

Holistic approach for improving the FTTH business case

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Ghent University – IBBT

Cost605 Econ@tel meeting
Athens, Greece, Feb 17, 2010

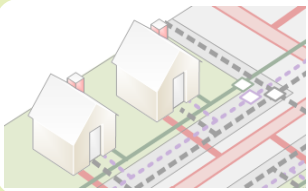
■ Players are waiting for one another..



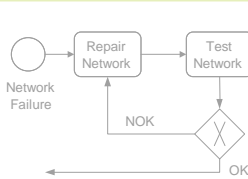
Essential steps



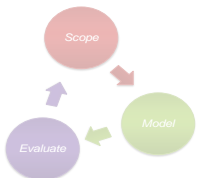
strategic geo-marketing



synergetic installation



detailed operational modeling



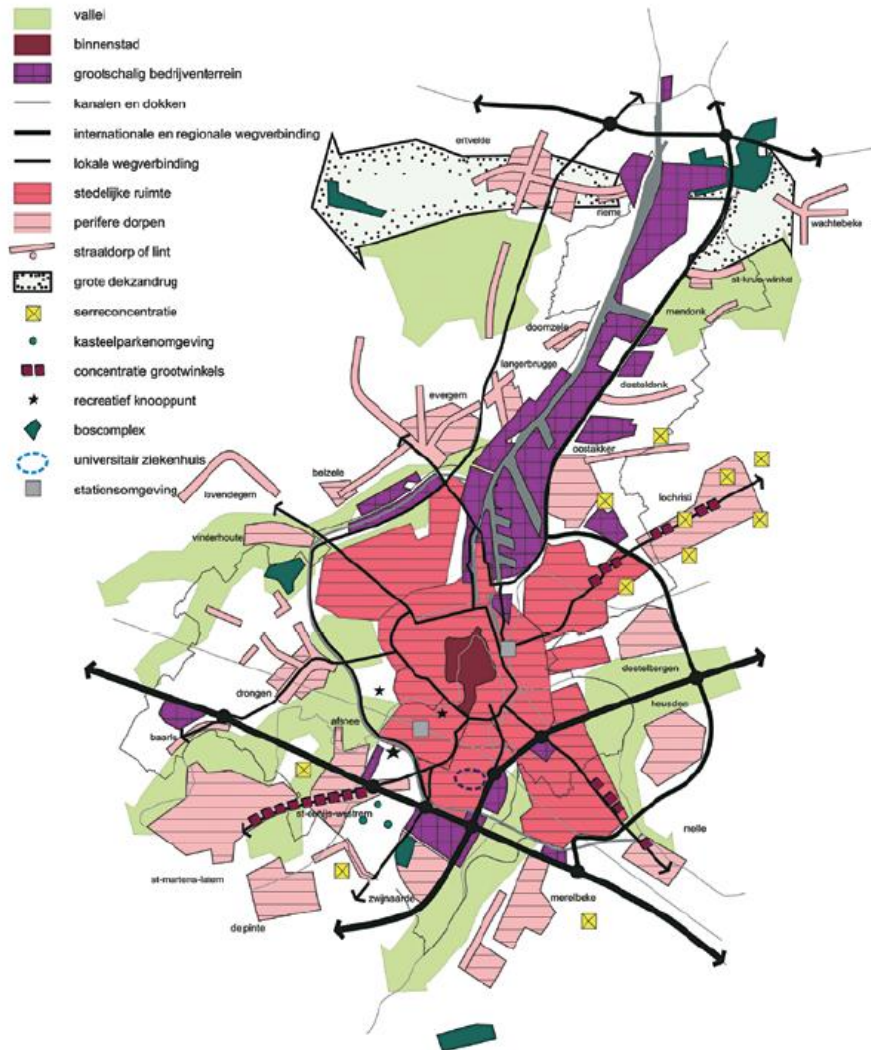
holistic view

Large amount of potential customers



Target area input

Geographic information

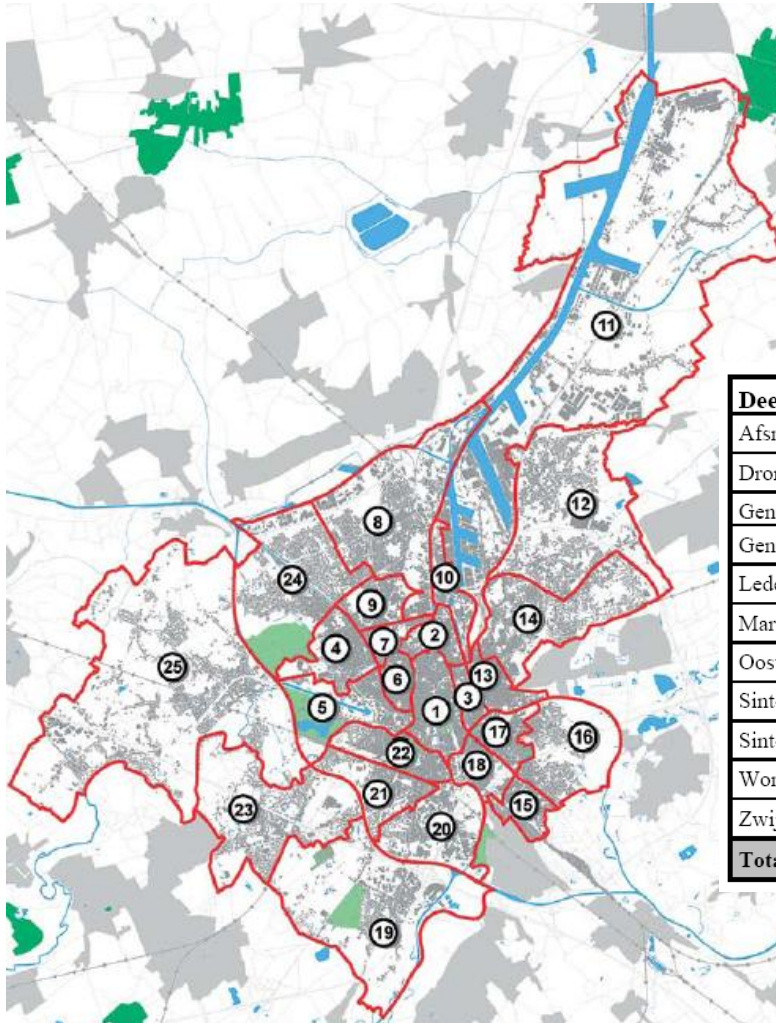


General overview for Ghent

- Transport
- Industrial areas
- Commercial areas
- Residential areas
- Green belt

Target area input

Demographic data

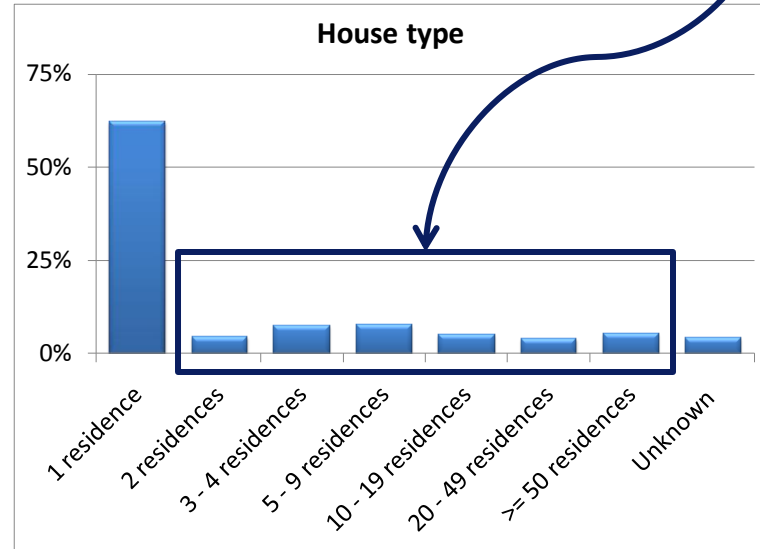
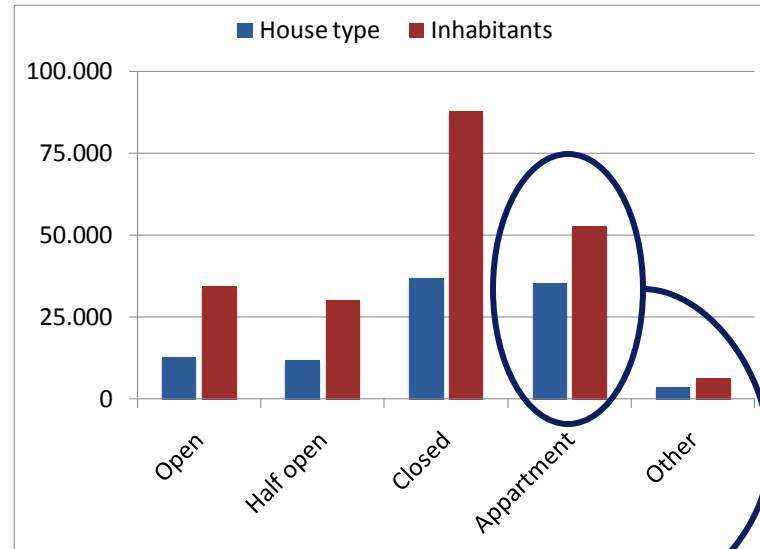
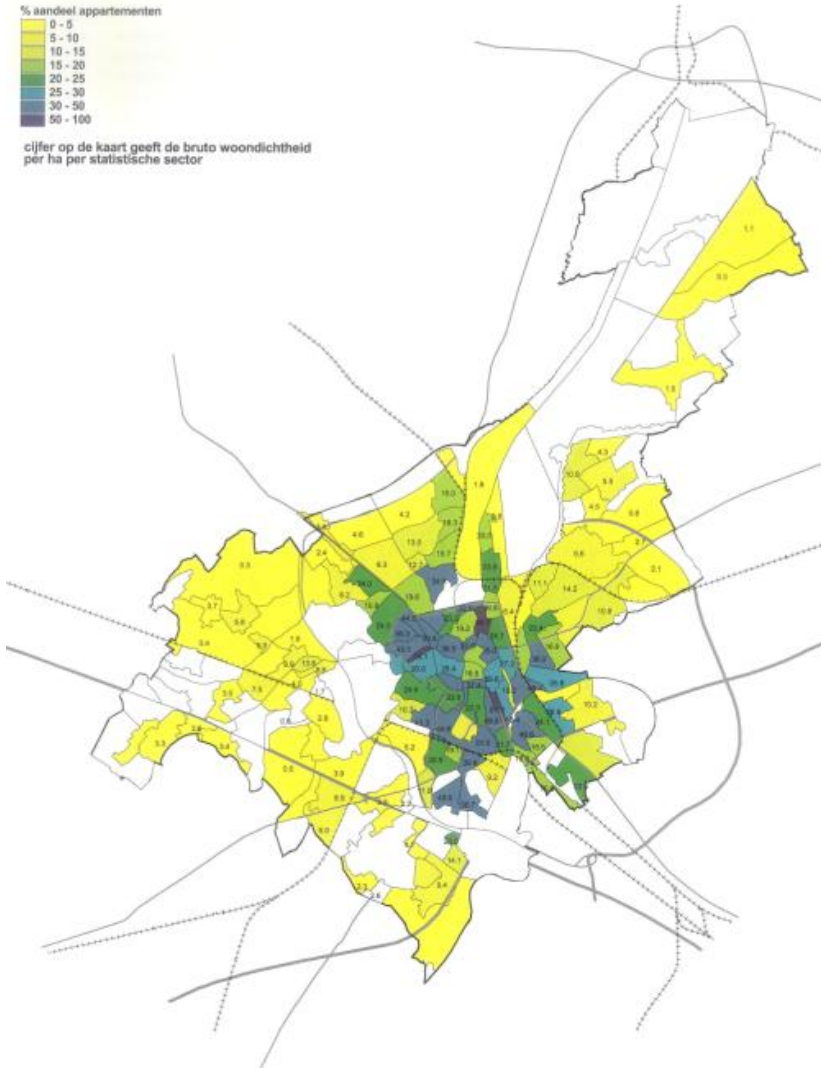


Population density
& area surface

Deelgemeente	oppervlakte	Bevolkingsdichtheid
Afsnee	3,95 km ²	359,49
Drongen	27,43 km ²	447,54
Gent	70,34 km ²	1667,94
Gentbrugge	7,86 km ²	2550,25
Ledeberg	1,09 km ²	7559,63
Mariakerke	5,20 km ²	2246,15
Oostakker	10,47 km ²	1195,80
Sint-Amandsberg	5,99 km ²	3766,28
Sint-Denijs-Westrem	6,24 km ²	832,53
Wondelgem	5,82 km ²	2121,65
Zwijnaarde	12,04 km ²	569,27
Totaal	156,43 km²	1473,25

