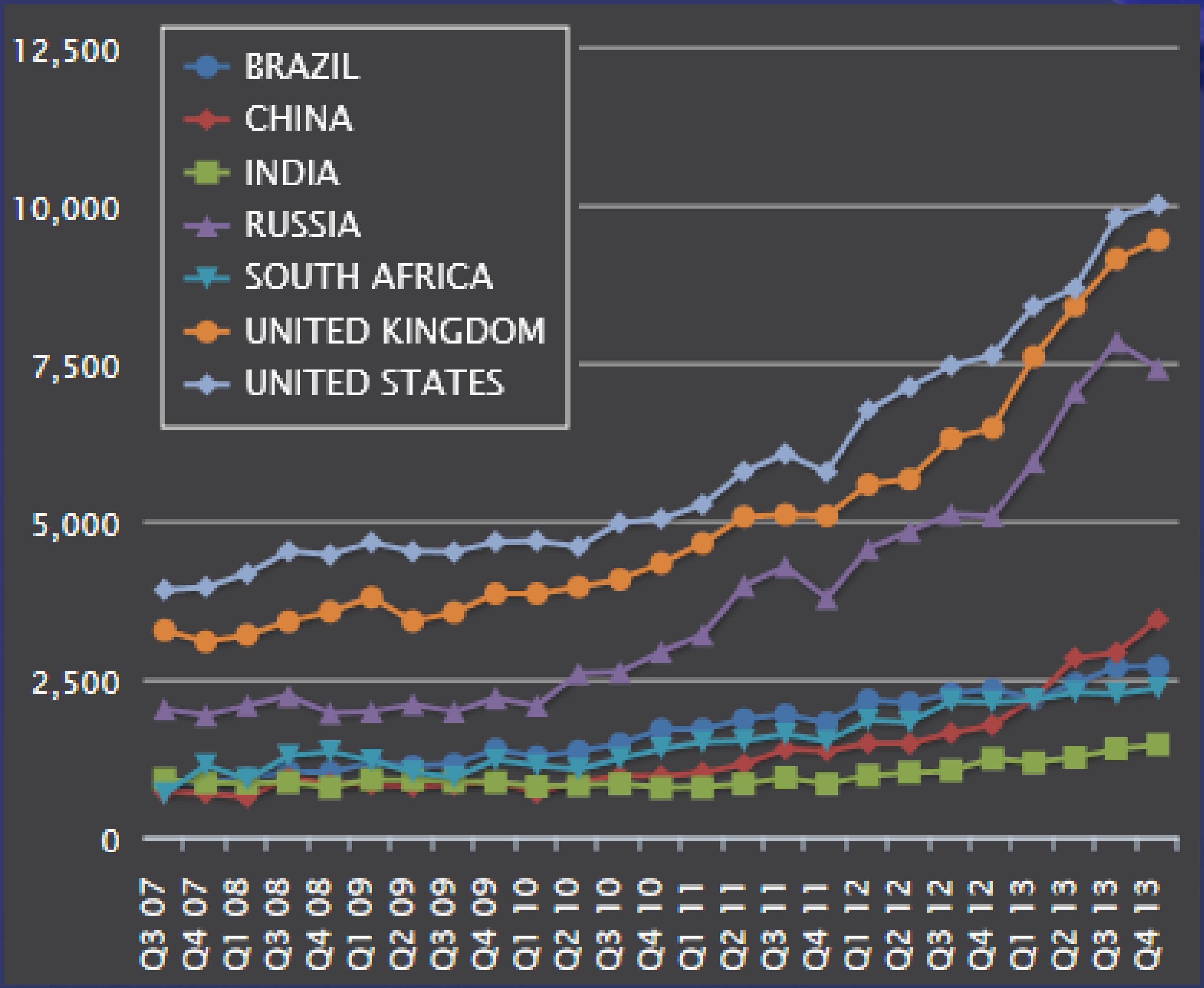
- Alcatel Lucent.

