

Flexibility and competition in telecommunication networks: an integrated model for extended economic evaluation

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- Ghent University - Belgium
- Master in Applied Economics – Corporate Finance
- Affiliated with Ugent-IBBT-IBCN
 - 120 researchers in IBCN
 - Techno-economic research group
 - CTTE conference www.ctte-conference.org



■ PhD topic:

Flexibility and competition in telecommunication networks: an integrated model for extended economic evaluation

■ Why? Sector characteristics

- Rapid technological evolution
- Regulatory impact and uncertainty
- Competition

■ Most used economic evaluation model

Net Present Value analysis

■ Problems:

- Static, no flexibility implemented
- Impact of competition on analysis?

■ Solutions

- Real Option Theory
- Game Theory

■ Goal

Combining both theories in 1 model

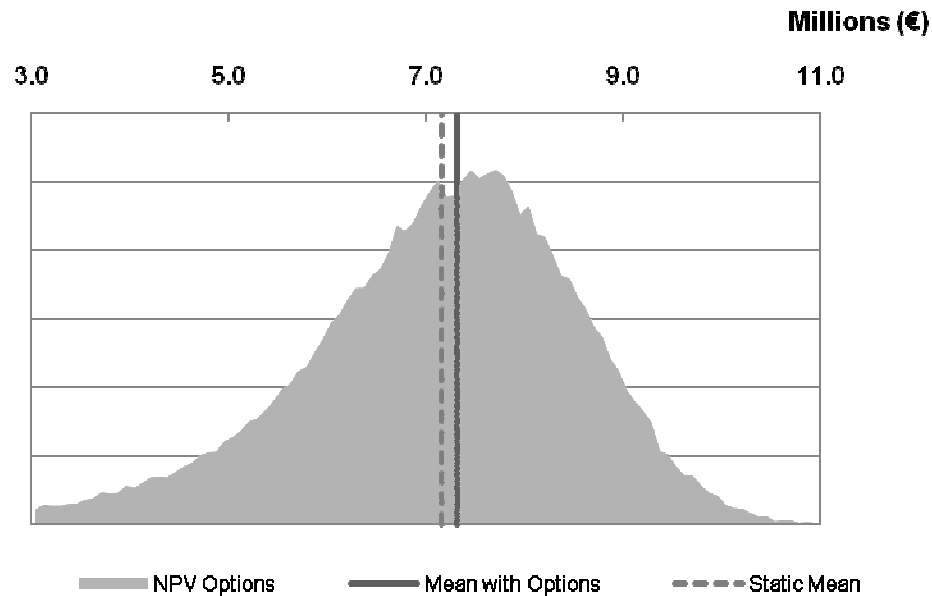
Incorporate flexibility in the NPV evaluation

- Network expansion
- Learning phases
- Demand uncertainty
- Technology uncertainty

- **Case 1: Deployment of a wireless parking sensor network in a city environment**
 - Full economic evaluation model
 - From *'user adoption'* over network modeling to feasibility evaluation
 - Depending on impact of the system, different options emerge
 - ◆ **Abandon project**
 - ◆ **Scale up**

■ Results

- Options raise value of project
- Remarks



■ Include competition in analysis

- Decision by one player will influence the competitive actions taken by other players
- Using equilibrium concepts to find the most likely outcome

■ Case 2 (Work in Progress):

- Rollout of municipal wireless access network
- Competition with commercial players
- RQ1: Direct competition or municipality in PPP
- RQ2: Impact on price setting

■ Challenges:

- Building an model integrating both concepts
- Model providing a full economic analysis, covering both flexibility and competition

Questions ?

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