Mobile vs fixed networks: economics and regulation, the African experience

Telecommunications Infrastructure & Economic Performance
16-17 October 2008
Chaire Innovation & Regulation des Services Numériques

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Motivation of the presentation

- Market opening in the 90's step into a context of growing mobile telephony
- Regulation attempted to foster mobile telephony through an asymmetric regulation
- In ten years, mobile operators became the dominant operators on converging markets
- Fixed networks in many countries eventually weakened, they now risk bankruptcy
- The regulatory issue now is: do Africa still need fixed network and, if the answer is yes, how can we manage to keep them alive ?

Summary

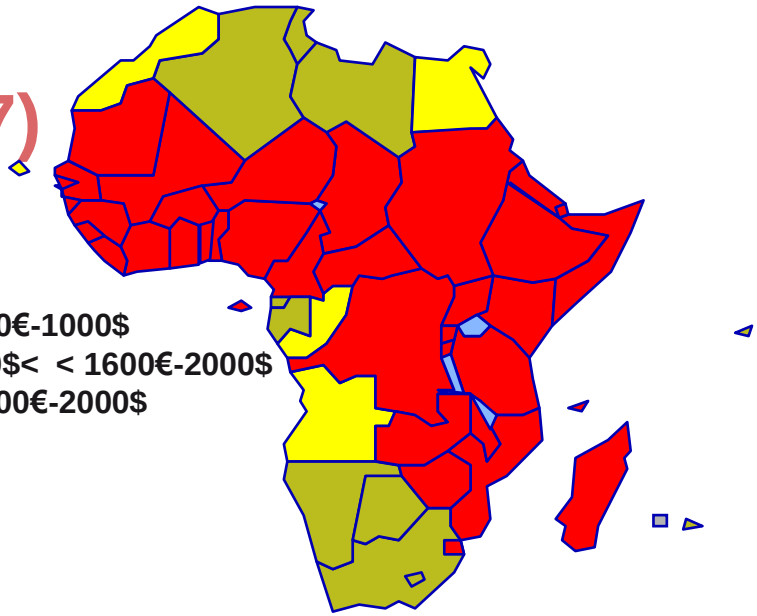
Telecom in Africa

Telecom and development

Economics of telecom networks

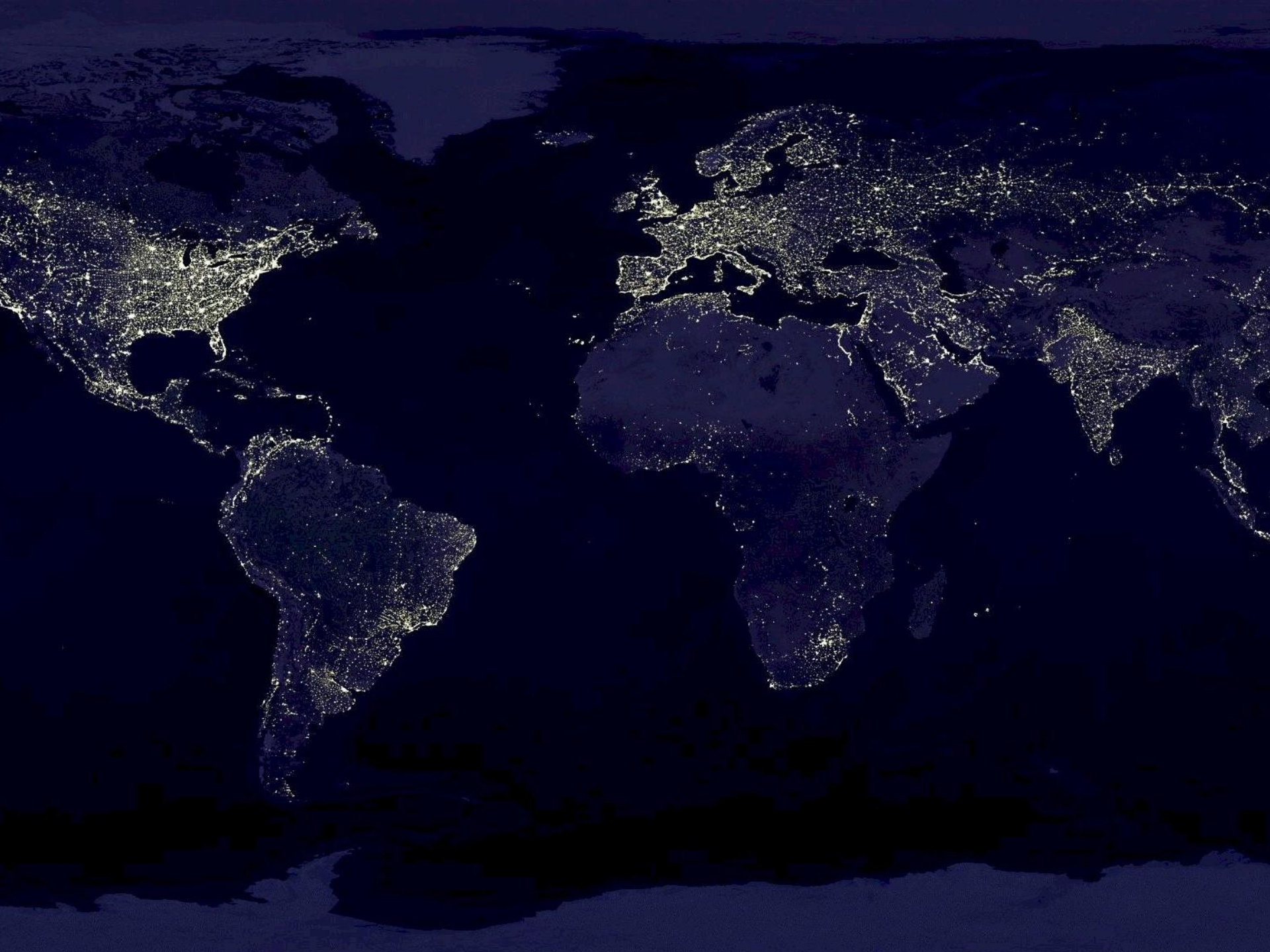
Policy issues

Telecom in Africa (2007)



