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The implications of community network rollouts on the future telecom market structure

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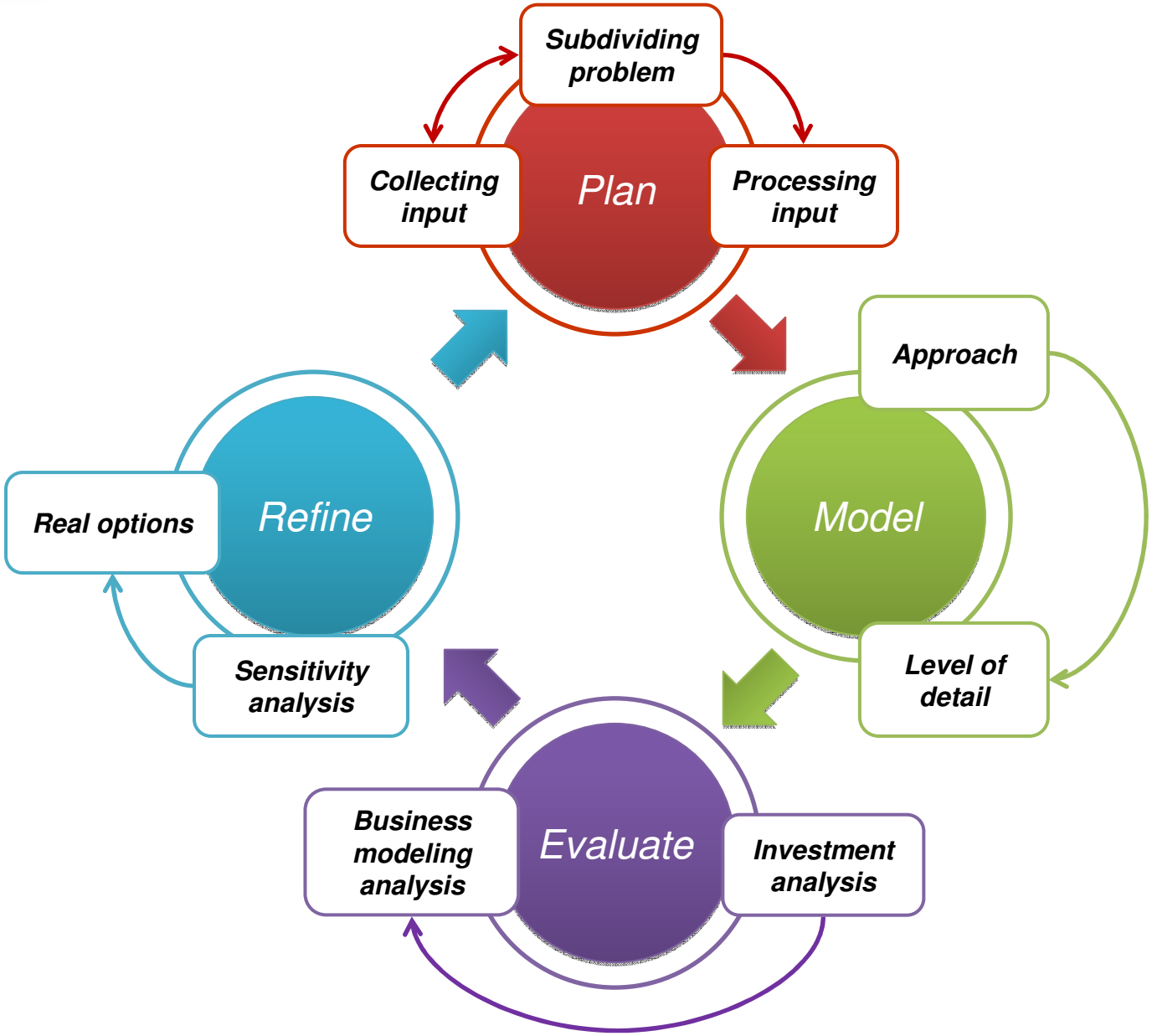
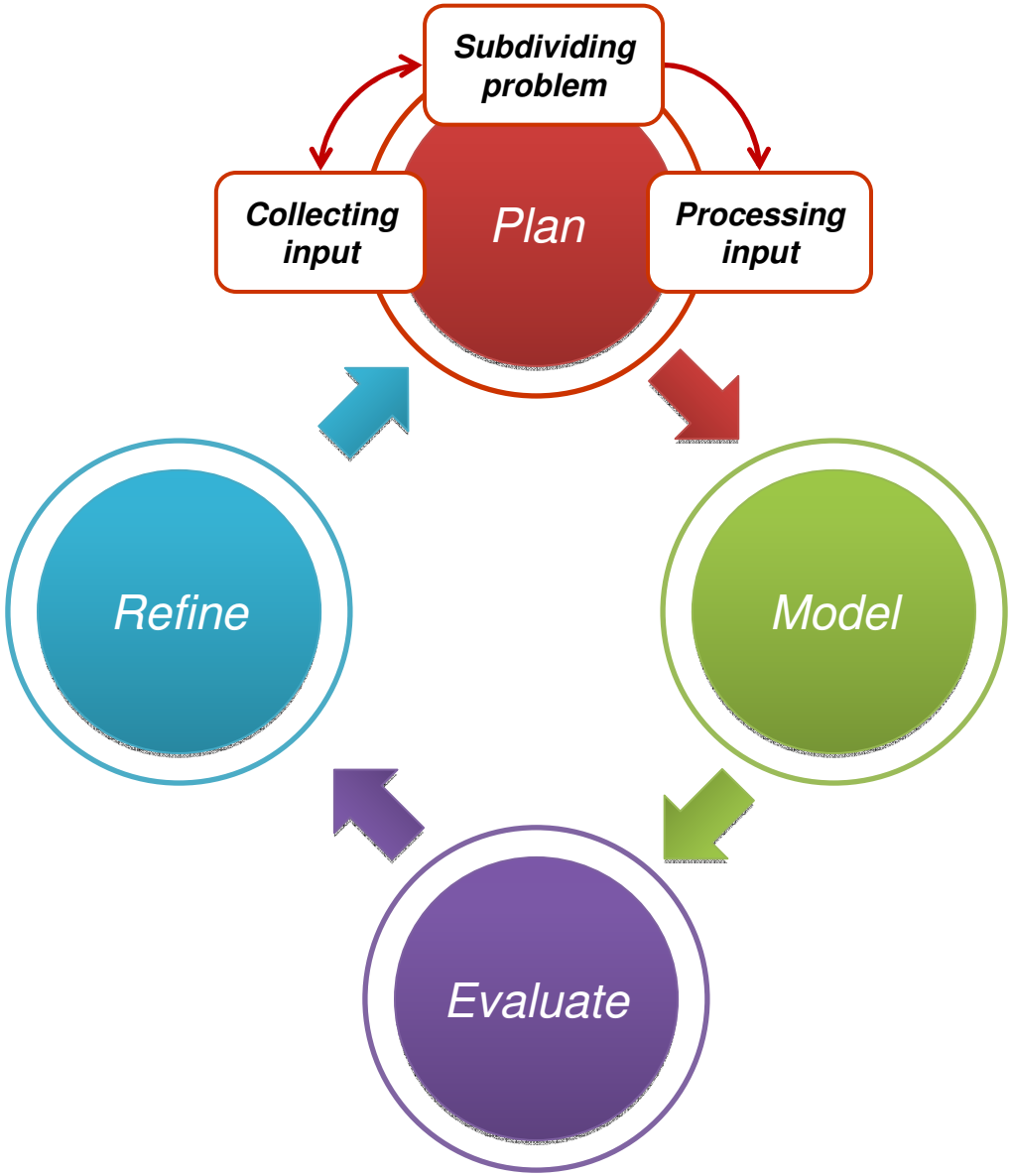
INTEC IBCN intec broadband communication networks IBBT

