

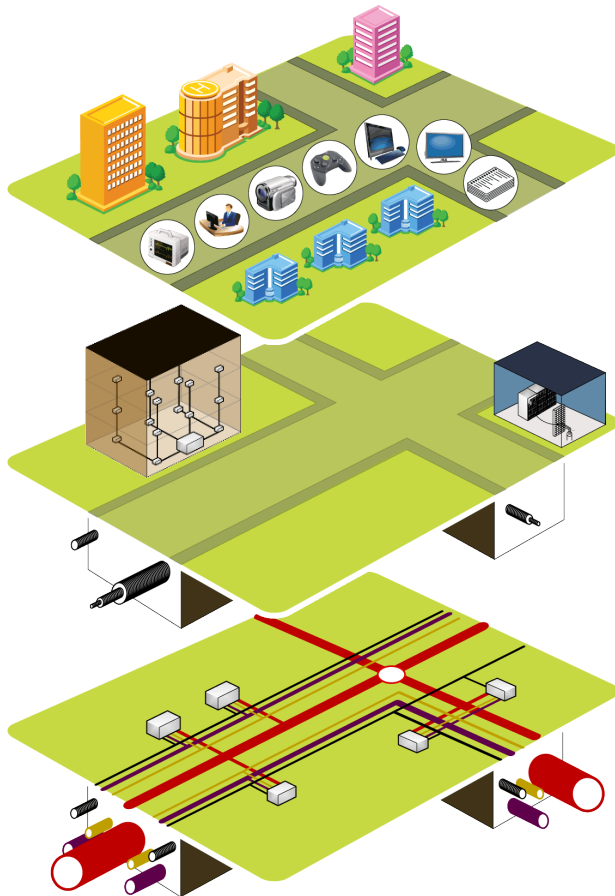


Techno-Economic Research for futuRe Access Infrastructure Networks

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Ghent University - IBBT

CTTE 2011 - Berlin

TERRAIN project scope



The TERRAIN project investigates the **rollout of optical fiber in the access network in cooperation with other utility networks** as future-oriented solution.

It focuses on **optimizing collaboration** between all actors involved, analyzing all aspects from a **techno-economic point of view**, considering technical, social, economic and regulatory sub-problems.

Partner overview

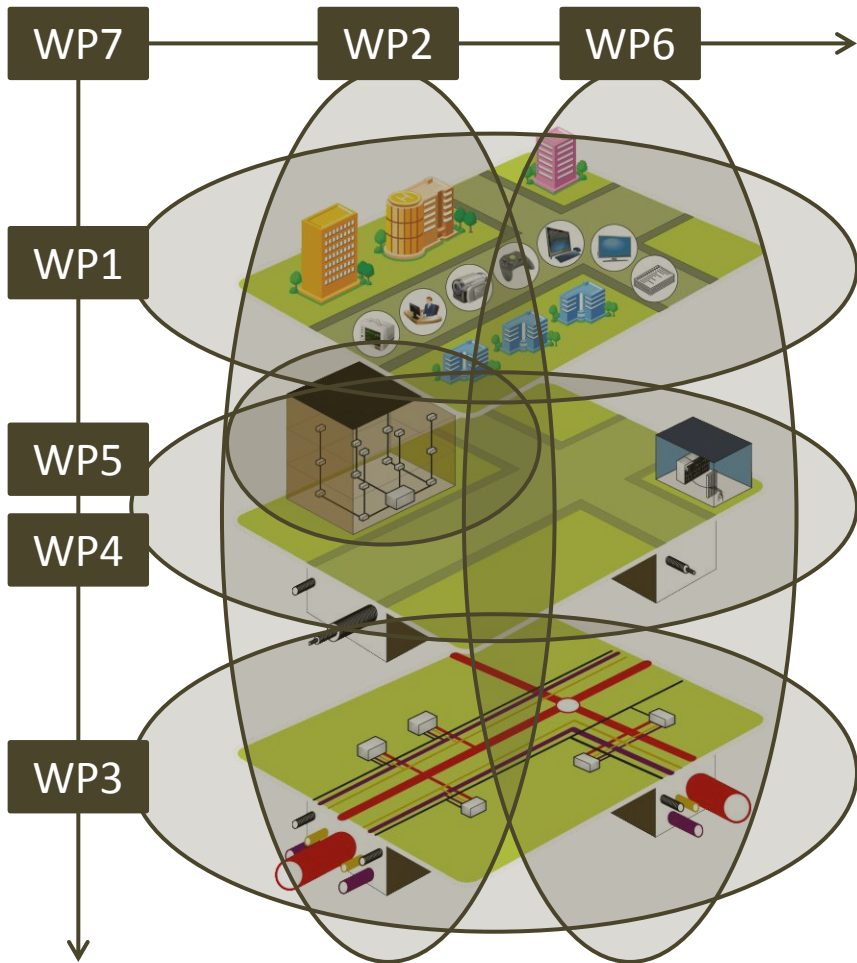
Industrial partners



Research groups

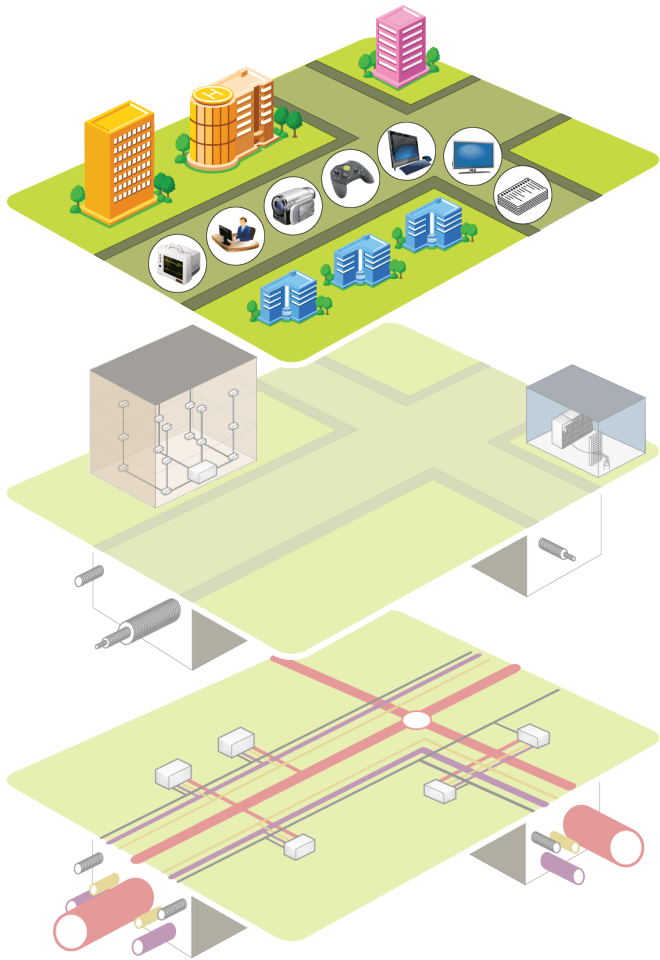


Project structure



1. User requirements & business opportunities
2. Business modelling and public policy
3. Physical access infrastructure
4. Telecom access infrastructure
5. In-building network
6. Extended evaluation techniques
7. Proof-of-concept, dissemination and recommendations

User Requirements & Business Opportunities

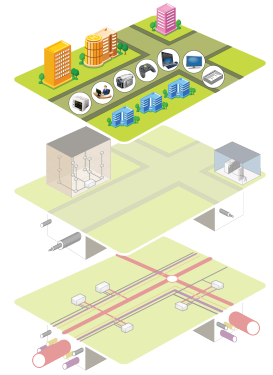


- Defining market and user (residential, business, governmental) requirements
- Which market potential and user adoption can be reached, taking into account timing aspects?
- How could we improve current policies for bridging the digital divide?