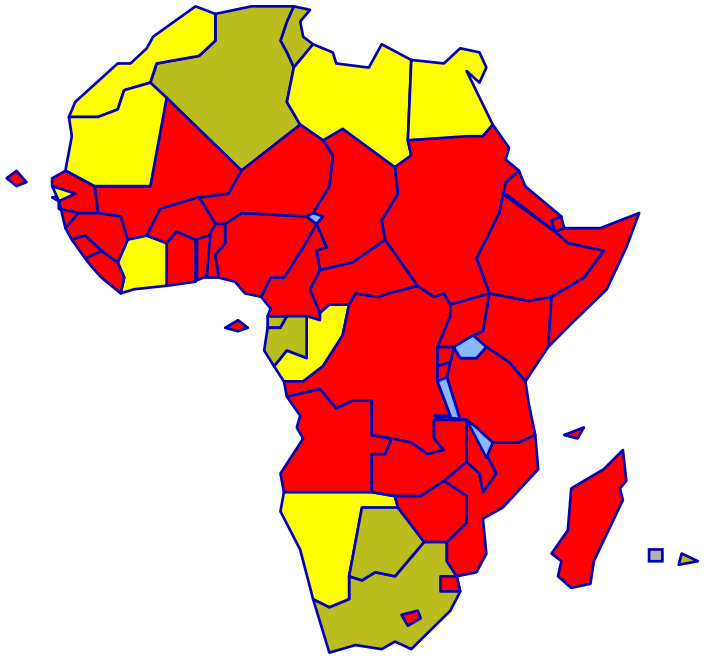
- 54 countries
- Population: 965 m
- Density: 32 inhab/km2
- GDP per capita: 835 €
- Main lines: 30.6 m (3.25 per 100)
- Mobile subs (simcards): 270.6 m (28.1 per 100)
  90 m in NA + 42 m in SA
- Broadband subs: 1.8 m (0.2 per 100); 6% of main lines
- Internet subs: 9.6 m (1.1 per 100)
  Internet users: 52 m (5.5 per 100)
- Low income, low density, low telecom penetration continent but, a mass market of very small consumers

Source: ITU



Mobile surge

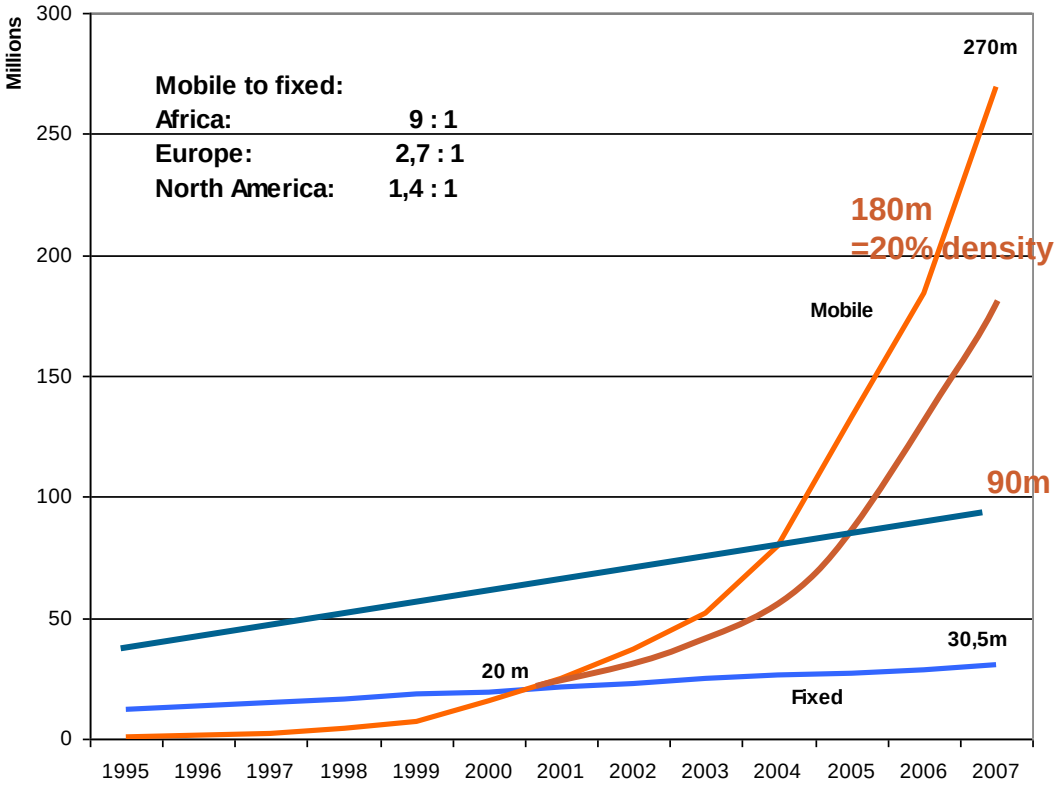
Mobile density



Mobile per 100 < 35%
Mobile per 100 35< < 70%
Mobile per 100 > 70%

Source: ITU

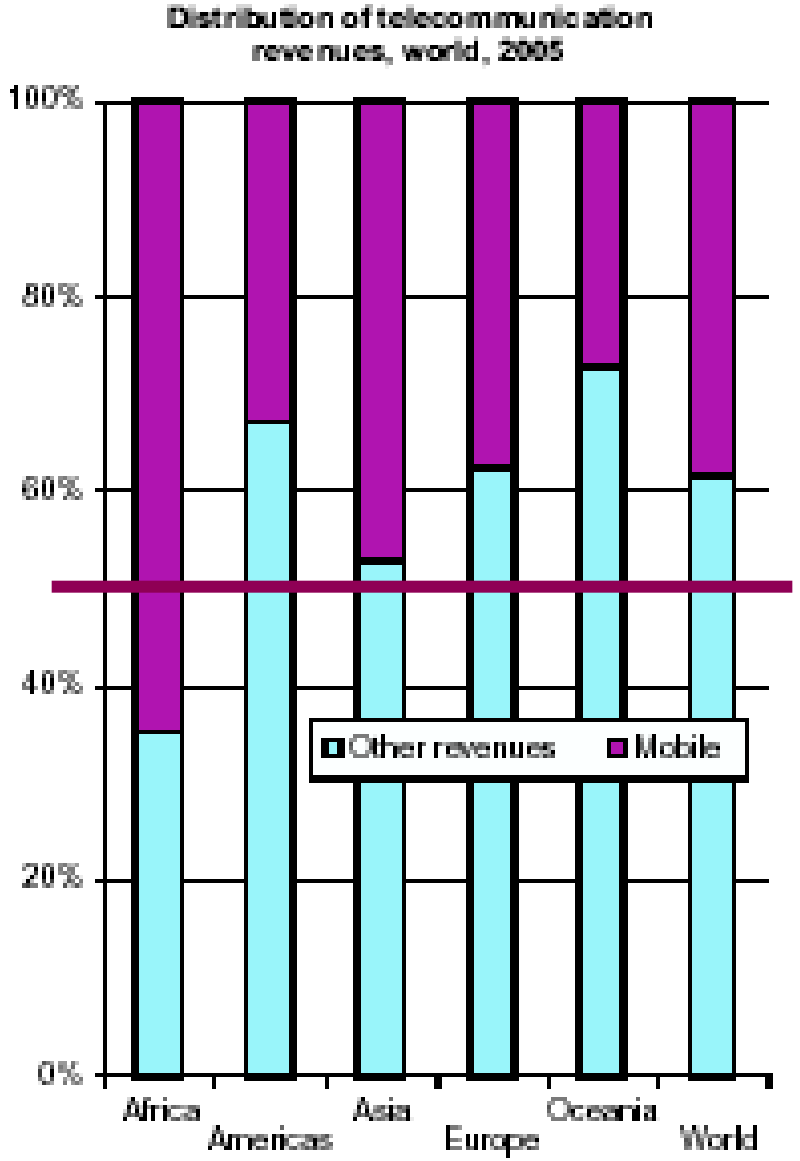
Mobile vs. fixed growth connections vs. users