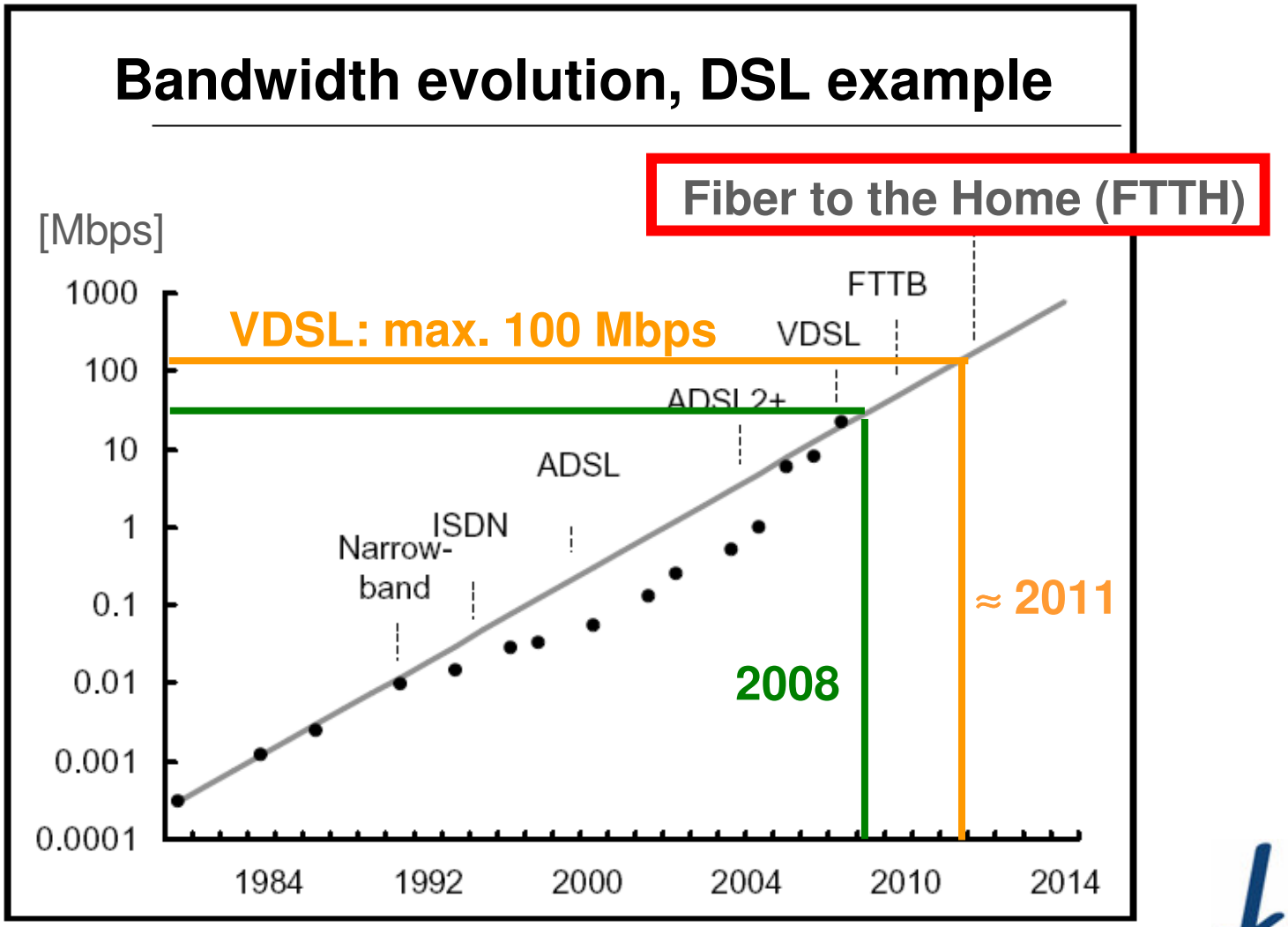
Methodology



Methodology

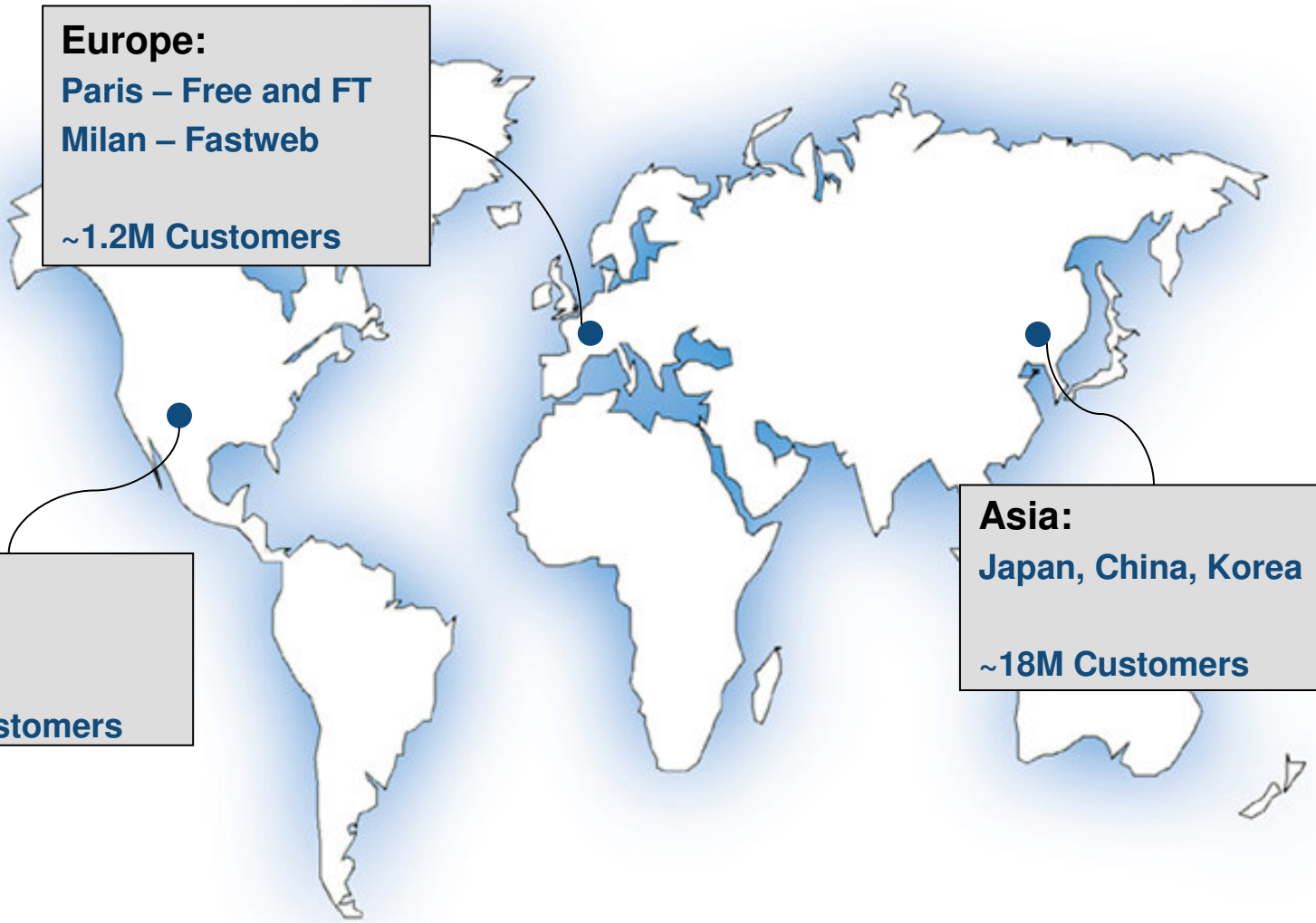


Increasing bandwidth ⇒ FTTH



Bron:
IEEE Spectrum

Worldwide FTTH



Europe:
Paris – Free and FT
Milan – Fastweb

~1.2M Customers

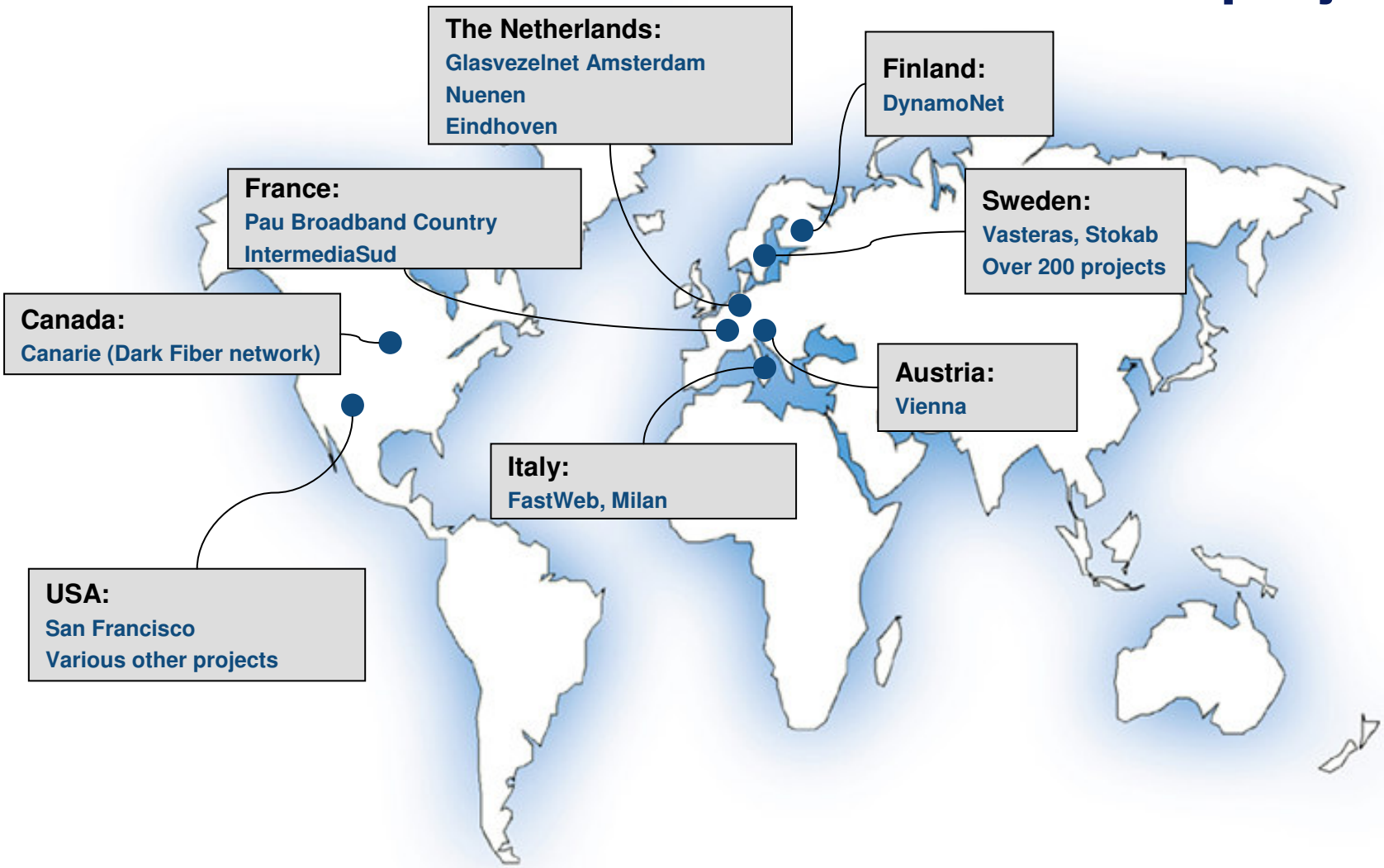
USA:
Verizon

~2.0M Customers

Asia:
Japan, China, Korea

~18M Customers

Worldwide examples of community network projects



