

# What Broadband?

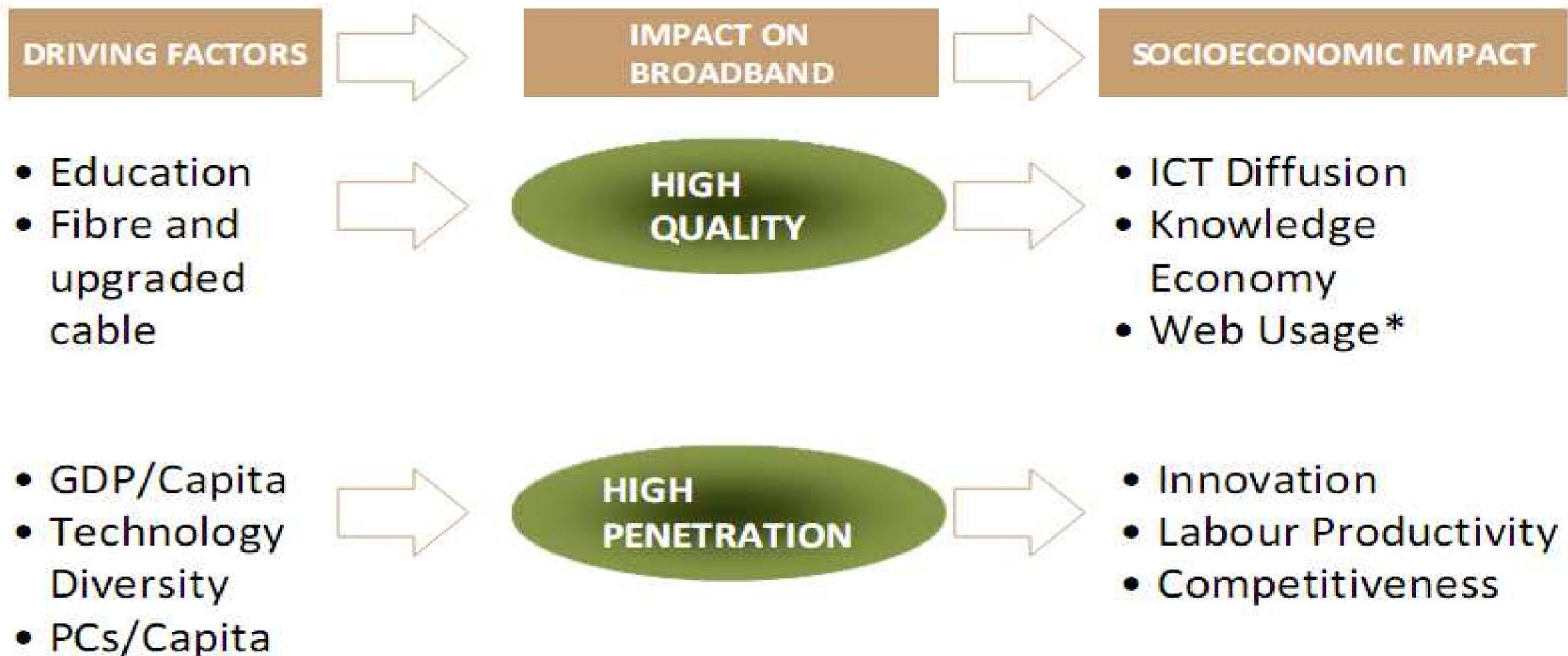
@ UKNOF 15

# Why quality matters

What the study established in 2008

## Impact of Quality and Penetration

MAIN FACTORS ASSOCIATED WITH BROADBAND QUALITY AND PENETRATION



\* based on limited sample of ComScore data



Saïd Business School  
UNIVERSITY OF OXFORD

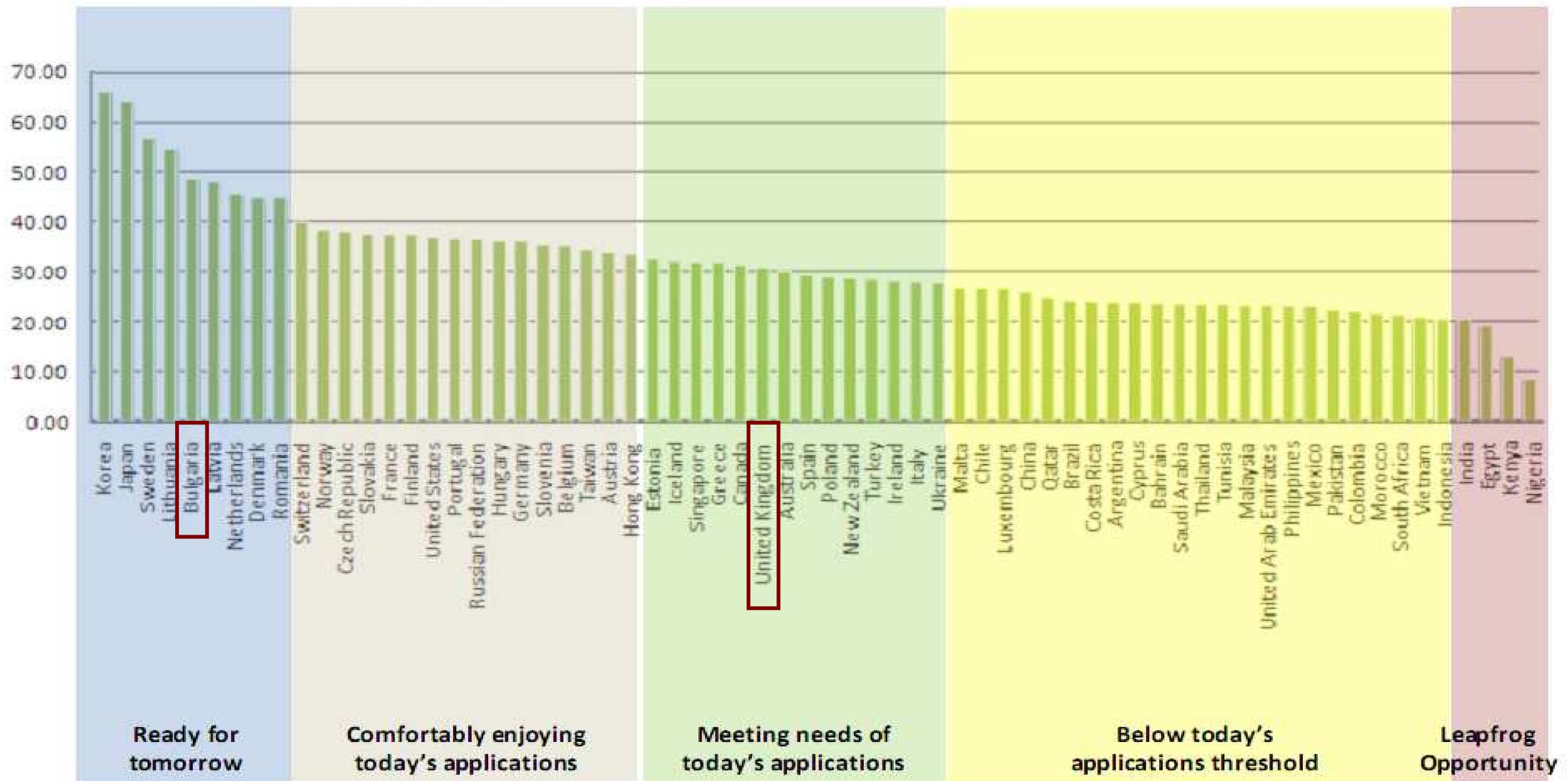


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# One measure of quality

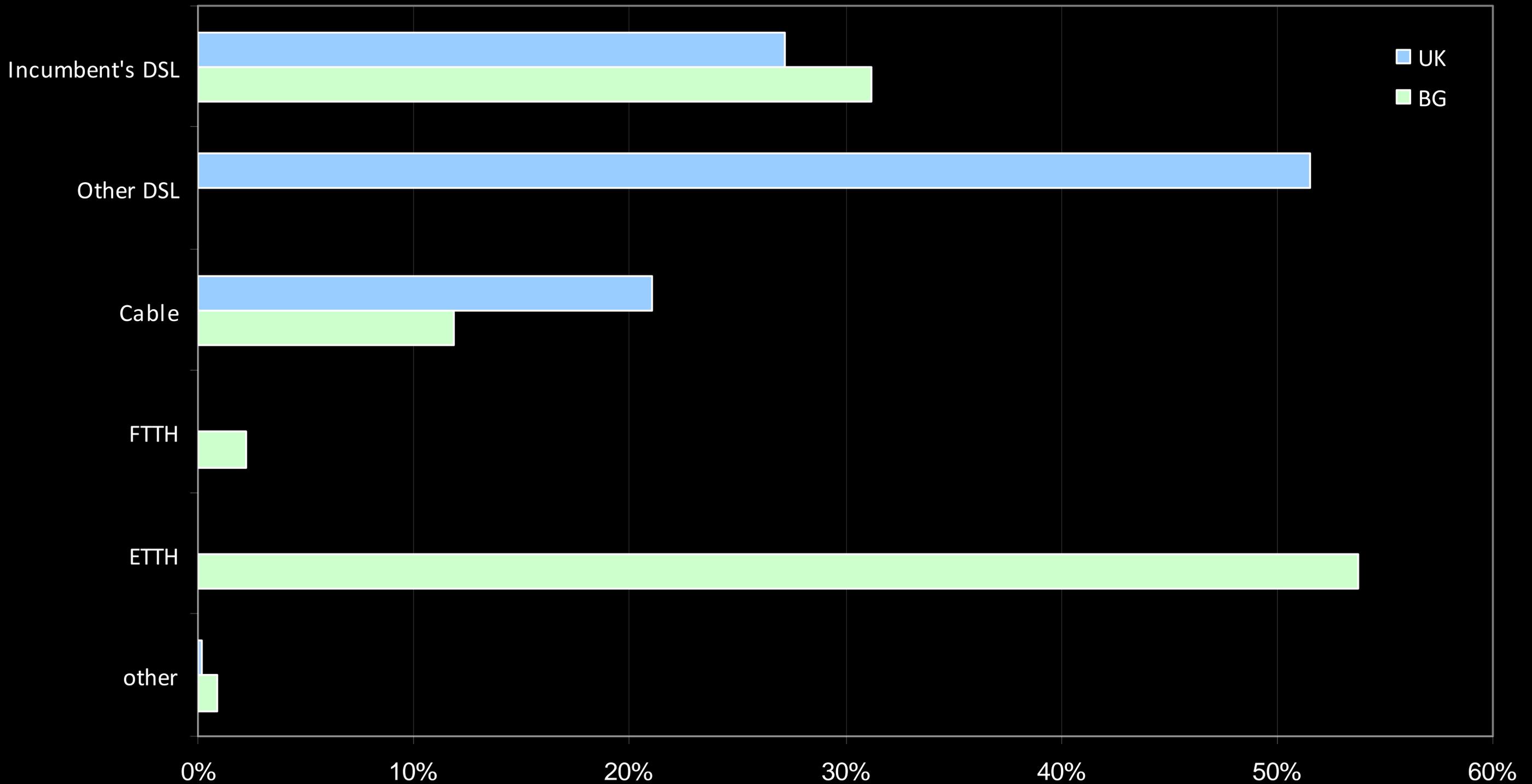
## BQS by countries 2009



# Slight difference

- GDP (nominal)
  - UK - \$ 43000
  - BG - \$ 6000

# Technology choices



# The typical ISP

- Infrastructure based – owns cable into customer's home, some fiber assets, metro networks, internet connectivity, datacenters
- From 1000 to around 50k customers
- Near-monopoly in their areas
- Virtually debt free
- Organic growth

# How – Commercials

- Very Low Customer Acquisition Cost
- > 90% prepaid customers
- High churn rate (mostly late payments)
- > 80% of OPEX is salaries
  
- Light regulation

# How – Technology

- In-house and local R&D
- Very good procurement
- Mixture of technologies and topologies
  - FTTP, Cat5/6 to the home
  - Cat5/6 along the street
  - GPON/GEAPON
  - RF overlay or IPTV
- Low-cost “dumb” access
- Smart aggregation (NGA BRAS)

# How – Technology

## Ethernet along the street



< GBP 6

< GBP 10  
IGMP, QoS and VLANs



< GBP 15

# How – Technology

FTTP



< GBP 40

IGMP, QoS, VLANs

GigE Uplink

Pair of media converters

< GBP 80

# How – Technology

NGA BRAS ;)

8 cores \* 2 GHz

300 Gbps memory bandwidth

100+ Gbps I/O bandwidth

20k+ customers per server



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