Aalto University

BIM Collaboration

BIM ecosystem in Finland and beyond

Implications for research and practice

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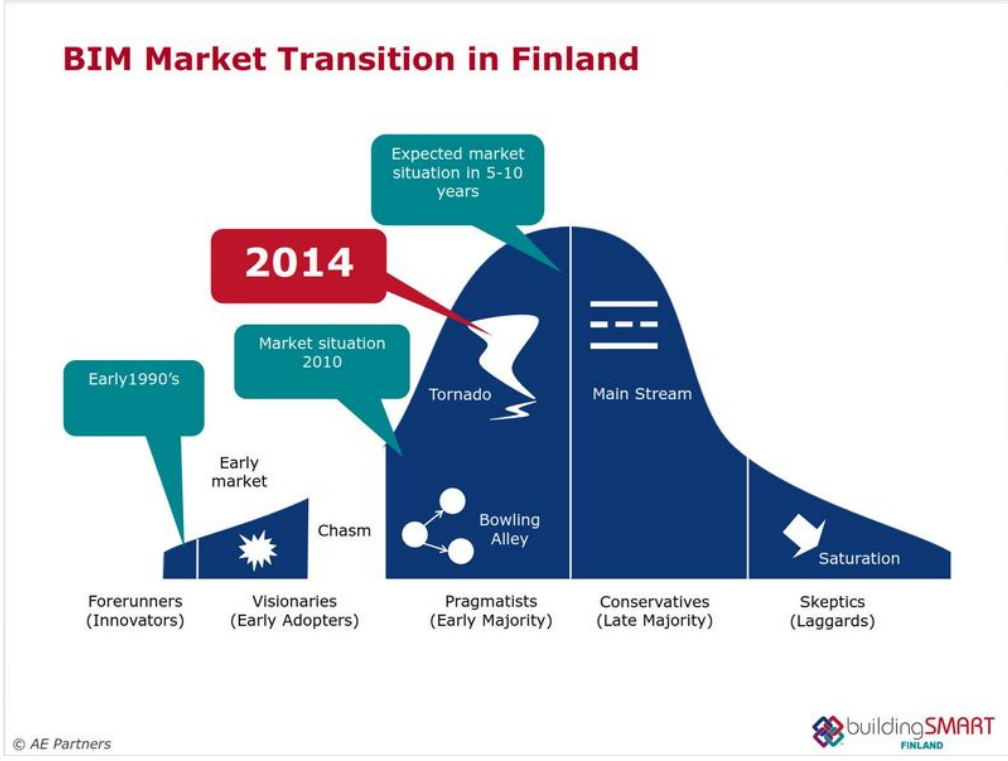
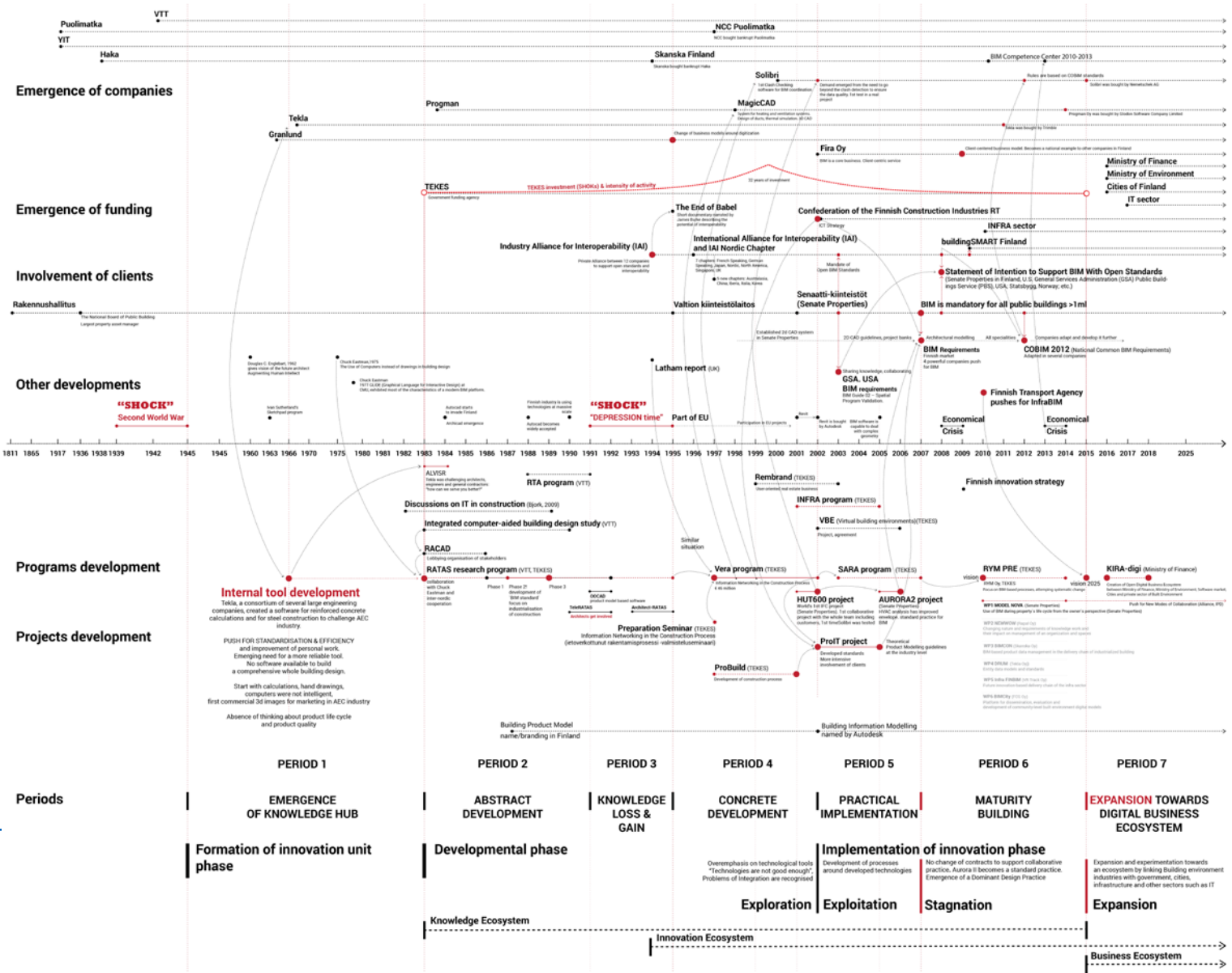
BIM ecosystem: Dimensions