-15%: multisims
-20%: inactive #
Subs ~ 2/3 of simcards

Mobile in Africa

- Africa is the only continent where mobile revenues are dominant
- Mobile telephony explodes while internet uses remain weak due to illiteracy, expensive access and inadequate contents
- Collective access lose interest for consumers as mobile grow up



Source: Telecommunications/ICT markets and trends in Africa - 2007

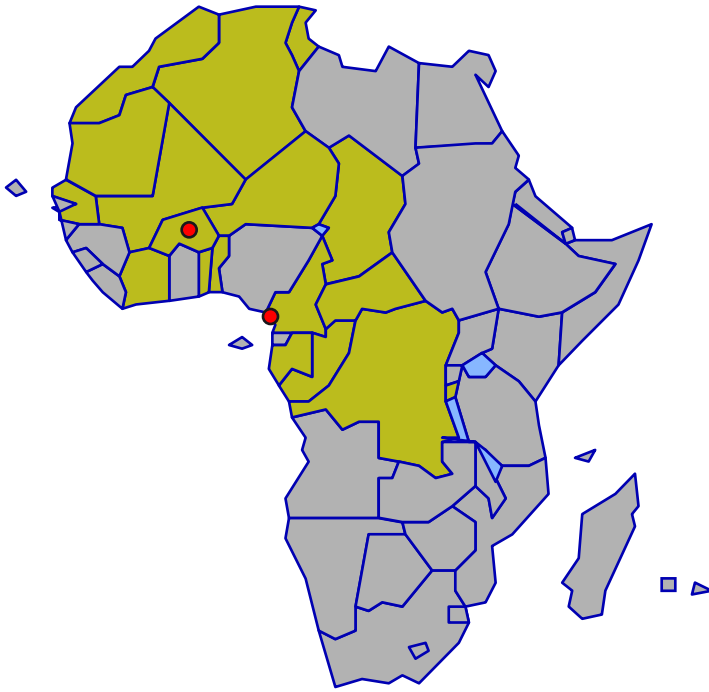
Telecom and growth

- **Before the ’00s:**
  - Telecoms restricted to fixed telephony in urban centers
  - Telecoms viewed as a luxury service
  - Economic impact: connection to the world economic and politic poles
  - Fixed telephony had been constrained by high costs, limited investments, and heavy taxation
- **Since the ’00s**
  - Telephony for the common people
  - Telecoms viewed as a primary need
  - Strong externalities

What is changing

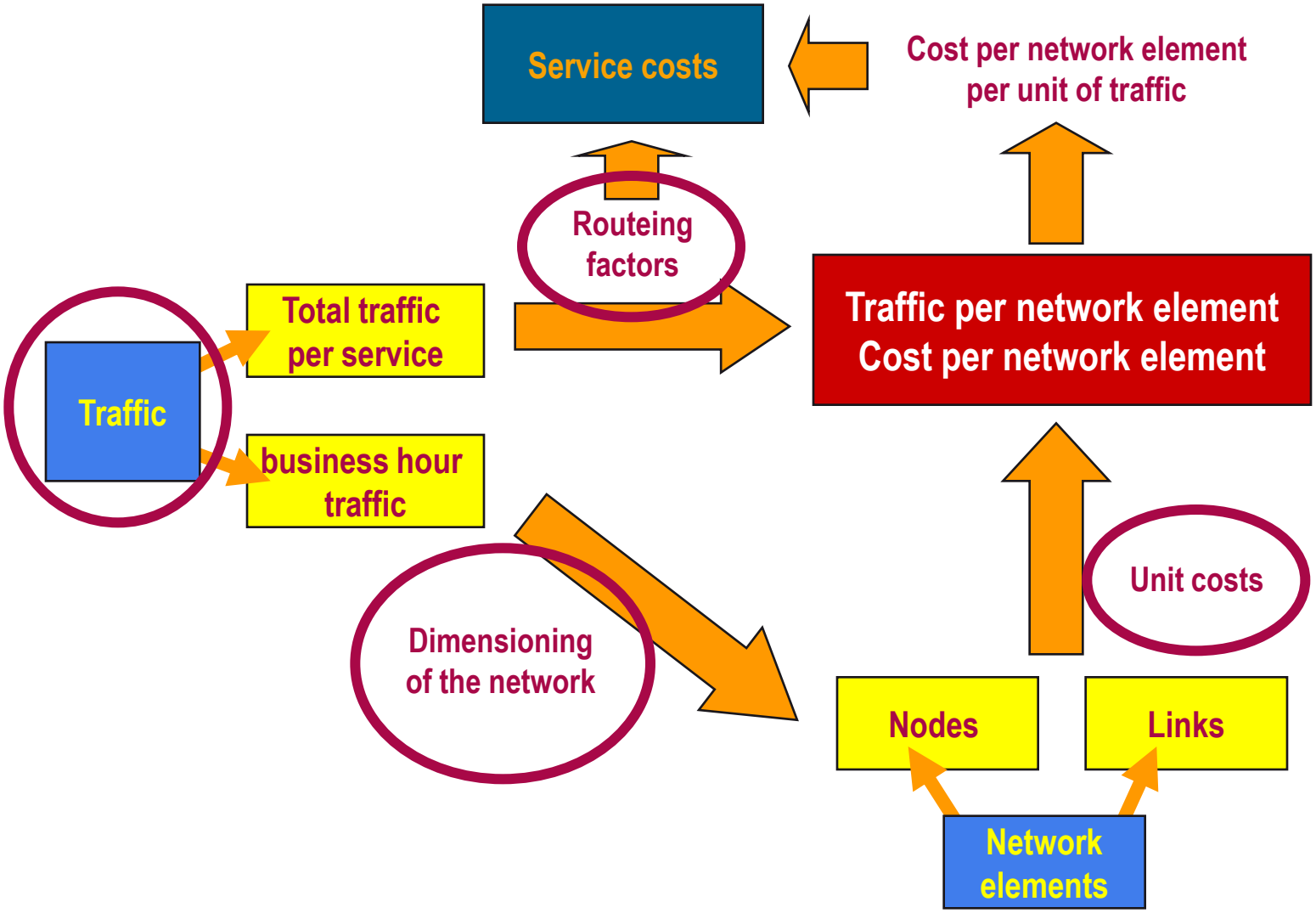
- **Declining cost of providing the service**
  - Competitive offerings (?): prices decrease slowly
  - Extended coverage of networks
- **Mobility/portability as a key attribute of the service**
- **Usages:**
  - Social links
  - Social identity – digital identity
  - Market information: telephony enable transactions
    - Level of demand
    - Prices
    - Ordering tracking
- **Consequences**
  - Virtuous circle
  - Market transparency
  - Market widening
  - Transaction eased (quickened, less expensive…)
  - Transport substitution

