Strategic innovation management

TU-E2110 Innovation in Operations and Services

Aalto University
School of Science

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Innovation management topics

25.1. Introduction & innovation process

1.2. Knowledge, learning and innovation

8.2. Organizing innovation activities

15.2. Strategic innovation management

BREAK

1.3. Systemic / institutional view to innovation

8.3. Summary of innovation management

+ instructing the individual assignment

Last week

1. Bureaucratic and innovative approaches to organizing innovation – different priorities in efficiency vs. innovation focused organizations
2. Ambidexterity and the balance of exploitation and exploration – tensions between the two domains of activity, models for balancing exploration & exploitation in the organization

Goals of the session

After the session, you are able to:

1. Identify **external factors** that impact a firm's **strategic approach to innovation**
2. Understand principles in managing **the portfolio of innovation projects**
3. Describe means to **protect innovations**

Purpose of innovation strategy

1. Provide *goals, processes and support system* for the successful development and commercialization of new solutions *in alignment with* corporate strategy

2. *Systematically accumulate* firm-specific knowledge to ensure *continual renewal* in an uncertain, complex and changing environment

Tidd & Bessant (2013)

Innovation strategy elements

1. **Strategic / competitive trajectory**
   - *Alignment* with business strategy
   - *Fit* with current technological path & industry life cycle
2. **Organizational approach**
   - *Systematic* management and support for desired innovation activities
3. **Appropriation**
   - *Protection* of innovations against imitation
   - *Capturing* (financial) value from innovative solutions

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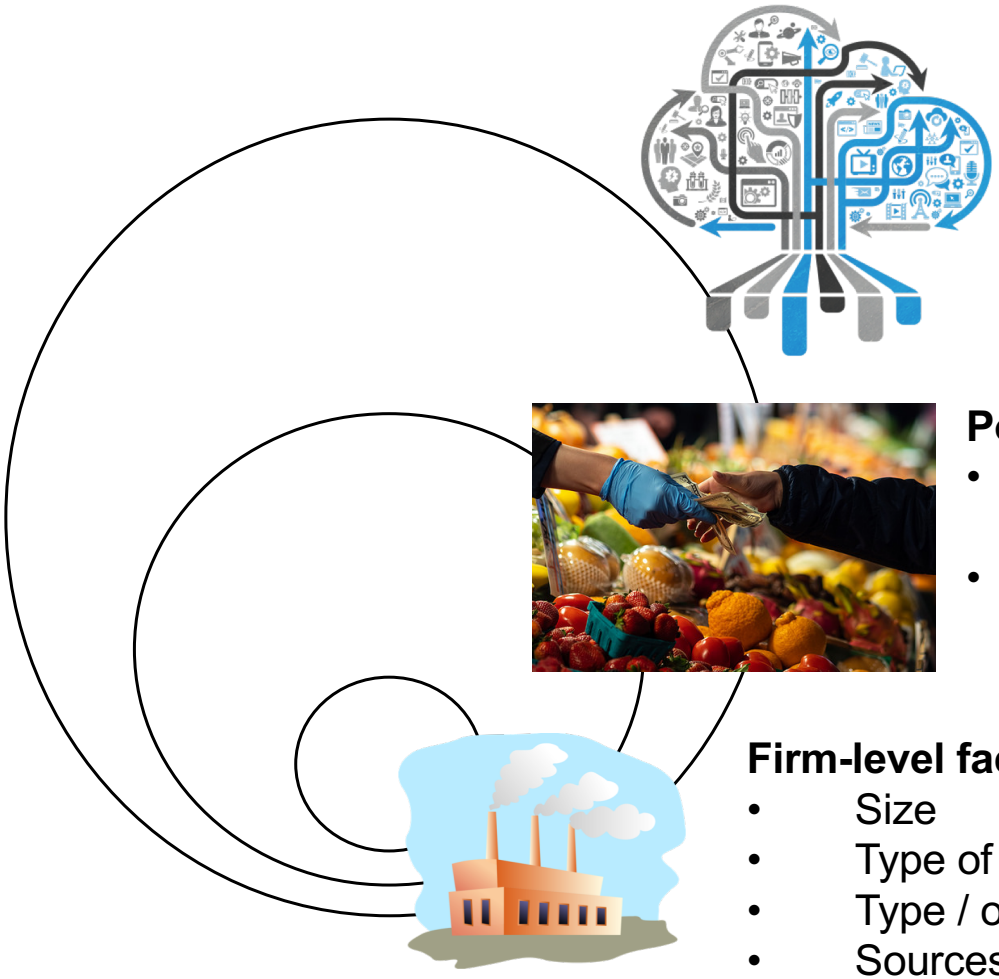
1. Innovation and strategic trajectory