Motivation for municipality FTTH network rollout

- No action from telecom operators

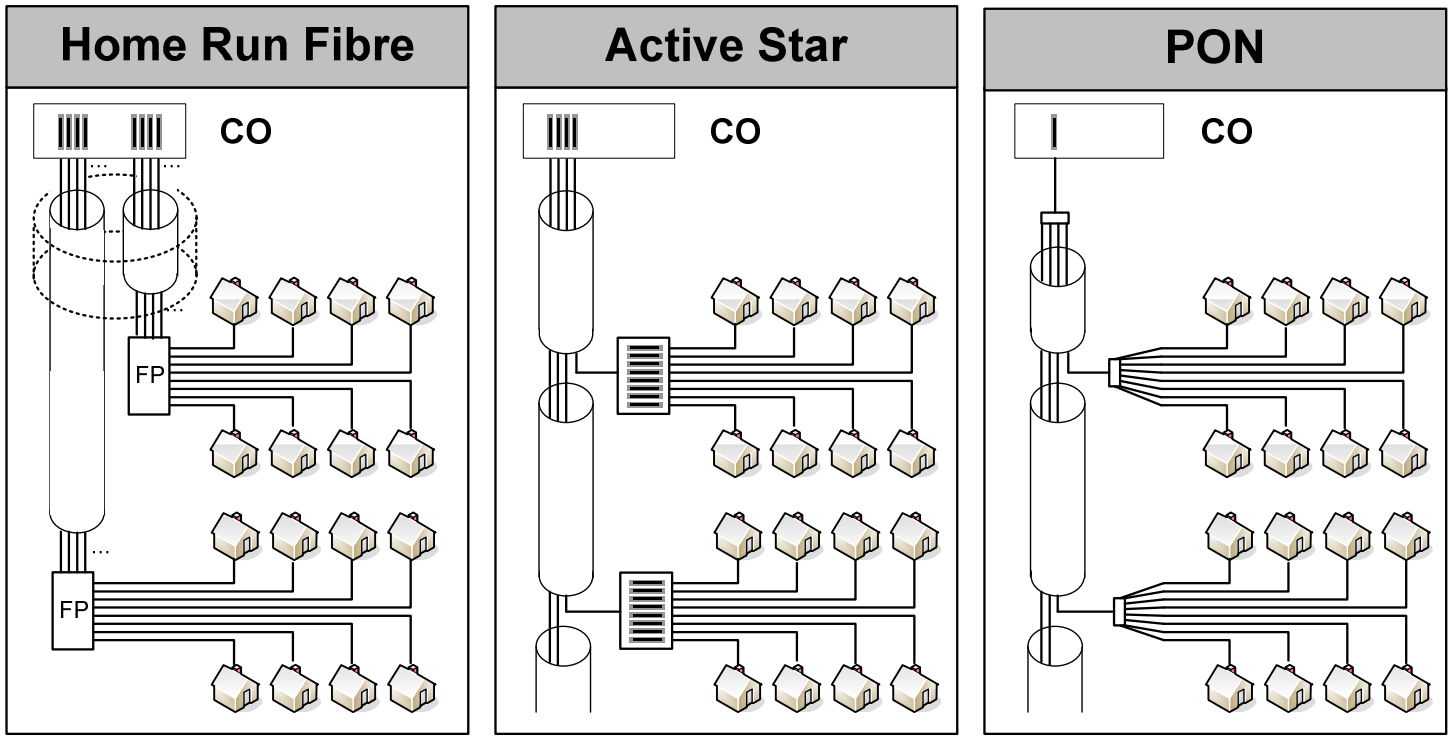
- Positive image for the city
- Extending the own service network
- Reducing the digital gap
- Independently of telecom operators
- Regulatory and cost advantages

FTTH Rollout possibilities

- Area dependent
  - **Dense urban**
  - **Urban**
  - **Semi-urban**
  - **Rural**