Our data

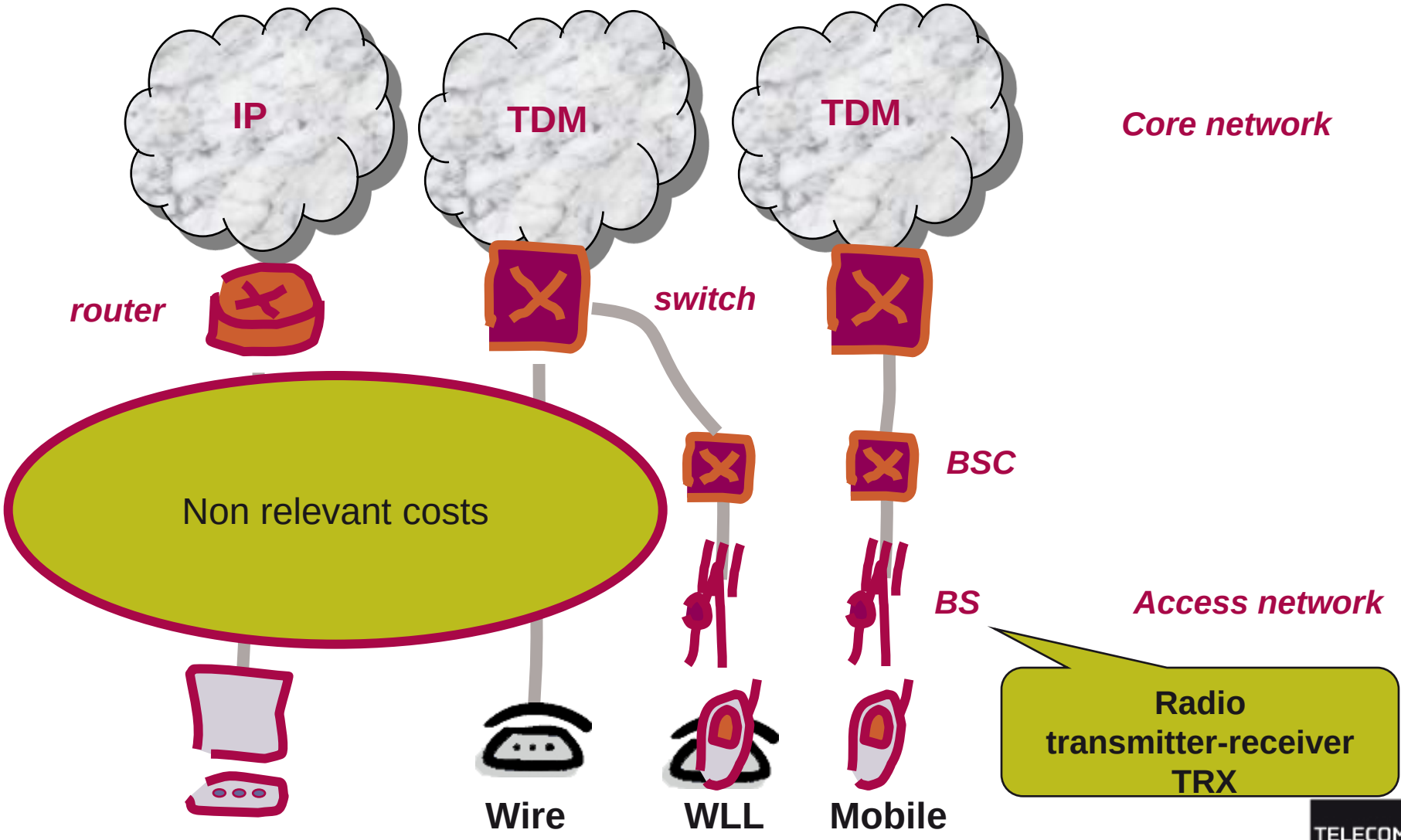


- **Continuing education for African regulators and operators (18 countries)**
- **Guidance in setting interconnection call termination prices in 6+ countries**
- **Mobile and fixed operators**
- **Period: 2002-2007**
- **Bottom-up FL- LRIC models (the "world bank" model)**
- **Study of the cost function**
- **Costs related to interconnection:**
  - Core network
  - Access network if shared
  - No marketing costs
  - No license costs or other non incremental costs
- **Business unit used: traffic (minutes)**