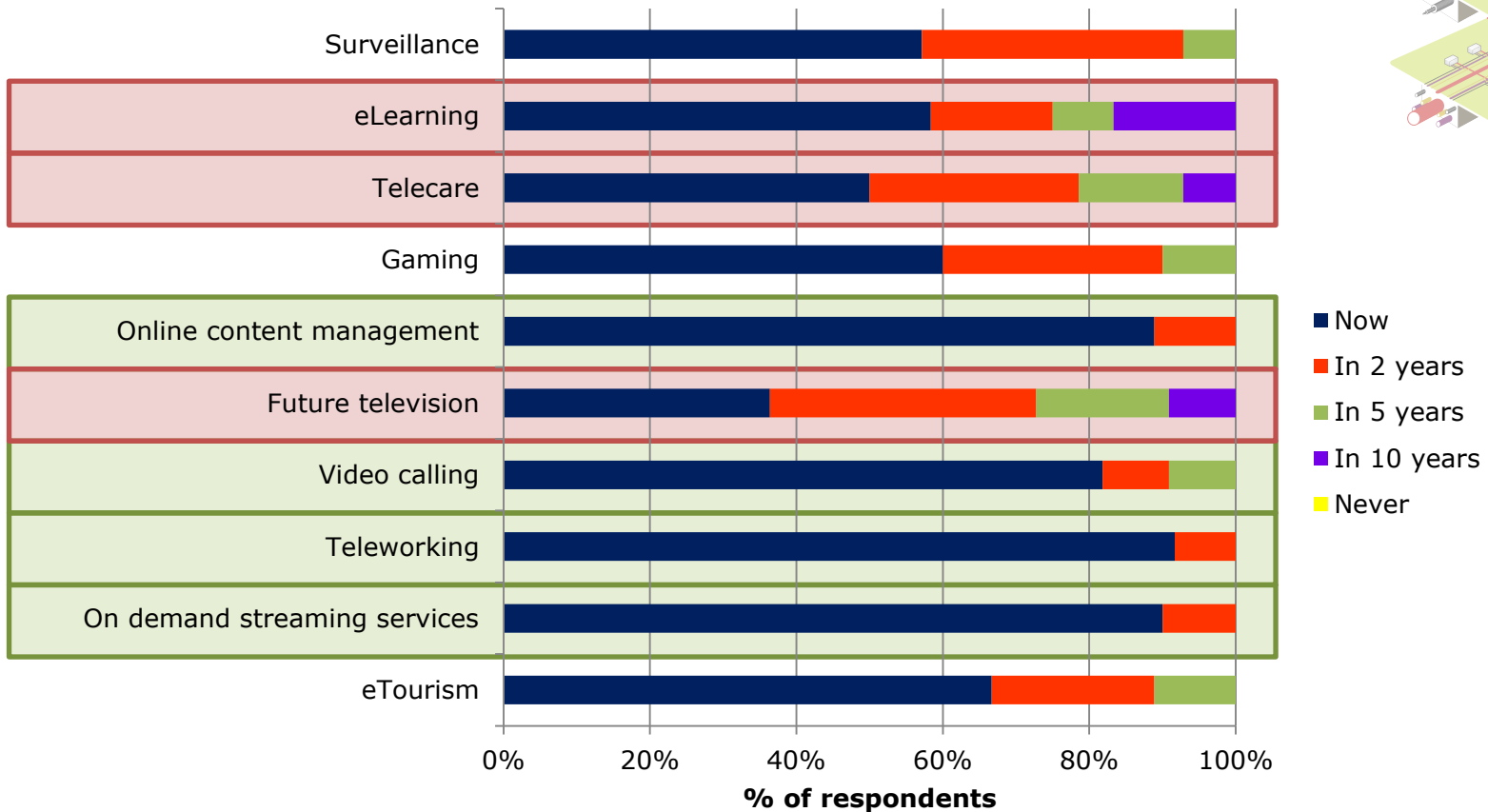
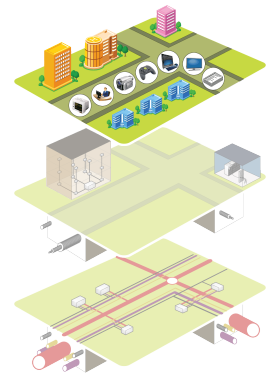
Delphi study



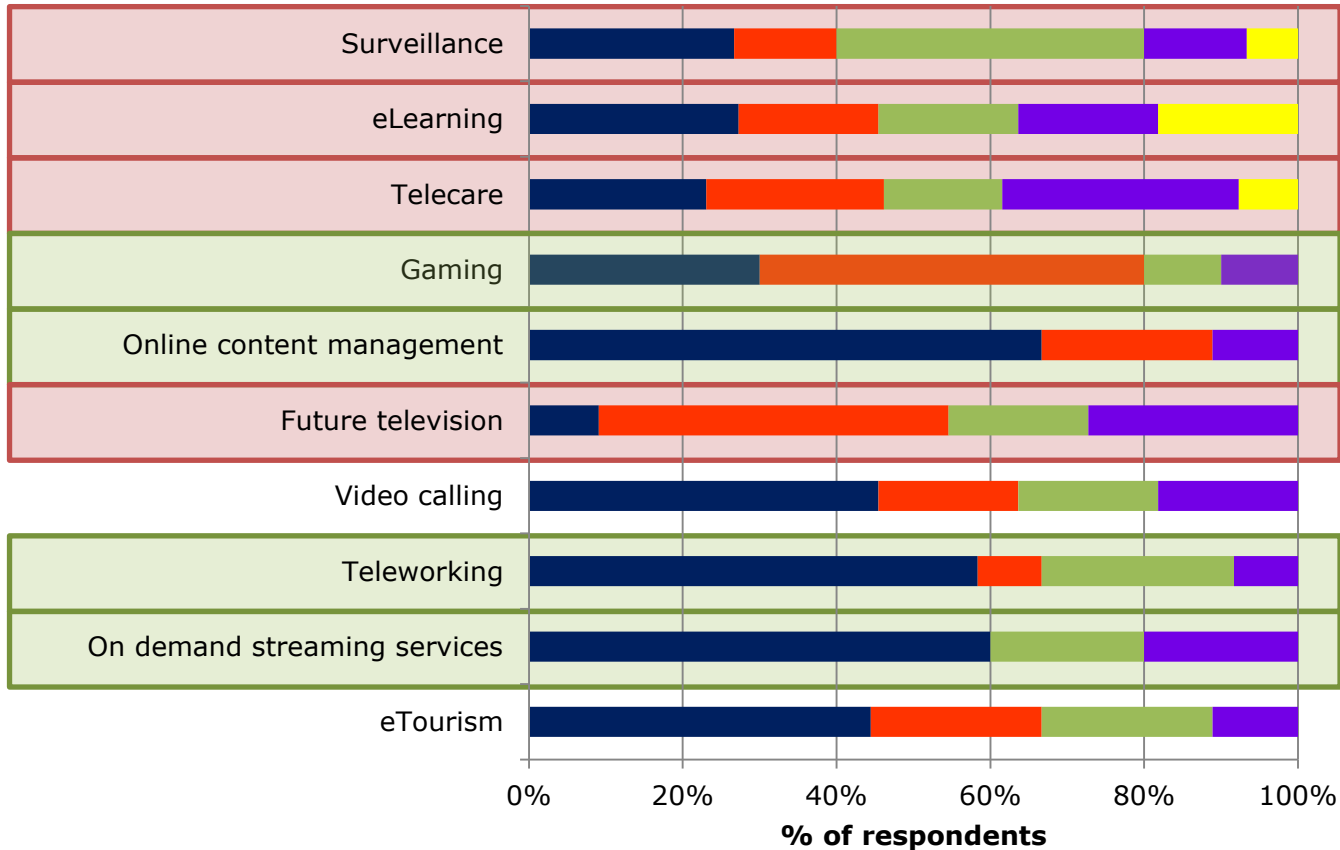
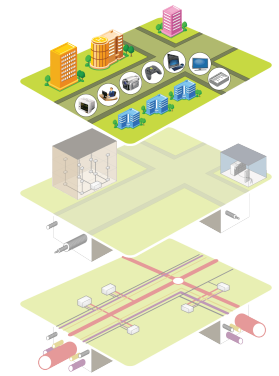
- Participants from 7 countries
- Combination of project partners and external experts
- Backgrounds
 - Research institutions
 - Telecom operators
 - Business consultants
 - Equipment manufacturers/vendors