- **Elements**
  - Products, processes, people, policies
- **Context**
  - History and evolution
  - International landscape
  - Wider socio-technical landscape



Finnish BIM evolution map

Source: Preliminary analysis of BIM in Finland by Gulnaz Aksenova 2017



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Finnish ecosystem- 1/2

	History and present	Outlook
Products	Software- structures, design coordination etc. detail-oriented, domain focused. Standardization critical (public money)	International acquisitions. Next generation start-ups in emerging areas: FM, performance, AR & VR, IoT Open data and standardization still central
Process	Focus on improving efficiency Lean construction	R&D-consolidating existing areas of strength. Increasing focus on use phase.
People	High average technical and research skill.	No major change Emergence of tech-entrepreneurs in AEC
Policy	Neither top-down, nor bottom-up. Collective effort, conducive R&D policy and strong industry-academia partnership	No major change

Finnish ecosystem- 2/2

	History and present	Outlook
Key driver(s)	R&D projects- engagement of stakeholders Financial shocks Champions and industry leaders Public owners as visionary customers	No major shift in drivers Internationally more competitive environment than earlier
Intrinsic factors	Small network size; More cooperative than competitive. Strong industry-academia collaboration	Local demand/ challenges are limited. Local construction technologies and production systems are fairly uniform
Extrinsic factors	Financial shocks Demanding local conditions Focus on export of expertise	No significant change besides a more competitive international market. Global ecosystems of software vendors. Construction companies remain local.