Context of innovation strategy



National innovation system

+ Public (and private) R&D expenditure, market size, openness of national economy, availability of venture capital, educated workforce
- High corporate tax rate, high economic welfare (labor cost), degree of foreign competititon

Positioning with the market / industry

- Position & development of own core competences against those of competitors
- Selection of strategic orientation: ”first mover” or “fast follower”?

Firm-level factors

- Size
- Type of product / solution made
- Type / objective of innovation
- Sources of innovation

Tidd & Bessant (2013)

Industry characteristics & innovation

1. **Supplier-dominated:** *Use technology from suppliers* to reinforce other competitive advantages
   - E.g., textile, agriculture, many service industries
2. **Scale-intensive:** *Incremental improvement* of (technological) components in complex product-service systems
   - E.g., automotive, construction, bulk materials
3. **Science-based:** *Exploit advances in basic research* through in-house R&D to produce high-tech solutions with market demand
   - E.g., electronics, pharma

Tidd & Bessant (2013)

Industry characteristics & innovation

4. **Information-intensive:** *Development and operation of complex ICT systems* that enable new service solutions
   - E.g., finance, retail, telecom
5. **Specialized suppliers:** Provision of specialized components or inputs into complex value creation systems with focus on user needs and market fit
   - E.g., design & software firms

Tidd & Bessant (2013)

Cultivation of core competences

Competitive advantage resides in firm's *core competences*

- *Technological and production skills* that empower businesses to adapt to changing opportunities
- *Distributed*, not specific to one individual, knowledge domain or functional division
- Develop & evolve *cumulatively* over time & with experience

Renewal of core competences through *dynamic capabilities*

- *Sense & shape* opportunities and threats
- *Seize* opportunities
- *Reconfigure* (i.e., enhance, combine, protect) the tangible & intangible resources (to maintain competitiveness)

Hamel & Prahalad (1990)
Teece (2009)

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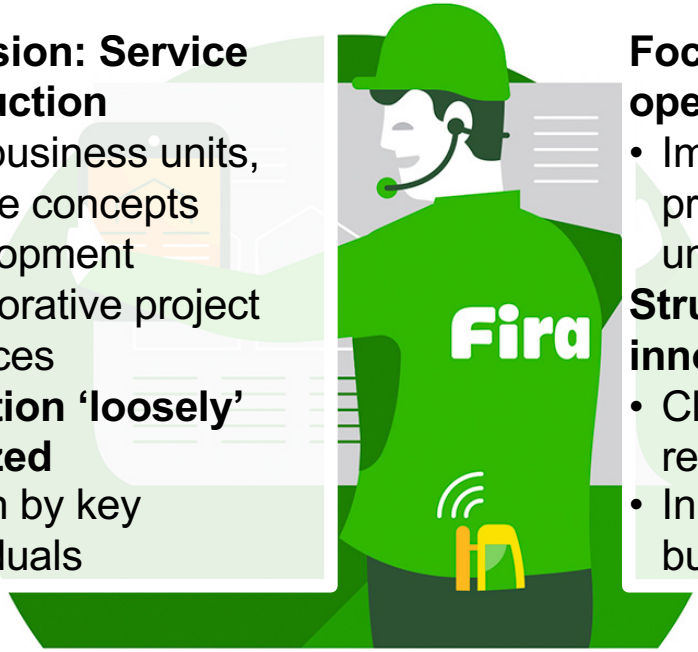
2. Organizational approach

Evolving innovation strategy: Case Fira

Phase 1: Emergent

New vision: Service construction
- New business units, service concepts
- Development collaborative project practices

Innovation 'loosely' organized
- Driven by key individuals



Phase 2: Incremental

Focus: Construction operations
- Improving practices at project and business unit levels

Structuring of innovation activities
- Clarification of roles, responsibilities
- Innovation within business units

Phase 3: Radical

New direction: Scalable service solutions
- Company-wide investment in new business areas