Time to service availability

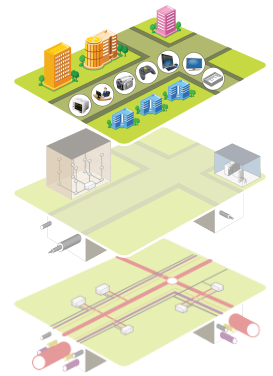
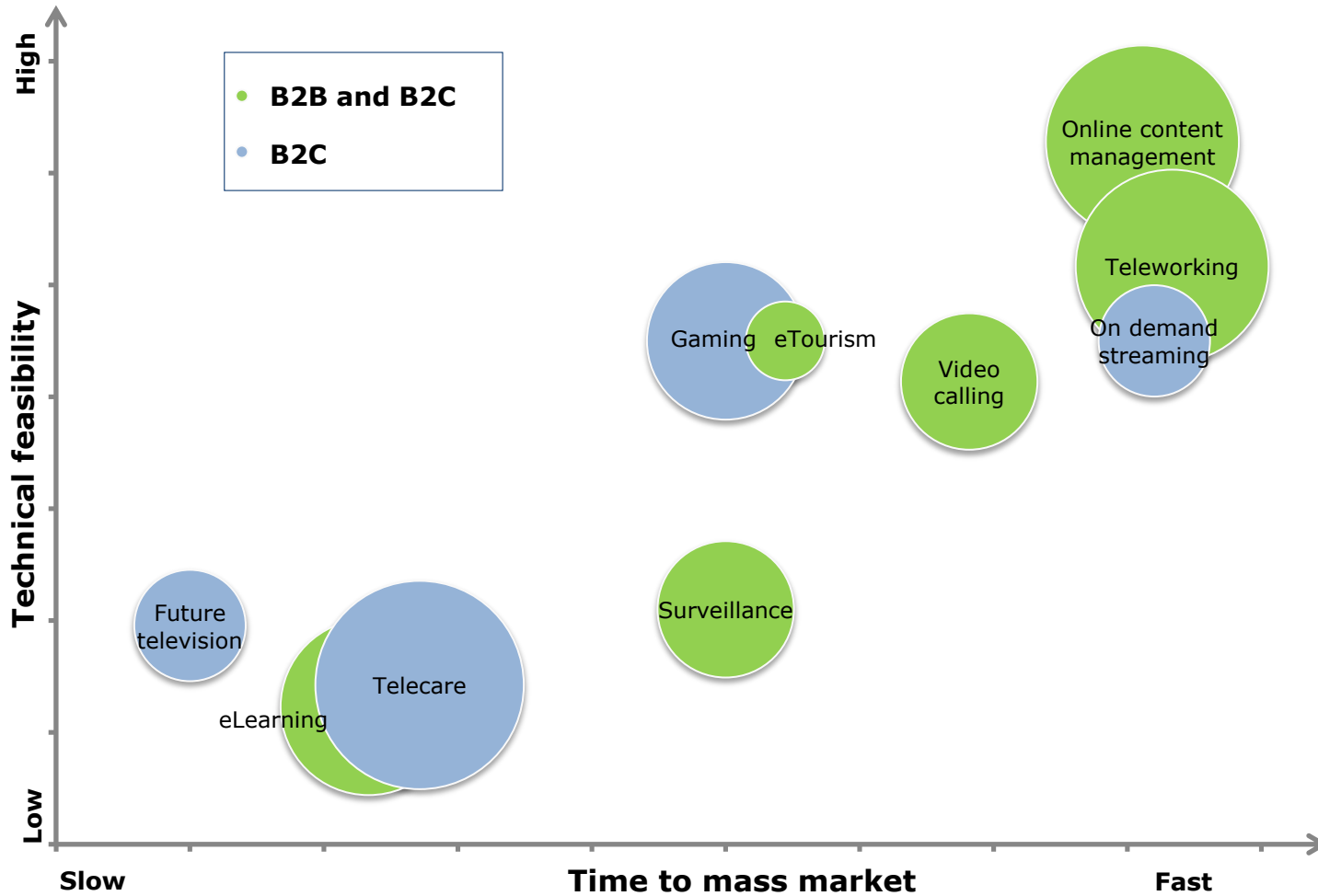