International landscape

- Greater competition and maturity
  - More ambitious and focused effort in other places
- Role in global/ megaprojects
- Market size and economic growth
  - Realignment of demand and supply
  - Availability of human resources

Challenges to consider

- Alternative business models and innovation ecosystems
  - Room for outliers and mavericks

- Consolidation and emergence of global players

- The threat of takeover by tech giants?

- The need to move from lean production to lean consumption?

- What constitutes building information? Where is the system boundary?

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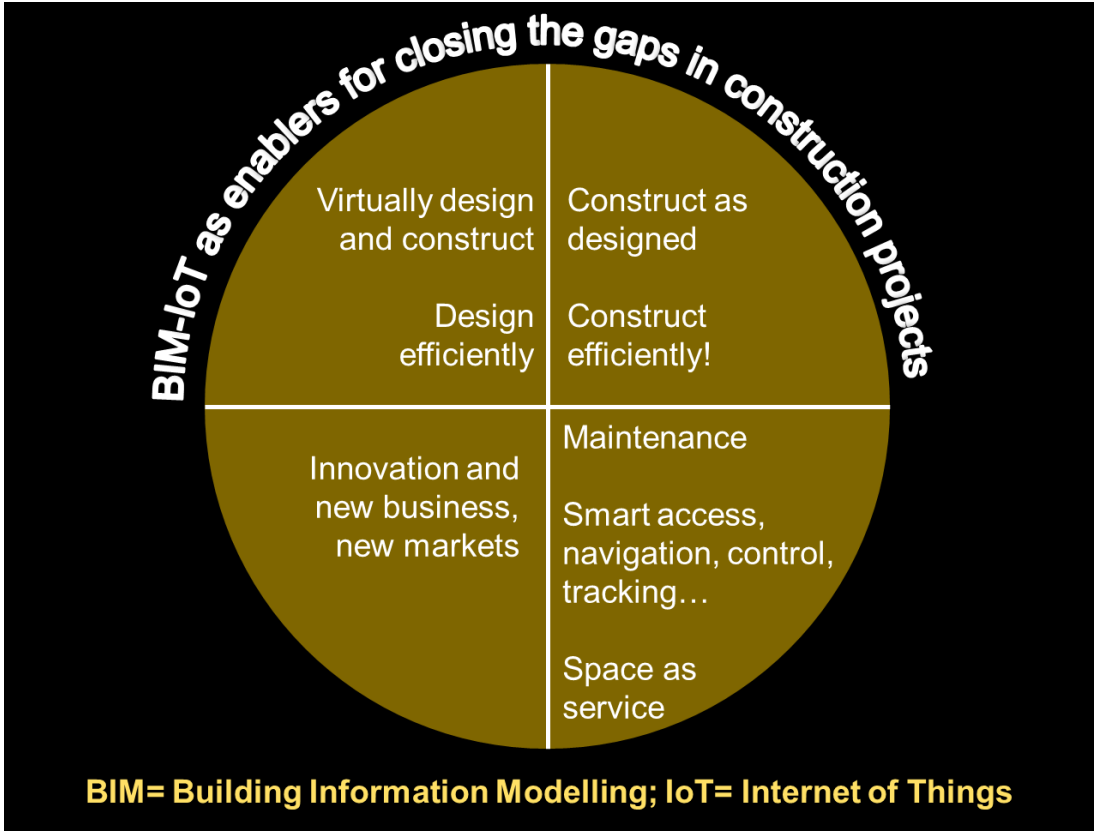
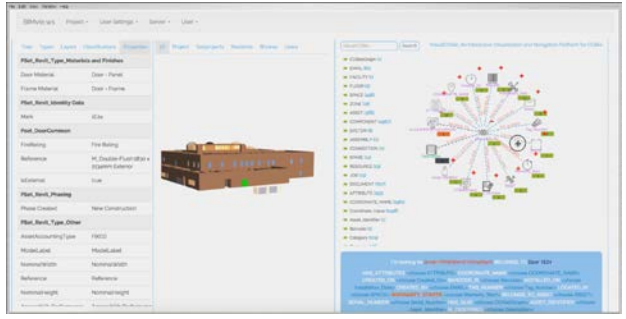
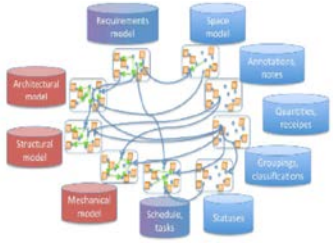
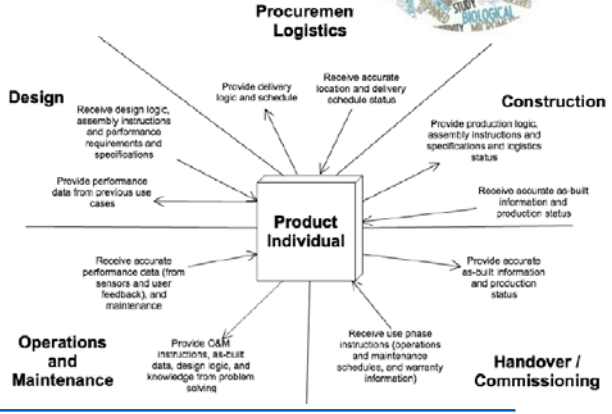