Target area input

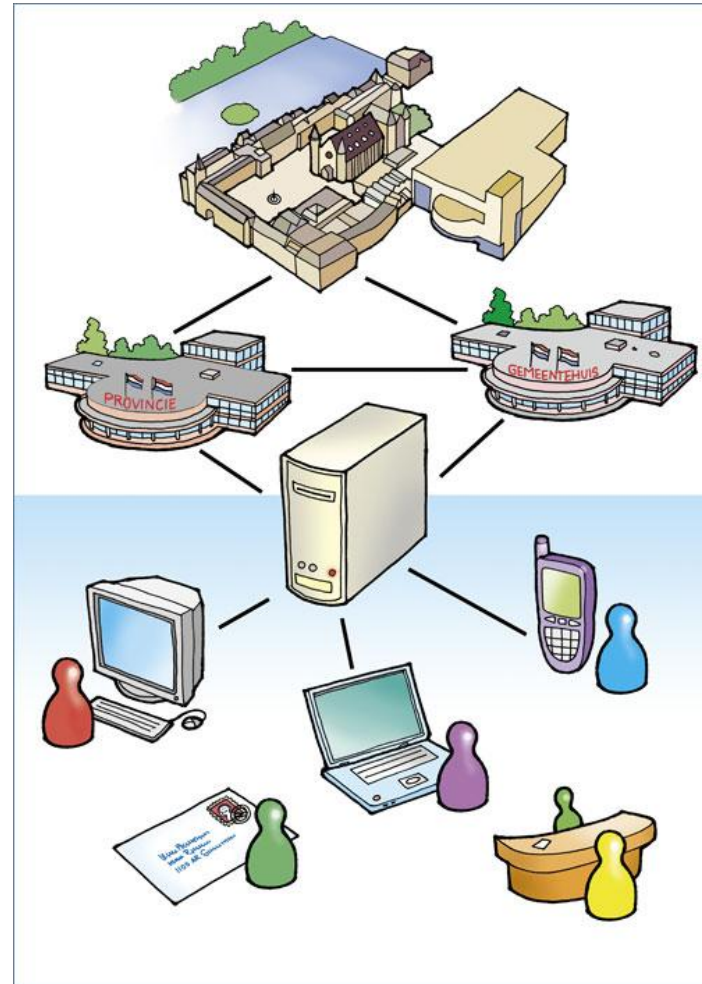
Demographic data



Market input

Bandwidth drivers

eGovernment
eEducation
eHealth
eBusiness
Leisure



Technology input

€/m

Trenching



- + Robust and invisible
- Expensive road works

40 - 60

Blowing Fibre



- + Cheap & install when used
- Ducts available

5 - 10

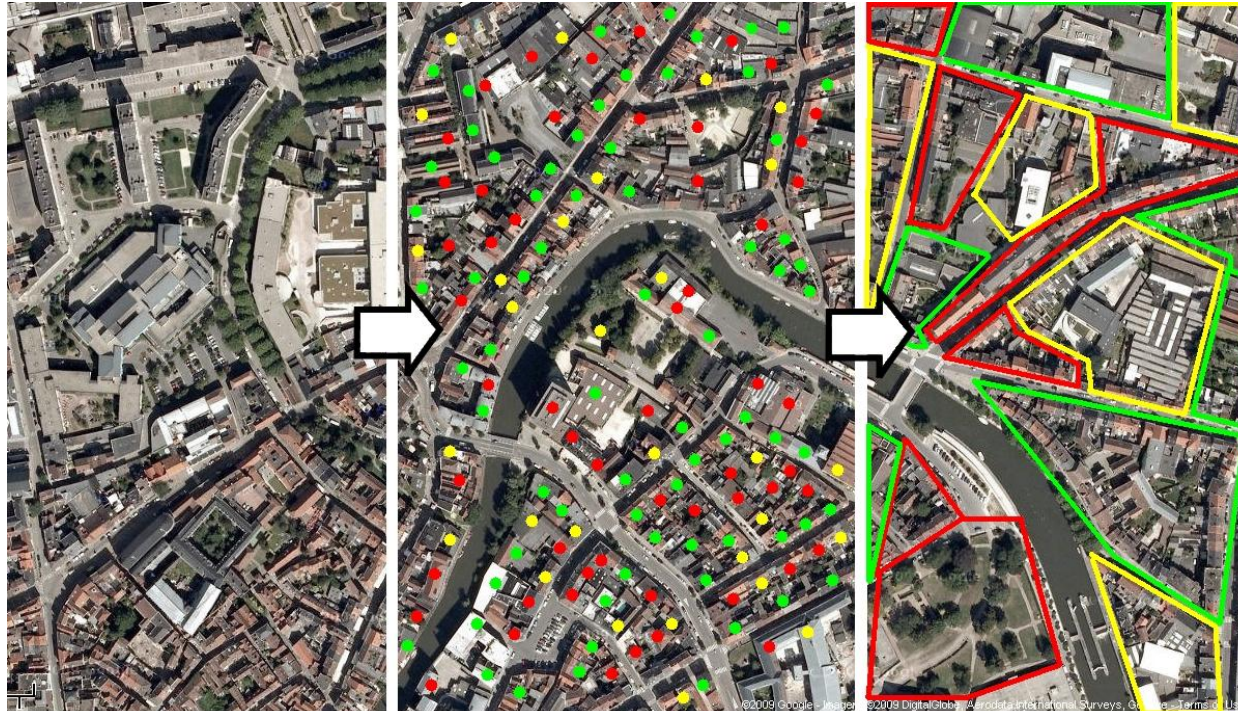
Aerial



- + Fast & cheap
- Vulnerable & regulations

7,5 - 15

Focus on best customers



collect

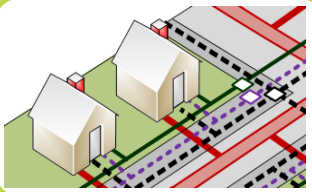
classify

group

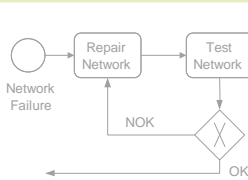
Essential steps



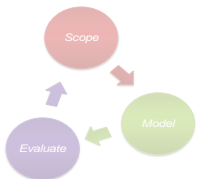
strategic geo-marketing



synergetic installation

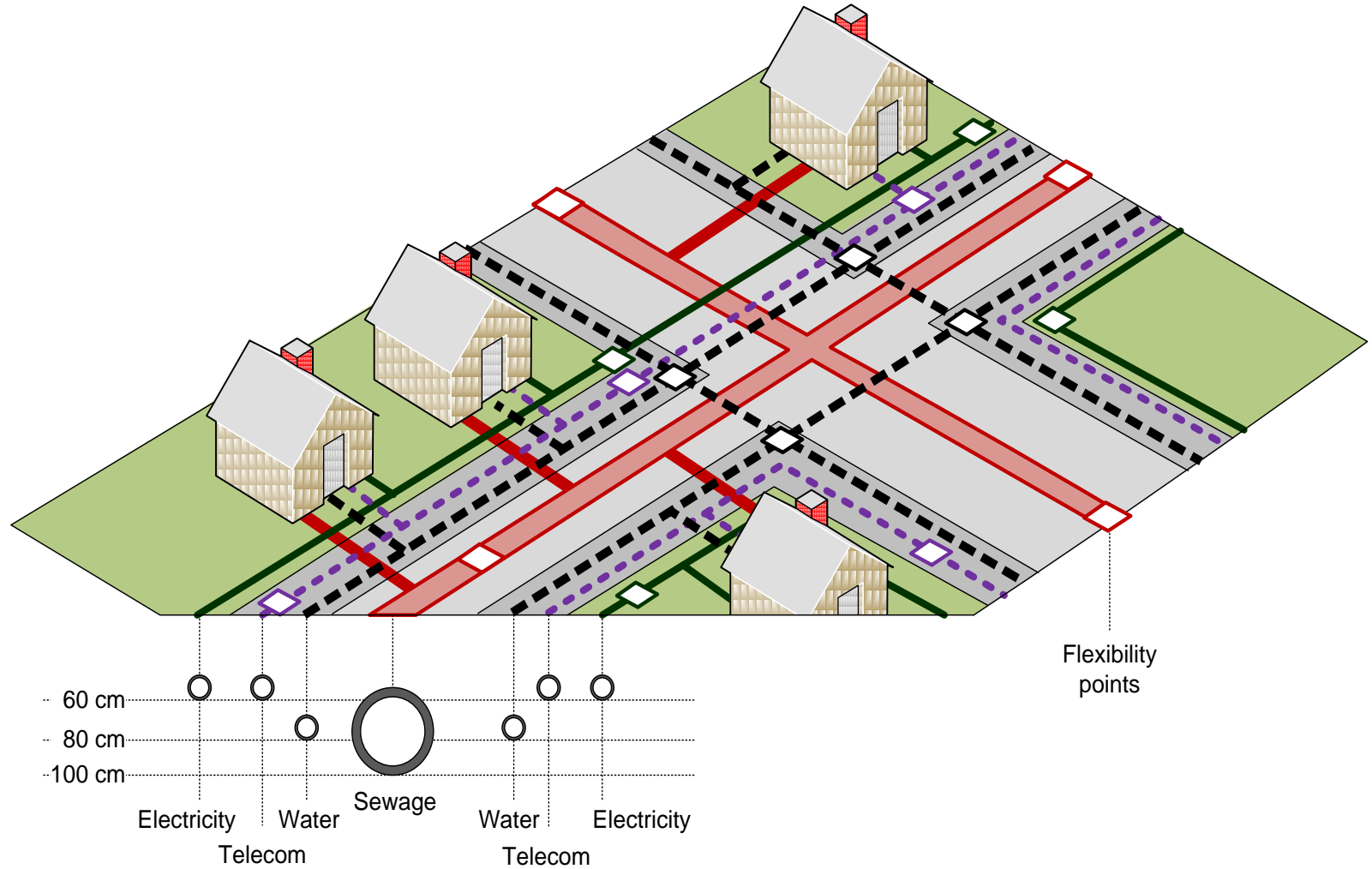


detailed operational modeling

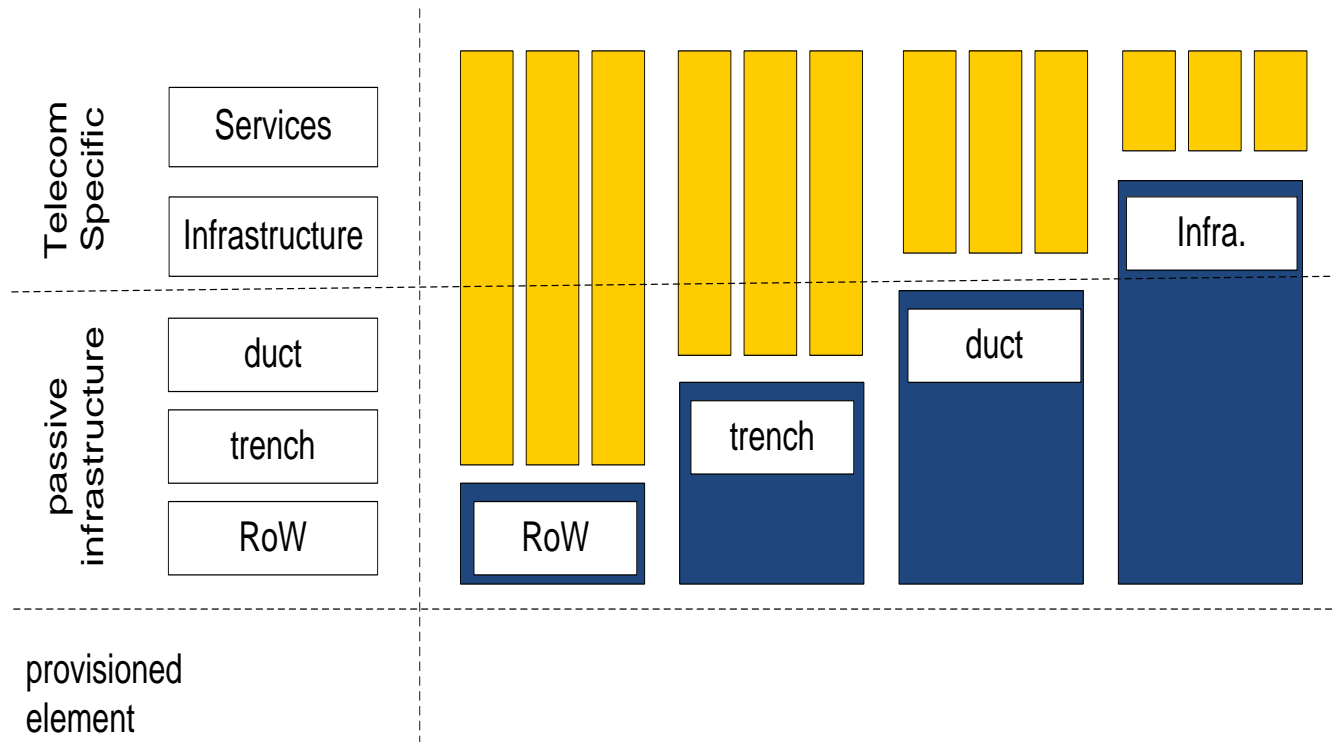


holistic view

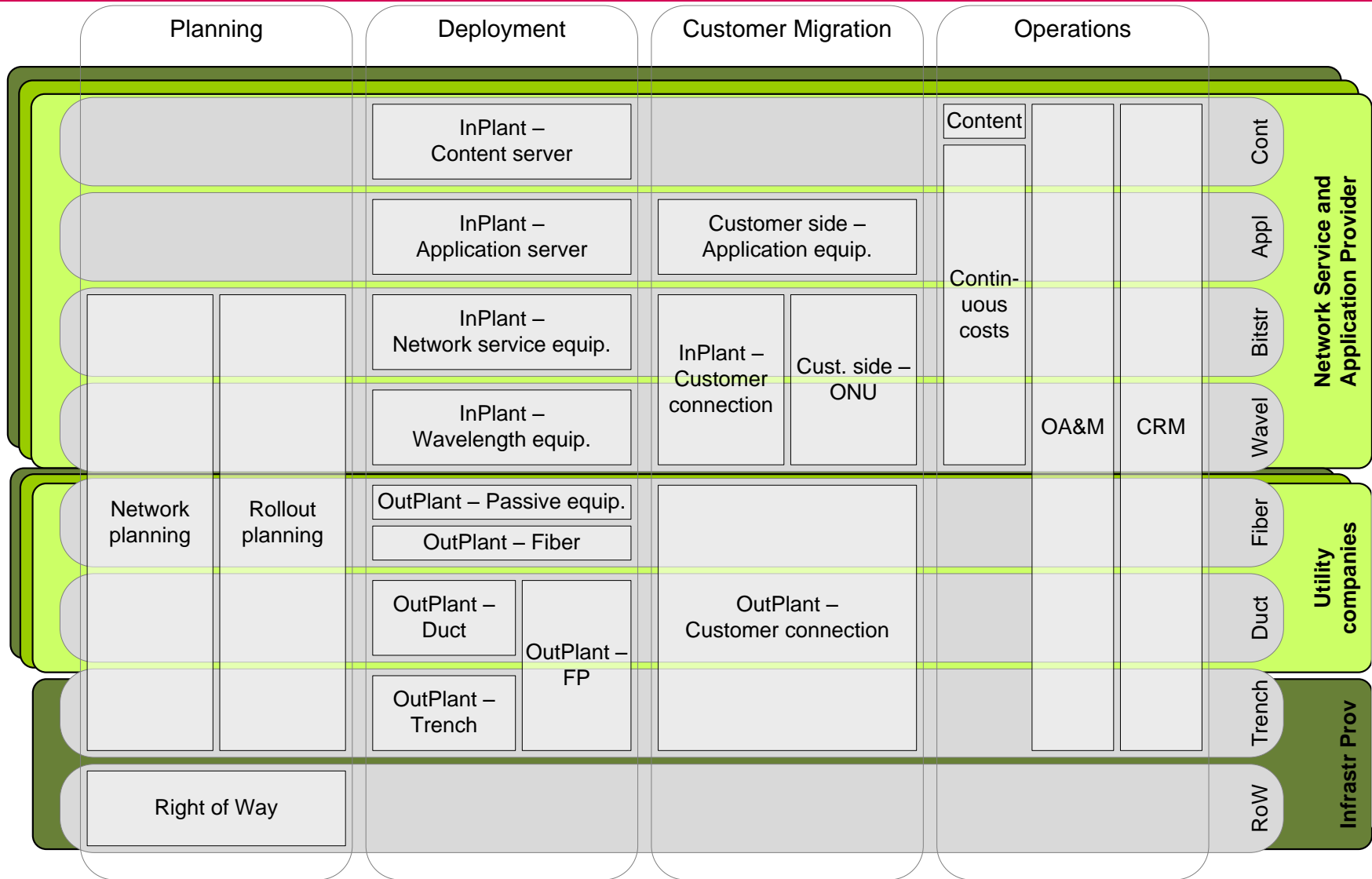
Outside plant deployment



Deploy in synergy



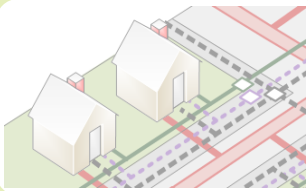