Time to mass market

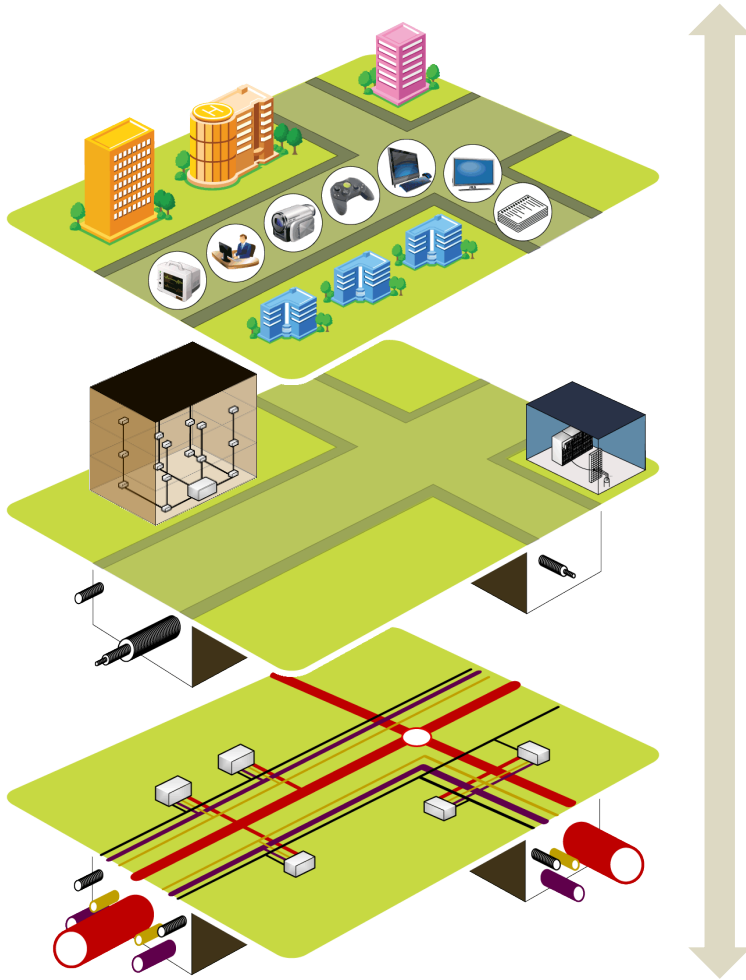


- Now
- In 2 years
- In 5 years
- In 10 years
- Never

Service positioning

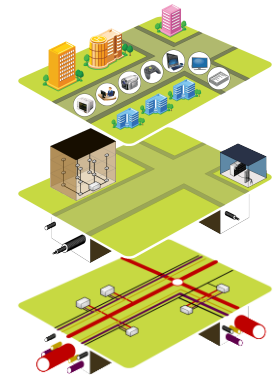


Business Modeling & Public Policy



- Aligning all roles and actors involved in this complex value network
- Which cooperation and competition models are feasible?
- Identifying potential involvement of municipalities and their return?
- How does this all match with current and future regulation?

Micro-Macro Facts



Macro Facts - Market Environment Factors

Regulation

Public Engagement

Demand

Competition

Financial Markets

Micro Facts - Case Specific Factors

Cost

Revenues

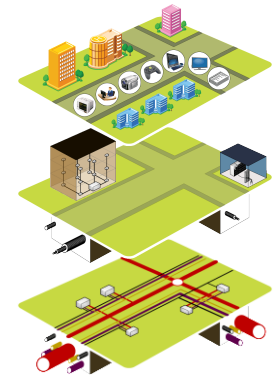
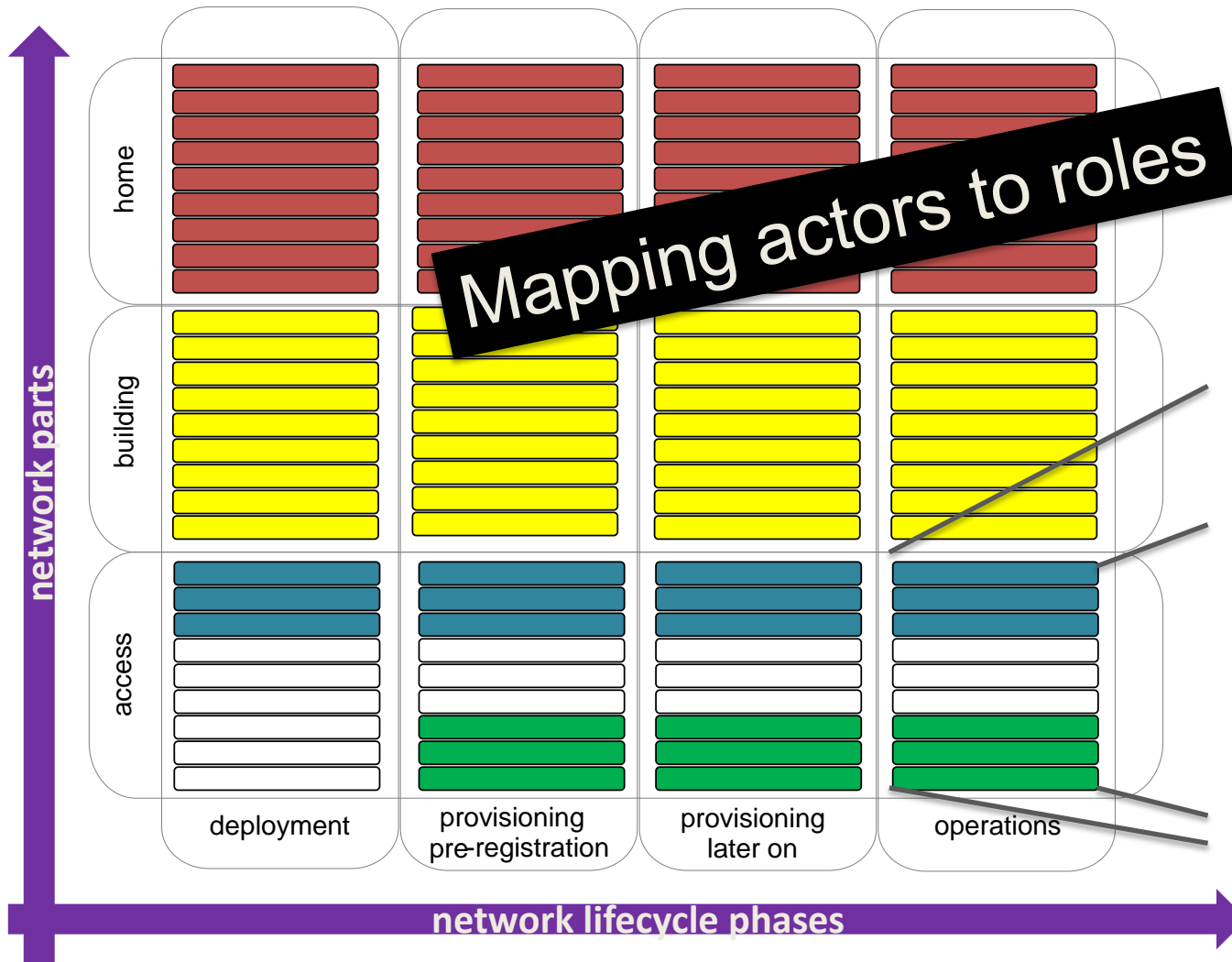
Technology

