

National regulatory framework -
key technological decisions
and the effect on the diffusion of broadband services
on rural areas in Greece

Dimitrios G. Xenikos

Dept. of Humanities, National Technical Univ. of Athens

Broadband access in rural areas?



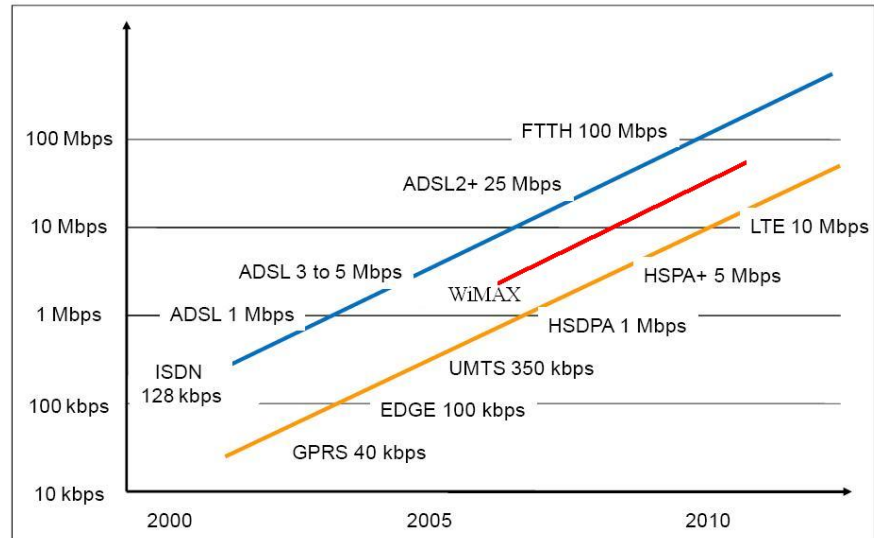
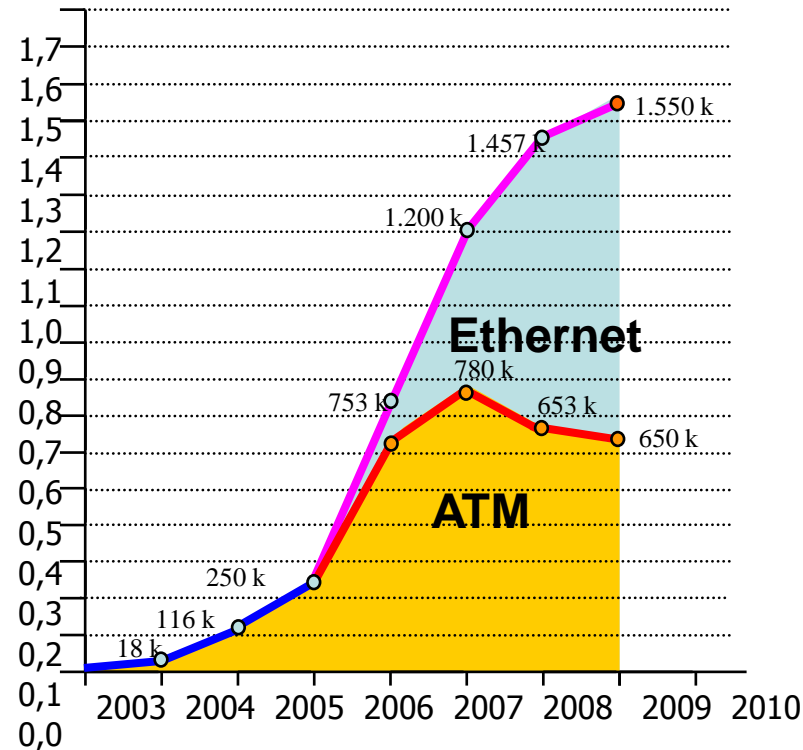
Typical case

Core network:
optical fiber

Access network:
copper (tel + xDSL)
wireless (tel + WiMAX)

Broadband access

ADSL ports
(x 1.000.000)



Every home in Greece has a telephone connection (universal service)

PSTN + ISDN: ~ 4.650.000 subscribers

Fixed wireless Access: ~ 100.000 subscribers

Bandwidth needs

Metropolitan area - A household with ~24 Mb/s could enjoy:

IPTV service:	8 Mb/s,
Gaming:	3 Mb/s,
Video-telephony:	1 Mb/s,
Fast internet:	12 Mb/s

On-the-move:

emphasis on mobility (services with reasonable bandwidth /e-mail, browsing, gaming...)