Innovation & new organization structure
- Separation of incremental and radical projects
- Resourcing through internal ventures
- System for screening / selecting projects

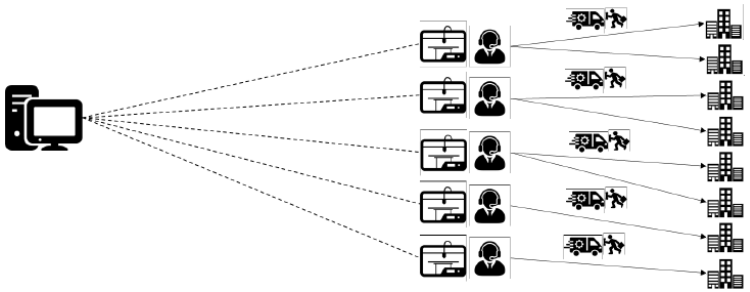
Three categories of R&D projects

1. ***Knowledge building*** **(through basic research)**
   - Investments in acquiring (likely) relevant knowledge and new seeds for innovations
   - Long-term horizon, costs specific to research costs
2. ***Strategic positioning*** **(through applied R&D)**
   - Investments in systematic development of (tech) opportunities into strategically significant solutions
   - Mid-term horizon, costs expand with business unit involvement
3. ***Business investment*** **(from idea to launch)**
   - Investments into the development, production and marketing of a new solution with a clear business case
   - Short-term horizon, systematic launch of new offering expensive

Digital spare parts & innovation projects

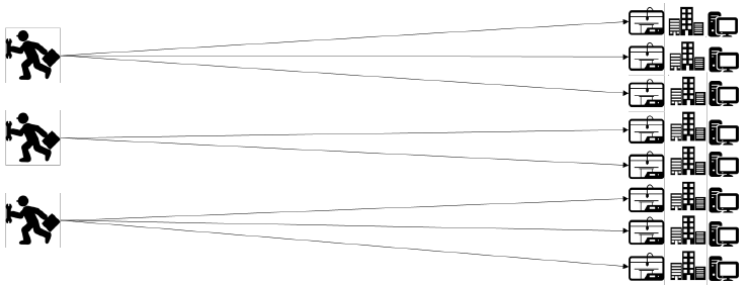
A long-term change with multiple steps & types of innovation projects

- Not ready for implementation at system-level (yet)..



Question: What kind of innovation projects are required at Kone in relation to the 3DP 'world'?

- Knowledge building, strategic positioning, business investments?



Portfolio building

Breadth

- How many *parallel innovation projects* are funded at one time?
- Uncertainty → Greater resource allocation breadth increases likelihood that at least some projects are successful
- But: too much breadth dilutes strategic focus and increases cost

Selectiveness

- How are resources directed to *most promising projects*?
- Greater selectiveness (i.e., pruning out lackluster projects) improves later-stage development resources for most promising projects

Klingbiel & Rammer (2014)