Bandwidth

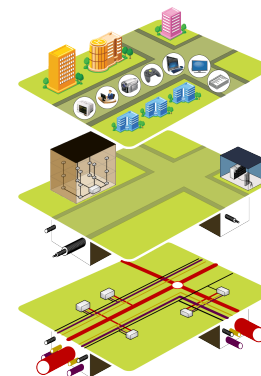
Local Condition

**Business Model
and Rollout Strategies**

Layered Framework

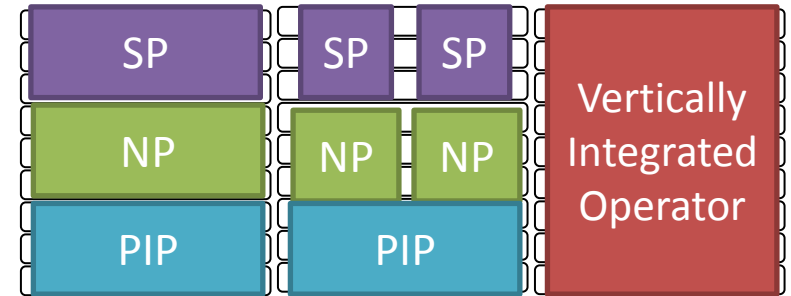
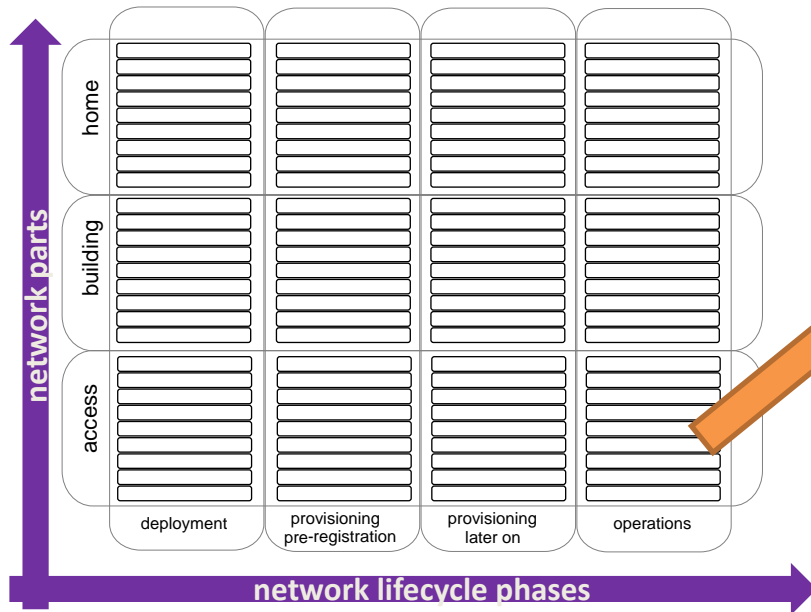


Parameter list for describing actors



Parameter		Y/N	Description
ACTOR (PIP, NP or SP)	Public		
	Commercial		
Local authorities	Involvement		
	Financial support		
Availability of State Aid			
Private sector	Involvement		
	Financial support		
PPP			
Actual offer to higher network layer	What?		
	Cost?		
Deployment and operation by same actor?			

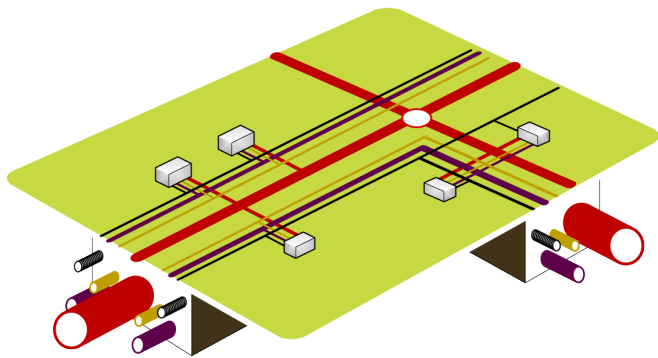
Business modeling methodology



Development of generic models
Mapping of cases on these models

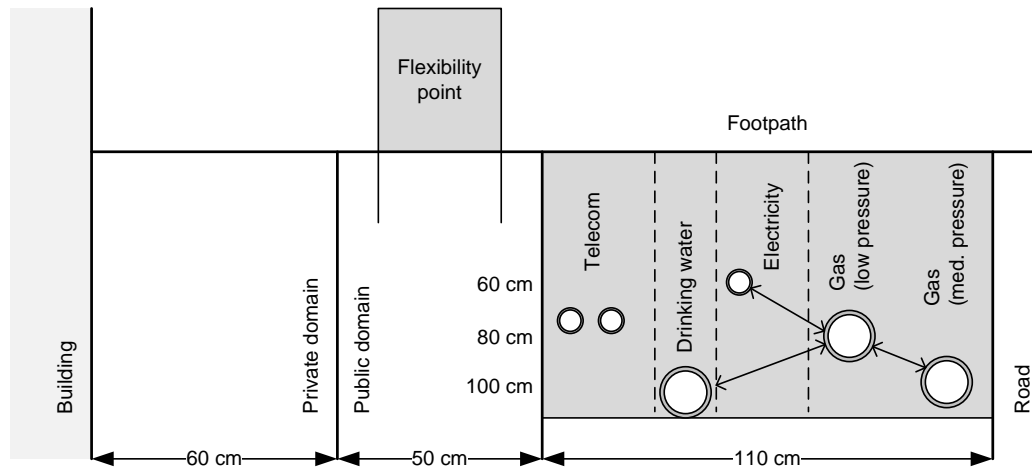
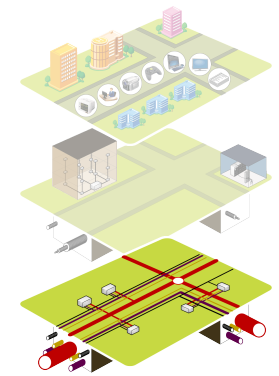
Techno-economic evaluation,
combining physical, telecom access
and in-building infrastructure

Physical Infrastructure



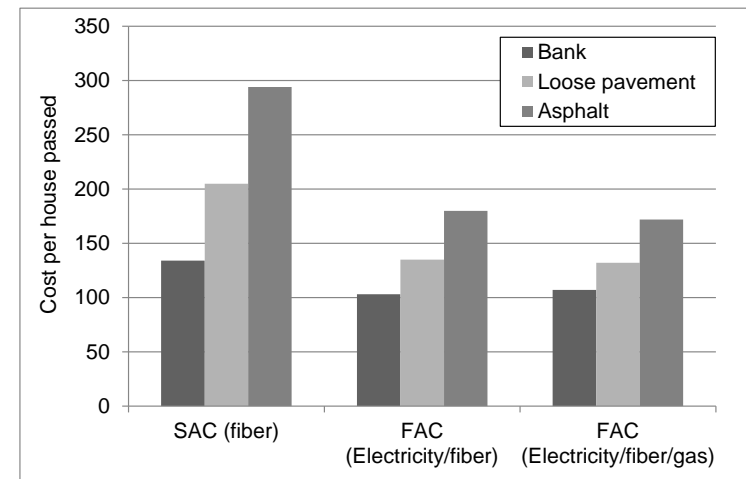
- Potential synergies between different utility infrastructure networks? How can they be optimized?
- Search for communal network rollout strategies
- Development of network modeling and design tools
- Proposing fair cost allocation schemes
- Combining all available GIS data for more accurate network and cost calculations