- Physical installation
  - **Trenching**
  - **Blowing**
  - **Aerial**

3 different architectures for FTTH

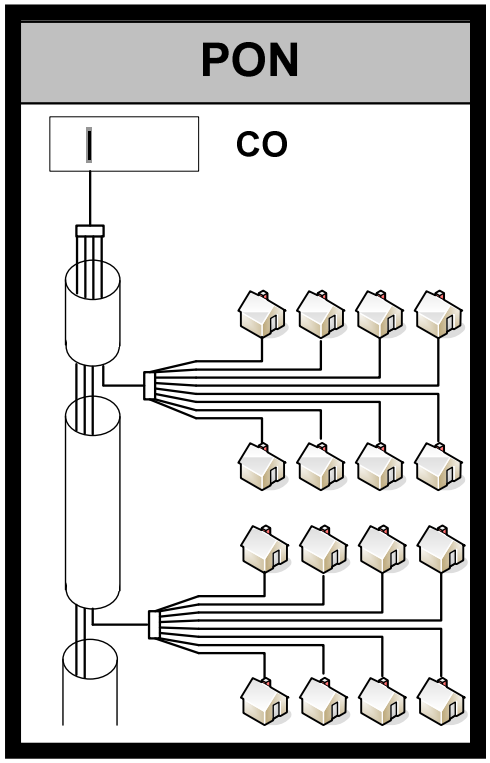


3 different architectures for FTTH

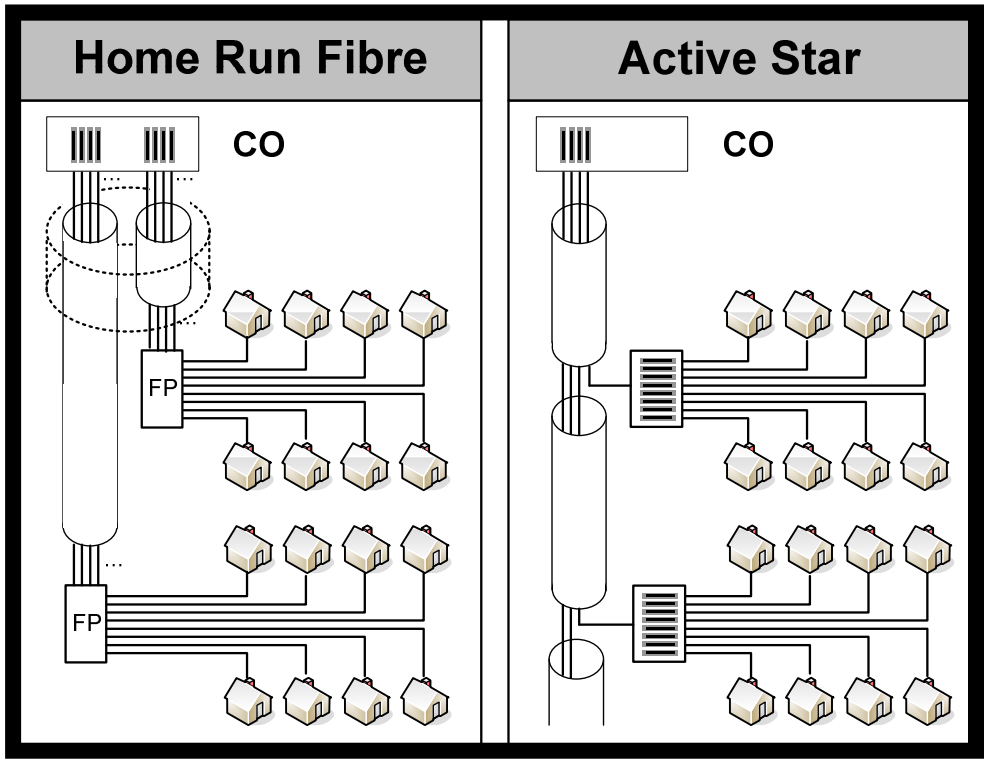
Telecom operators

+ Cheapest network rollout
  Start from existing situation
  Passive components

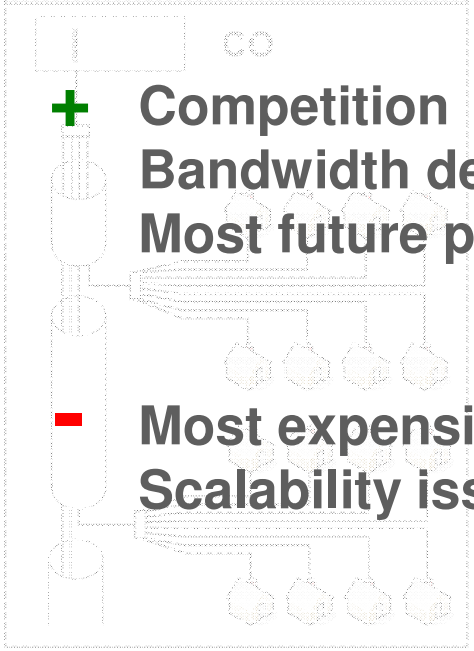
- Shared bandwidth
  Opening network difficult