Value Network Analysis



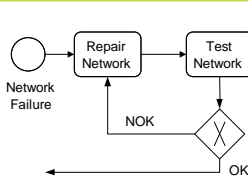
Essential steps



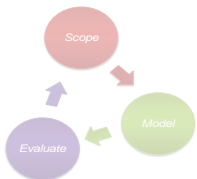
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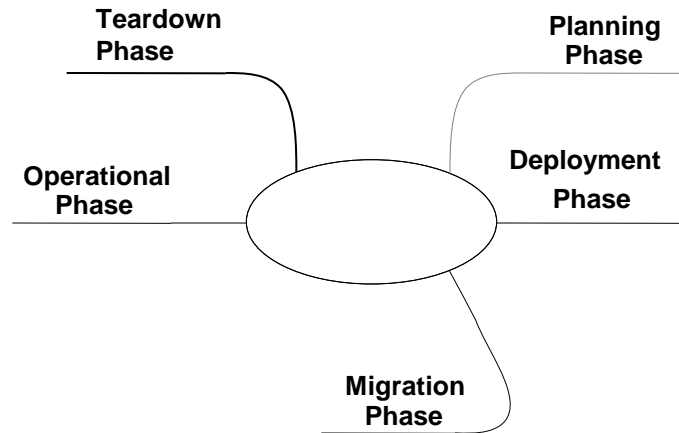
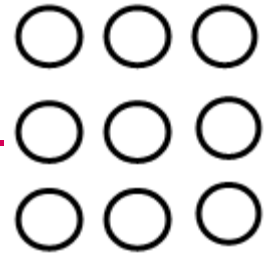


holistic view

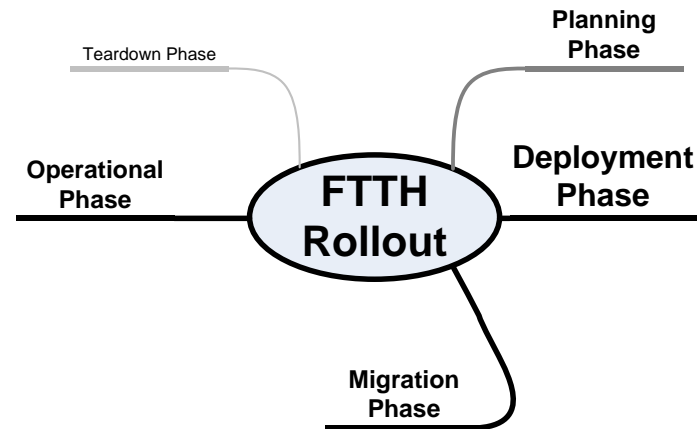
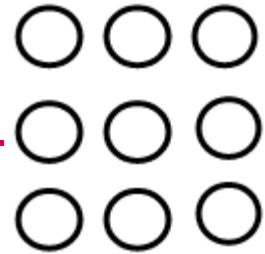
■ Operate the joint infrastructure



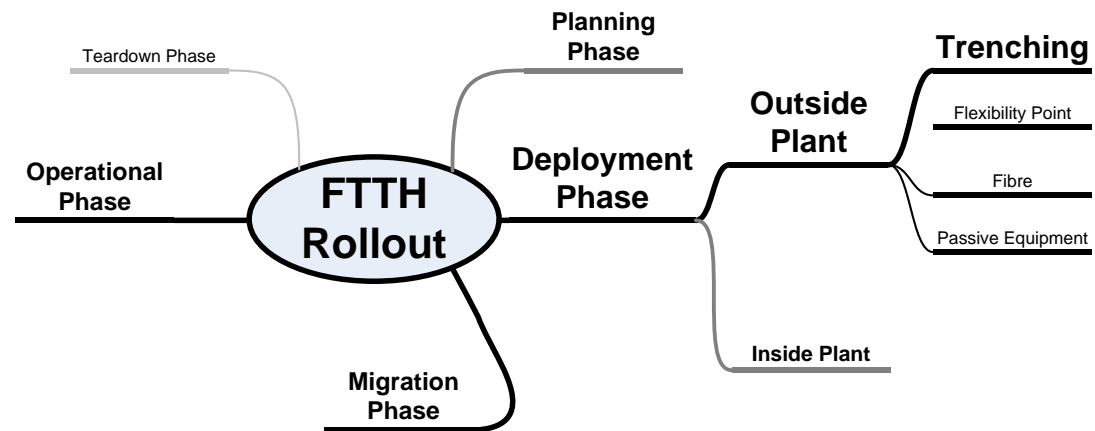
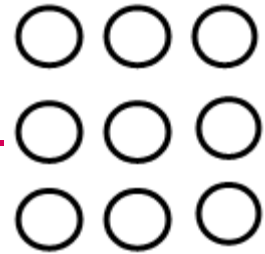
Life cycle analysis for cost breakdown



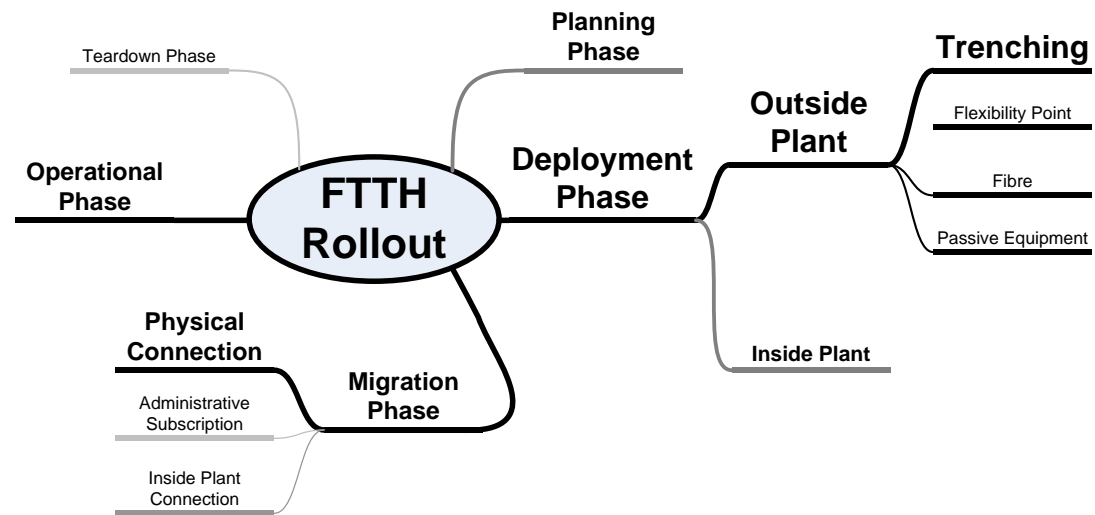
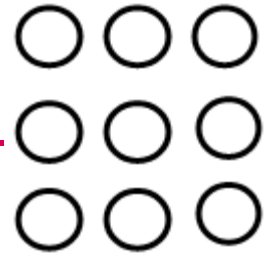
Life cycle analysis applied to FTTH rollout



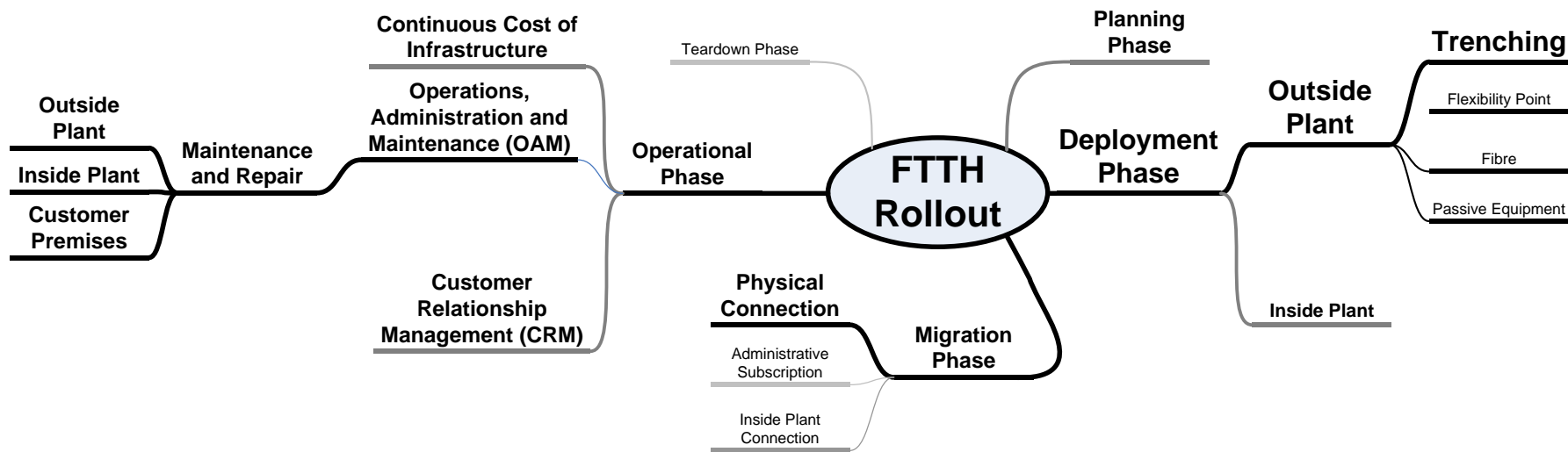
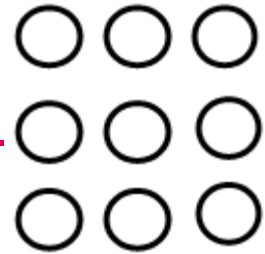
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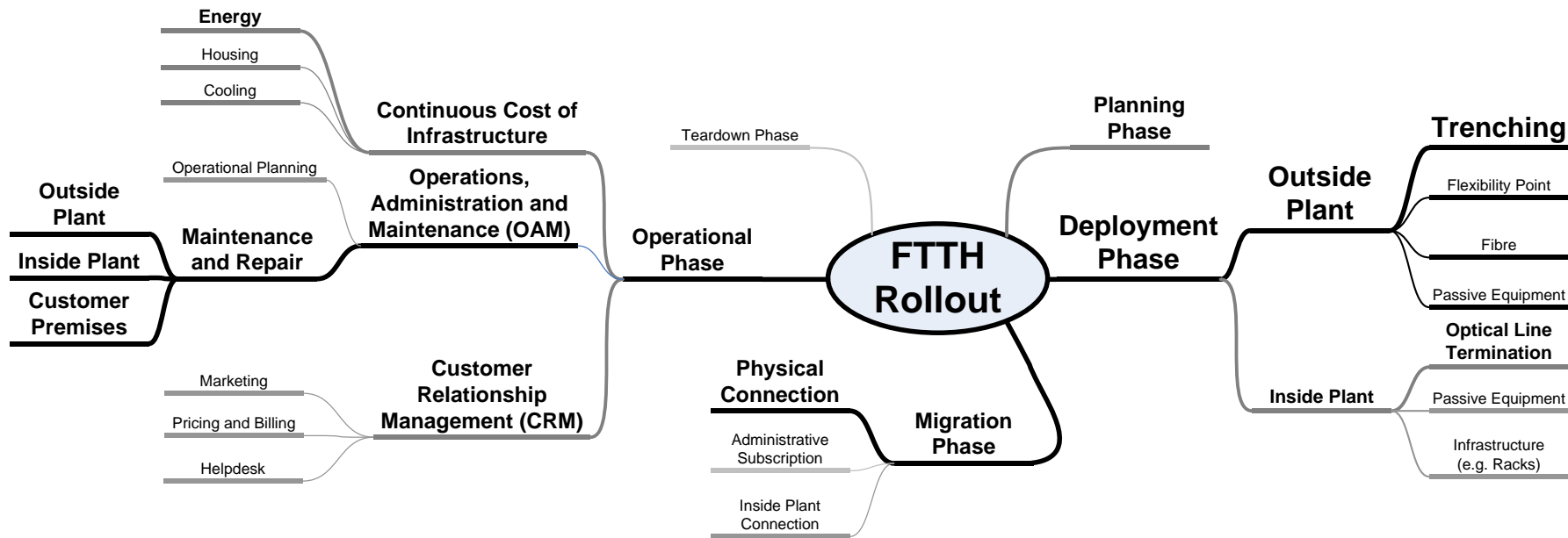
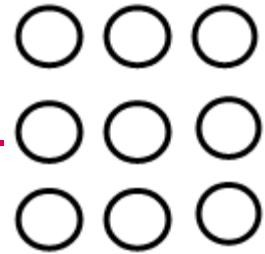
Life cycle analysis applied to FTTH rollout



