Build it! ... but what if they don't come?

J. Scott Marcus, Dieter Elixmann



The research question

- It is fairly clear that demand for broadband can drive supply.
- How does supply affect demand?
- Will abundant supply stimulate creation of new bandwidth-hungry applications?
- Alternative hypothesis:
 - too little available bandwidth can *reduce* consumption, but
 - "too much" bandwidth availability has only limited ability to *promote* bandwidth consumption.



Build it! ... but what if they don't come?

- What is known about bandwidth demand?
- Three case studies:
 - The "dot com bust" of 2000
 - The transition from dial-up to broadband
 - The deployment of fibre-based NGA in Japan and South Korea
- Observations



Internet traffic growth

Important to distinguish between:

- Growth in the number of users
- Growth in traffic per user



Increase in Internet Traffic

Global Internet Traffic Growth



Source: OECD Communications Outlook 2011 data, based on Cisco VNI, our calculations

EuroCPR, Brussels, 21-22 March 2013

CONSULT

Increase in Internet Users



Source: ITU World Telecommunication /ICT Indicators database



Traffic per user (busy hour)



The "dot com bust"

- The most obvious counter-example to the "build it and they will come" maxim is visible in the US dot com bubble/bust.
- During the 1990s, the boom saw rapid deployment
 - of long haul fibre infrastructure,
 - of metro fibre rings in larger cities, and
 - the deployment of substantial transatlantic capacity.
- Beginning in March 2000:
 - dramatic fall of technology stocks,
 - disappearance of many Internet firms,
 - Collapse or retrenchment of many prominent telecommunications network operators including MCI WorldCom; Global Crossing; Qwest; and Genuity.



The "dot com bust"

- Resulted in a massive over-supply of long-haul fibre in the United States.
- For several years after the dot com bust, long distance transmission capacity could be acquired for a small fraction of what it had cost to build the capacity.
- Suggests that there must be an upper limit to the ability of supply to stimulate demand.



Shift from dial-up to broadband

- Traffic statistics prior to 2005 are uneven.
- We reviewed data on shipments of service provider routers, and of long-haul DWDM, as potential proxies for traffic growth.
- Business cycle effects (the economic crisis circa 2009) loom large.
- A sophisticated analysis would be needed to see if any effect is visible in the data.



Shift from dial-up to broadband





Dell'Oro data, our calculations



Fibre-based NGA in Japan and South Korea

 If an effect is visible anywhere, it ought to be visible in Japan and South Korea.



Japan and South Korea vs Europe



Data sources: Cisco VNI 2012 online database, OECD, ITU, own calculations

EuroCPR, Brussels, 21-22 March 2013

CONSU

Japan vs Europe



Concluding observations

- Results are not definitive, but ...
- None of the coarse indicators that we looked at substantiates the existence of a strong "build it and they will come" effect.
- The Japan data support the alternative view.
- The South Korea might support the existence of a "build it and they will come" effect, but weaker than many have assumed.



The good news

Methodologically, this suggests that models of broadband demand are not likely to go far astray if they treat broadband demand as being for the most part exogenous (i.e. largely independent of supply).
This is a useful simplification.



The broader implications?

- If ultra-fast broadband really generates societal benefits, then why are those benefits not more visible in the way in which consumers use their broadband connections?
- Are the NGA networks that have been deployed in Japan to date (presumably at great cost) largely empty in terms of traffic carried?
- Consumer incremental WTP for ultra-fast broadband appears to be no more than €5/month. Is it possible that consumers are doing a better job than policymakers when it comes to assessing the incremental benefits (today!) of ultra-fast broadband?