3 different architectures for FTTH



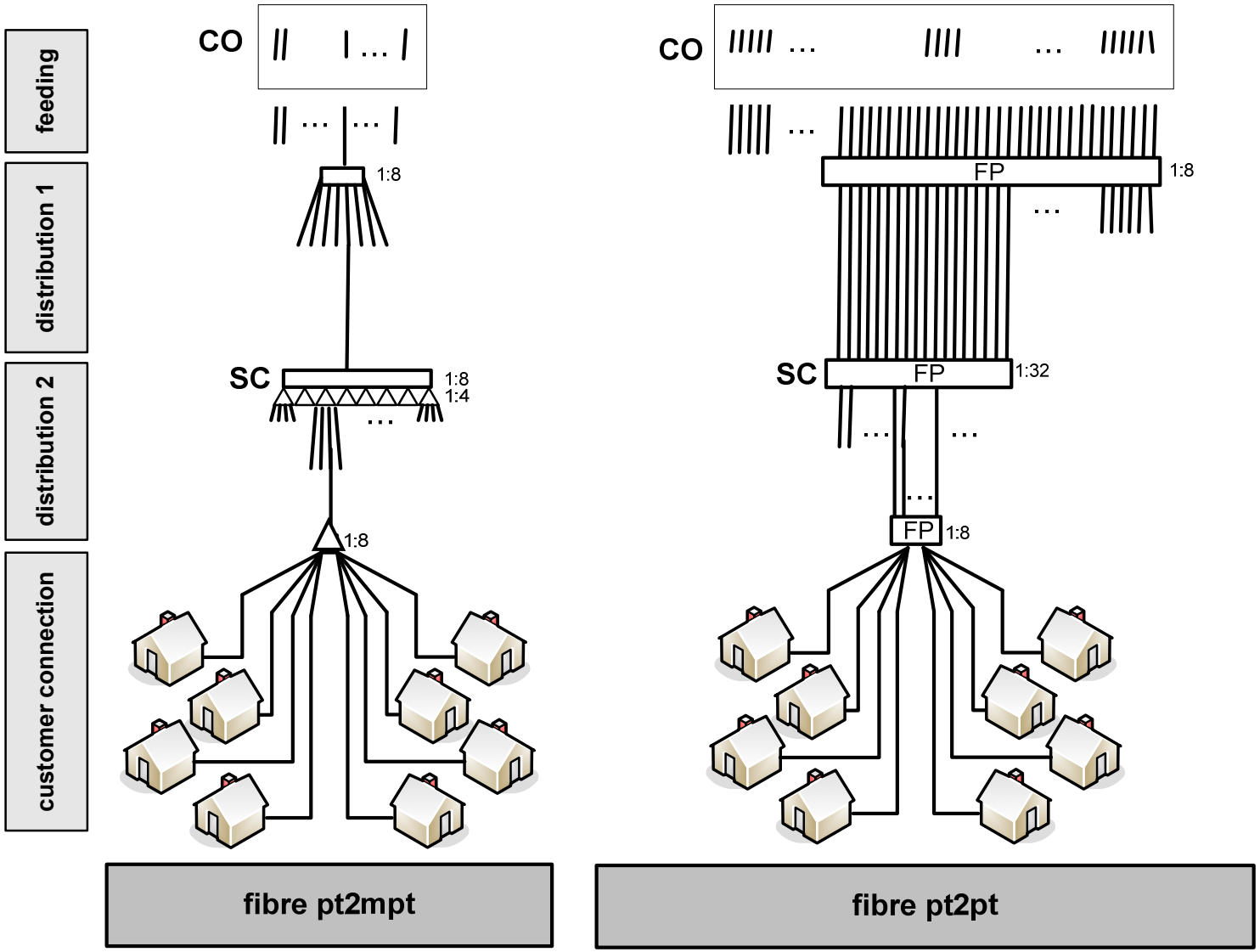
Community networks



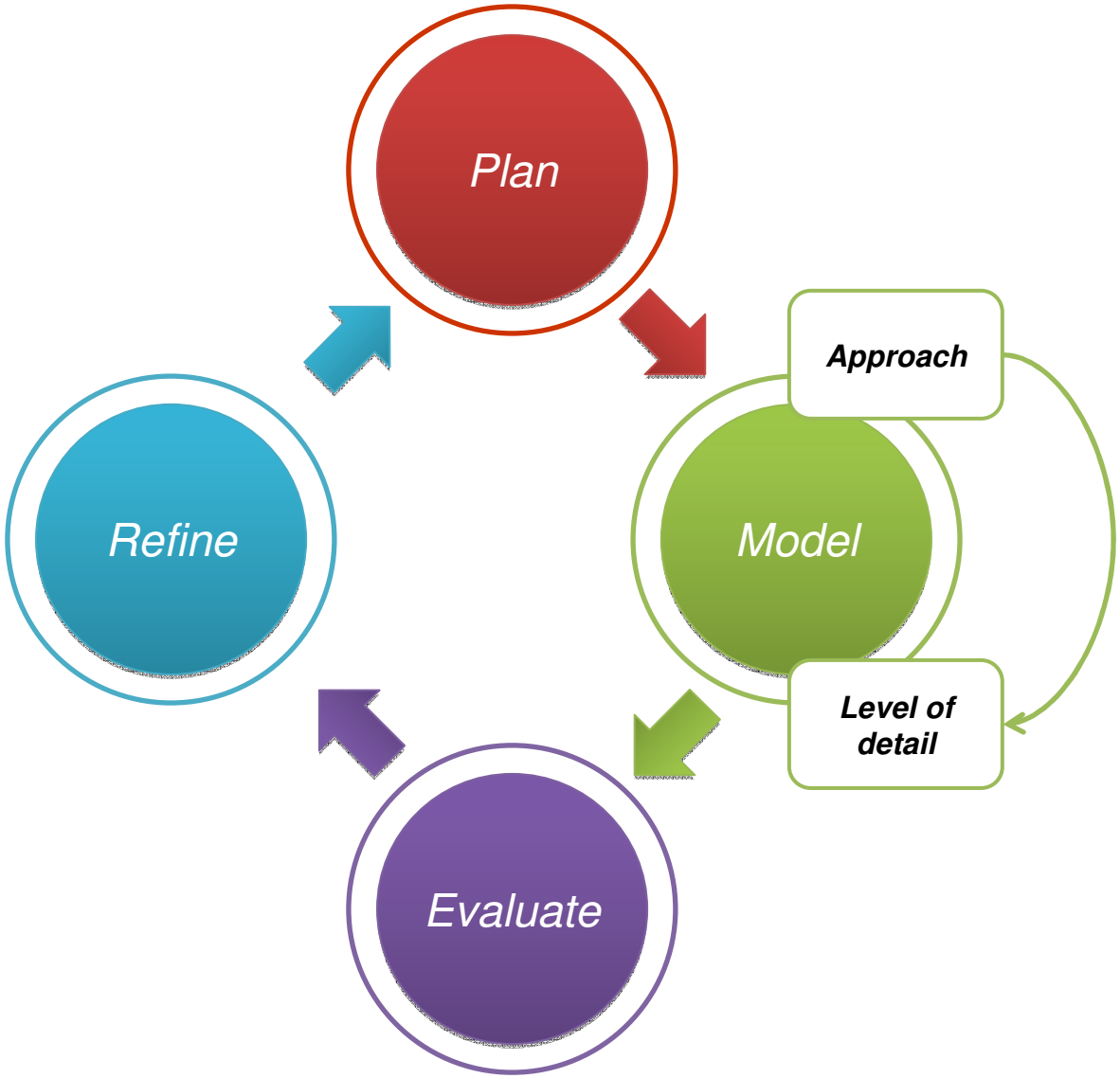
+ Competition
  Bandwidth dedicated
  Most future proof

- Most expensive
  Scalability issues

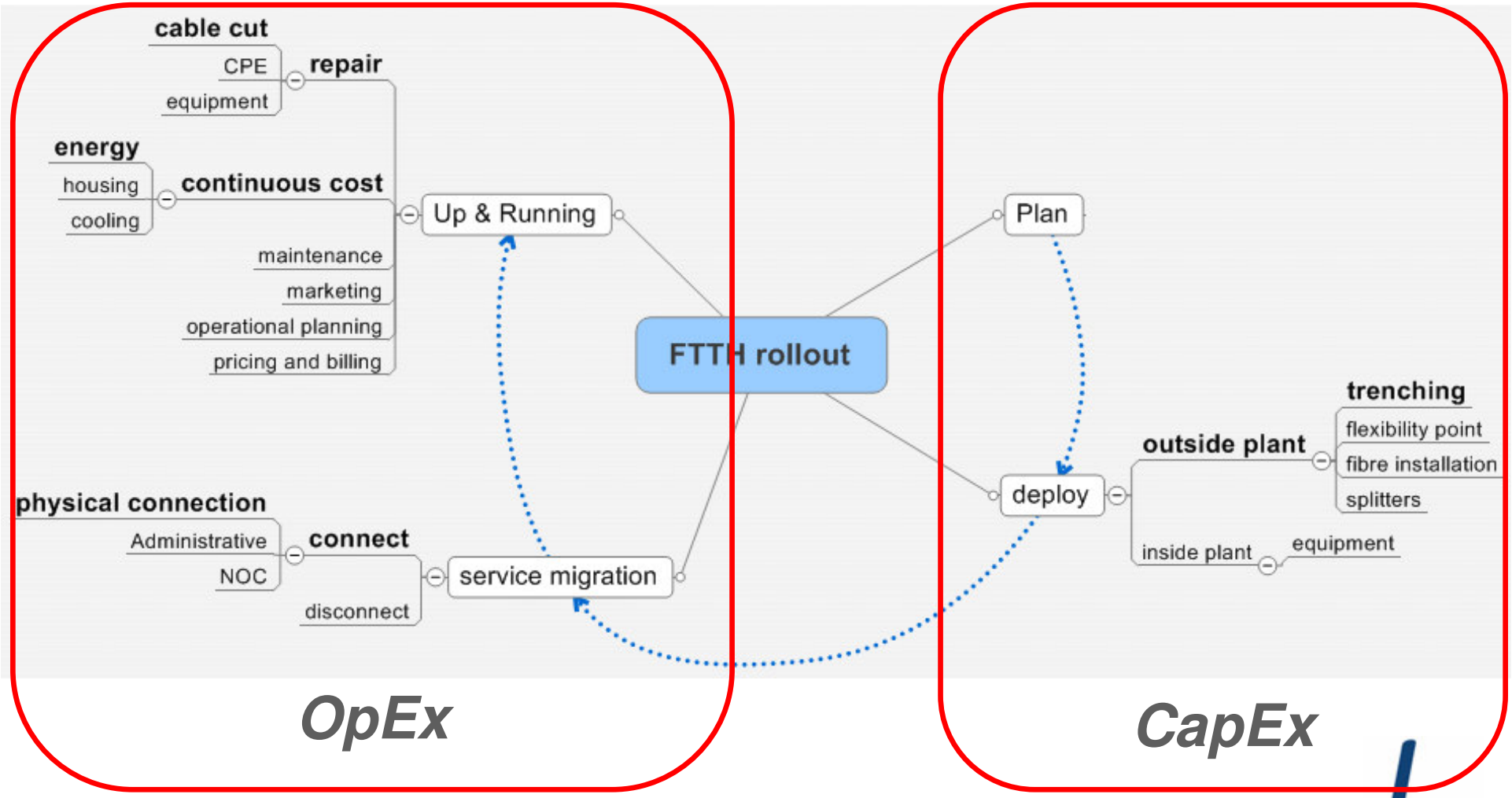
Two different fiber topologies for the access network



Methodology



Cost decomposition model

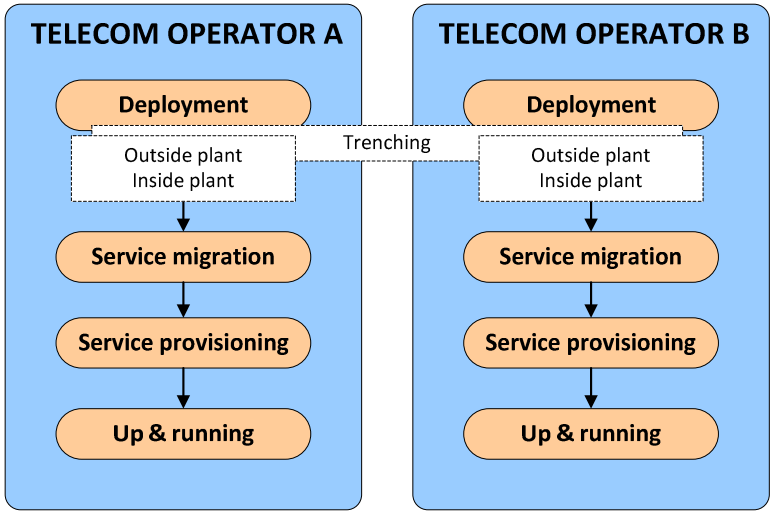


Competition model

- Model 1: Physical infrastructure based competition

  - **Greenfield situation**
  - **2 operators**
  - **PON technology**
  - **P2MP architecture**

