



Optimizing the Rollout of New Telecom Access Infrastructure in accordance with Other Utility Networks

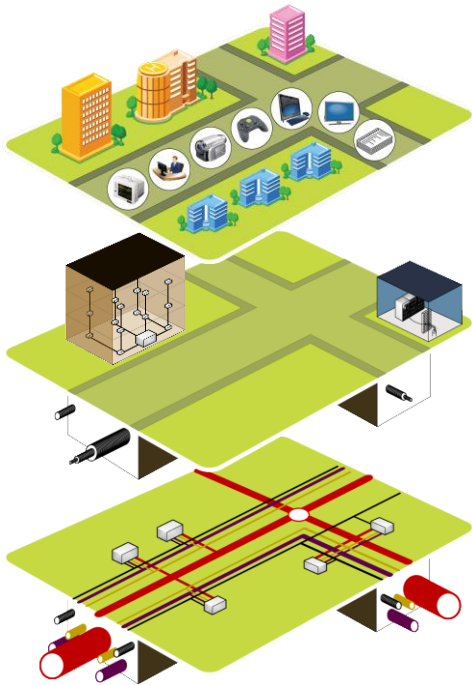
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MCM meeting Rennes – May 2011

This work will also be presented at the CTTE 2011 conference



TERRAIN project scope



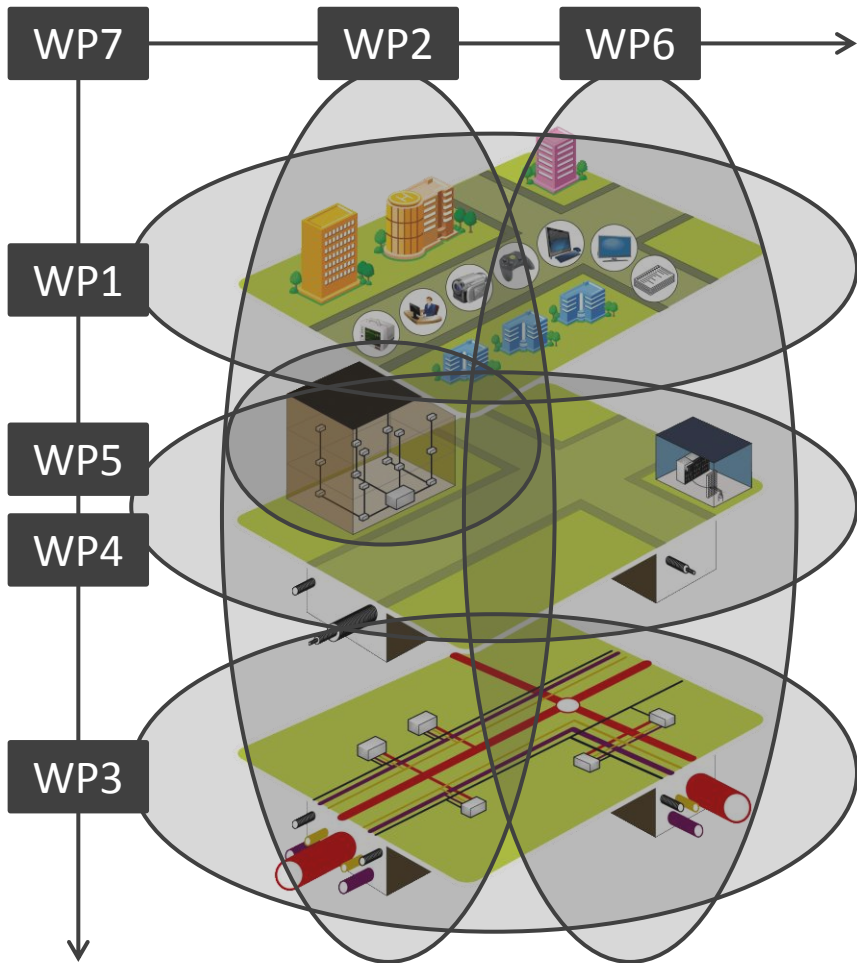
The TERRAIN project investigates the **rollout of optical fiber in the access network in cooperation with other utility networks** as future-oriented solution.