LRIC model

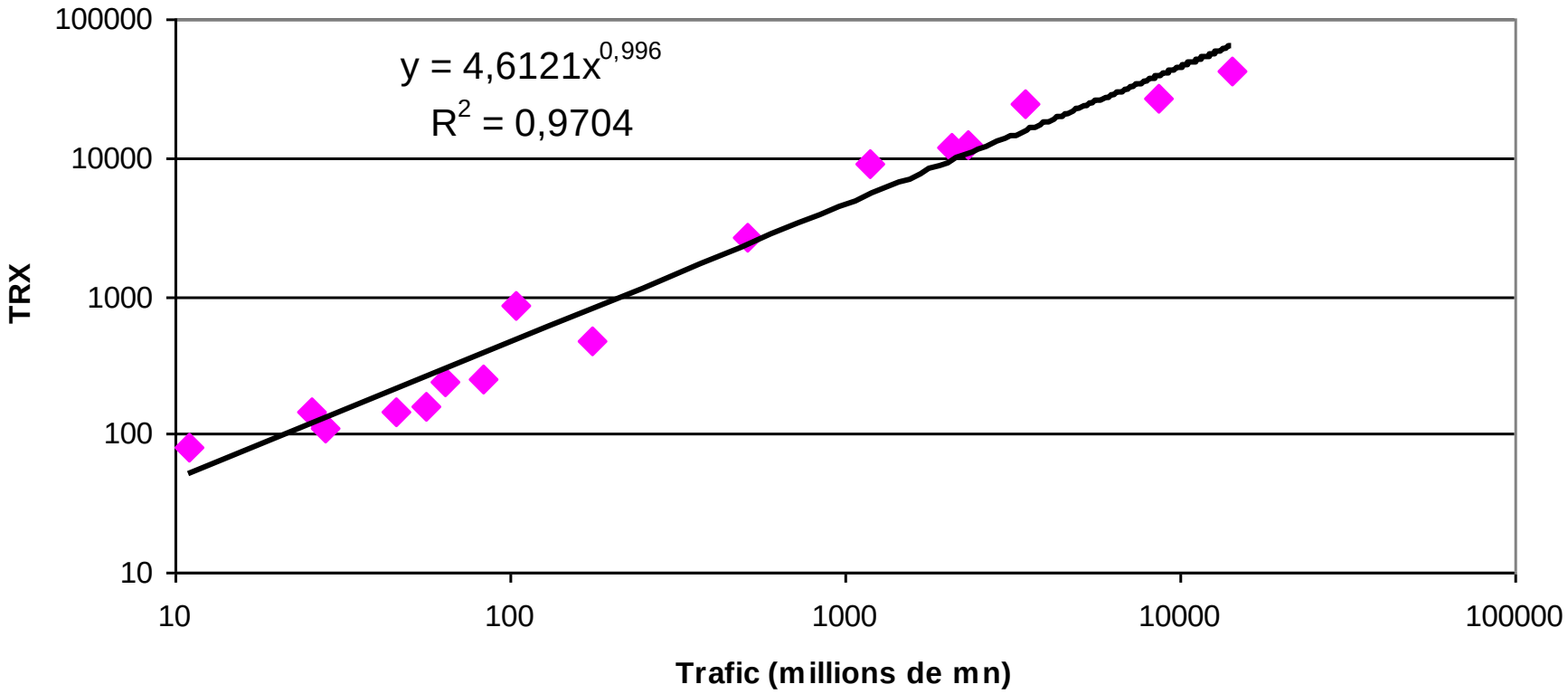

Service costs
Cost per network element
per unit of traffic
Routeing
factors
Traffic per network element
Cost per network element
Traffic
Total traffic
per service
business hour
traffic
Unit costs
Dimensioning
of the network
Nodes
Links
Network
elements

Network architecture

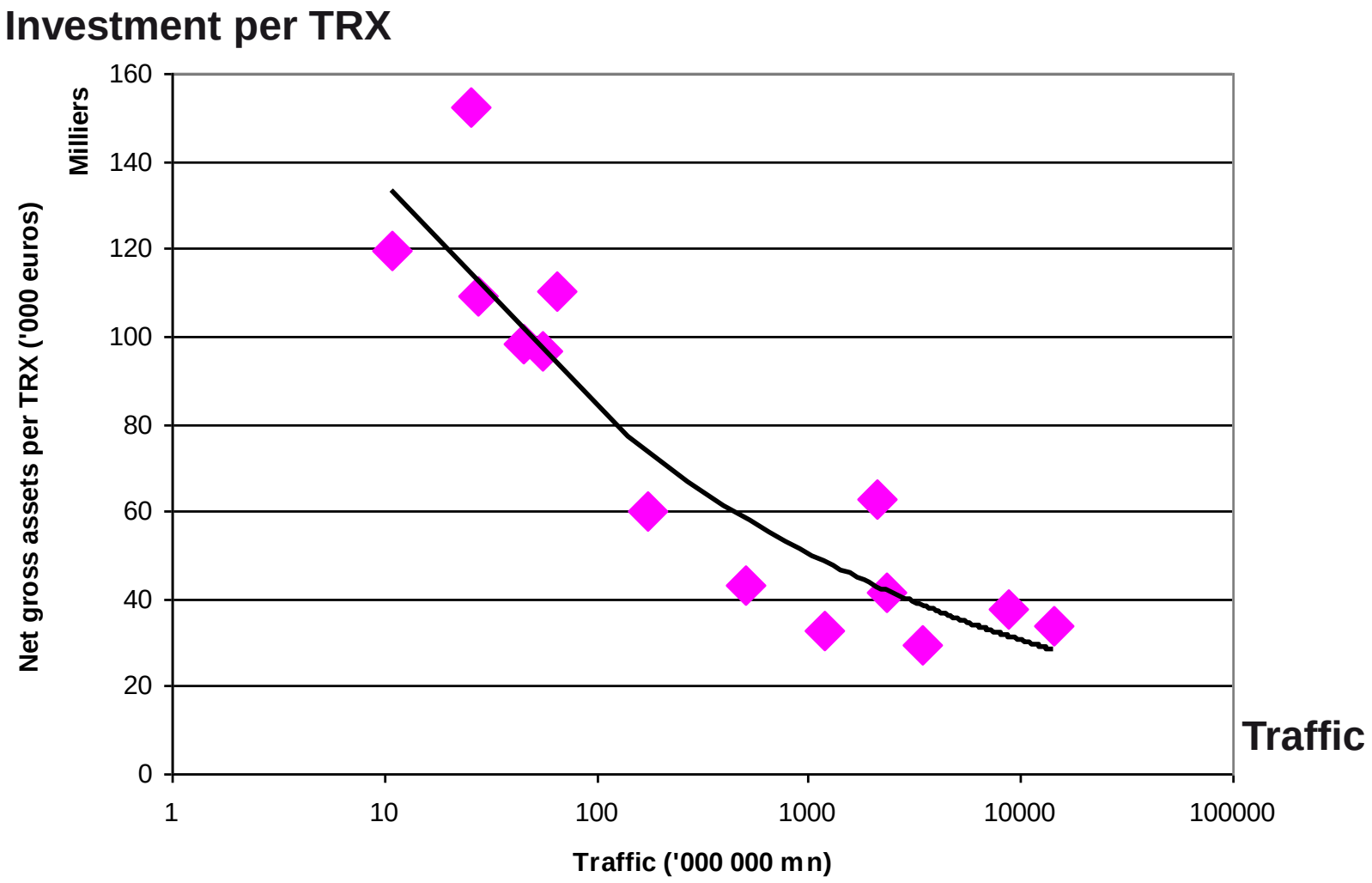


The economics of mobile networks

- To transport 100 millions mn, you need in average 450 TRX
- That is 65 BTS (7 TRX in average per BTS)