  - **Sharing of trench costs**

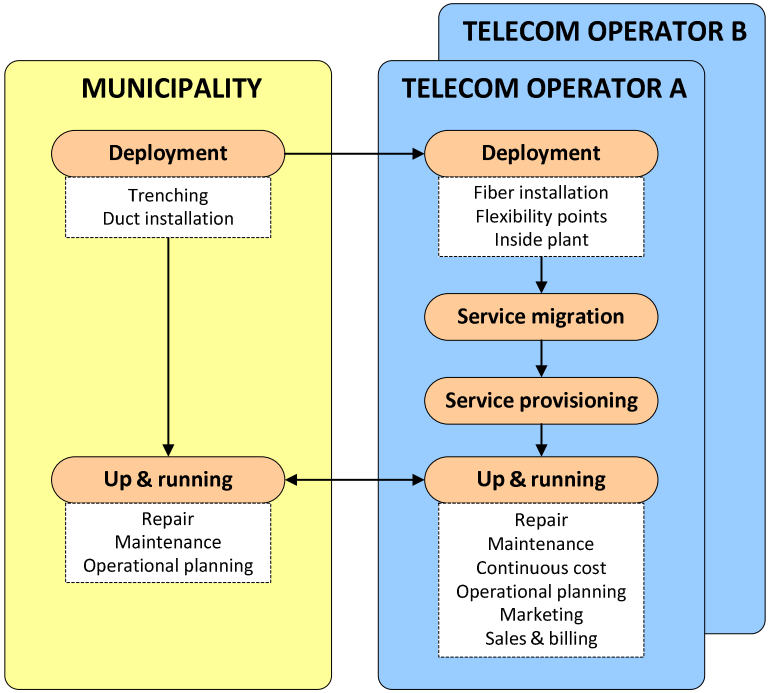


Municipality models

- Model 2: Fibre based competition

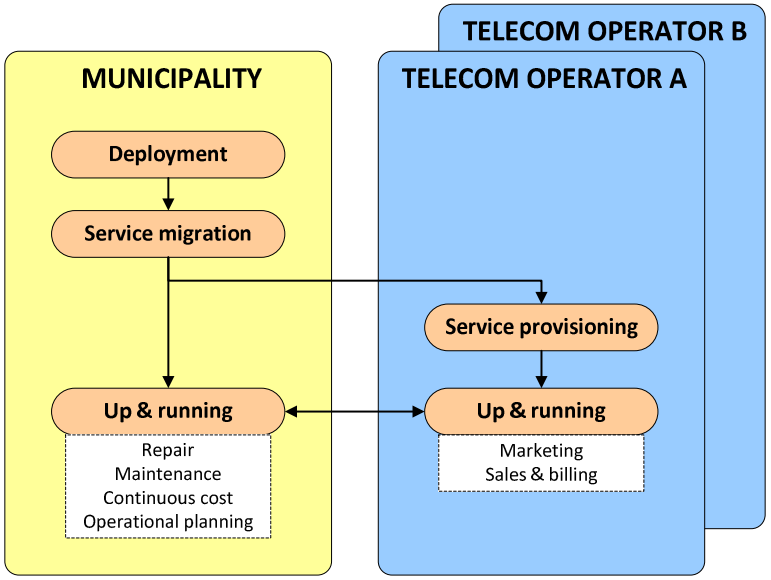
  - **Greenfield situation**
  - **2 operators**
  - **Active / (passive) network**
  - **P2MP/P2P architecture**

  - **Cost for municipality**
    - Deployment (no fibres)
    - Up & Running



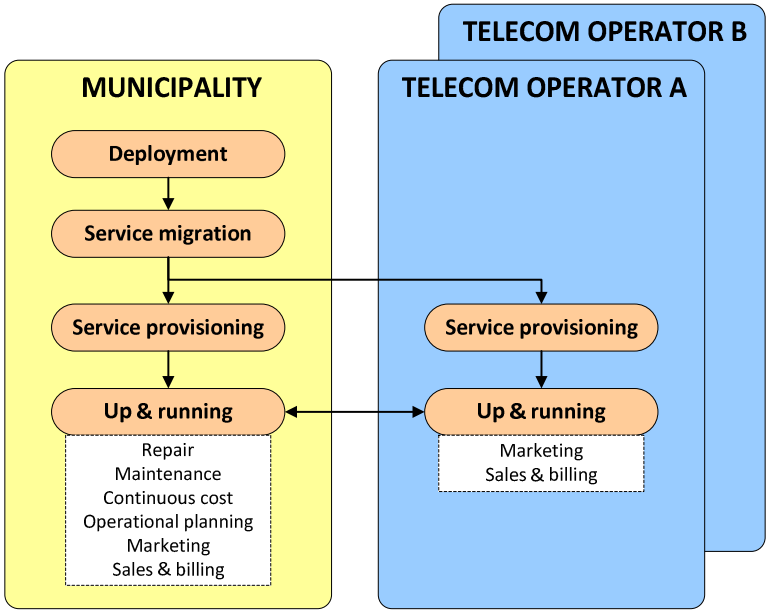
Municipality models

- Model 3: Data link layer based competition (unbundled network elements)
  - **Greenfield situation**
  - **2 operators**
  - **Active / (passive) network**
  - **P2MP/P2P architecture**
  - **Cost for municipality**
    - Deployment
    - Service migration
    - Up & Running