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

Project duration: **October 2010 - September 2012**

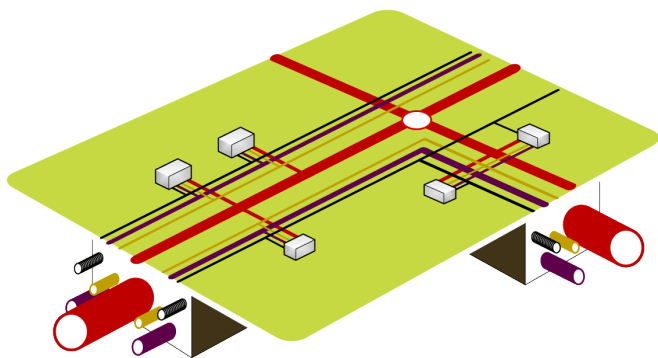
More information: **www.terrainproject.be**

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

Physical Infrastructure

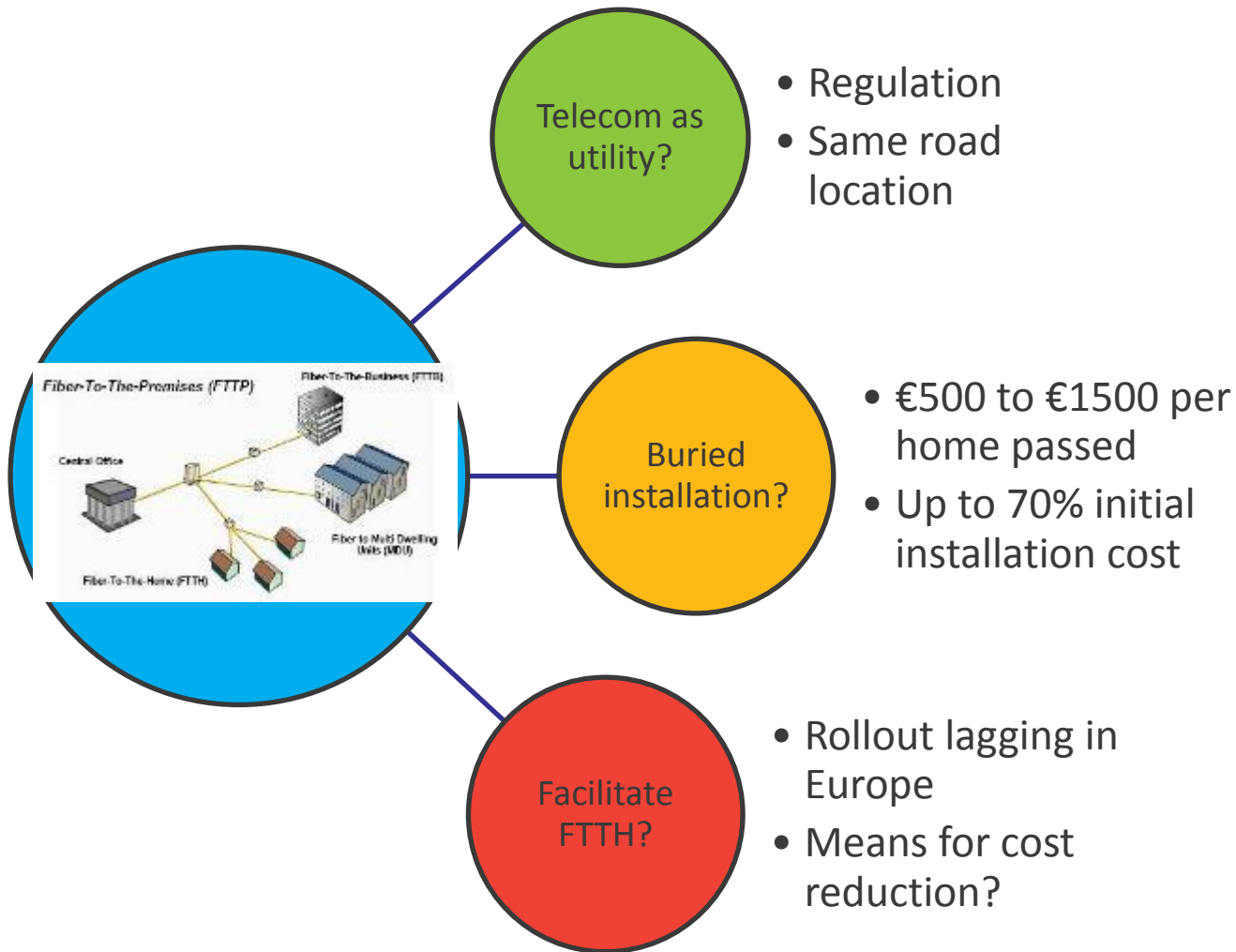


- Potential synergies between different utility infrastructure networks? How can they be optimized?