Life cycle analysis applied to FTTH rollout

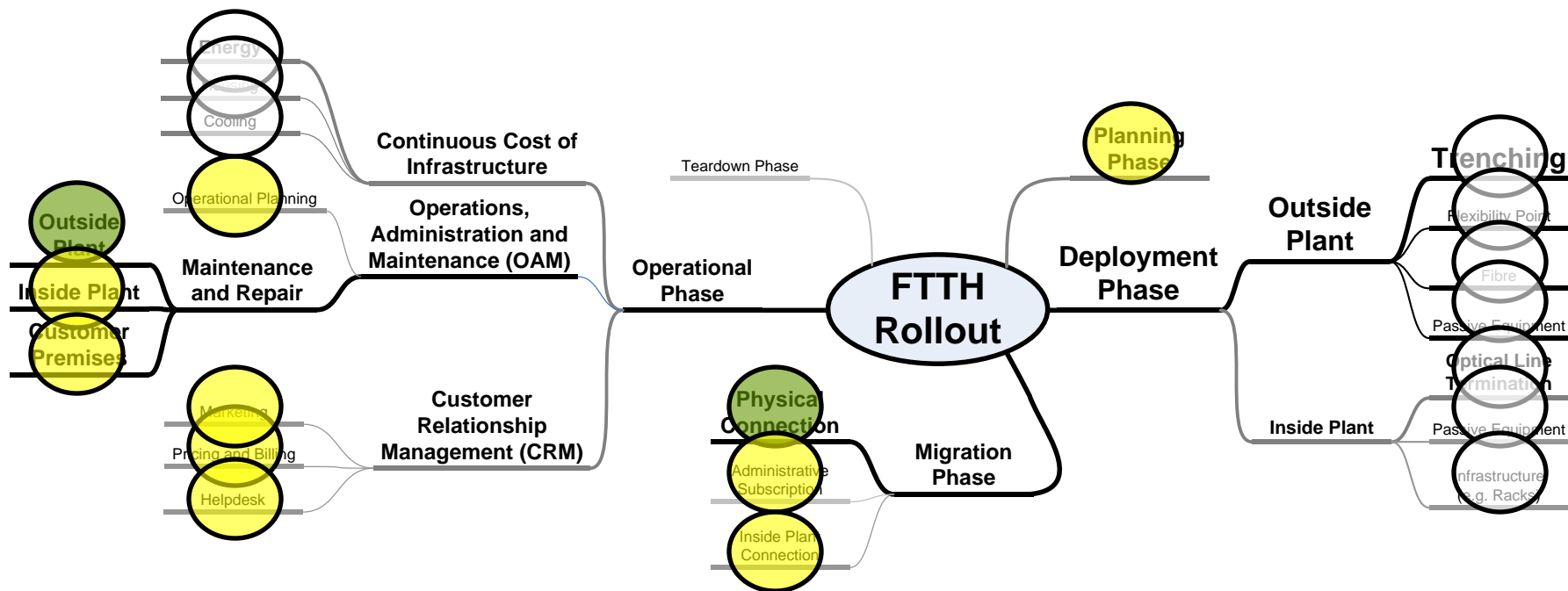
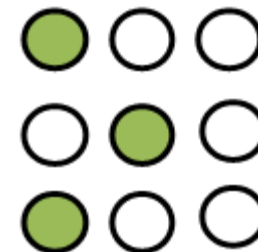


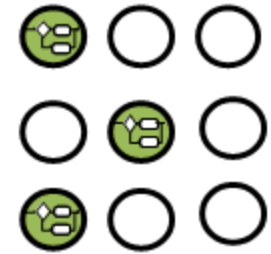
Life cycle analysis applied to FTTH rollout



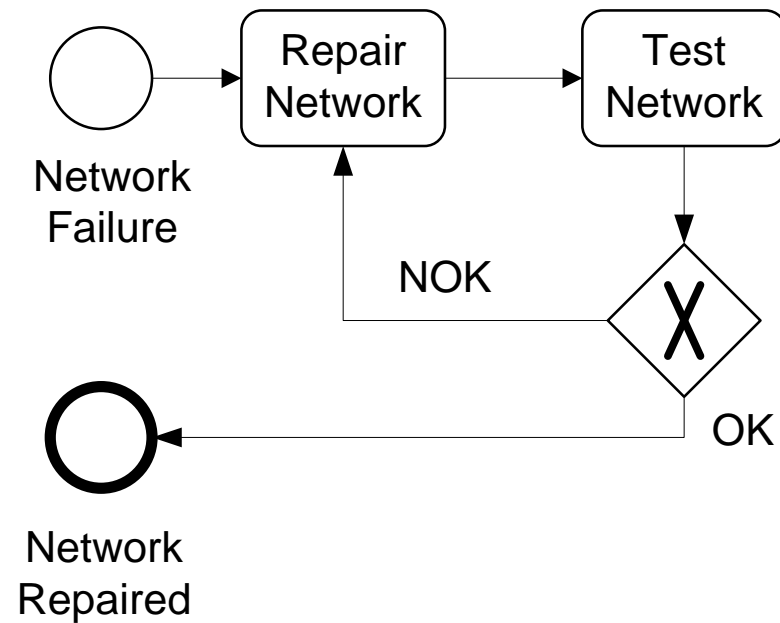
Cost classification in FTTH rollout model

classification



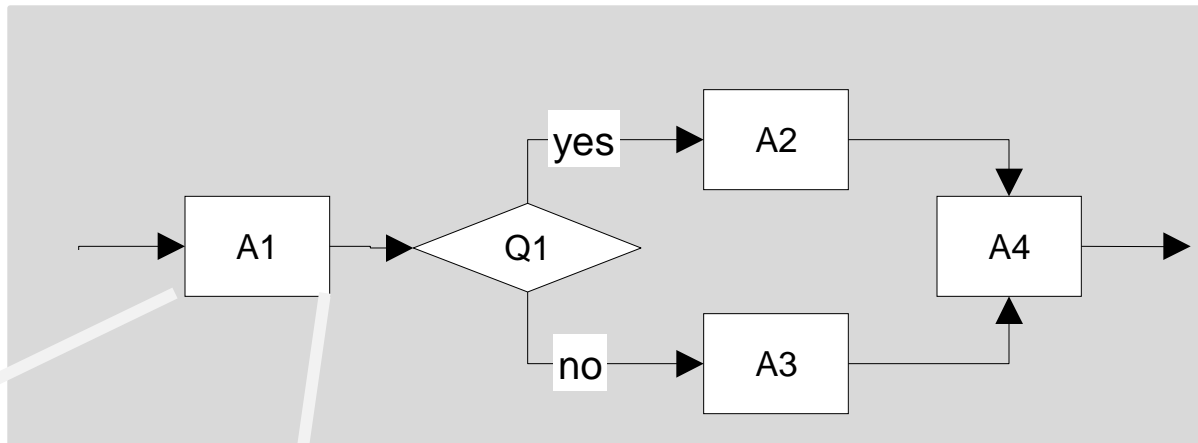


Flowchart Diagrams





Activity-based costing



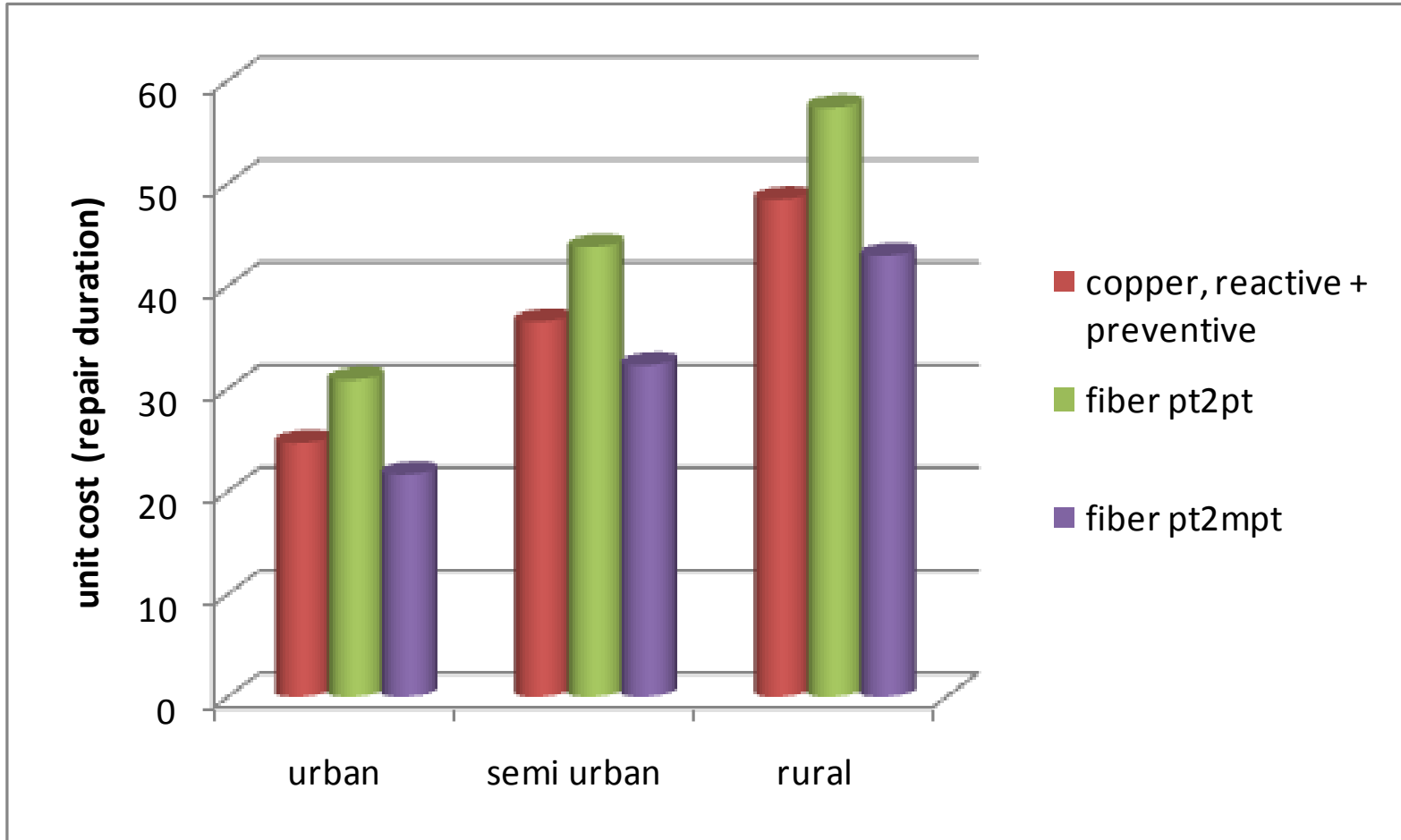
	1 hour
	3 hours
	1 hour

$$costA1 + p \cdot costA2 + (1-p) \cdot costA3 + costA4$$

Scenario comparison

e.g. cable cut repair fiber vs copper network

optimization



Discrete Event Simulation

e.g. optimal use of freelance personnel

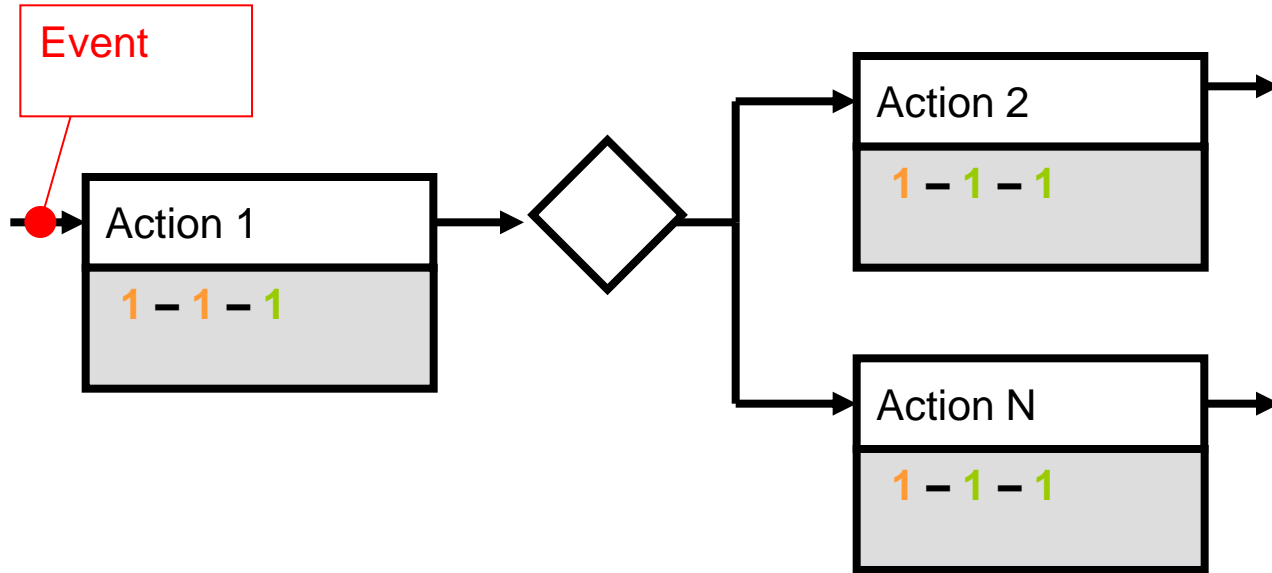
optimization



Resources



Process



Discrete Event Simulation

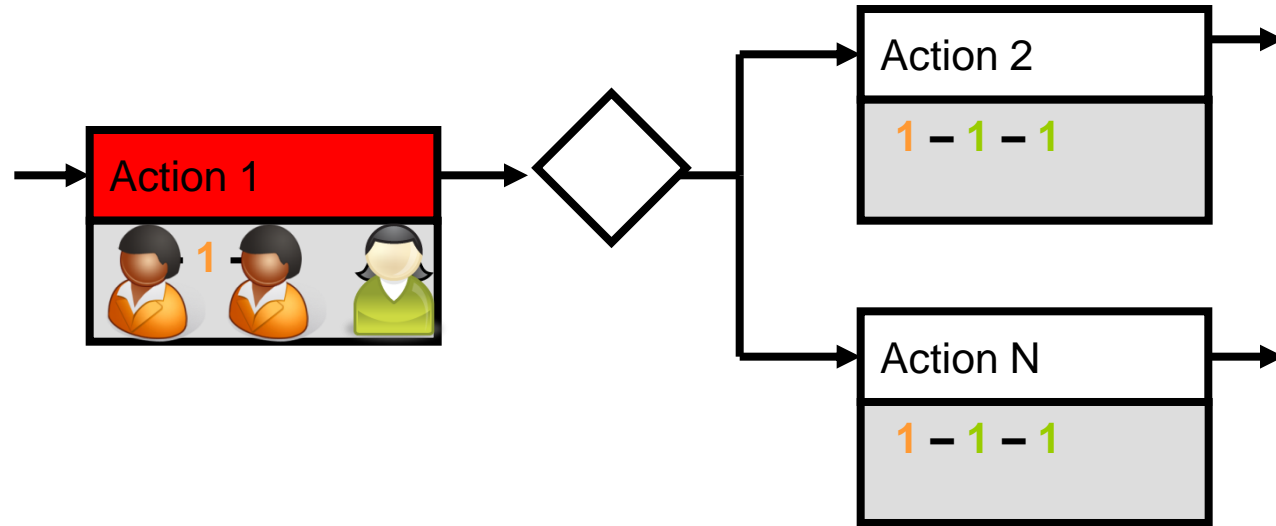
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optimization