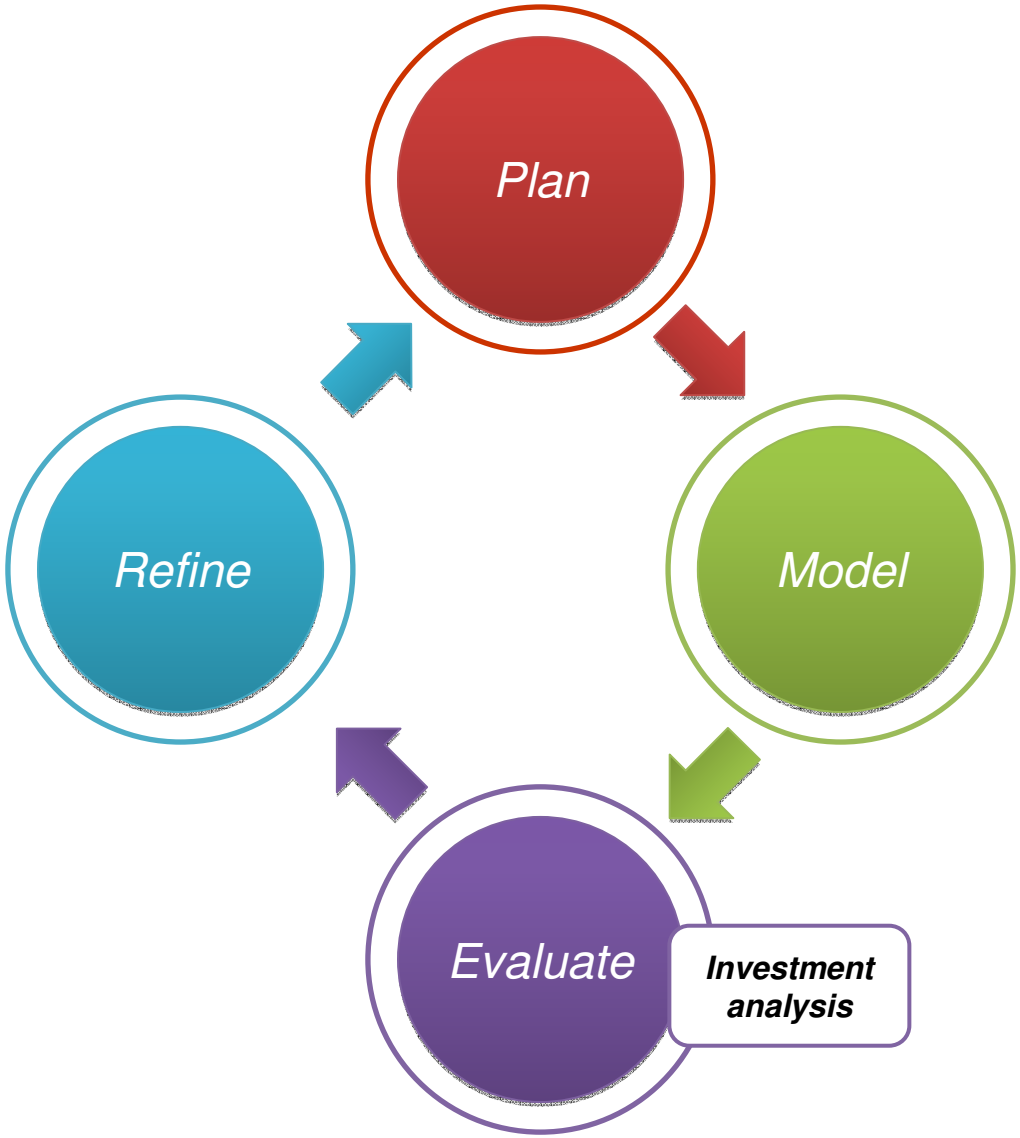


Municipality models

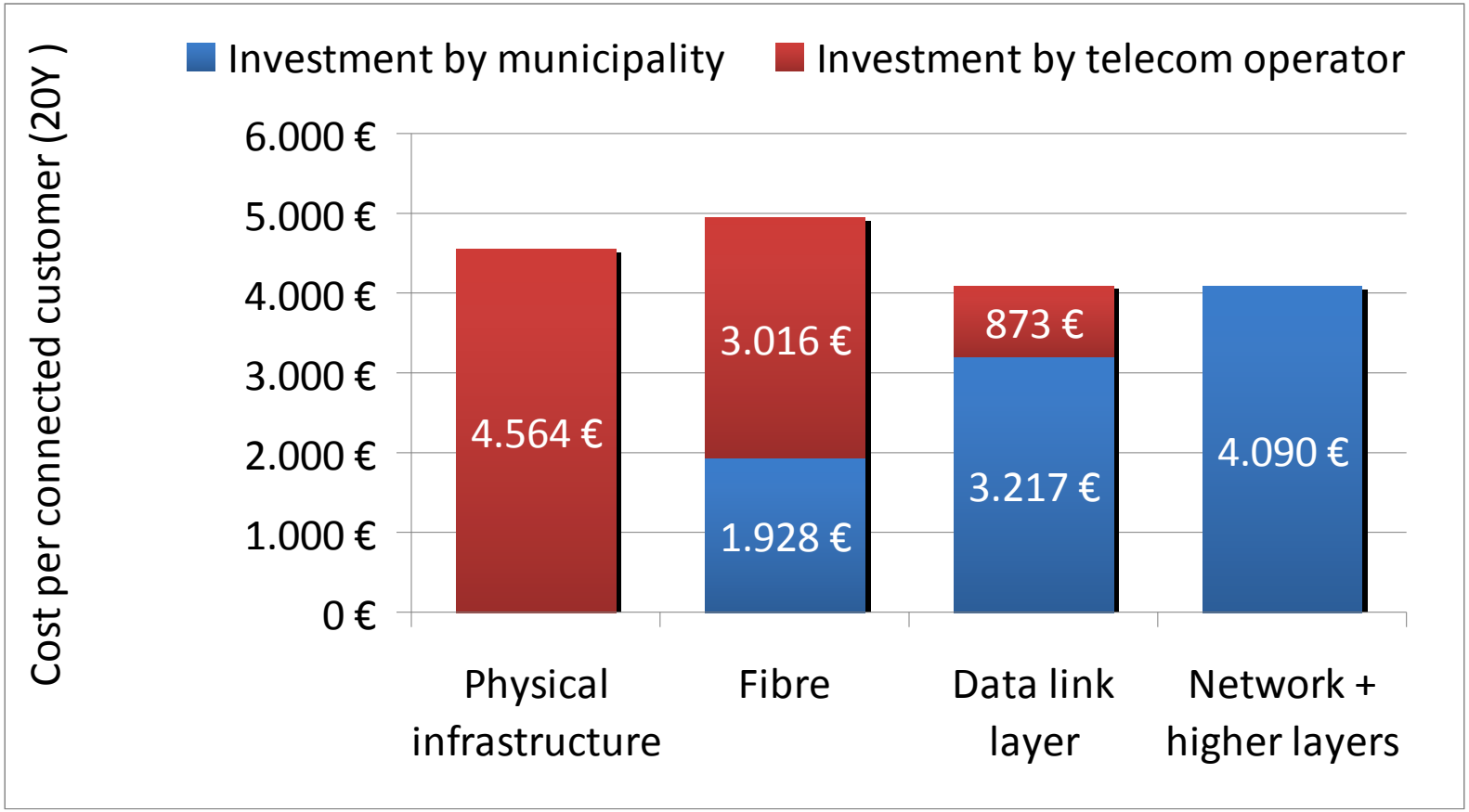
- Model 4: Network + higher layer based competition (open access)
  - **Greenfield situation**
  - **2 operators**
  - **Active network**
  - **P2MP/P2P architecture**
  - **Cost for municipality**
    - Deployment
    - Service migration
    - Up & Running