Towards a joint utility network rollout

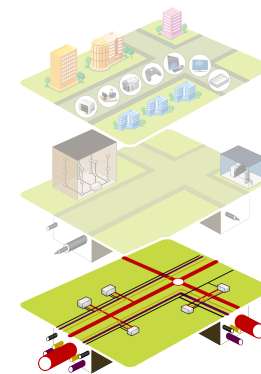


Biggest savings on digging and installation costs

Up to 50% of these costs can be shared



Influence of Geo-marketing



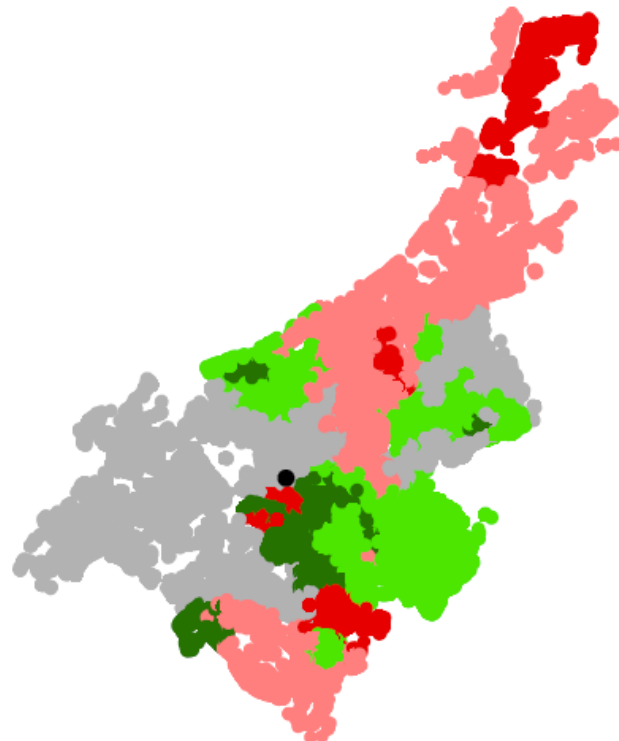
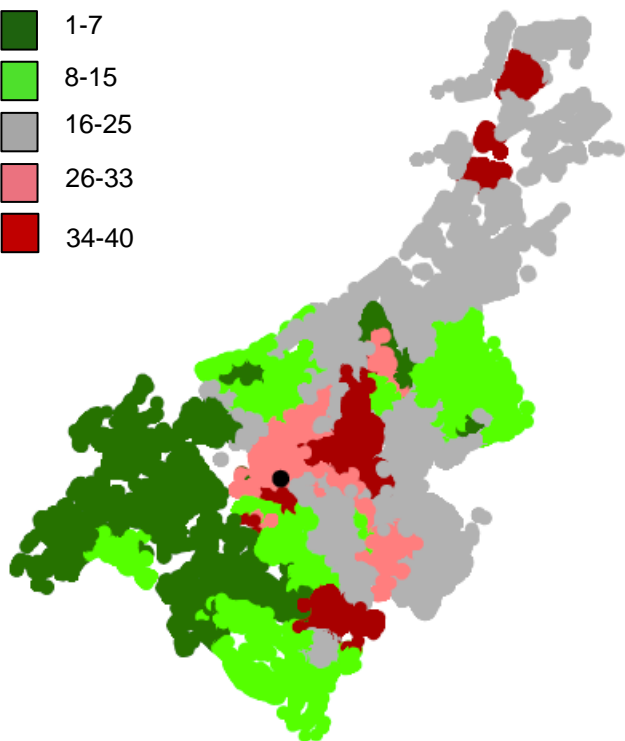
Potential



Profitability

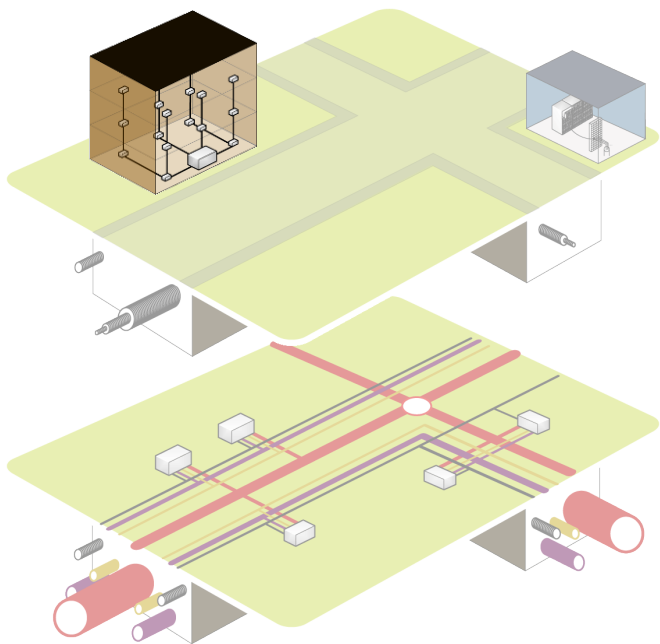
Ranking

- 1-7
- 8-15
- 16-25
- 26-33
- 34-40

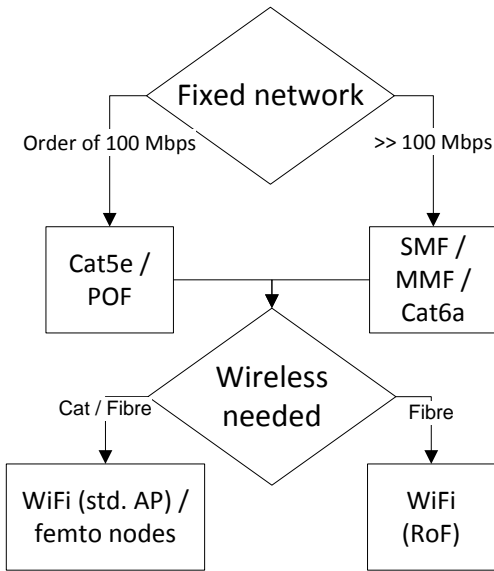
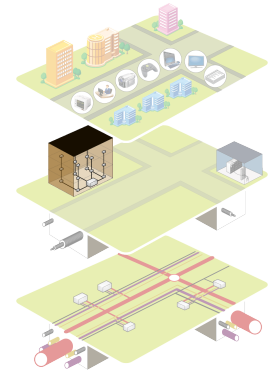


In-building Networks

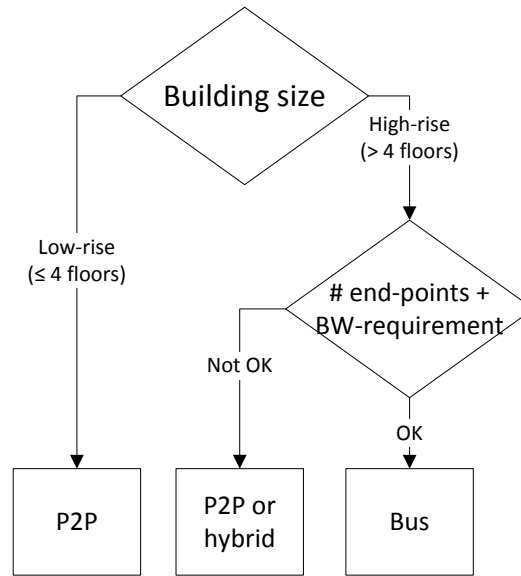
- Synergies of infrastructures, e.g. in entering the building and first installation
- Technology and migration roadmap for telecom in-building networks



