



Aalto University
School of Electrical
Engineering

Value Network Design for Internet

Motivation

Technical vs. Market Architecture

What is the linkage?

	Technical architecture	Market architecture
Interacting nodes	Computational nodes	Legal persons
Interaction spec	Software protocol	Legal contract/SLA
Transactions	Computational	Financial
Architect	Engineer	Sales/lawyer

- "Code is law" (Lawrence Lessig)
- Technical may define the market architecture, and vice versa
- Link of technical and market architectures getting stronger due to
 - more flexible ICT systems
 - spreading of Internet connectivity in products (Internet of Things)
 - expanding from products to services to information services

Standardization and Market Architecture

Case: 3GPP vs. IETF

	3GPP	IETF
Standardization output	System specs	Protocol specs
Approach	Top-down	Bottom-up
Driving actors	Big firms	Individuals
Market architecture assumption	Vertical	Horizontal
Structural evolution	Planned	Market-driven

- 3GPP drives the technical+market architecture (IETF not)
- Which approach can handle big technology steps better?

Structural Renewal and Research Scope

Forward-looking Thinking

(cmp. Customers)

Market architecture

New	<ul style="list-style-type: none">- technology reuse- value net studies- e.g. public WLAN	<ul style="list-style-type: none">- qualitative studies- e.g. cognitive radio
Existing	<ul style="list-style-type: none">- quantitative studies- existing data- cost optimization- regulation- e.g. 3GPP HSDPA	<ul style="list-style-type: none">- business model reuse- cost studies- e.g. 3GPP IMS

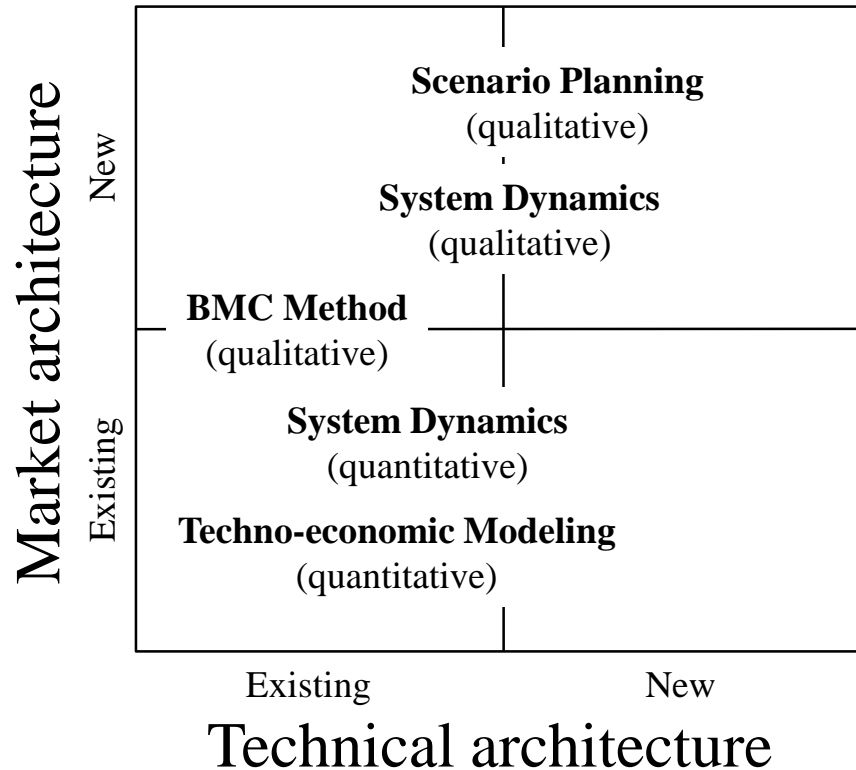
Existing

New

Technical architecture

(cmp. Products)

Research Methods on Structural Renewal



- Comparison of technologies, technical architectures, or market architectures?
- Possible viewpoints: single firm, role, group of firms, consumer, society