Methodology

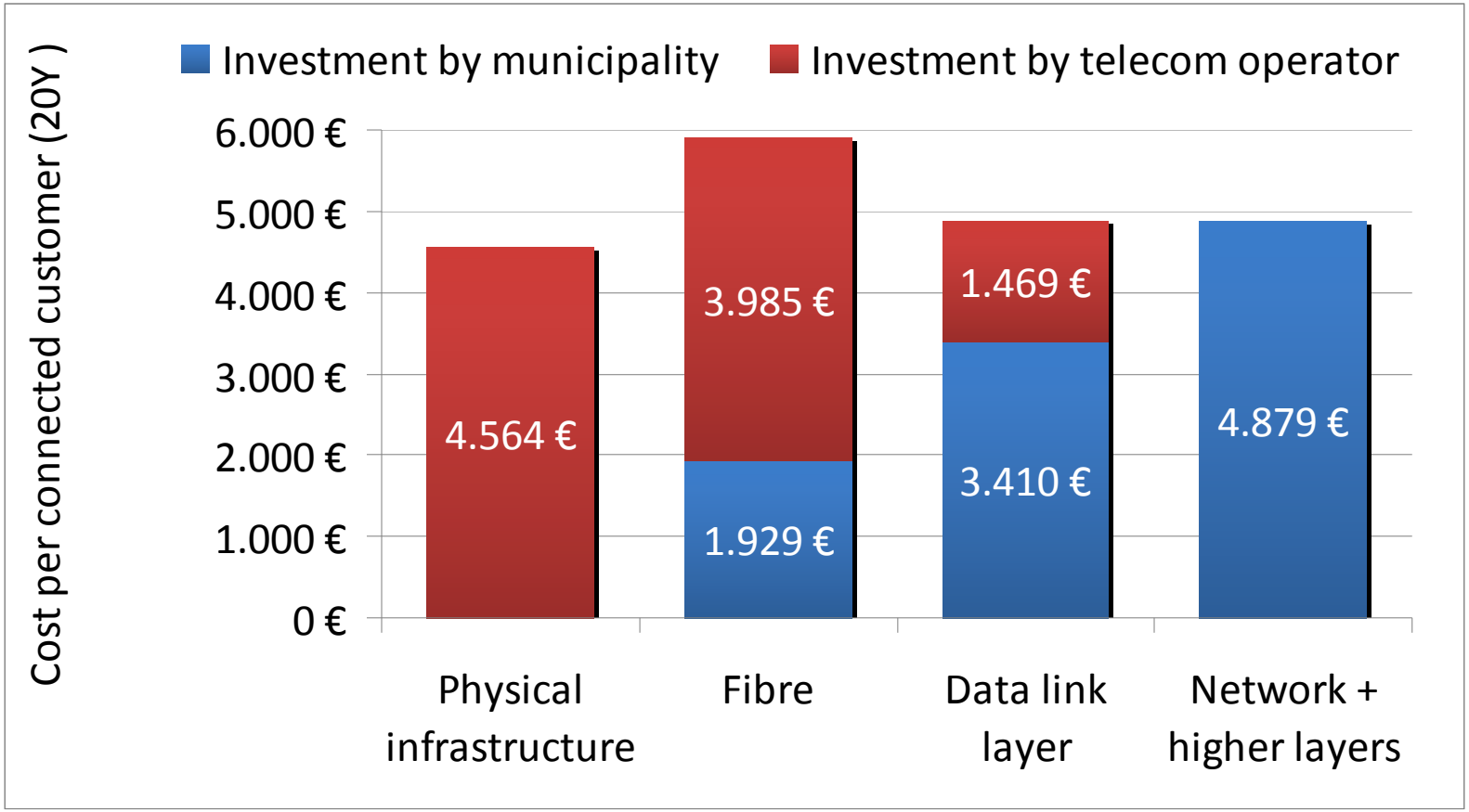


Rollout model comparison



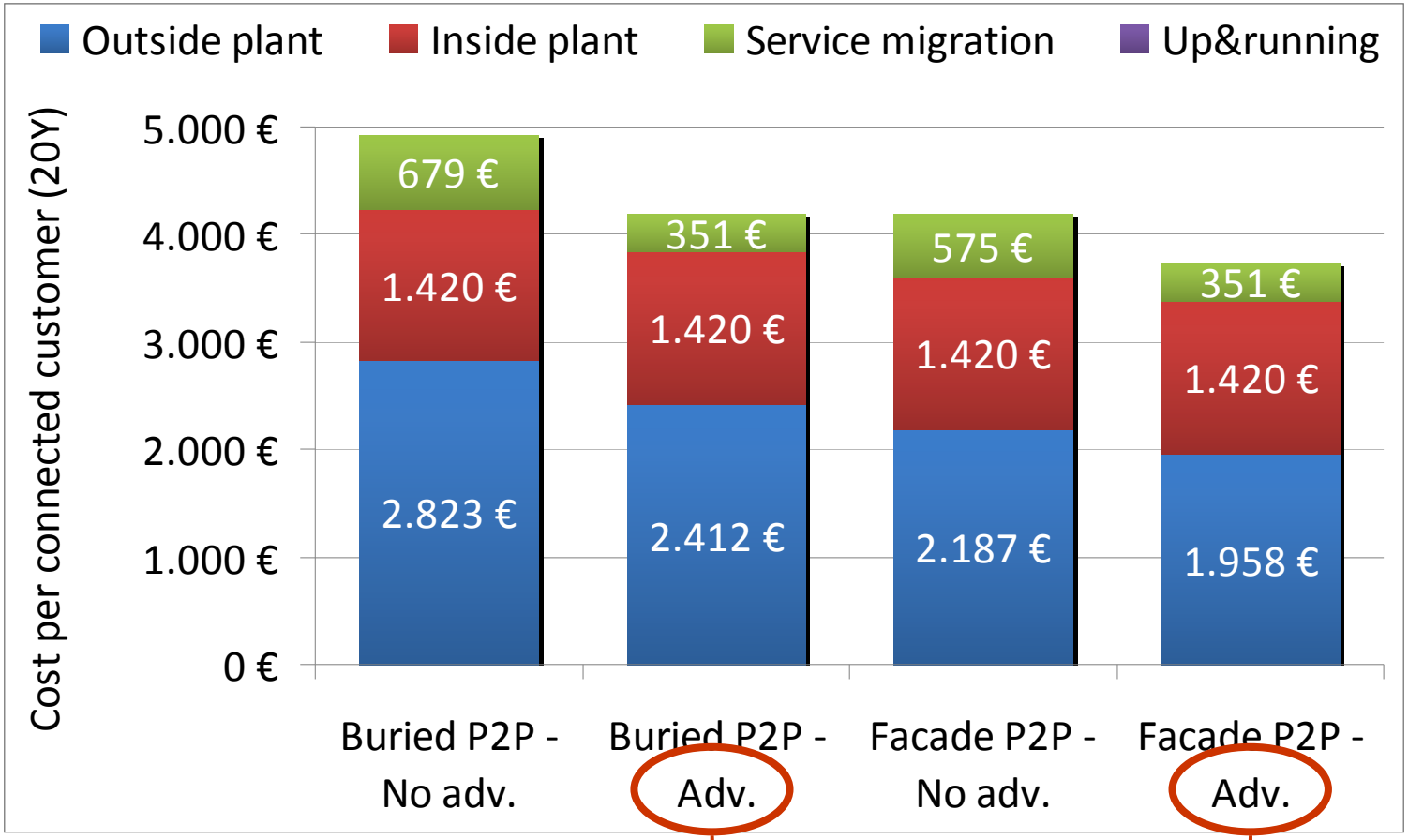
PON P2MP	Active star P2MP

Rollout model comparison



PON P2MP	Home run P2P

Network + higher layer based competition



Trenching costs
Service migration

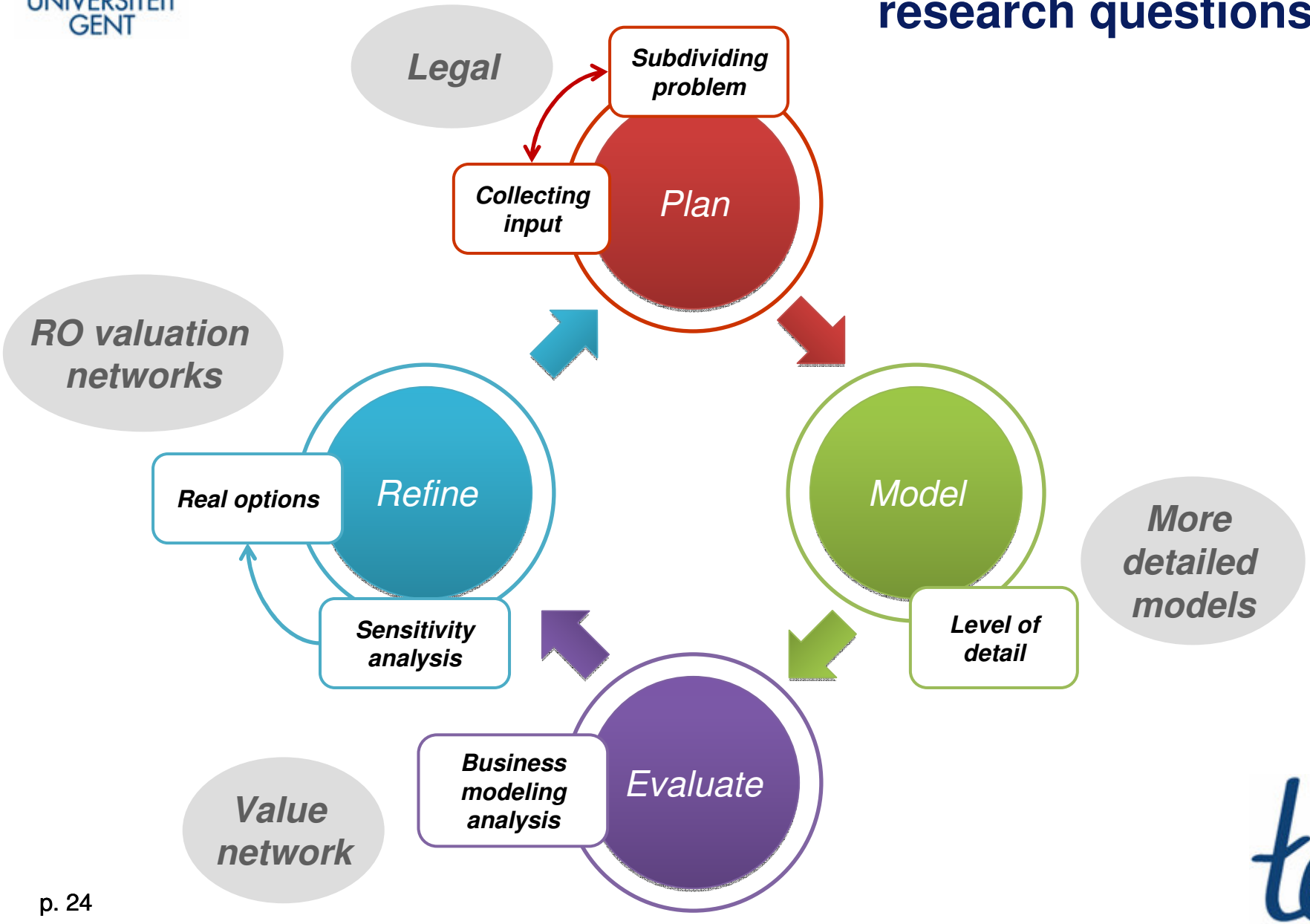
Opportunities for municipalities

- Telecom Operators
  - **Use a gradual upgrade to meet the user's needs**
  - **Are put off by the high digging costs**
  - **A lot of uncertainties with respect to the regulation**

- Many telecom operators are hesitating to deploy FTTH

- Case study for municipality network
  - **Not necessarily cheaper in rollout than physical infrastructure based competition but …**
  - **Direct advantages (aerial rollout, network planning, …)**
  - **Indirect advantages (image, extra revenues, ...)**

Future work and research questions



Thank you for your attention

Questions?

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