- Search for communal network rollout strategies
- Development of network modeling and design tools
- Proposing fair cost allocation schemes
- Combining all available GIS data for more accurate network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

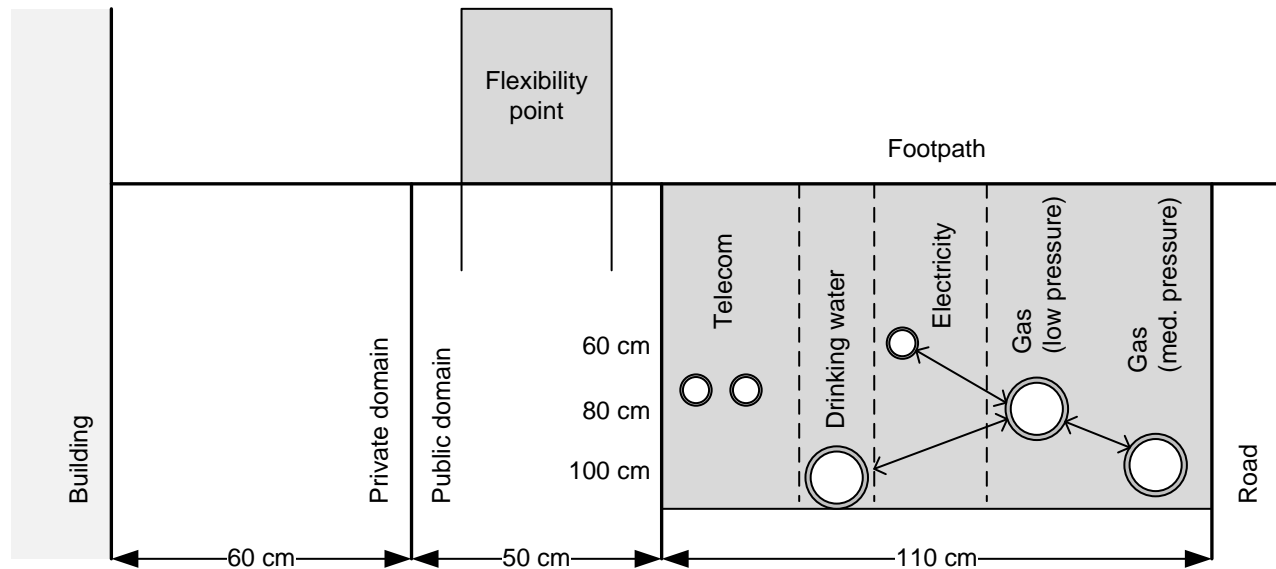
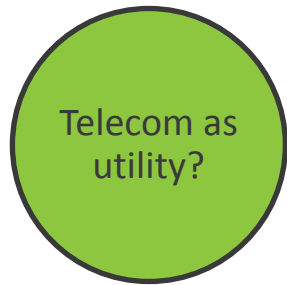
Table of Contents