Rural areas:

emphasis on portability (rather than bandwidth).

What is the most appropriate access method for rural areas and islands?

Examine 2 cases:

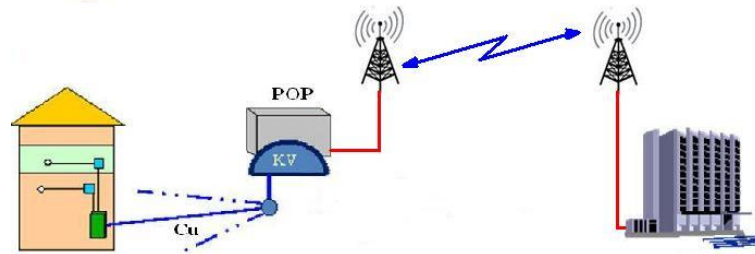
- Fixed access
- Mobile access

Can/ Does the regulator promote certain technologies?

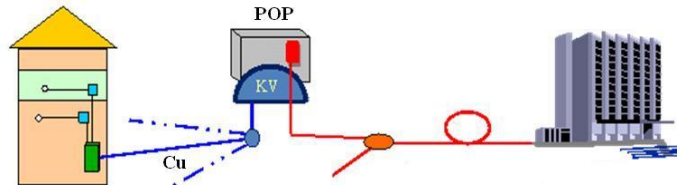
- Allocation of 2.5 GHz band
- Favor FTTH over FTTC/FTTB or VDSL2

Fixed access

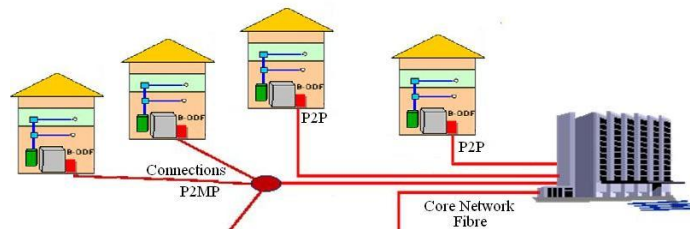
Fixed wireless access



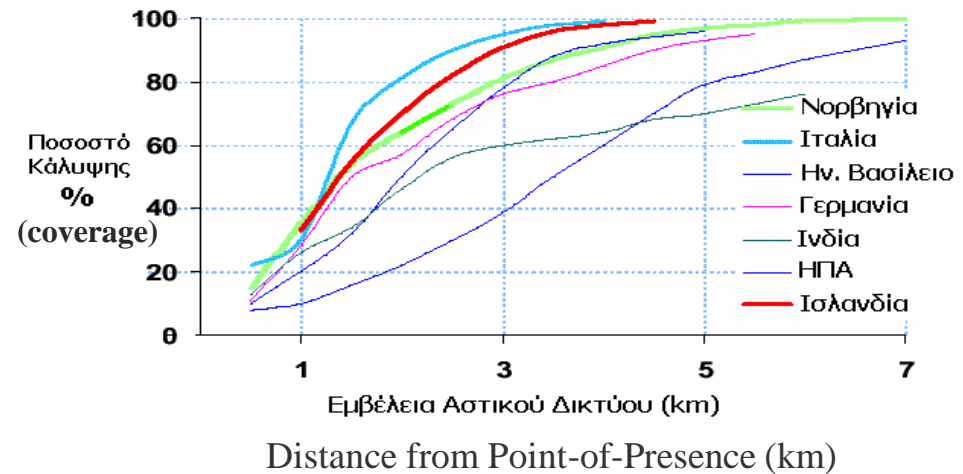
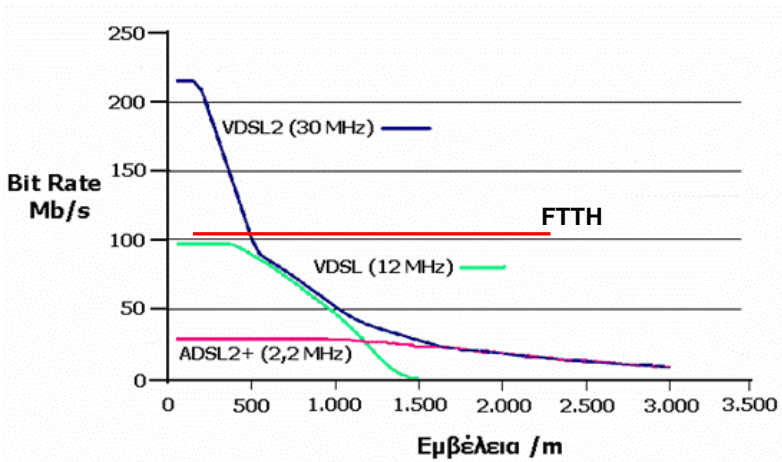
FTTC (cabin)