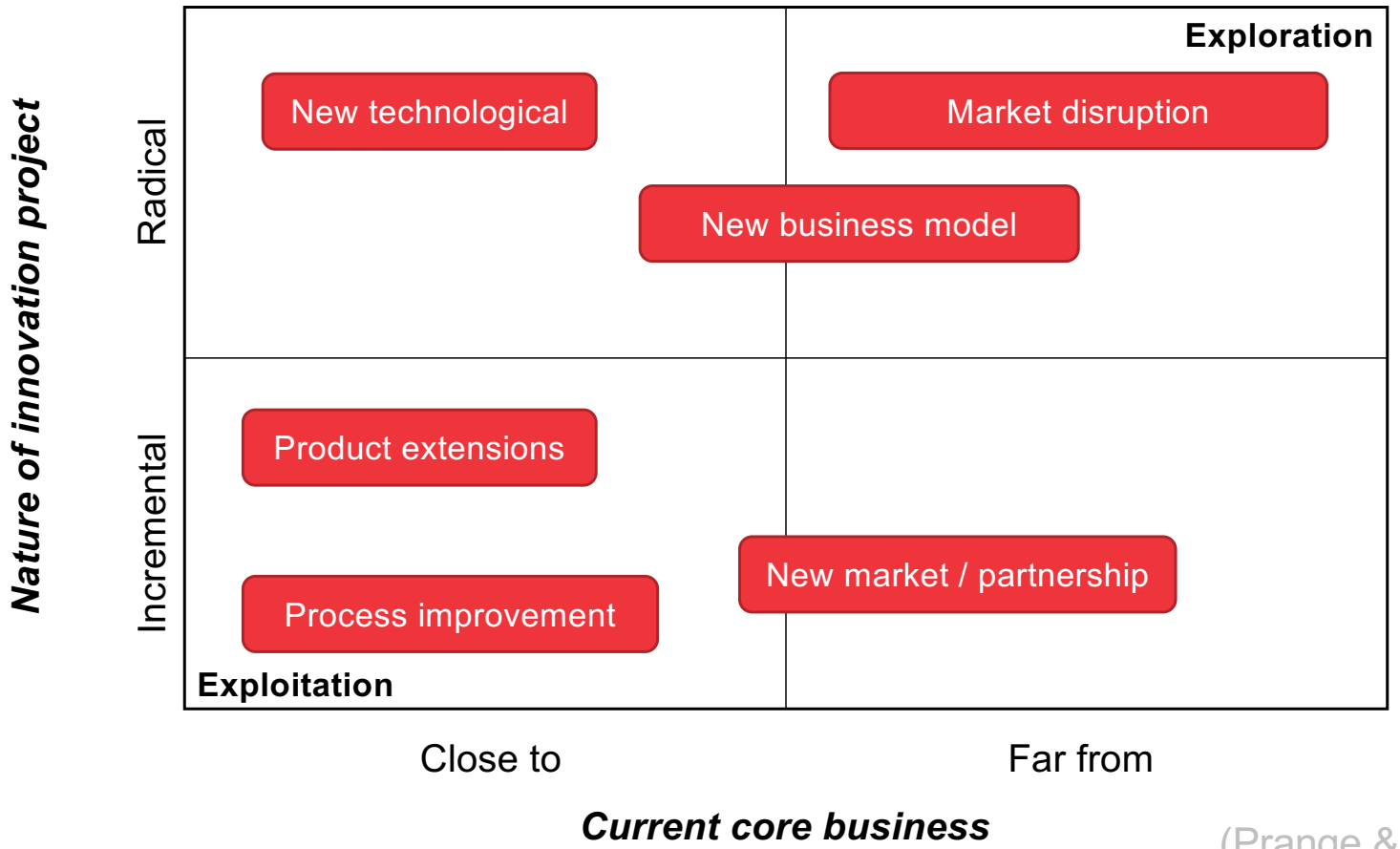
Moderating variable: Innovative intent

1. **Ambitious firms**
   Breadth improves learning and chances of success more with ambitious firms (particularly when coupled with selectiveness)

2. **Incremental firms**
   Reap no extra benefit from breadth, should focus on selectiveness early