1. Drivers for joint rollout
2. Cost sharing model
3. Example
4. Conclusions

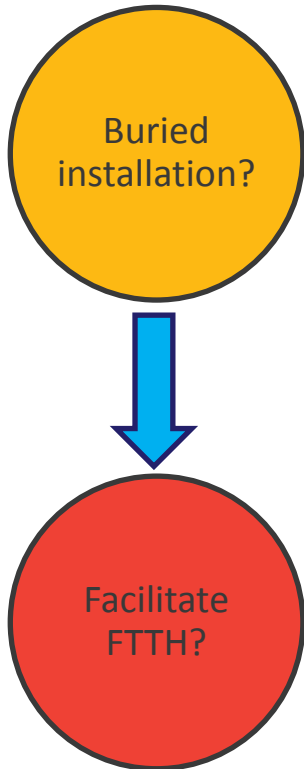
FTTH network characteristics



Towards a joint utility network rollout



Towards a joint utility network rollout



High initial installation cost
Delays rollout

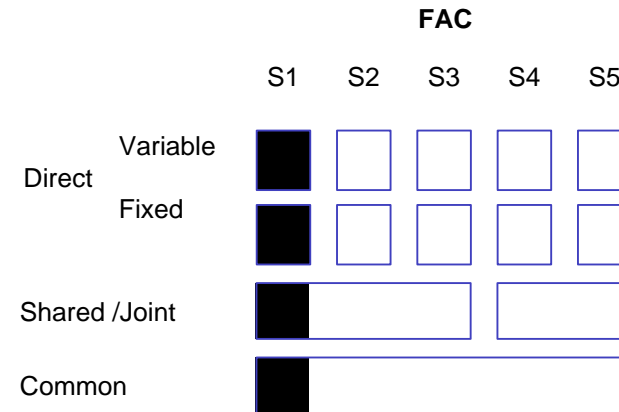
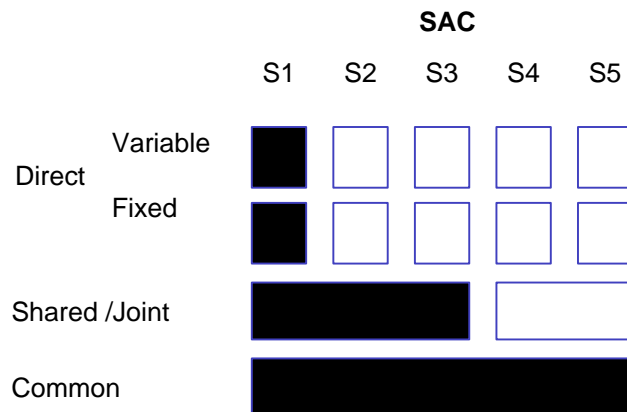
Cost reductions gained by joint rollout?
Focus on digging and trenching

Table of Contents

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Cost sharing model

- Stand alone costs vs. fully allocated costs
- SAC
 - All costs directly assigned to one actor
 - Independent rollout
- FAC
 - Costs allocation based on driver
 - Trench volume as driver



Cost sharing model

Focus on trenching cost

- Digging
 - Volume
 - Pavement type
- Cable and duct installation
 - Work hours
- Flexibility points