Resources

Process



Discrete Event Simulation

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optimization



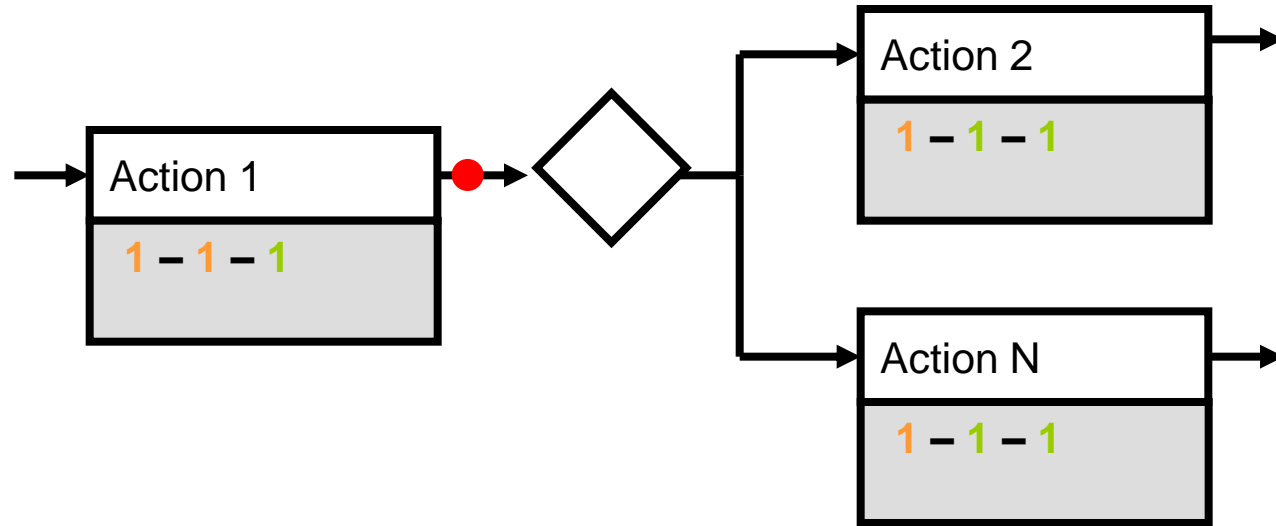
Resources

Process

1



N



Discrete Event Simulation

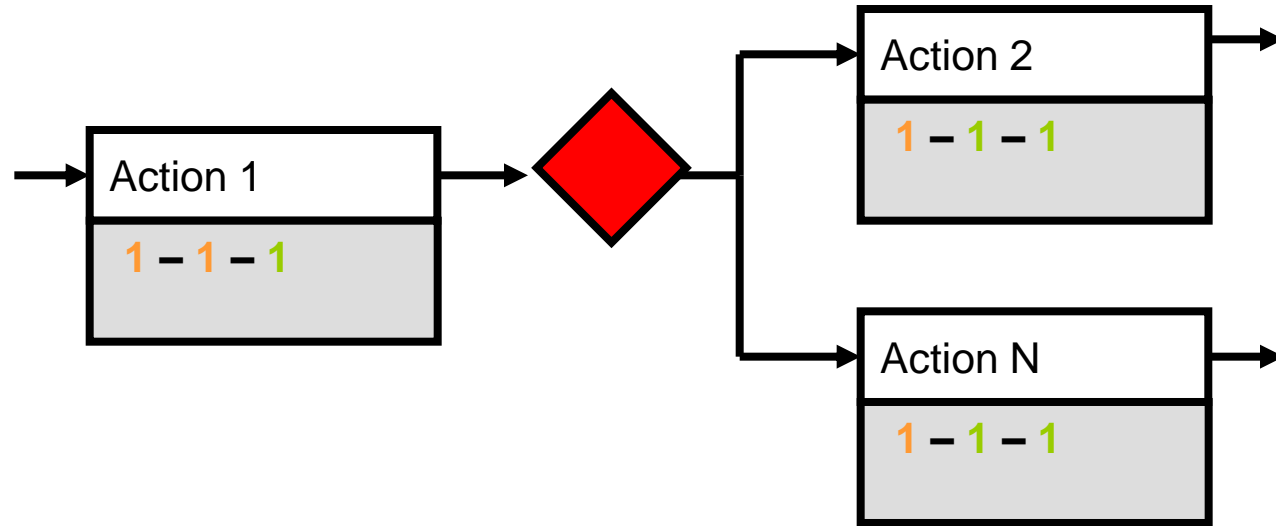
e.g. optimal use of freelance personnel

optimization



Resources

Process



Discrete Event Simulation

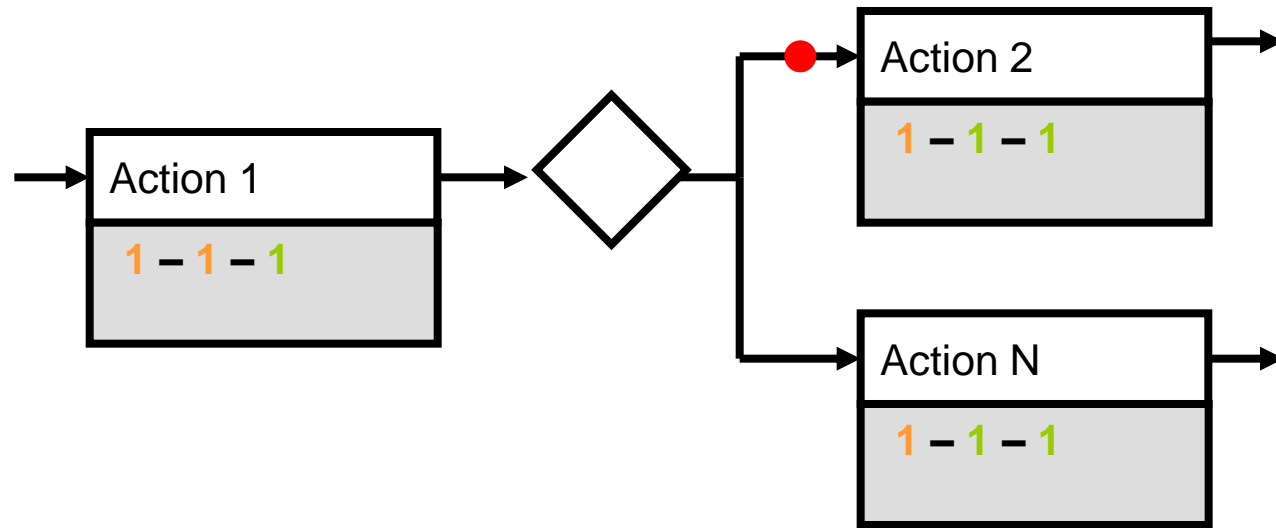
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Process



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Resources

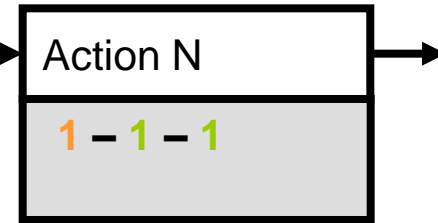
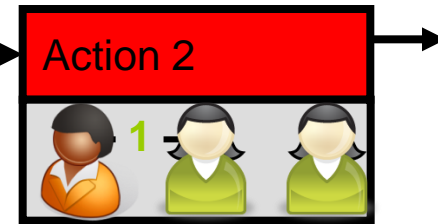
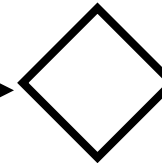
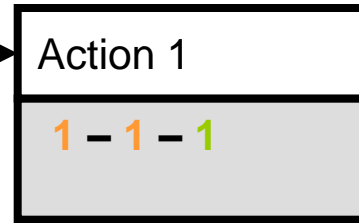
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N



Process



Discrete Event Simulation

e.g. optimal use of freelance personnel

optimization

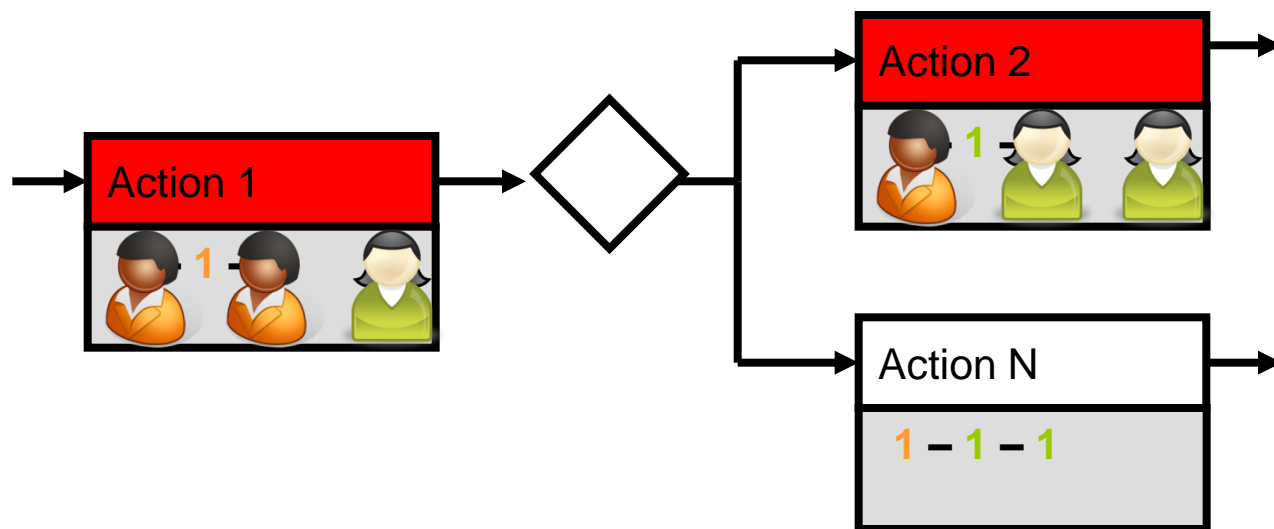


Resources

Process

1

N



Discrete Event Simulation

e.g. optimal use of freelance personnel

optimization



Resources

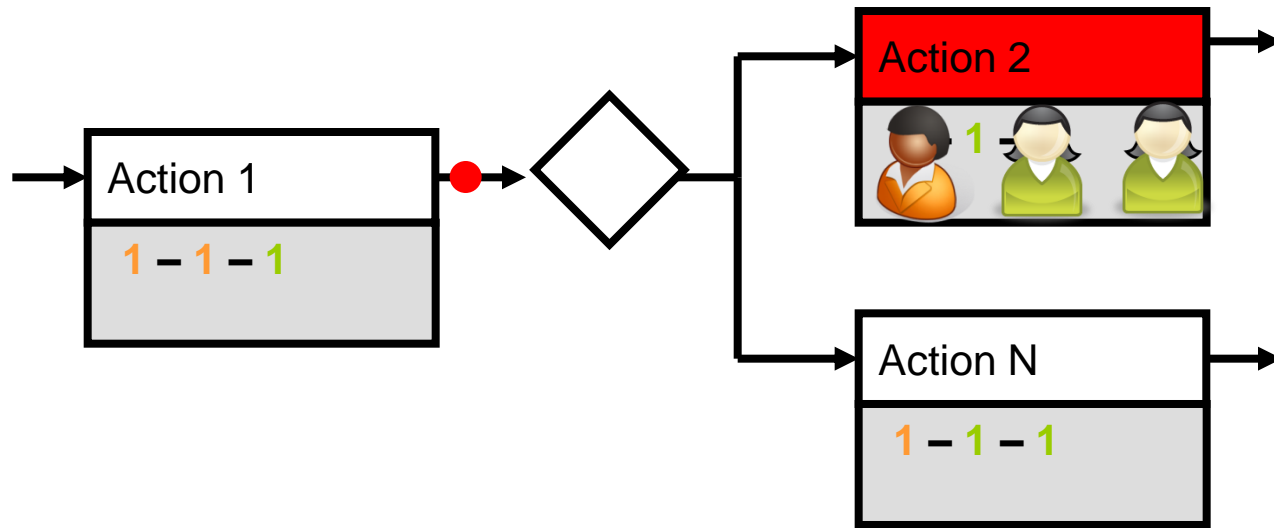
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N