Boosting Access Speeds – Test Results

km	Native VDSL2	Delta with VDSL2+ BBA	Delta with VDSL2 + Vectoring	Total bandwidth VDSL2 + BBA + Vectoring
1,8	16 M	7,8 M	11,0 M	➡ 34,8 M
2,1	14.9 M	9,2 M	6,1 M	➡ 30,2 M
2,4	12.6 M	10,7 M	3,0 M	➡ 26,3 M
2,7	9.8 M	8,1 M	3,1 M	➡ 21,0 M
3,0	7.3 M	5,9 M	1,9 M	➡ 15,1 M
3,3	5.8 M	4,8 M	0,2 M	➡ 10,8 M

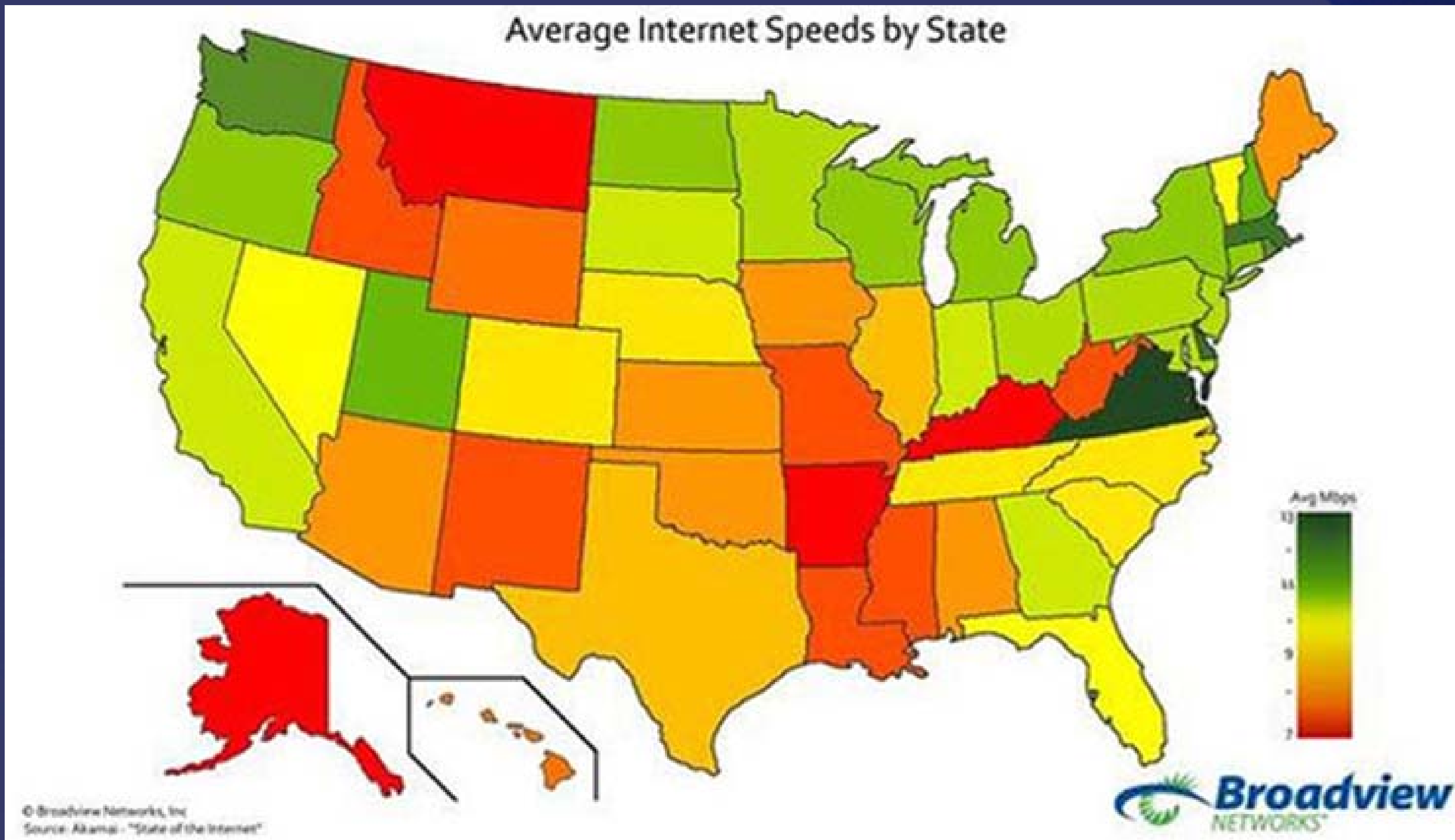
- Actelis Networks.