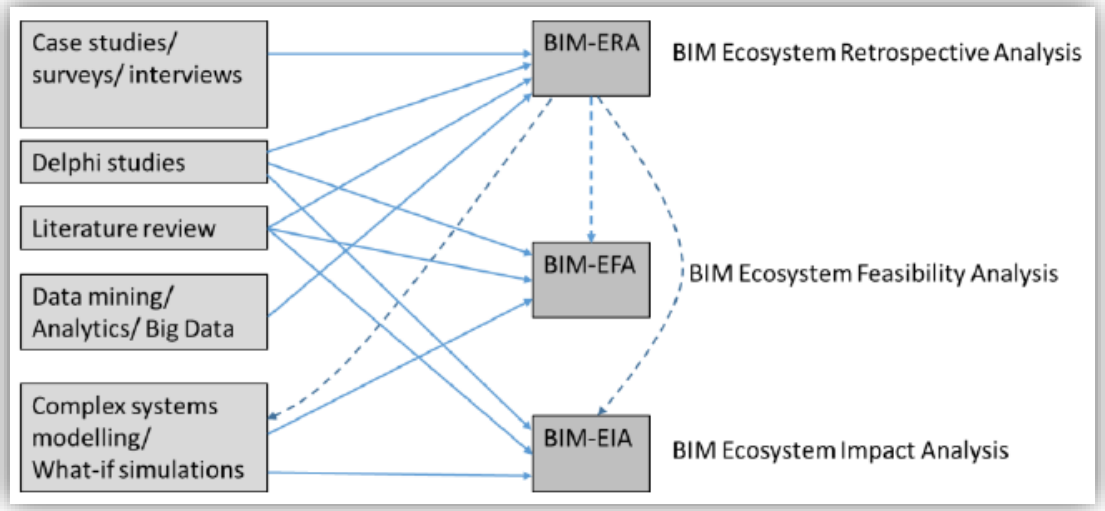






BIM ecosystem- way forward via research

- Ecosystem retrospective analysis (ERA)
- Ecosystem feasibility analysis (EFA)
- Ecosystem impact analysis (EIA)



Thank You!

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