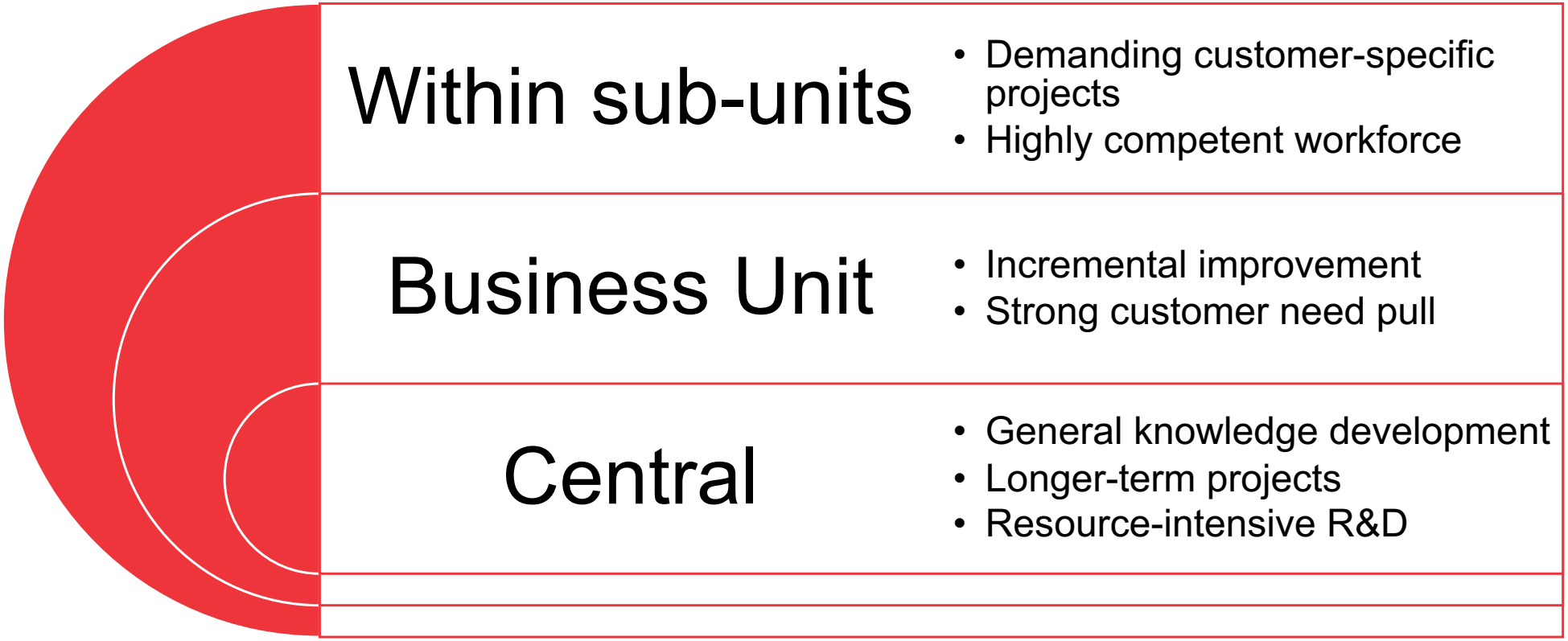
Klingbiel & Rammer (2014)

Ambidexterity through diverse portfolio



(Prange & Schlegelmilch, 2010)

Example: Locus of innovation projects



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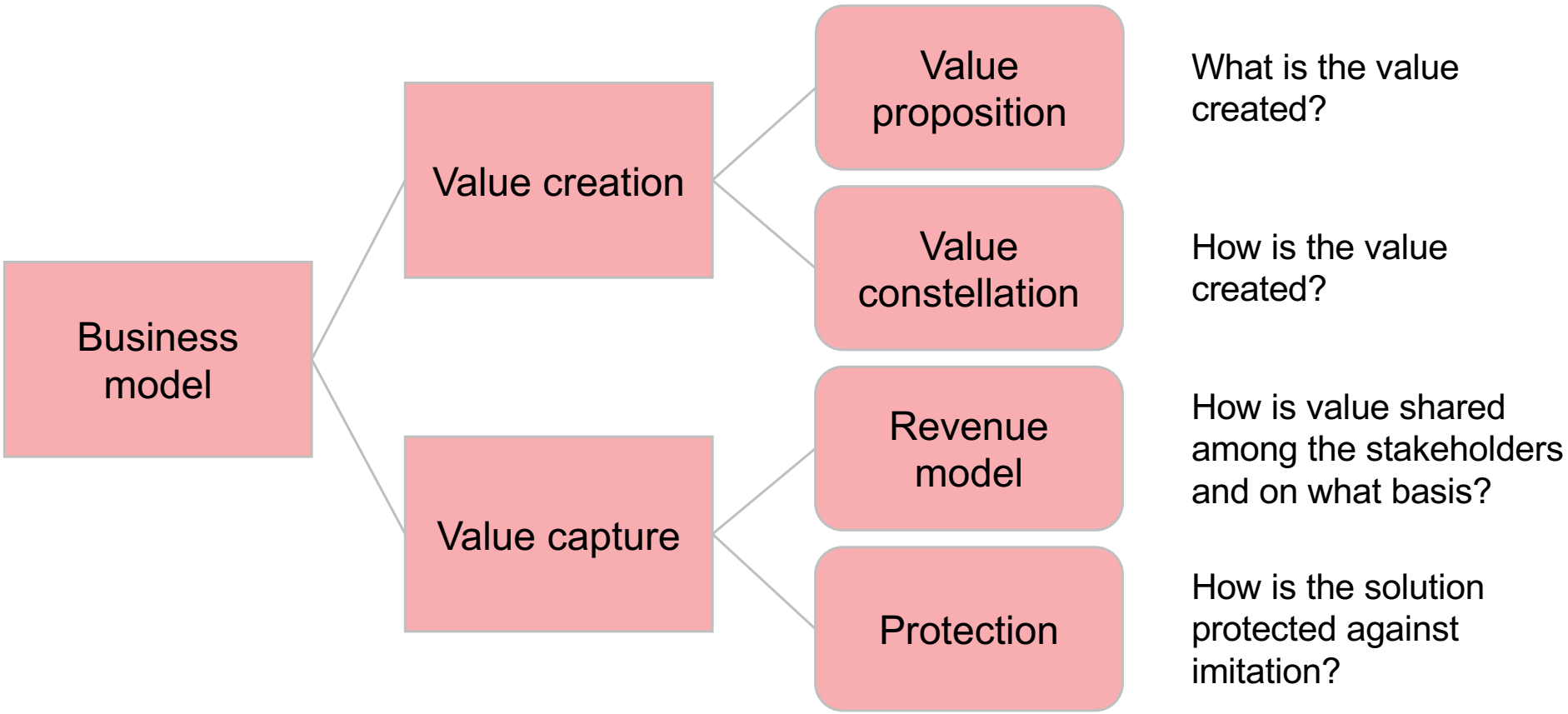
3. Appropriation