Growth in Average (Fixed) Connection Speeds



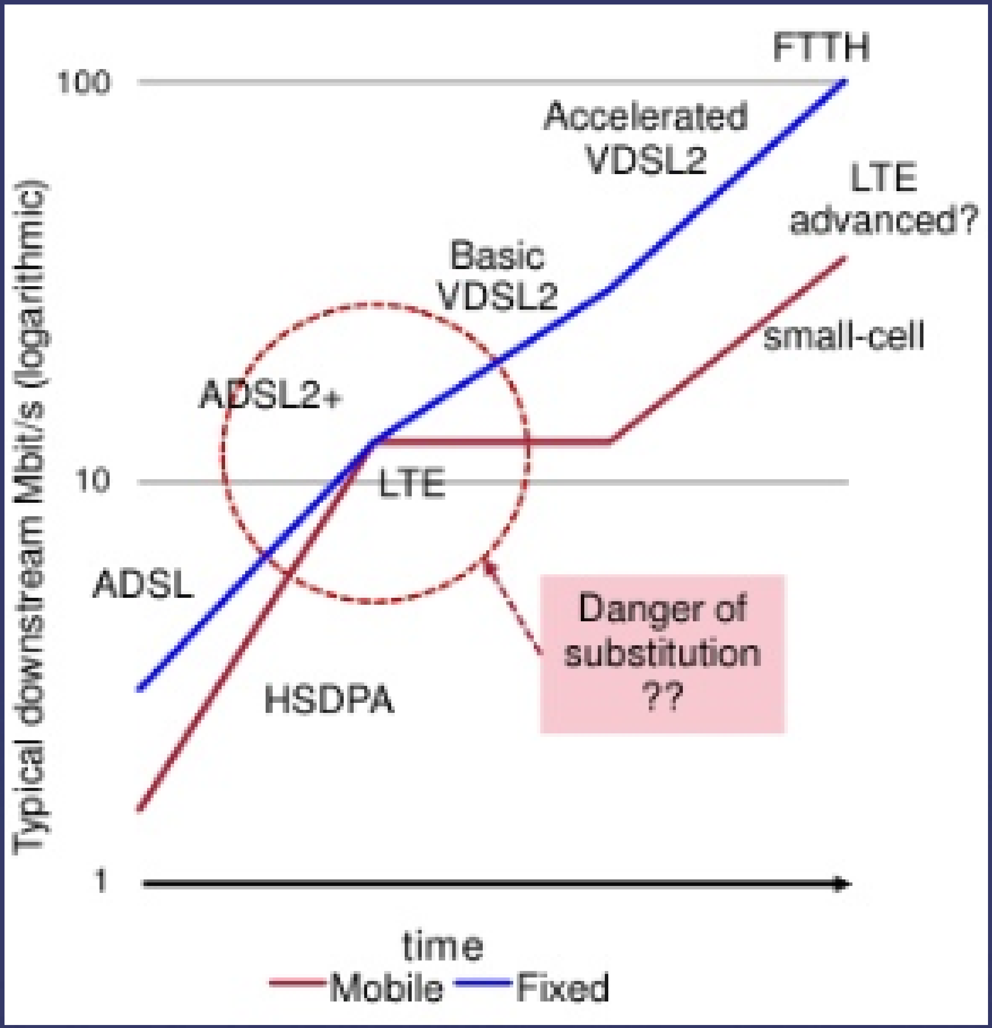
Akamai

Average Internet Connection Speeds – U.S.



Broadview, based on Akamai.