Process



Discrete Event Simulation

e.g. optimal use of freelance personnel

optimization



Resources

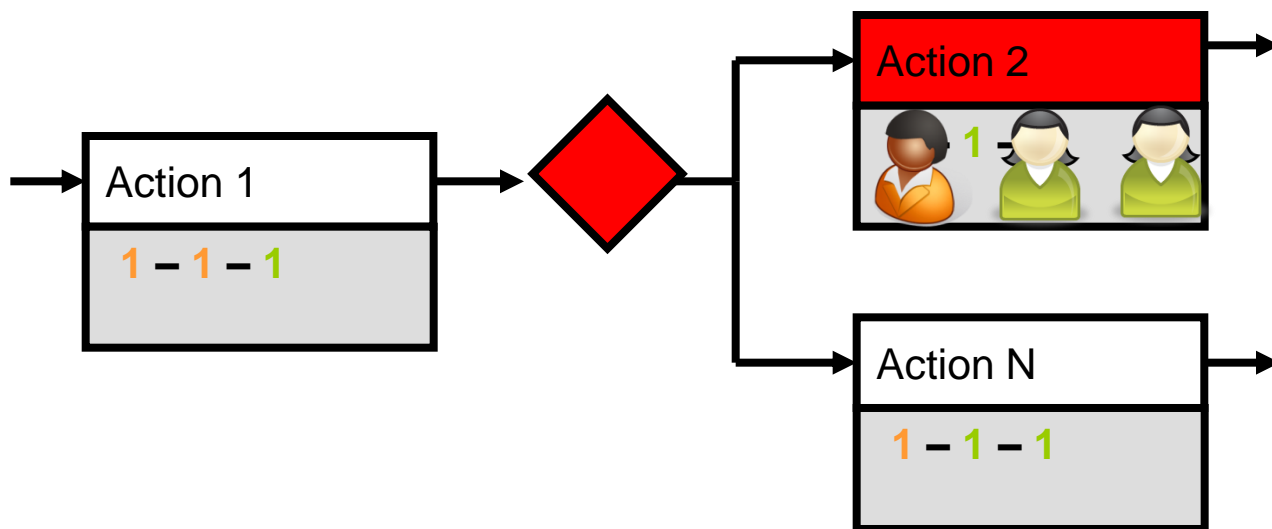
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Process



Discrete Event Simulation

e.g. optimal use of freelance personnel

optimization



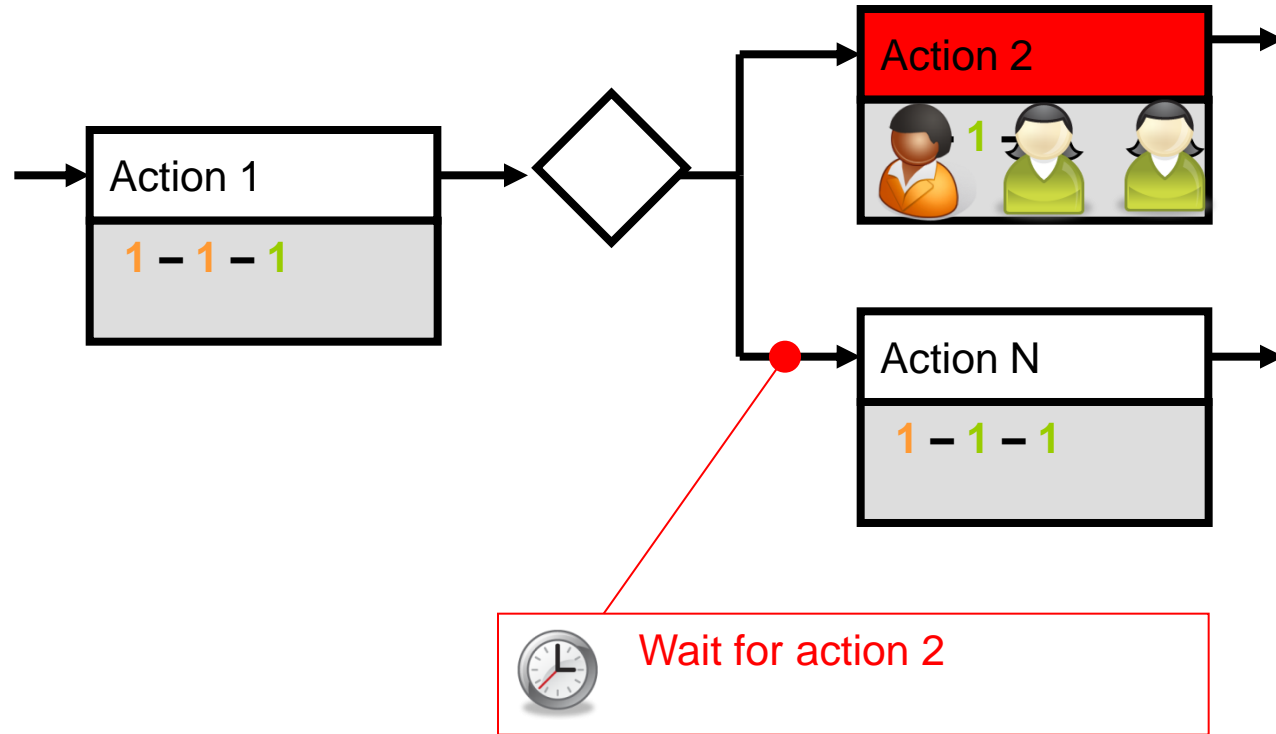
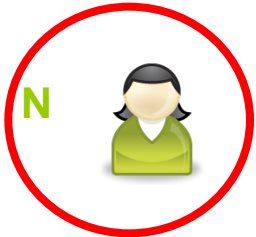
Resources

Process

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Discrete Event Simulation

e.g. optimal use of freelance personnel

optimization



Resources

Process

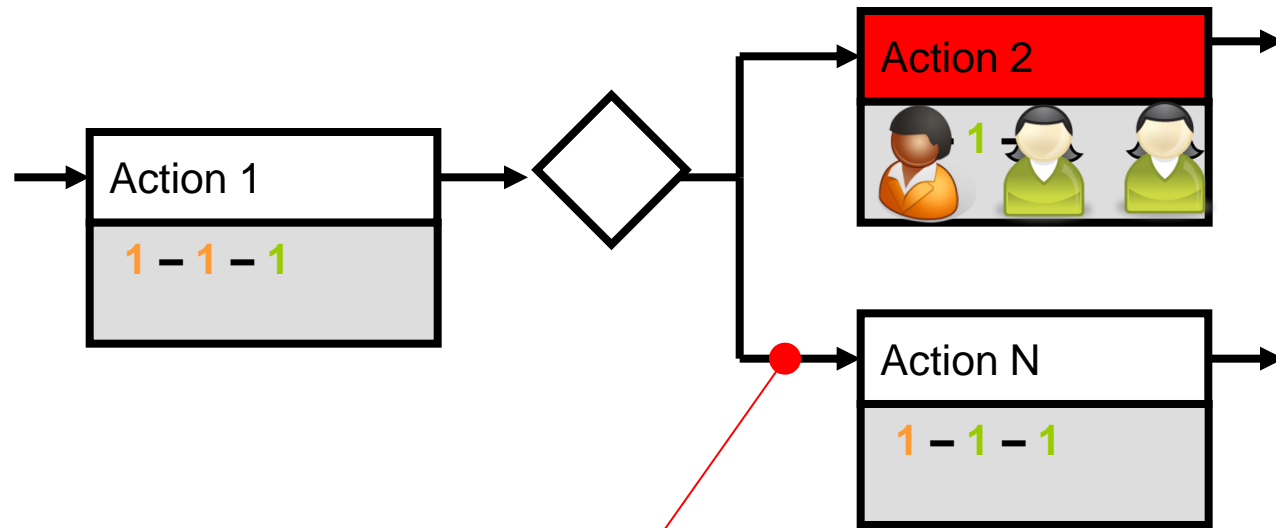
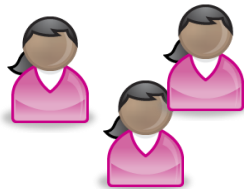
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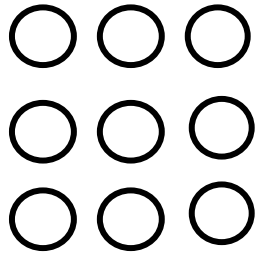
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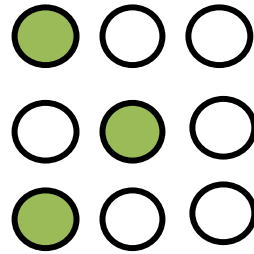
Use freelance

How to get to process cost optimization?

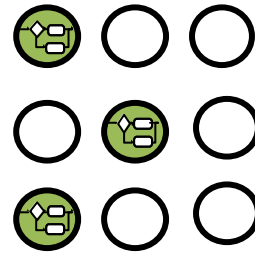
overview



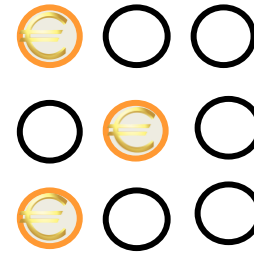
classification



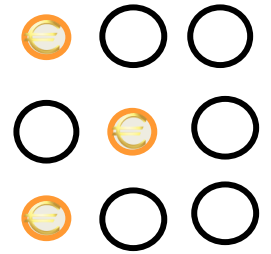
modeling



estimation



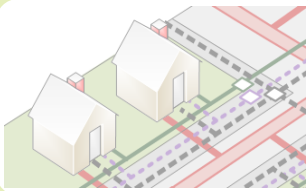
optimization



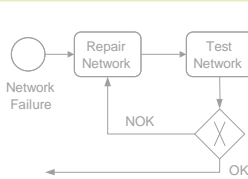
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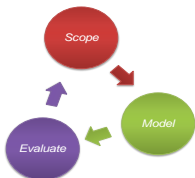
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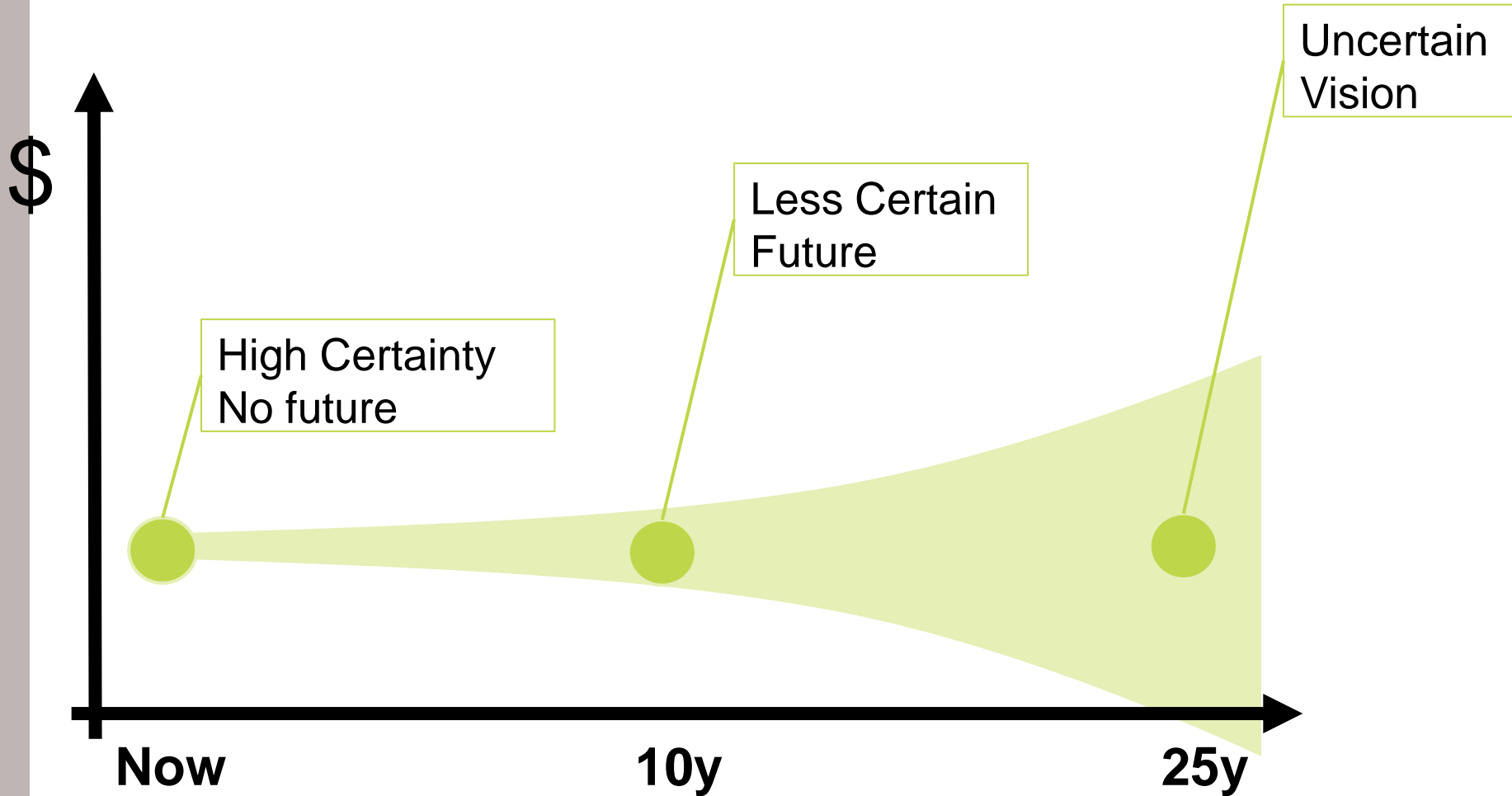