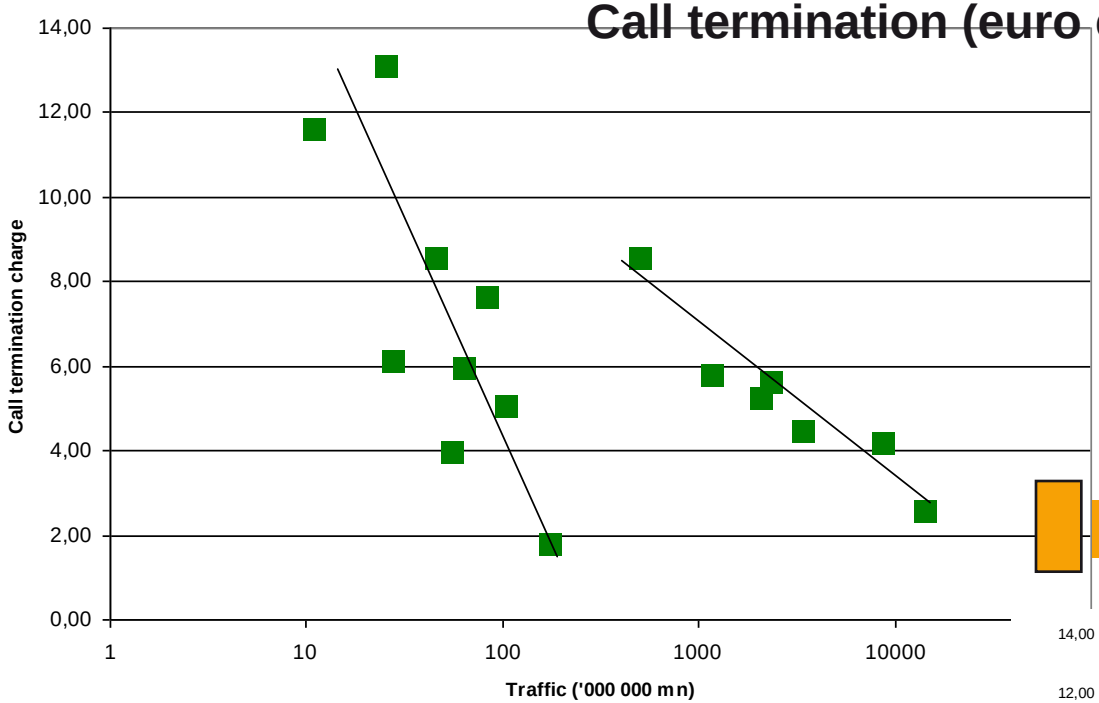
Mobile network costs per TRX



Cost function

- Nb of TRX is linear with the traffic
- Cost per TRX decreases very fast and then stabilizes:
  - cost of equipment equivalent for all carriers due to global procurement policies
  - cost of staff and civil engineering lower in poorer countries, compensating possibly the
  - progressive deployment of network
- The cost asymptote is reached very fast

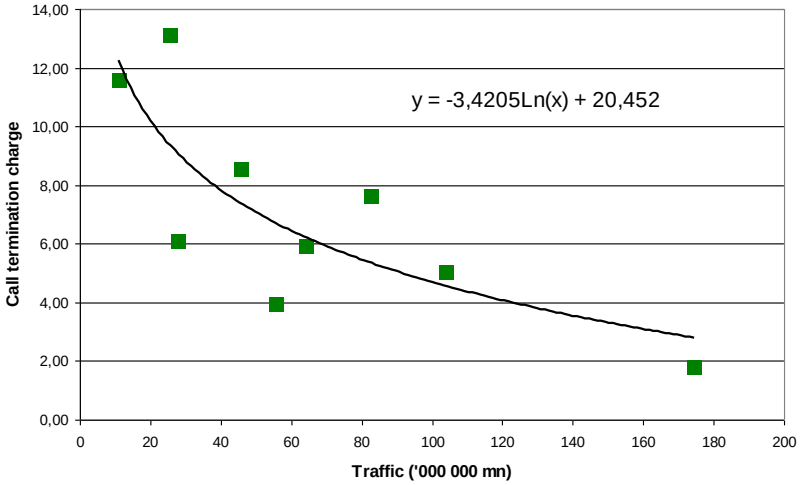
Economies of scale – Mobile telephony



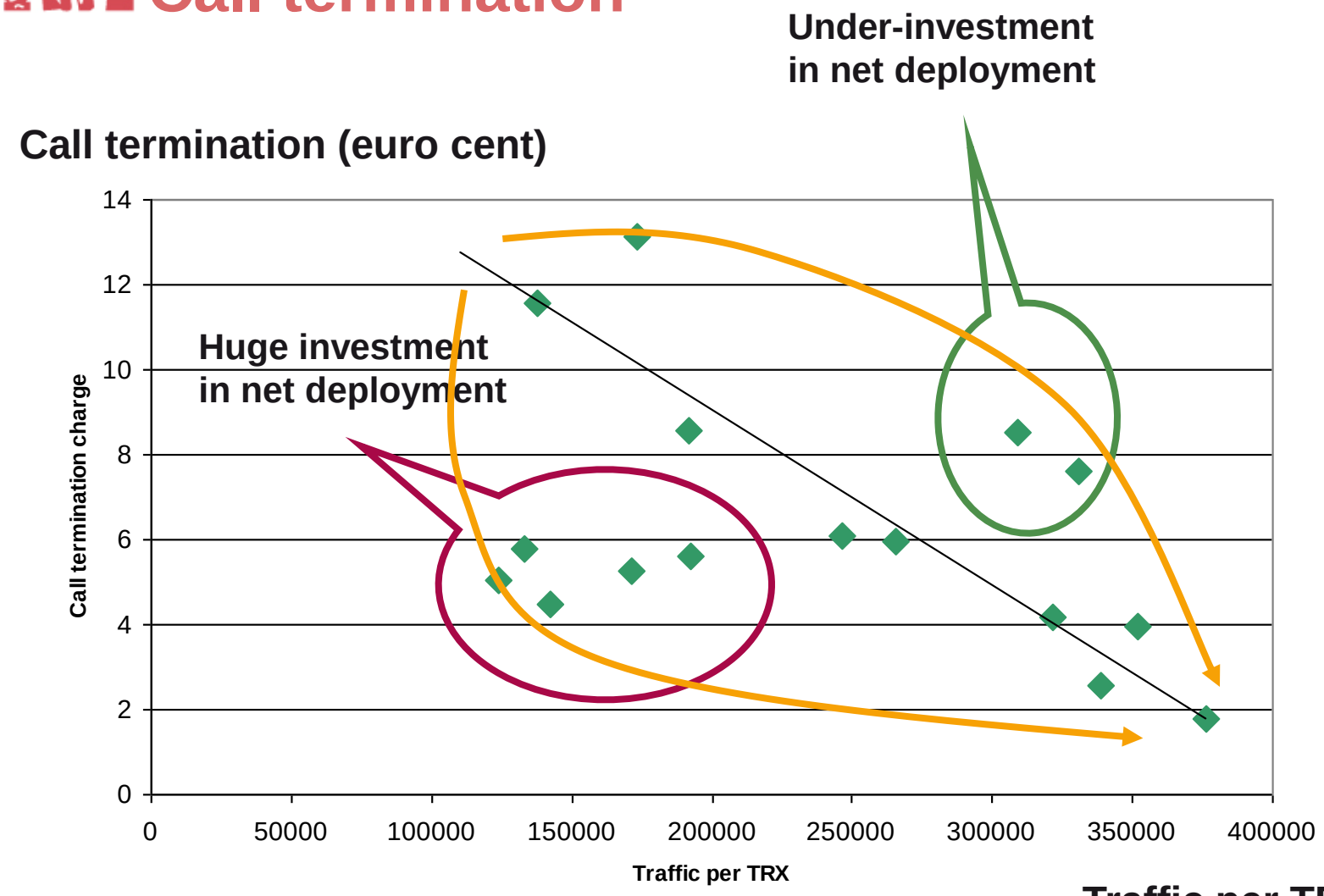
Call termination charge tends towards
2-6 € cents per mn
(max ~12€ c)