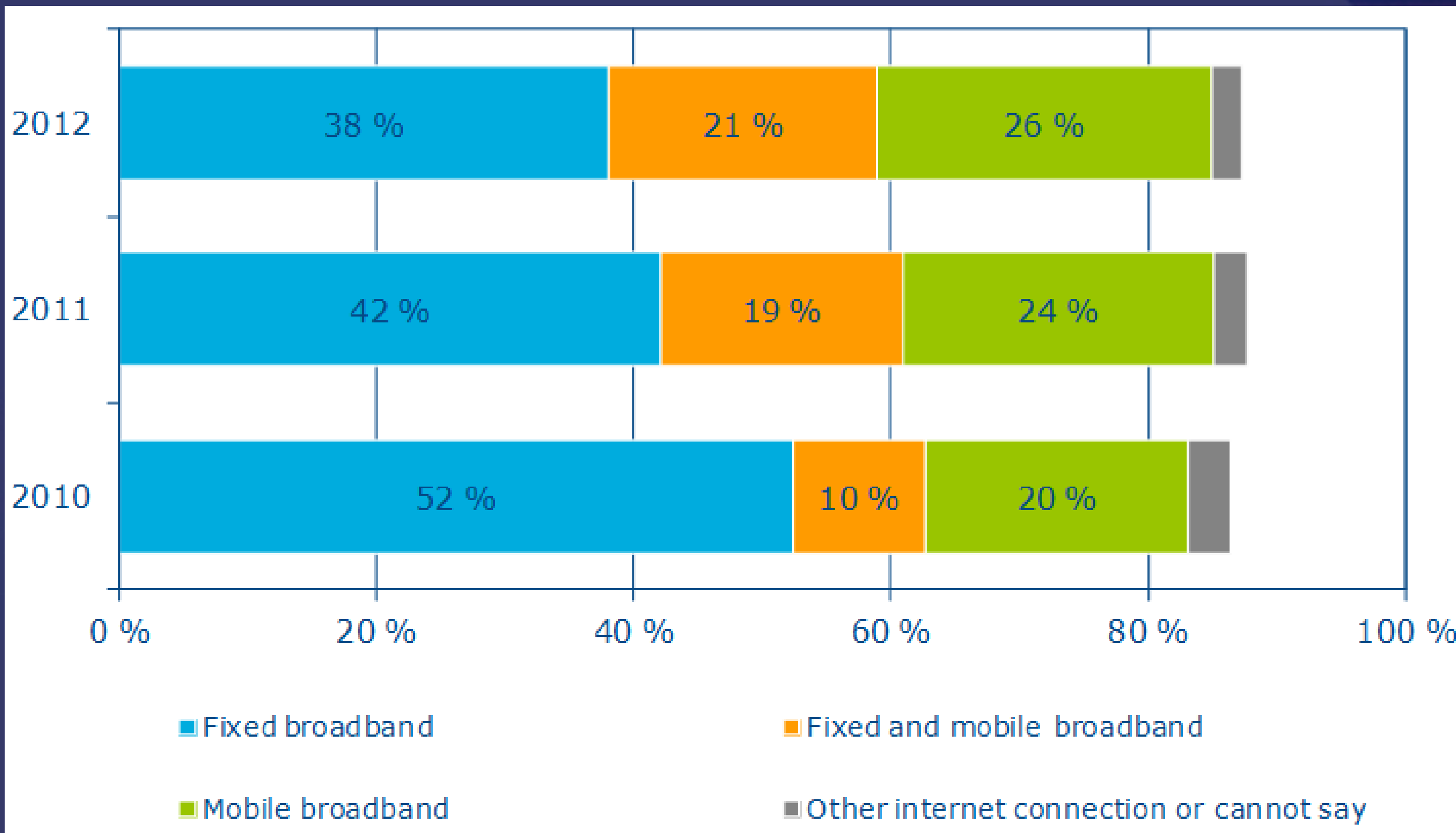
Mobile versus Fixed



- Analysys Mason.