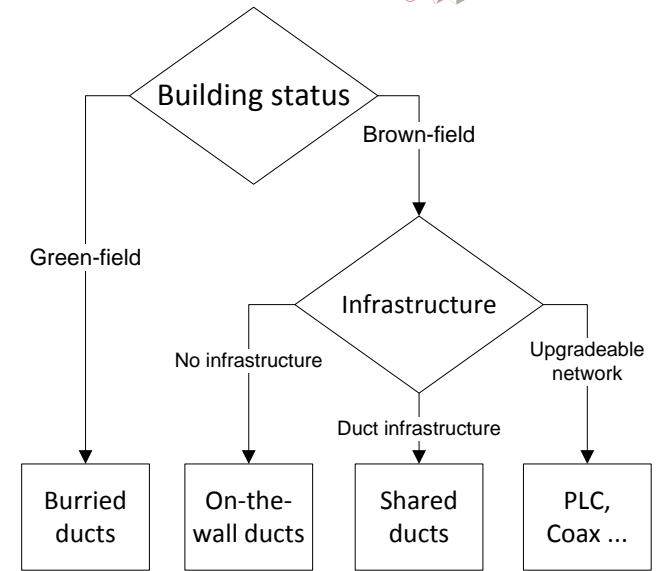
Technology choice



transmission medium



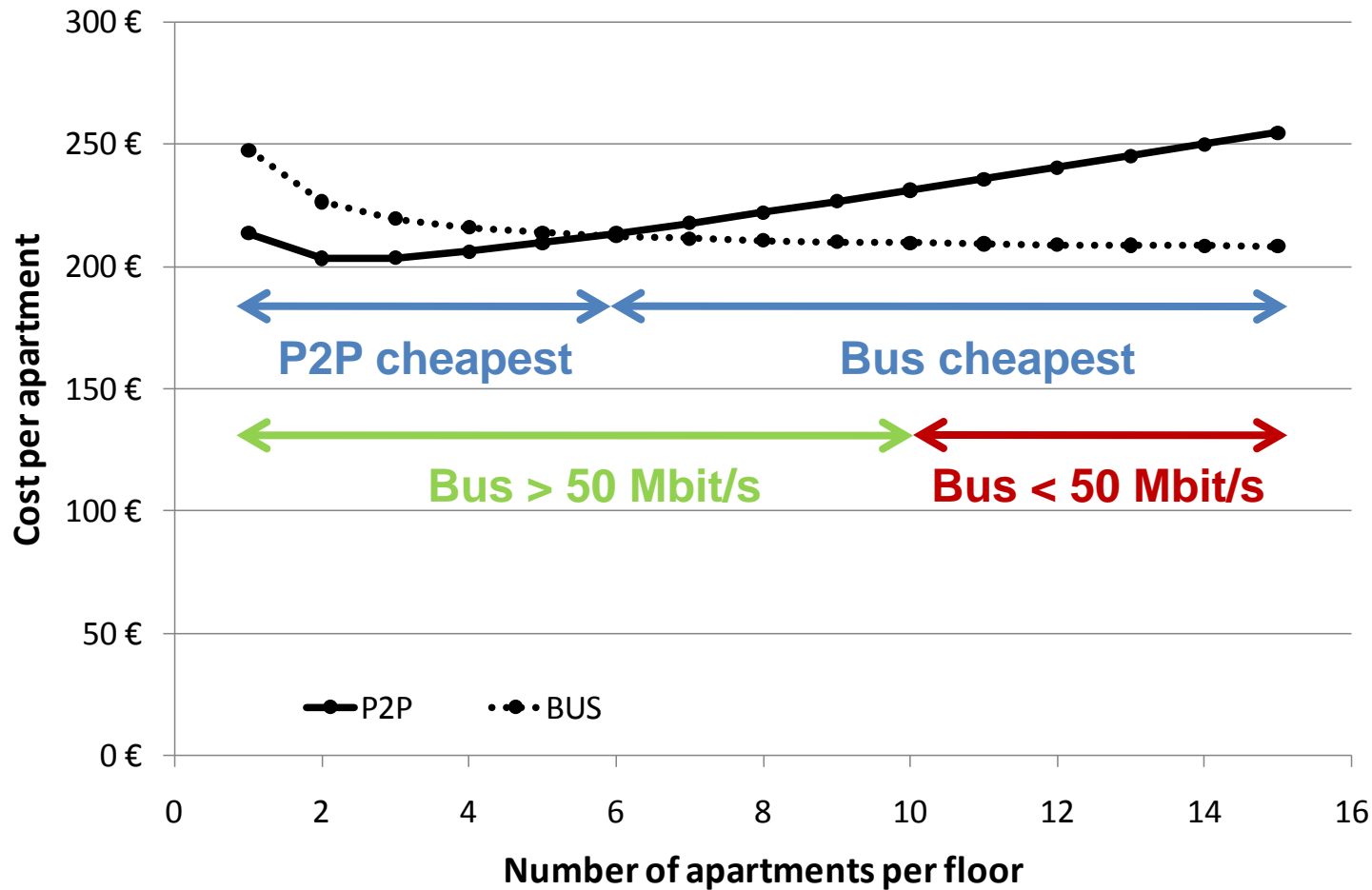
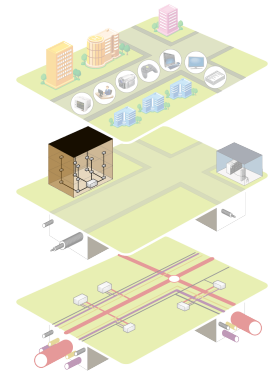
topology