FTTB (building)



Comparison ADSL2+, VDSL, VDSL2, FTTH



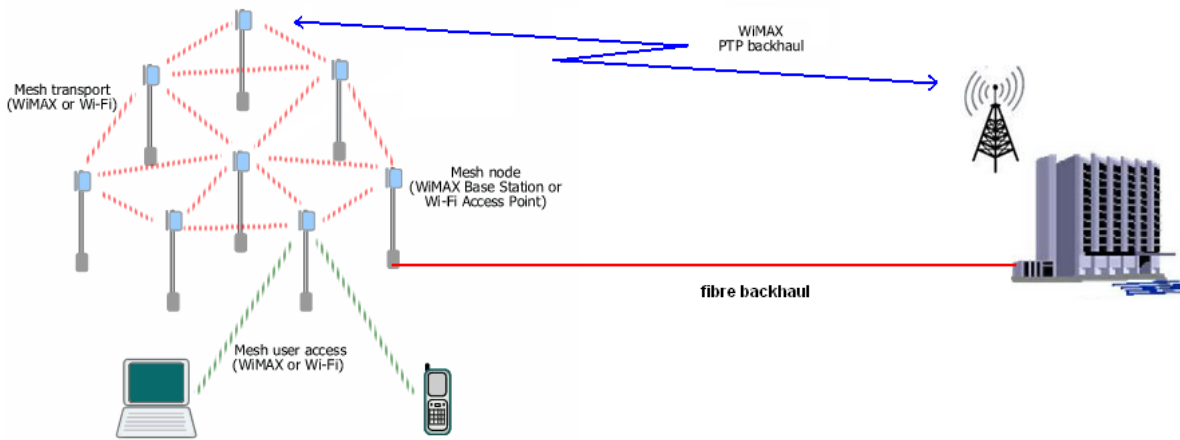
Greek Cu network could be an “intermediate case” between Norway and Germany

Regulation: Fiber-to-the-?

- OTE substitutes gradually Cu with fiber,
targeting FTTC + VDSL2
 - Networks with distributed PoP are very hard to be regulated
 - Regulator + ministry favor FTTH (not FTTC or FTTB)
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- Long term project **stops** a short term investment
 - Huge cost FTTH. Absorbed by whom?
 - Very complicated technically (OPEX)
 - **RURAL AREAS** (huge CAPEX + OPEX) ???