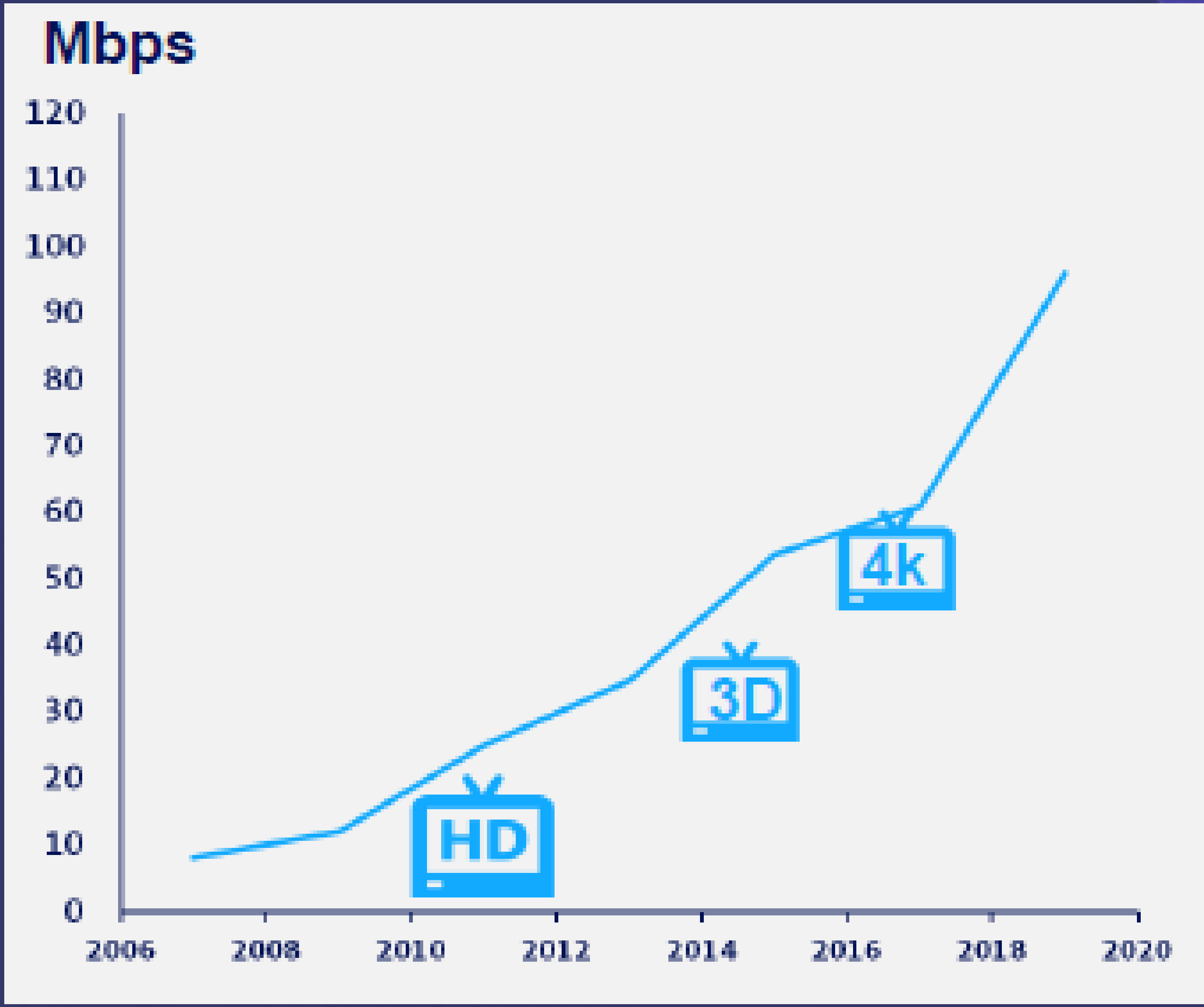
Consumer Choices

Fixed/Mobile BB in Finnish Households



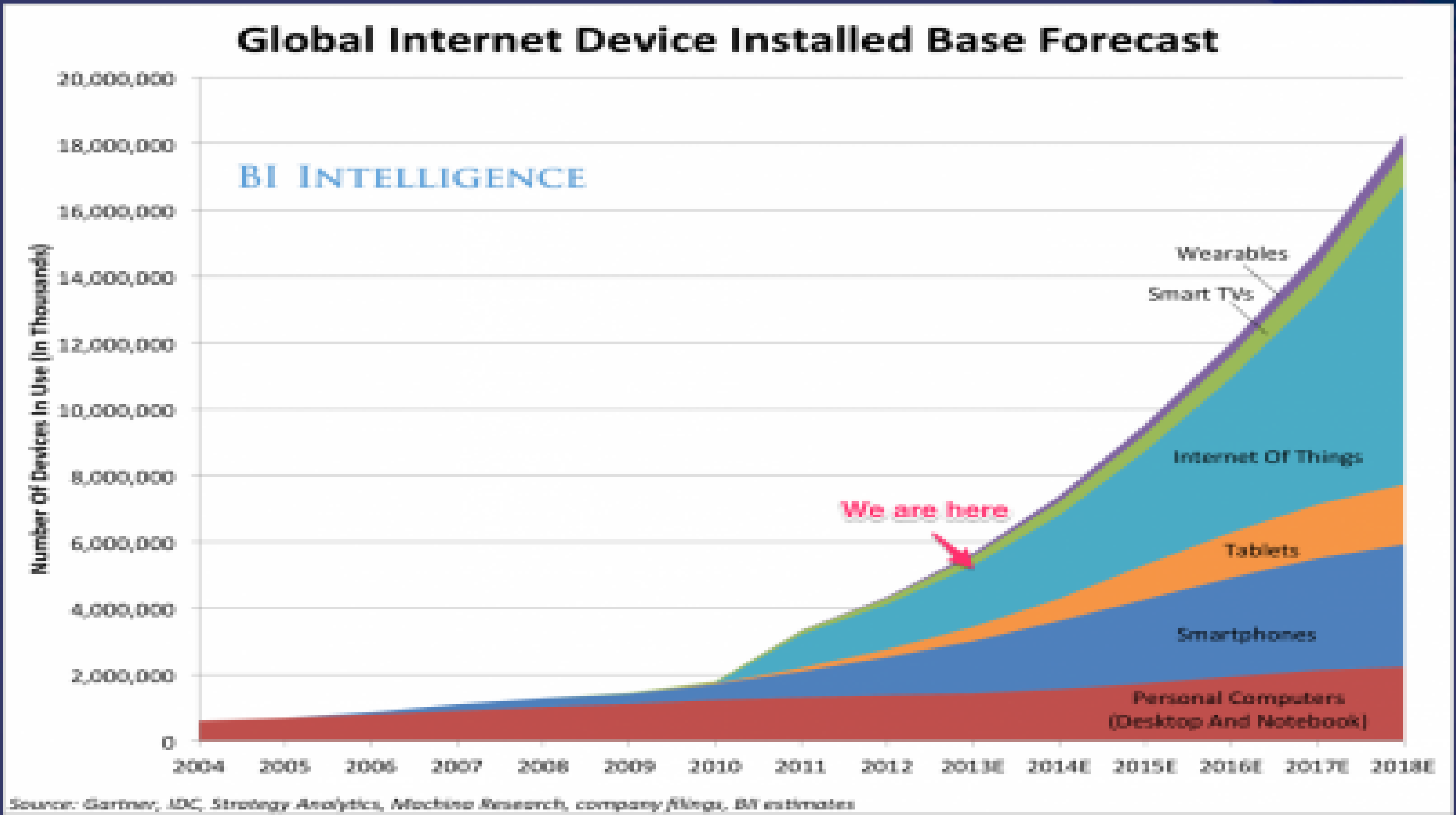
- Finnish Regulatory Authority.

Changing Customer Expectations



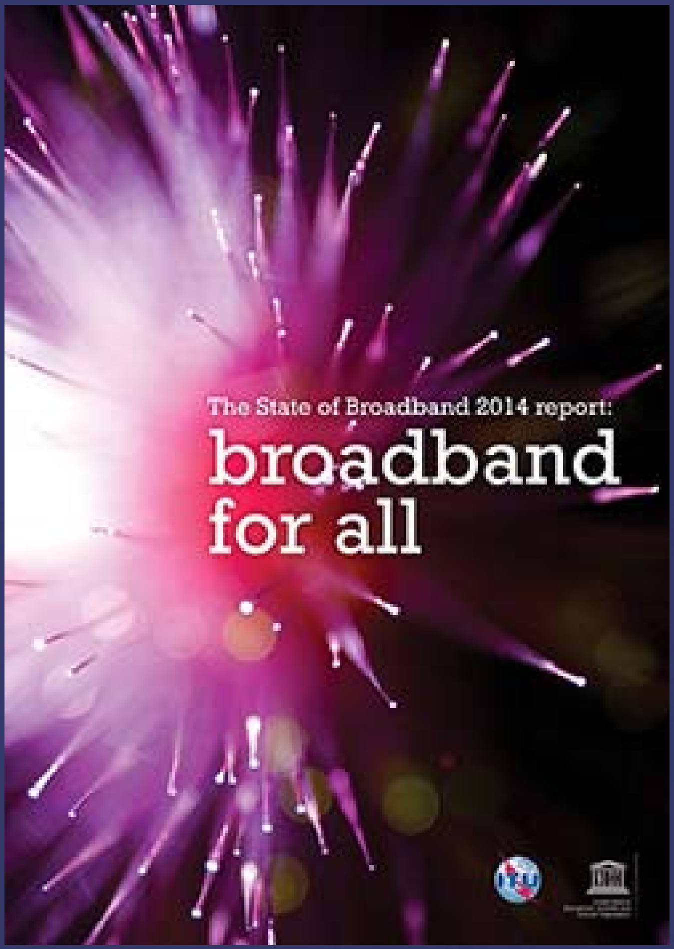
- Swisscom.

Consumers are becoming more sophisticated



- Business Insider Intelligence.

The State of Broadband 2014: Broadband for All



www.broadbandcommission.org

Thank you for your attention

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