Business model



Teece (2010)

Example: Kone CTU value proposition

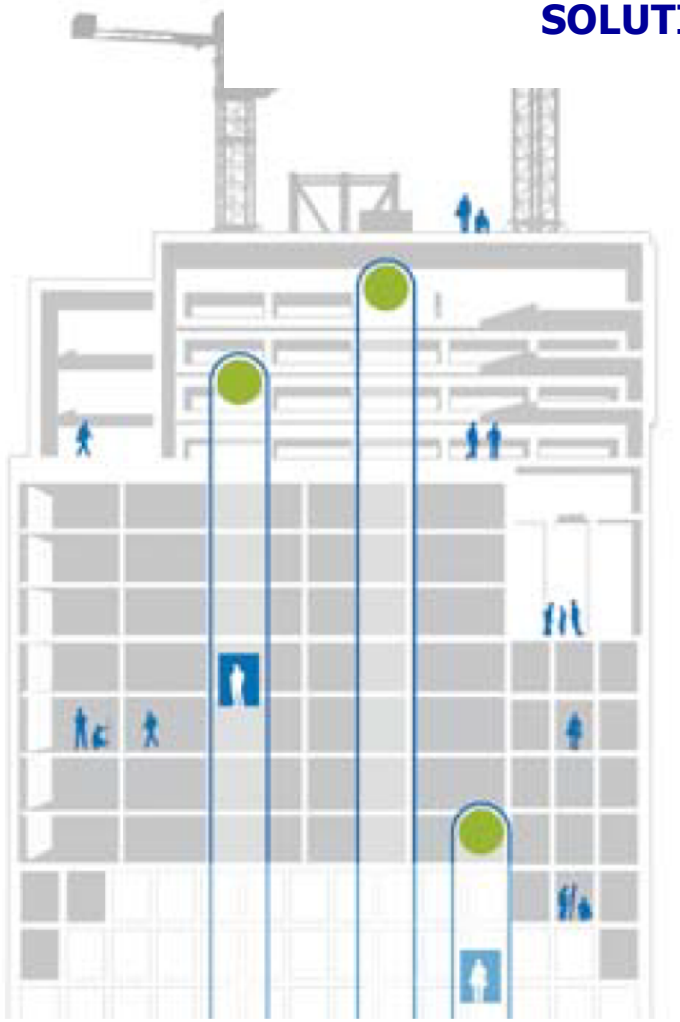
Contractor's goal:
Getting workers and materials safely to the right place at the right time