Arcep computed range: 1-3 €c

Traffic

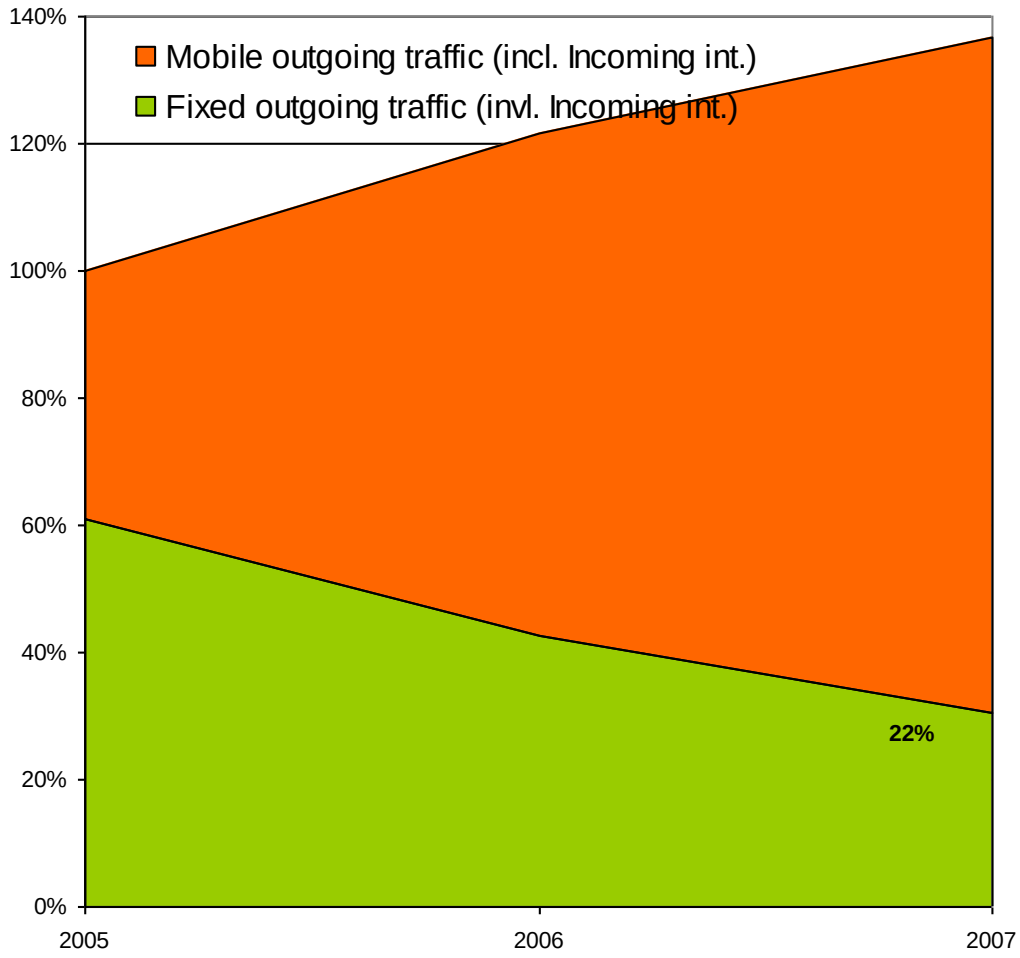


Call termination



Traffic per TRX (mn)