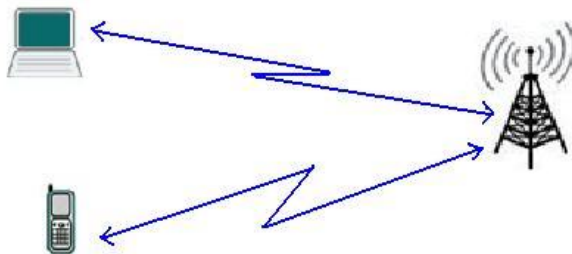


Wireless access



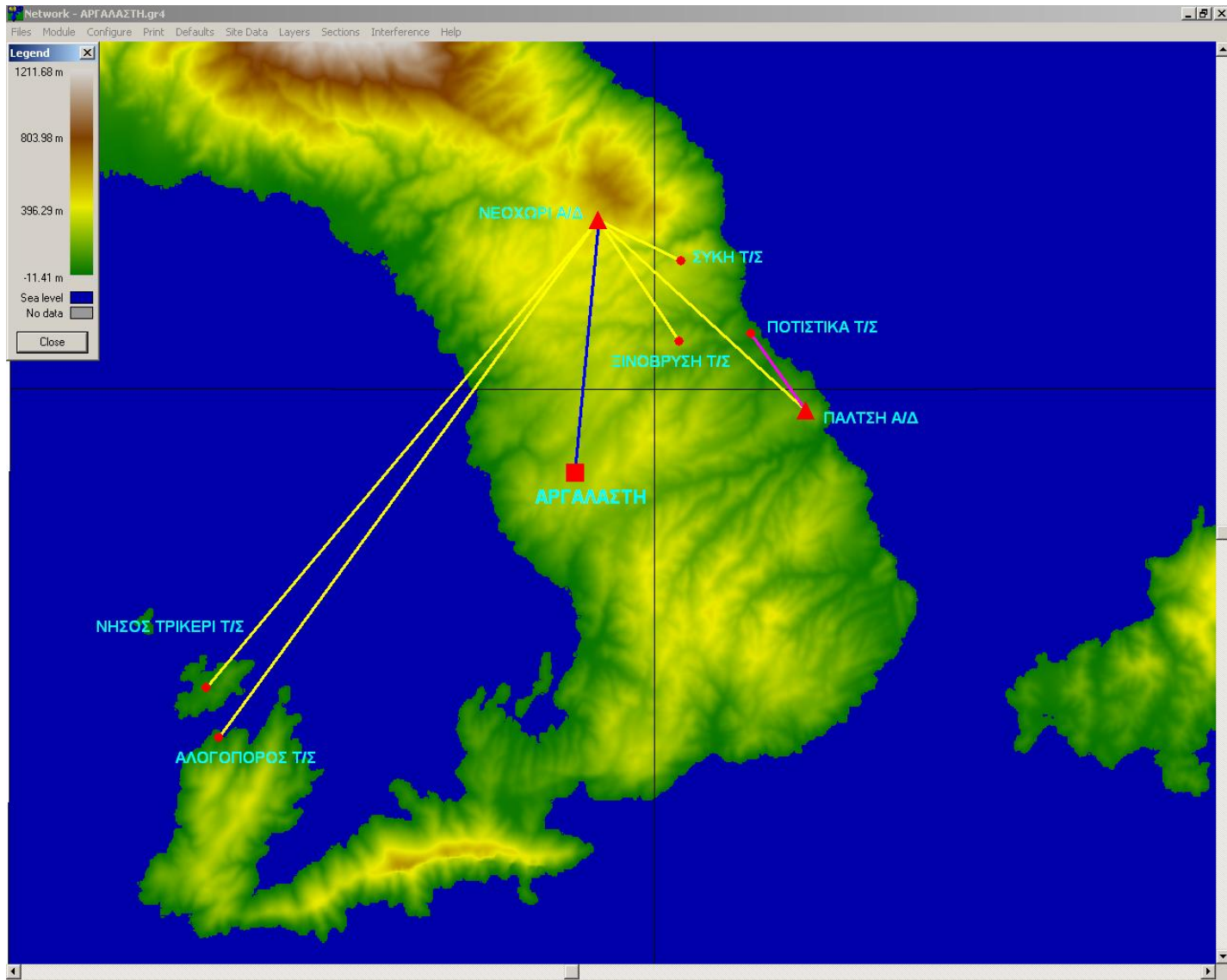
WiFi mesh

+ backhaul (fiber, DSL,
WiMAX, p-t-p link...)