detailed operational modeling

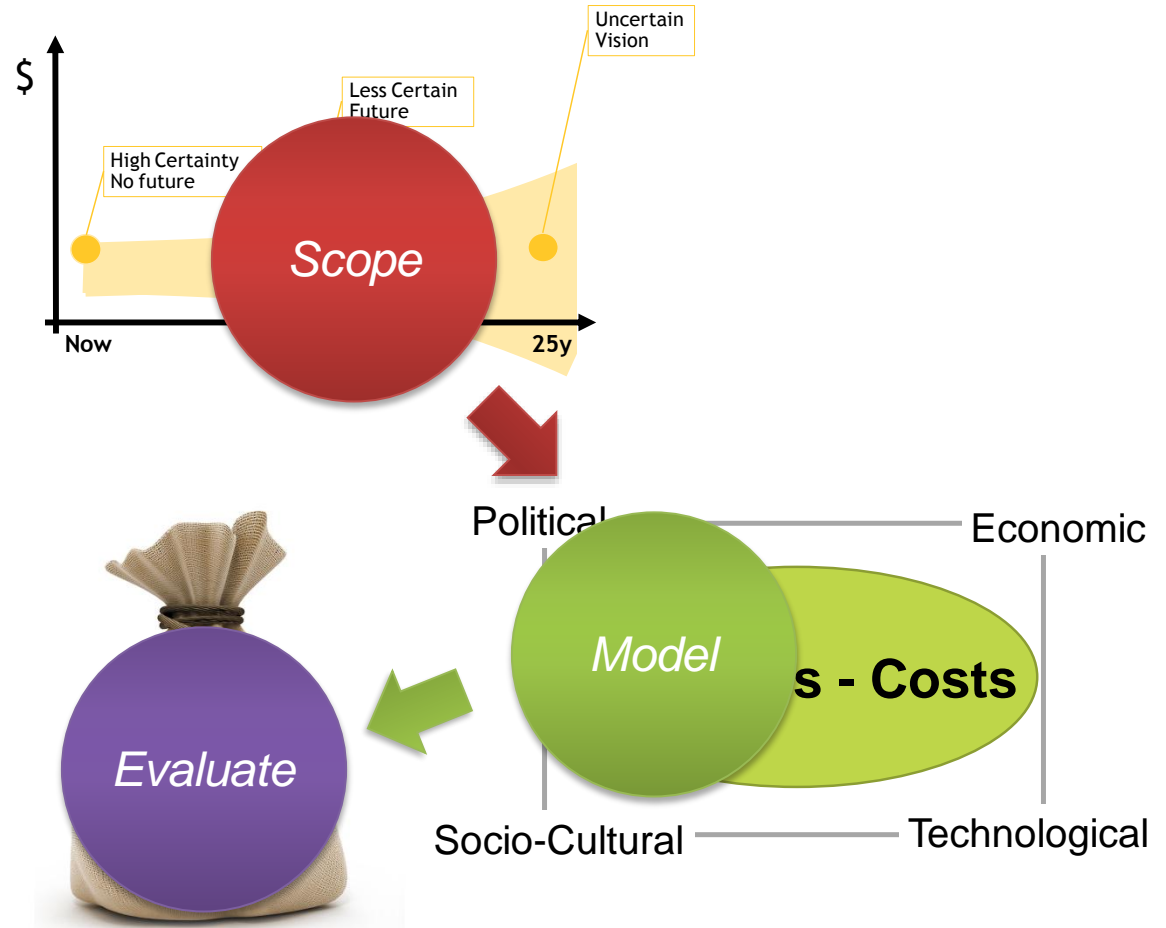


holistic view

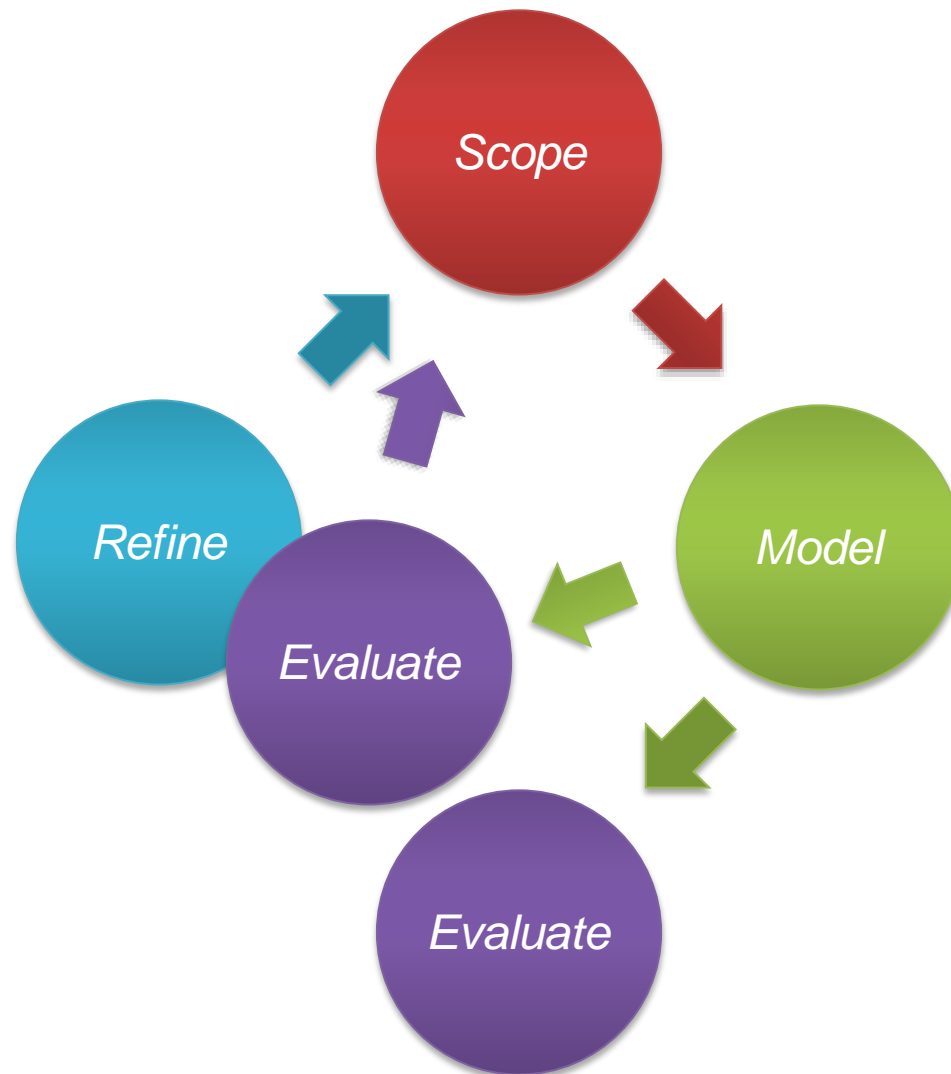
Strategic Planning Looks into the Future