installation method

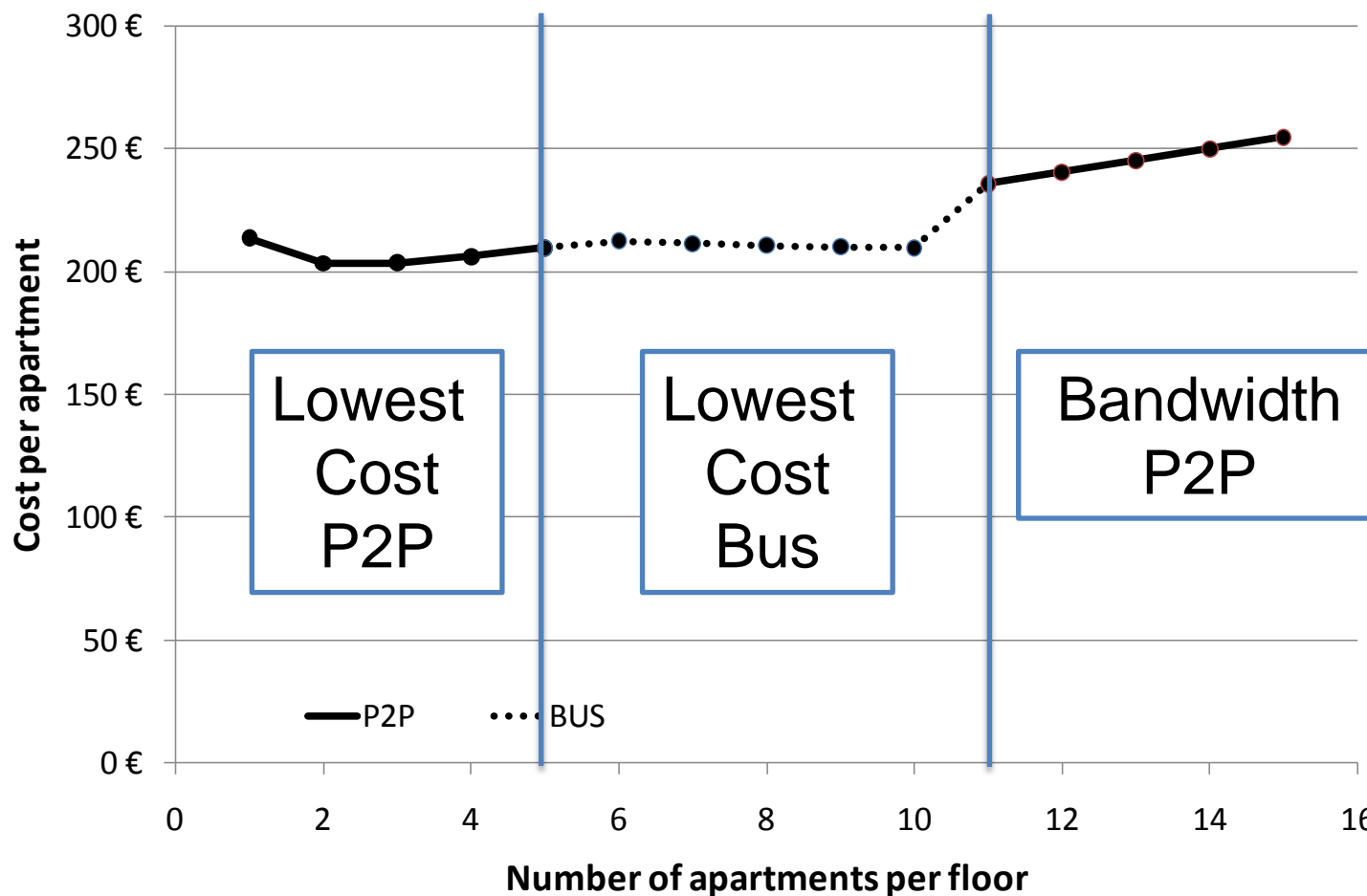
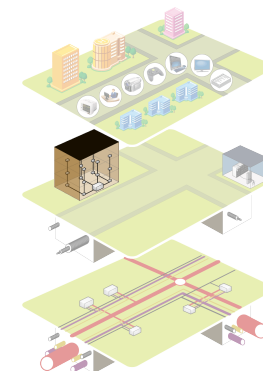
Multi-Mode Fiber (MMF - 500 Mbit/s)

Bus & P2P topology, H = 3m, L = 5m, M = 3 floors



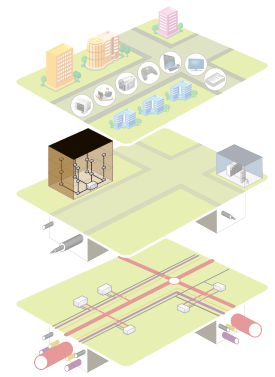
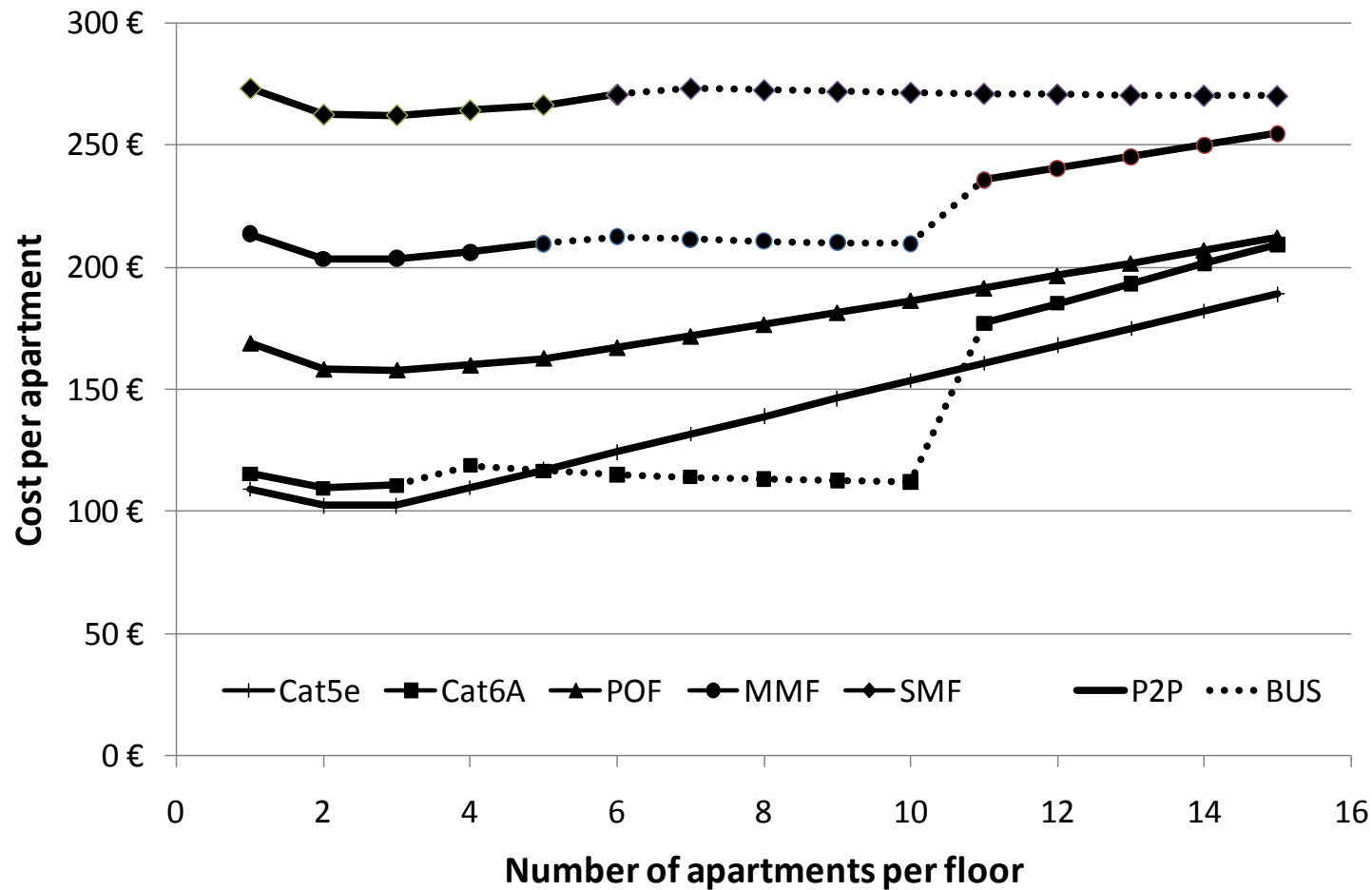
Multi-Mode Fiber (MMF - 500 Mbit/s)

Minimal cost and offering 50 Mbit/s per apartment



Comparison 5 technologies

Minimal cost and offering 50 Mbit/s per apartment



Workshop on municipal fiber networks

Ghent, Belgium – **October 24th, 2011**

In cooperation with the  and NGIInfra project

Goal of the workshop

Spreading knowledge from existing fiber network initiatives towards different players involved in potential future deployments.

Topics

- expected revenues
- indirect effects
- potential synergies in deployment and operations
- suitable business models
- stimulate discussion



<http://www.terrainproject.be/>



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