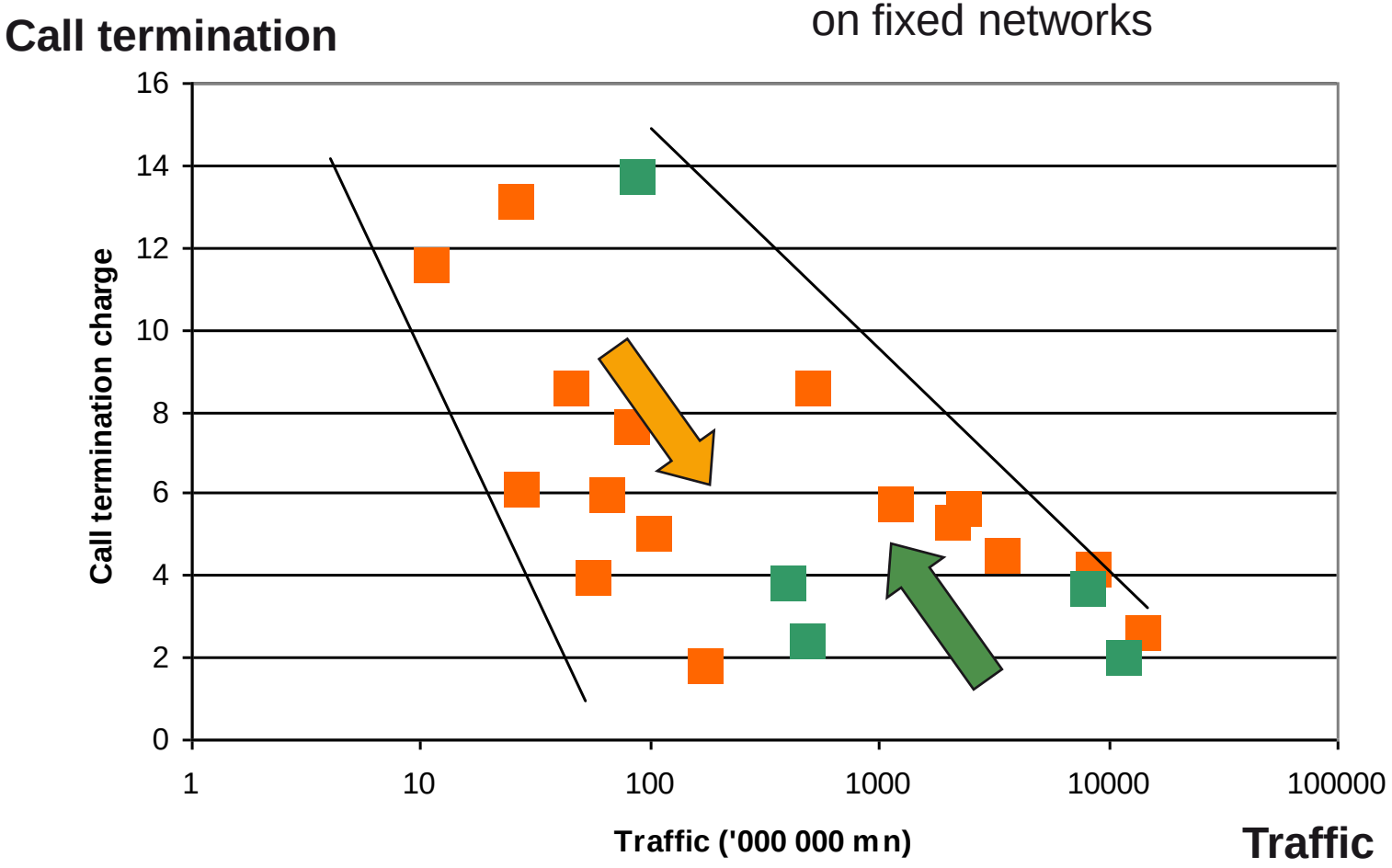
Shift in traffic



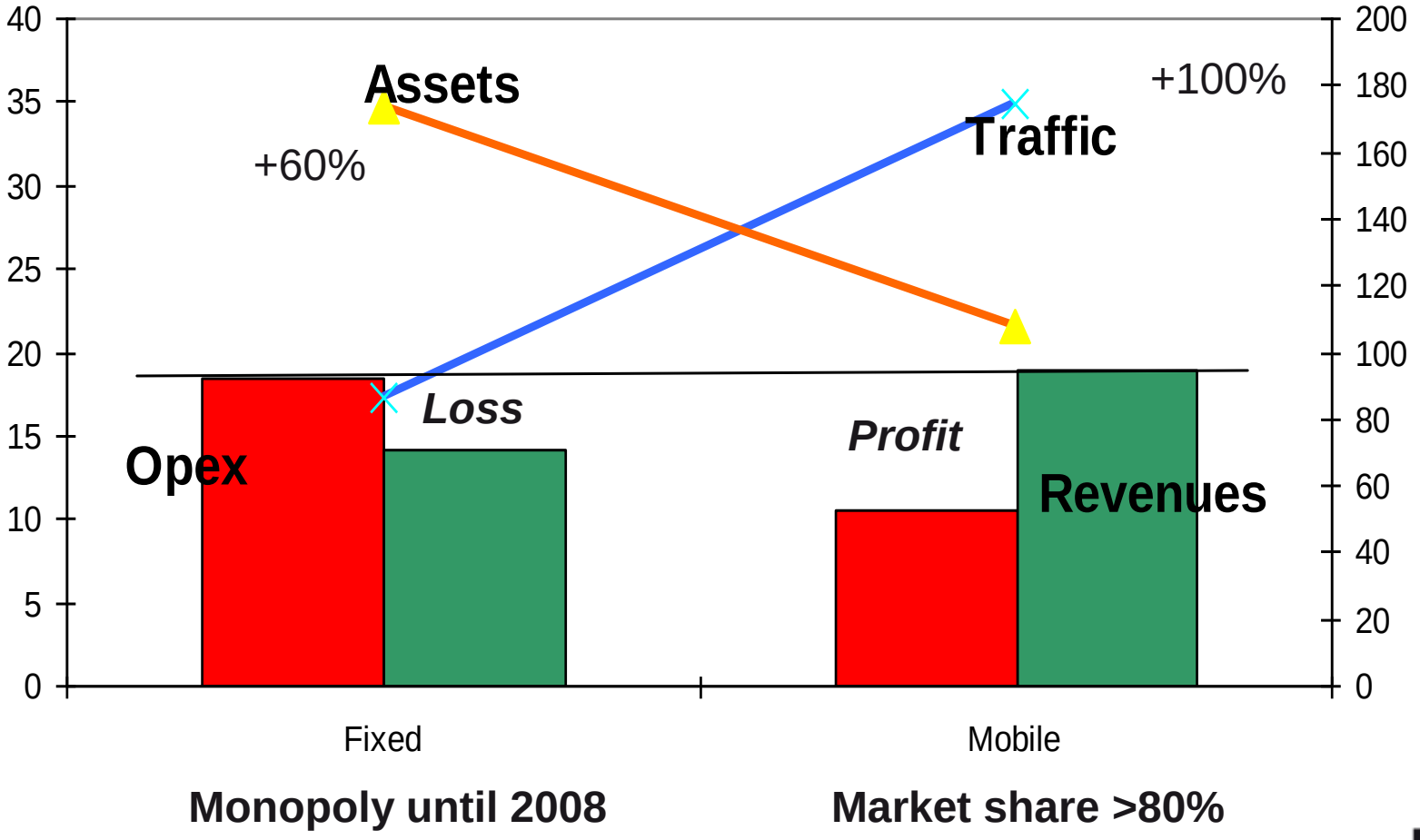
- **Dramatic shift in traffic: from now on, mobile telephony drives the market**
- **Substitution takes place at high pace: One relevant market: global telephony**

Fixed telephony is becoming more expensive than mobile telephony

Undifferentiated call termination on fixed networks



A typical example (2005)



Fixed telephony difficulties

- **The fixed telephony minute is becoming more costly to produce than the mobile telephony minute**
  - Evidence from call termination charges
  - Mobile network costs are now cheaper
  - Mobile retail prices will likely drop soon below fixed prices
- **Backbone networks had been duplicated by mobile operators**
- **Revenues of fixed networks drop dramatically**
- **"checkmate" for fixed networks**

Policy implications

- **One relevant market for telephony in developing countries**
- **Telephone market is now driven by mobile: strategic answer of fixed networks:**
  - Fixed network chase after mobility (collective access, WLL, prepaid…)
  - Fixed network advantage rely definitely in broadband offering
  - Are fixed network a necessity for African countries?
    - Could broadband wireless access offer the right set of services?
  - What is the best option:
    - Let disappear the incumbents and see what happen
    - Rescue the incumbents
- **Regulatory implication**
  - Reverse the asymmetry of the regulation
    - Introduce undifferentiated call termination for fixed network
  - Turn to global licensing (fixed + mobile)
  - Give support to broadband strategy (wireline)

Thank you for your attention