LESS WAITING
Faster transportation than with exterior hoists

SHORTER CONSTRUCTION TIME
Enclose lower floors earlier and speed up logistics

REDUCE DOWNTIME
Maximise availability

KONE CONSTRUCTION TIME USE (CTU) SOLUTION

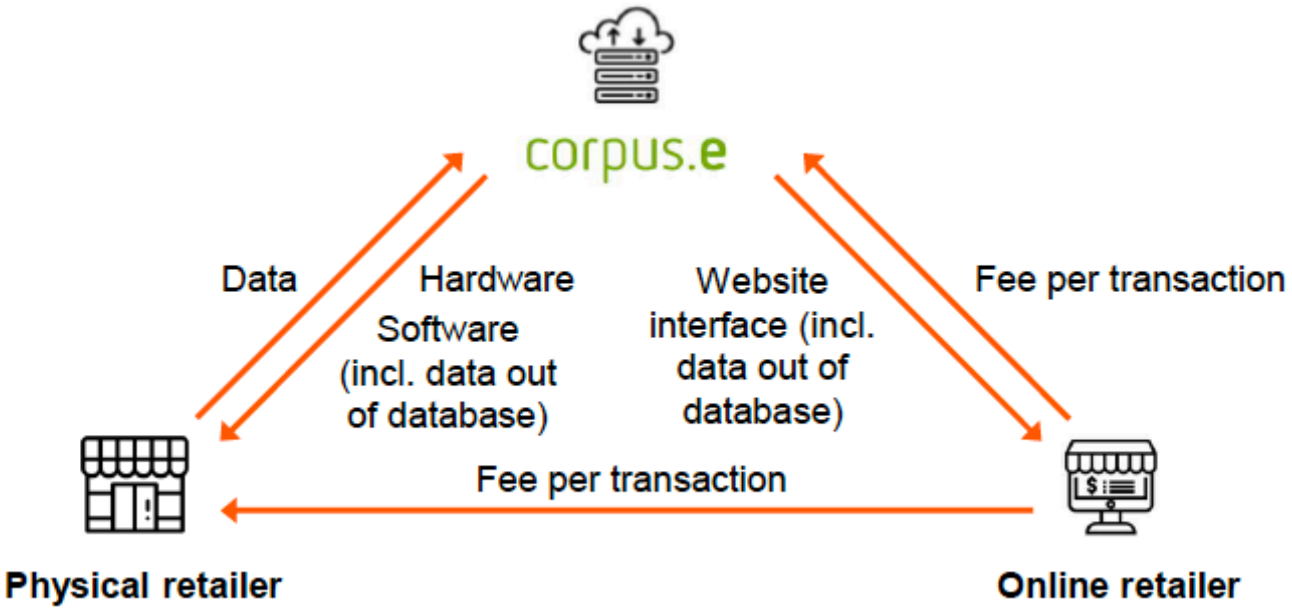


CUT ENERGY COSTS
Better energy efficiency than with exterior hoists

IMPROVED LOGISTICS
Façade of the building can be closed sooner for weather protection and improved logistics

Credit:
Pekka Töytäri

Example: Value constellation in the Corpus.e case

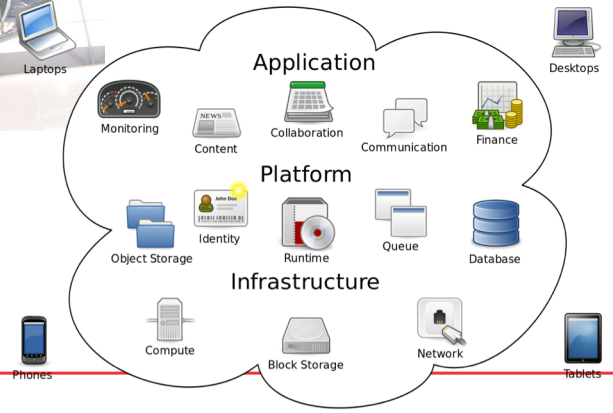


Revenue from innovation

Product transaction

Service contract

SaaS / PaaS / IaaS



Cloud computing

Protection

The appropriability regime:

- Combination of available / adopted means by which an organization protects its innovations against imitation

Strategic concern: Maximizing protection versus value

- Strength versus cost (e.g., patents)
- Locus of innovation (e.g., can you patent a service?)
- Solution life cycle phase
- Strategic significance
- Existing contracts and agreements (“lock-in”)

Hurmerinta-Laukkanen &
Puumalainen (2007)

The appropriability regime

1. **Tacit nature of core knowledge**
   - Continually developing competences that are difficult to transfer
2. **Institutional protection**
   - IPR (patents, copyrights, trademarks), contracts, labor legislation
3. **Human resource management**
   - Recruitment and direction of work to prevent unwanted transfer and disclosure of sensitive information
4. **Practical & technical means**
   - Limiting information access through passwords, copy prevention..
5. **Lead time**
   - Maintaining development to stay ahead of the diffusion curve

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