



# Knowledge Management Challenges in Renewal of R&D Processes in Software Business

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# Structure of the presentation

- Introduction
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- Research findings
- Managerial implications & conclusions



# Introduction

- Dynamic, knowledge intensive business
  - continuous need to develop business and especially R&D processes
  - Expertise of employees a key resource
- Need to identify the central KM challenges in the renewal of R&D processes in a software company
- Possible solutions to above-mentioned challenges → implications for managers



# Research methods

- Qualitative, action oriented research
  - in-depth and holistic insight to conceptualize the phenomenon
  - provide theoretical and managerial implications
  
- Over 30 interviews on various hierarchical levels
  
- Data analysis was made by grouping and theme building



# Organizing software componentization

- Two main ways to organize for componentization:
  - decentralized and centralized
    - component users and creators
    - a mixture of these two
- An important enabler in any model is the exchange of resources and interaction between people
  - KM operations



# The case organization

- Large Finnish software company in b-to-b markets
- Provides large and complex ICT systems and solutions
- Dispersed
  - difficulties in knowing what others are doing → overlap
- Hard competition → renewal of R&D processes
  - higher productivity → full utilization of the competence and knowledge
- Decentralized component based production
  - component library
  - cross-team board
  - new common technology



# Organizing software componentization in the case organization

- Decentralized component based production
  - + the initial costs are small
  - + the components are being developed based on real customer needs
  - + the development costs of the components will be placed on the project in question
  
- the definition and delegation of responsibilities is difficult
- it is hard for the teams to grasp the total picture and understand the needs of other teams
- the motivation and control requires a great deal of management resources



# Research findings

- Challenges:
  - the need to share knowledge not only to make component library work, but also to enable and ensure cultural and organizational change
  - great diversity of the teams in their initial situation
- Solutions:
  - the effects of KM actions taken are multiple and sometimes even difficult to point out → create right circumstances
  - commitment of the management and allocation of proper resources
  - no quick fixes
- Challenges and solutions can be divided into
  - *design and preparation* phase and the *consolidation* phase
  - *technology-oriented* and *people-oriented*



# Conclusions and managerial implications 1/2

- Renewing R&D processes presents a major change and challenge for an organization
- Knowledge management practices and tools facilitate and ease the change
- Leading the change systematically is critical
- Leading and leadership are crucial
- Short-term success is needed → try-out or pilot cases to show success
- A body of experts to monitor and guide actions



# Conclusions and managerial implications 2/2

- The chosen technology should be agile enough to enable the continuance of the work of the individual teams
- The other alternative is to make compromises in the way the new chosen technology is implemented and how quickly the transition is made
- This kind of change requires much from a leader, he/she should master both human and organizational sides





# Thank you for your attention!

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