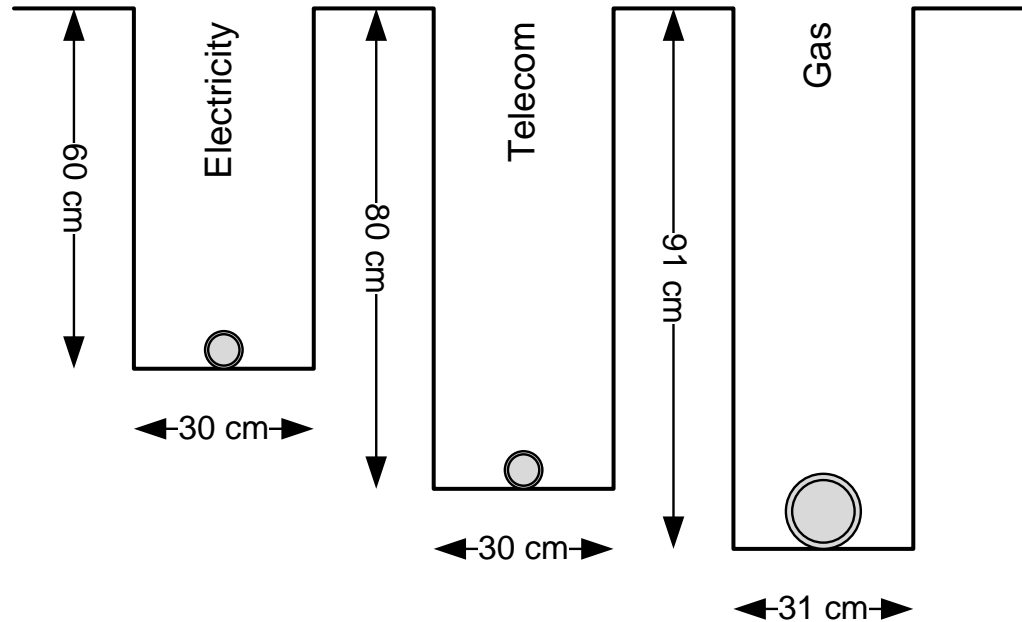
Table of Contents

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Example

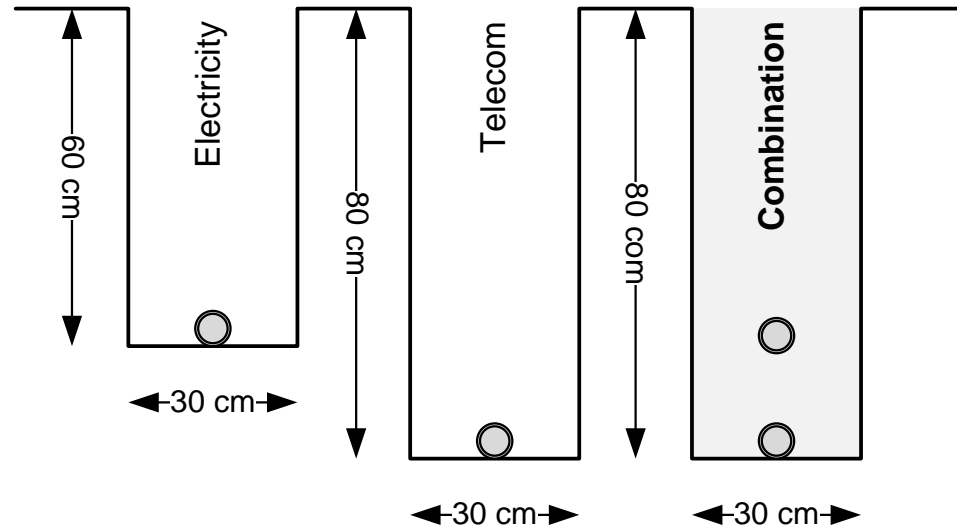
- Trench length of 100m
- Greenfield situation
- Installation on one side of the road
- Loose pavement
- 20 premises present