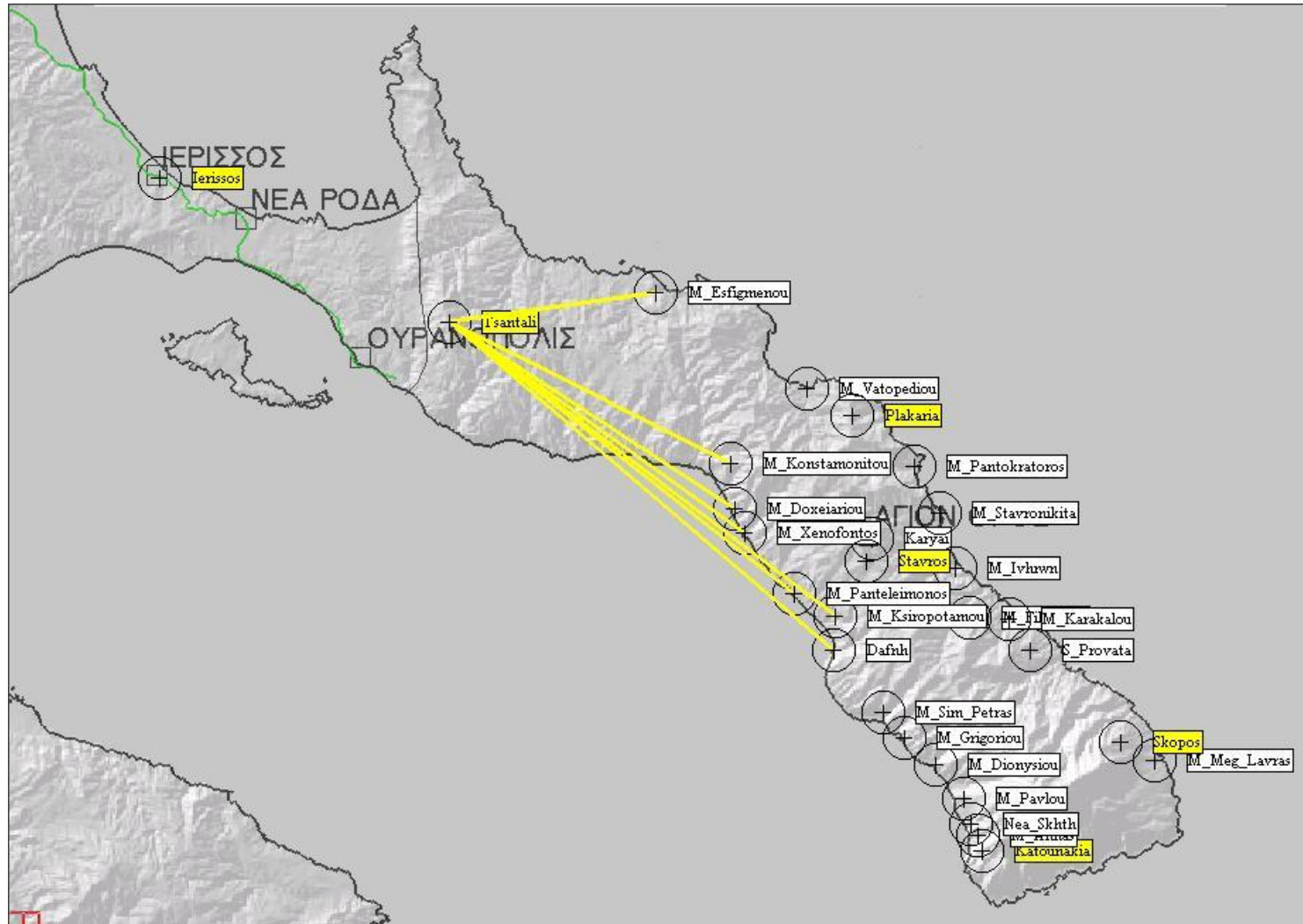


Mobile network
(3G, WiMAX)

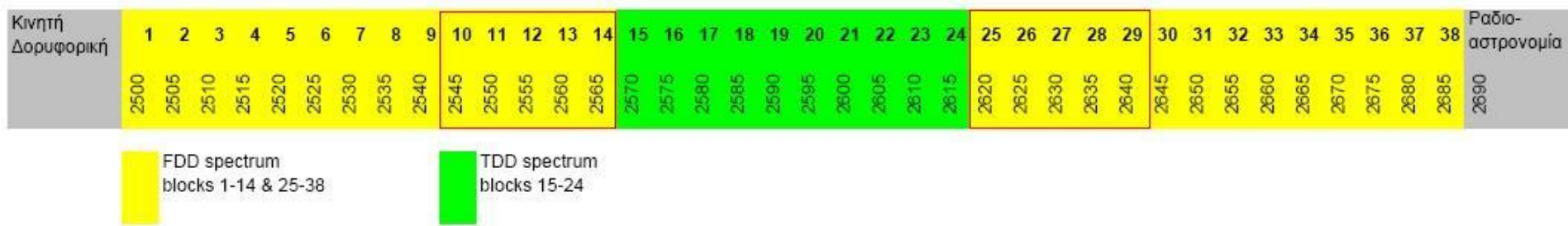
Case of Fixed Wireless Access



Wireless access (substitution 2G systems with WiMAX, use same infrastructure)



Regulation: frequency allocation



- The band was used for universal service (allocated to OTE till 2020)
 - 2G Fixed wireless systems implemented by OTE (serving 70,000 households)
 - The regulator recalled it in 2006 (by law)
 - Public consultation for re-allocation of the band
 - “Intention” to allocate it to (at least) the 3 mobile operators
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- Fixed operator -> Mobile operators
 - All existing 2G systems should be upgraded (~60 million Euros)
 - Cost absorbed by whom?

Proposal

Regulation + ministry may promote/ demand:

- Fiber to the Community (independent of population)

There is one way to fix smth and a million ways to destroy it

Save EKKE, NHRF and NCRS Demokritos