Strategic Planning: A Stepwise Process

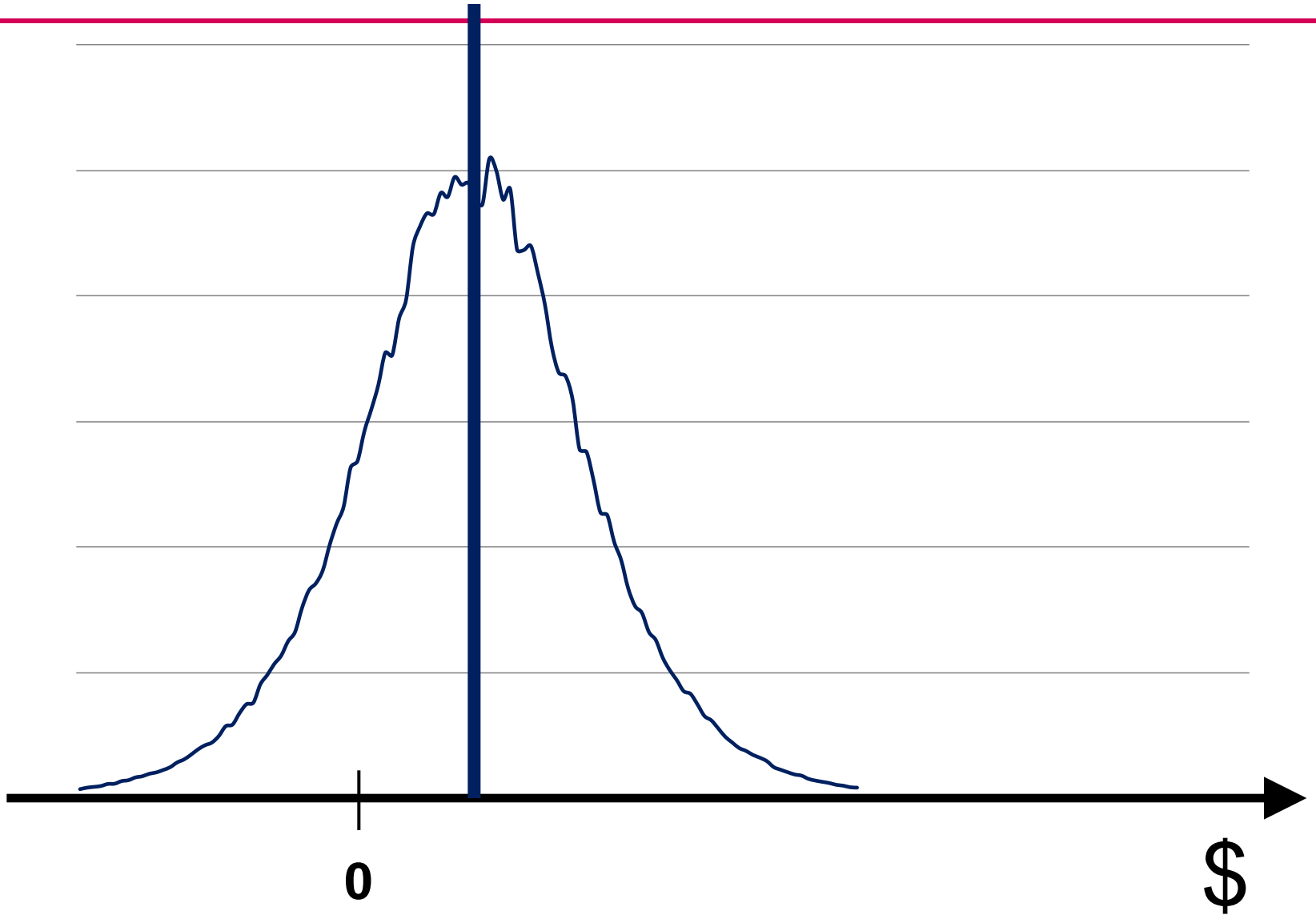


Strategic Planning: A Stepwise Process



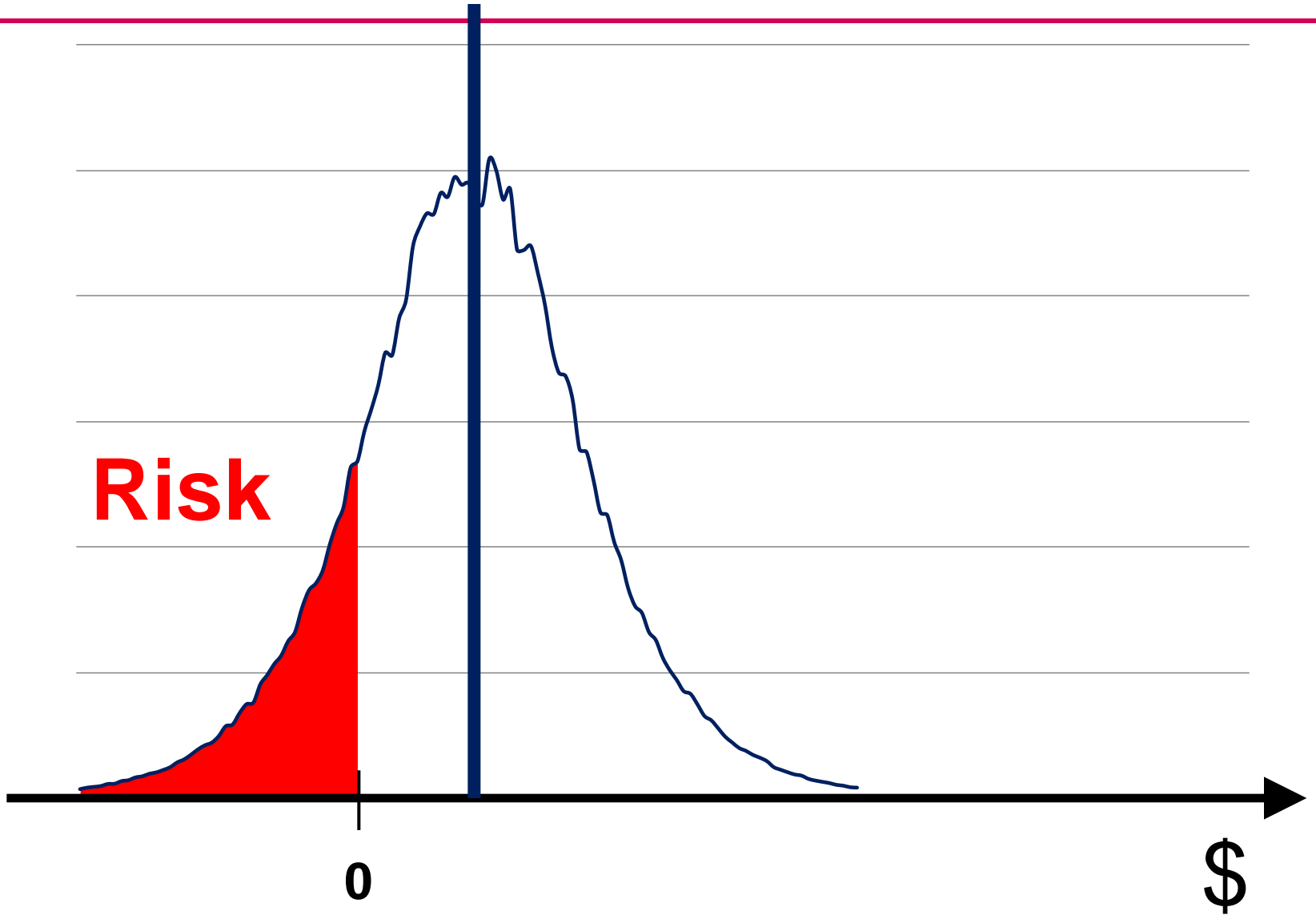
Sensitivity Analysis

The Effect of Uncertainty



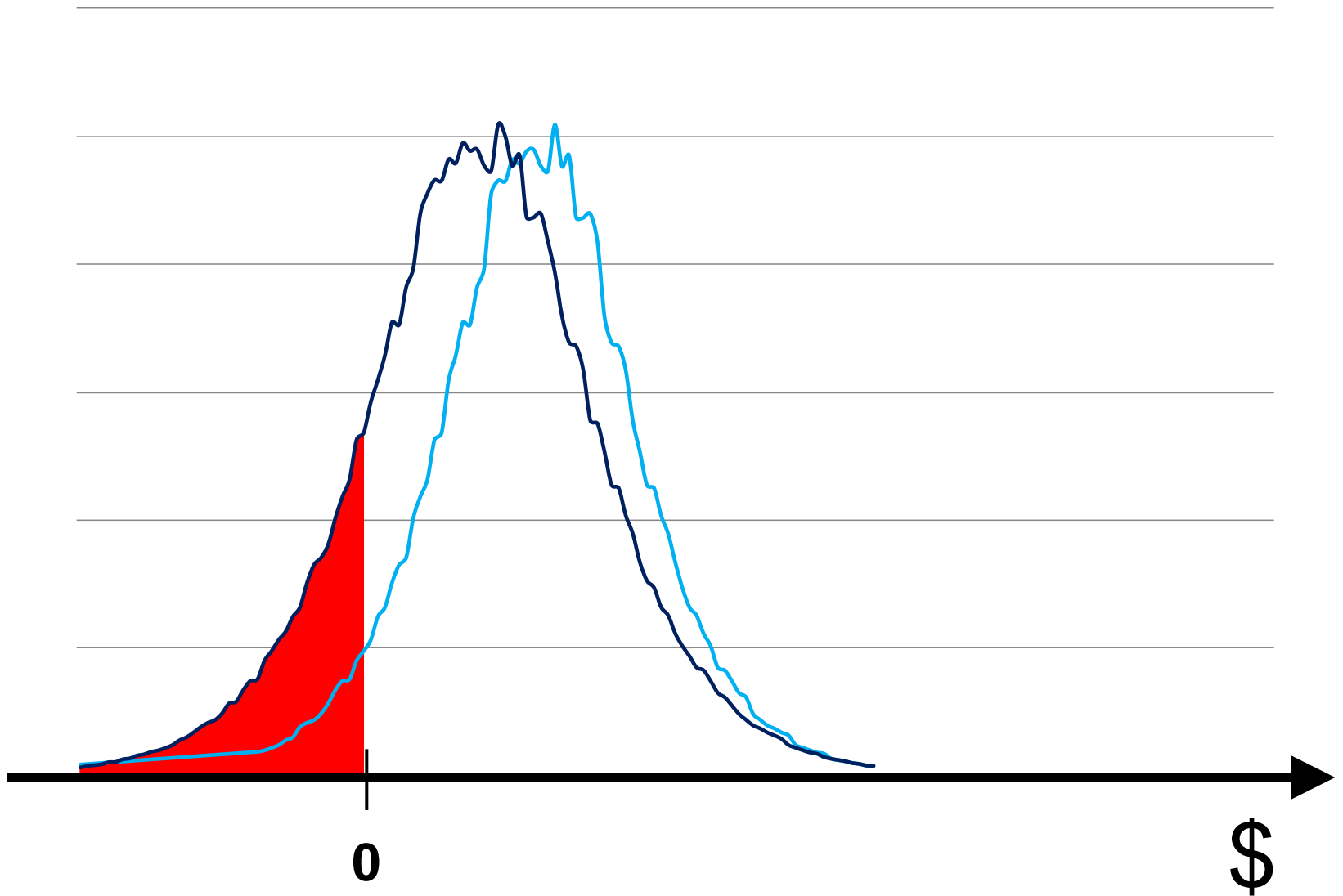
Sensitivity Analysis

The Effect of Uncertainty



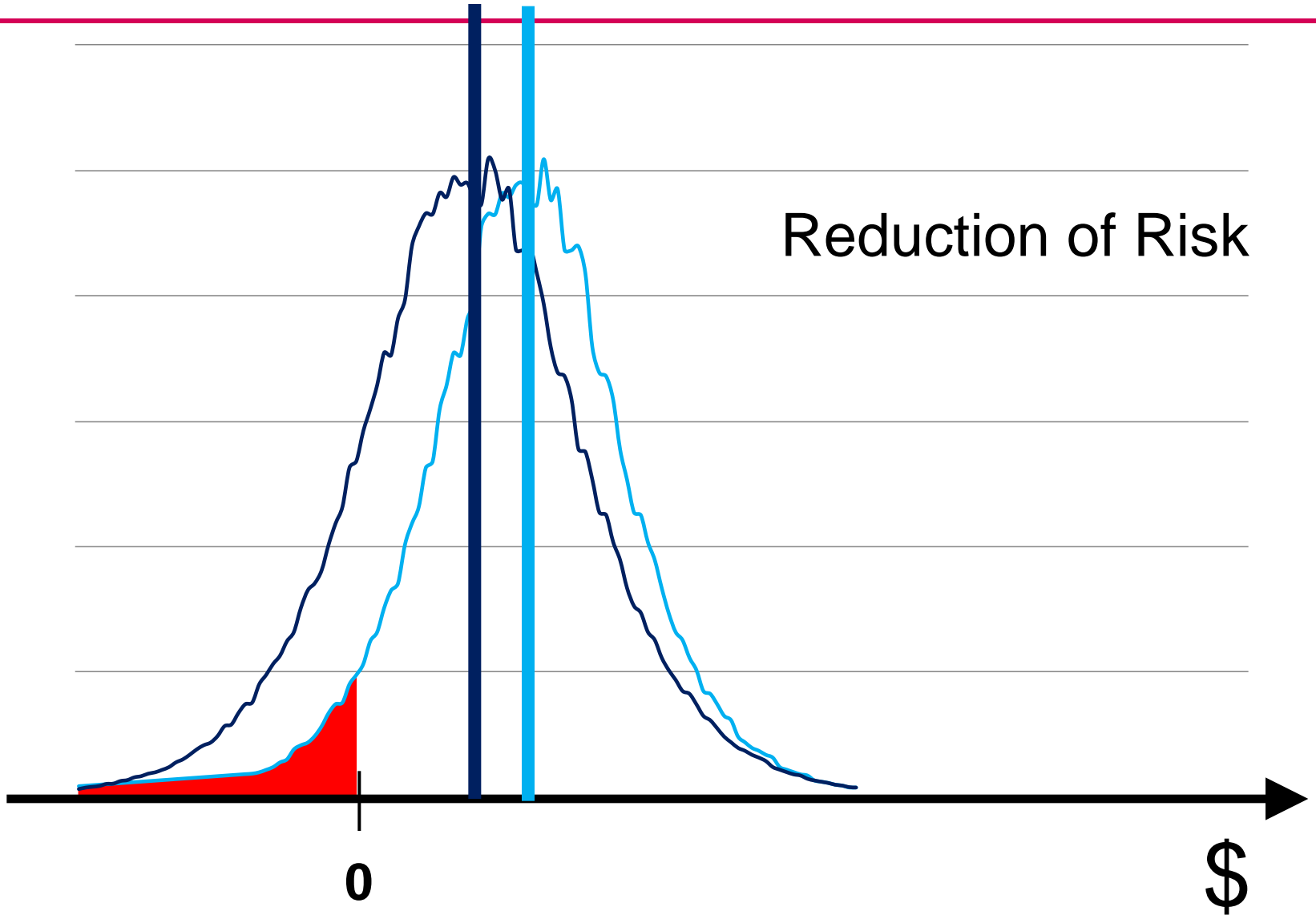
Real Options

The Effect of Flexibility in the Business Plan



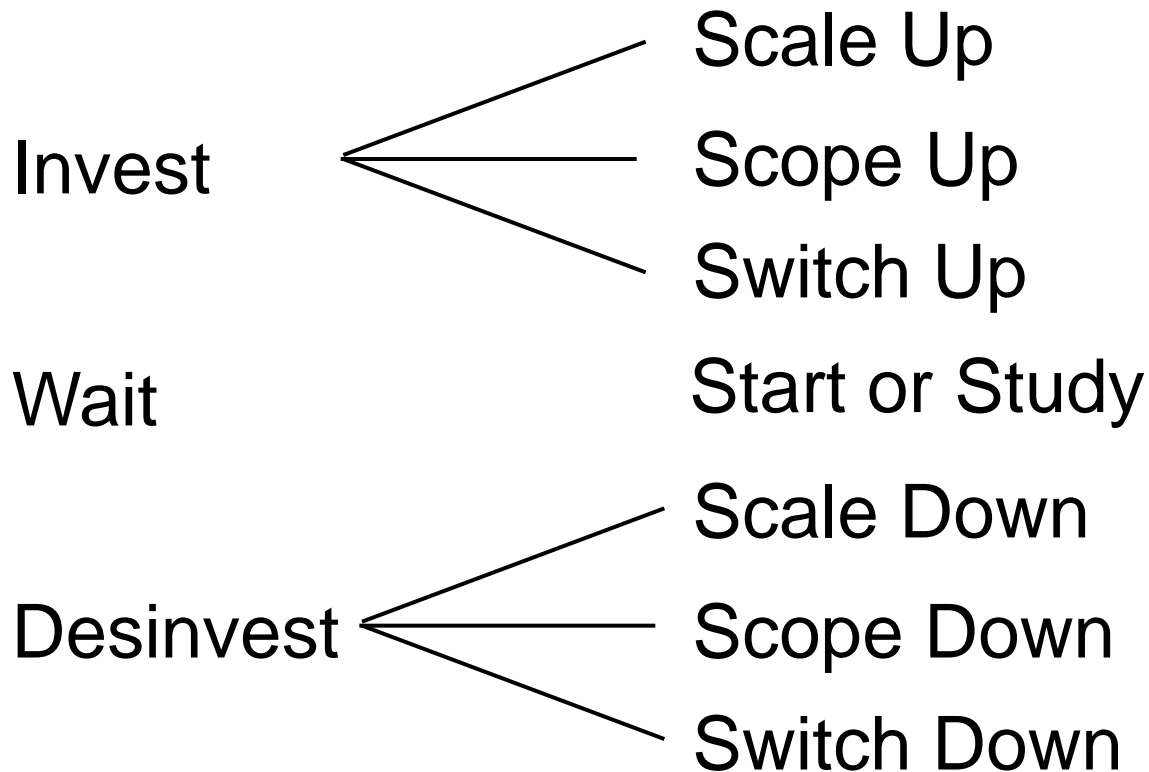
Real Options

The Effect of Flexibility in the Business Plan



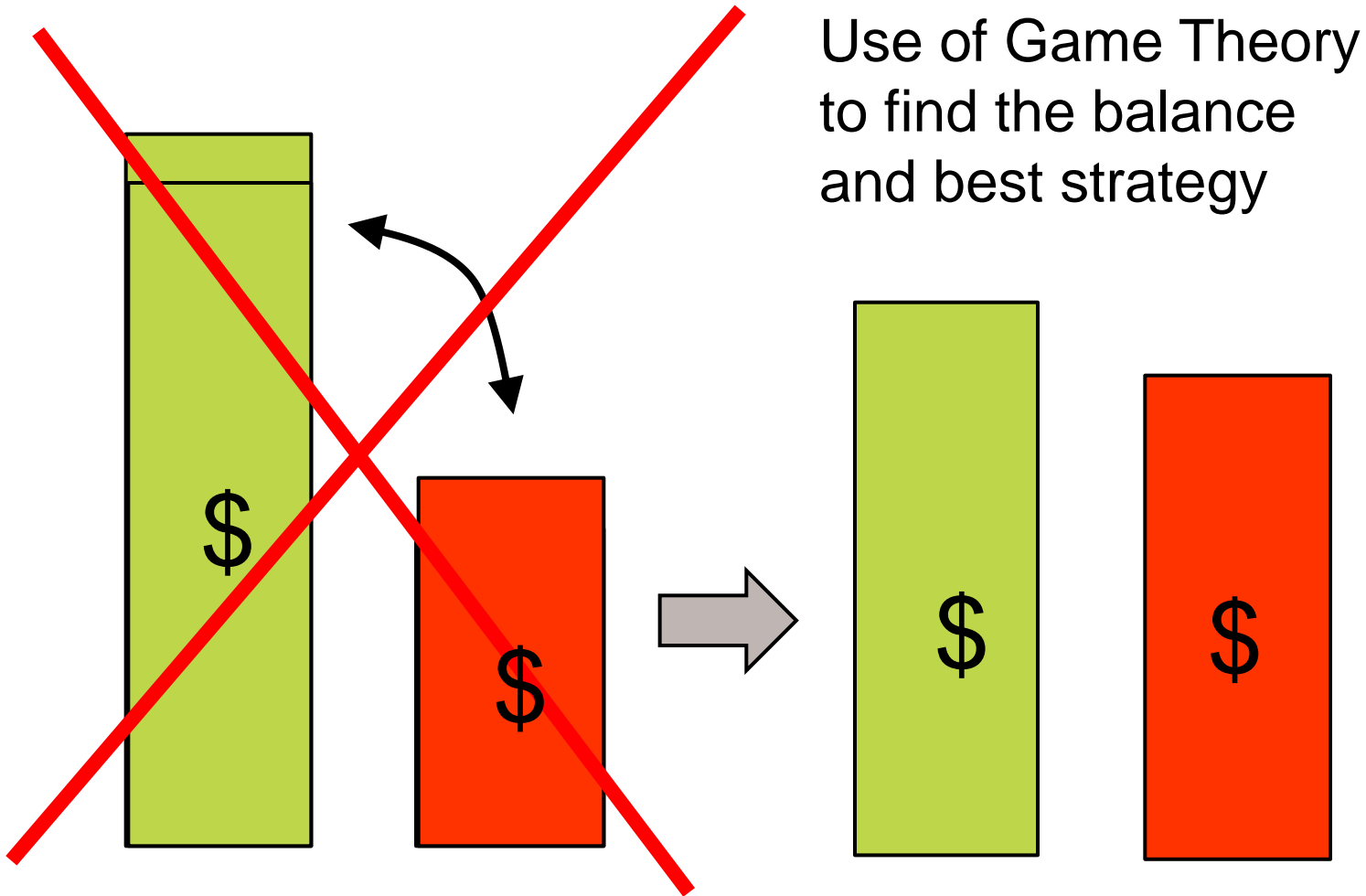
Real Options

Where to look for



Game Theory

How Will Competition Influence My Business Case

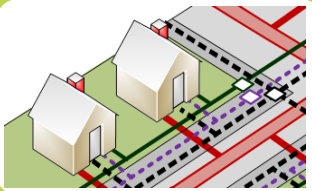


Essential steps

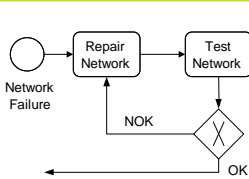
for improving the FTTH business case



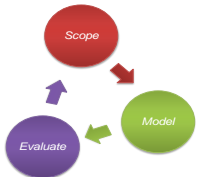
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detailed operational modeling



holistic view

9th Conference of Telecommunication, Media and Internet Techno-Economics

Call for papers:

Techno-economic areas

- Customer Behavior
- Telecom Market Analysis
- Cost Optimization
- Investment Analysis
- Multi-actor Analysis
- Techno-economic Tooling and Concepts

Application areas

- Mobile and wireless networks
- Optical network technologies
- Distributed architectures
- New media and content applications
- Green ICT
- ...

Ghent, Belgium
June 7-9, 2010



<http://www.ctte-conference.org/>
ctte2010@intec.ugent.be