Independent rollout



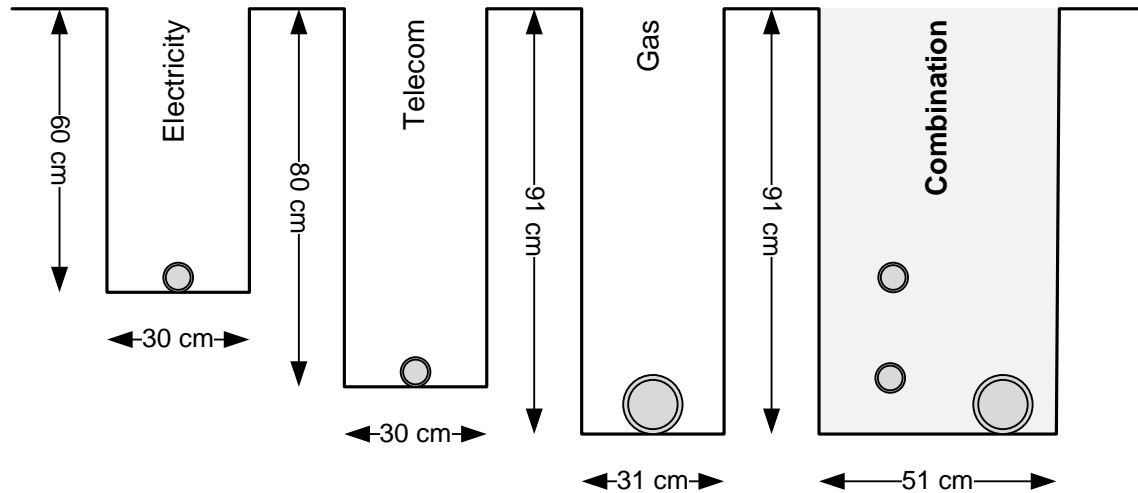
	Electricity	Fiber	Gas
Digging cost	€82	€91	€96
Installation cost	€113	€114	€115
Equipment cost	€266	€265	€268
Total cost	€461	€470	€479

Joint electricity – fiber rollout



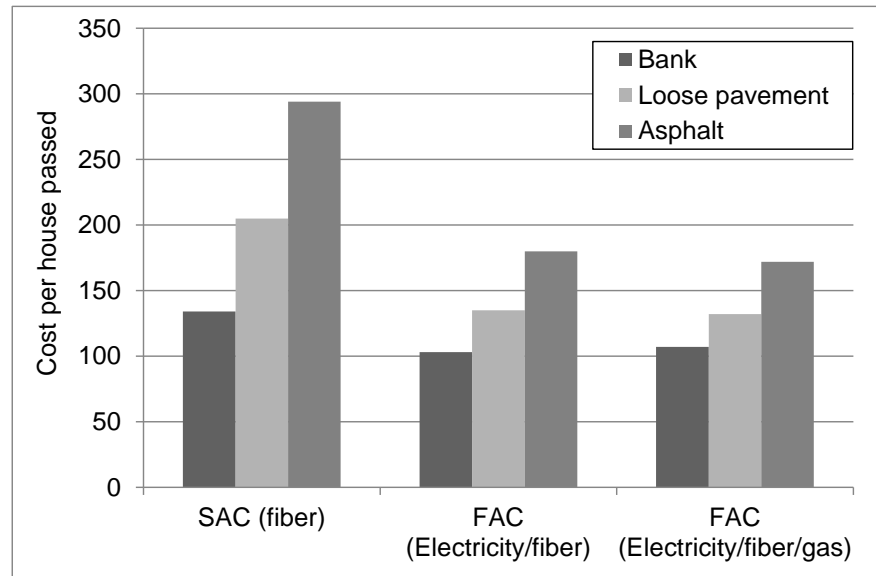
	Electricity	Fiber	Cooperation
Digging cost	€43 (-47%)	€48 (-50%)	€91
Installation cost	€86 (-24%)	€87 (-24%)	€173
Equipment cost	€266	265	€531
Total cost	€395 (-14%)	€400 (-17%)	€795

Joint electricity – fiber – gas rollout



	Electricity	Fiber	Gas	Cooperation
Digging cost	€38 (-54%)	€42 (-56%)	€45 (-50%)	€125 (-53%)
Installation cost	€89 (-21%)	€90 (-22%)	€92 (-19%)	€272 (-21%)
Equipment cost	€266	265	265	€799
Total cost	€393 (-15%)	€397 (-17%)	€405 (-14%)	€1.196 (-15%)

Impact of pavement type



- Most cost reduction gained for asphalt
- Minimal cost reduction from cooperation for bank

Table of Contents

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Conclusions

- Joint rollout of utility networks
 - Cost reduction up to 17%
 - Reduced nuisance for inhabitants and SMEs
- Reasons for current absence joint rollout
 - Incentive not effective
 - Introduction of penalty schemes?

Future work

- Extend model towards larger geographic areas
- Include crossroads and existing ducts
- Model in more detail administration and coordination costs

Questions ?

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