Business Process Oriented Identification and Visualization of Knowledge Work with B-KIDE

Early RE Seminar

University of Toronto

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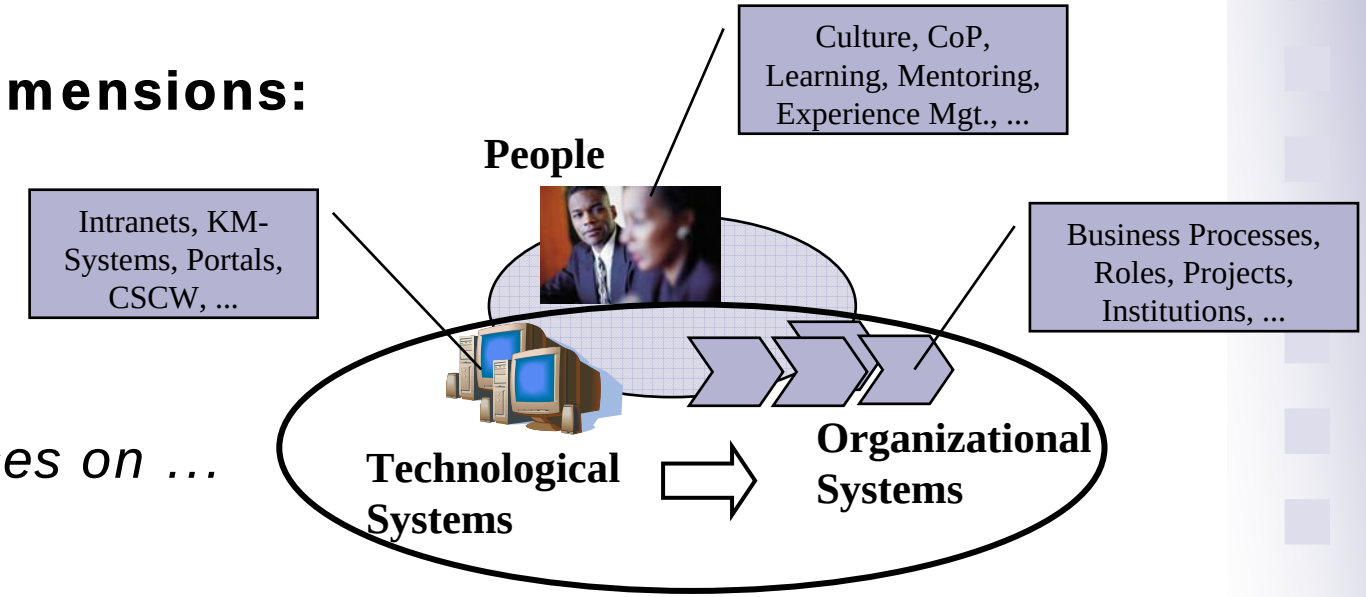
Presentation Overview

- Introduction & Motivation
- Basic Approach
- The B-KIDE Framework & Tool
- Applications
- Relevance

Knowledge Infrastructures

Knowledge Infrastructures are an Enabler for Knowledge Management [Siv01].

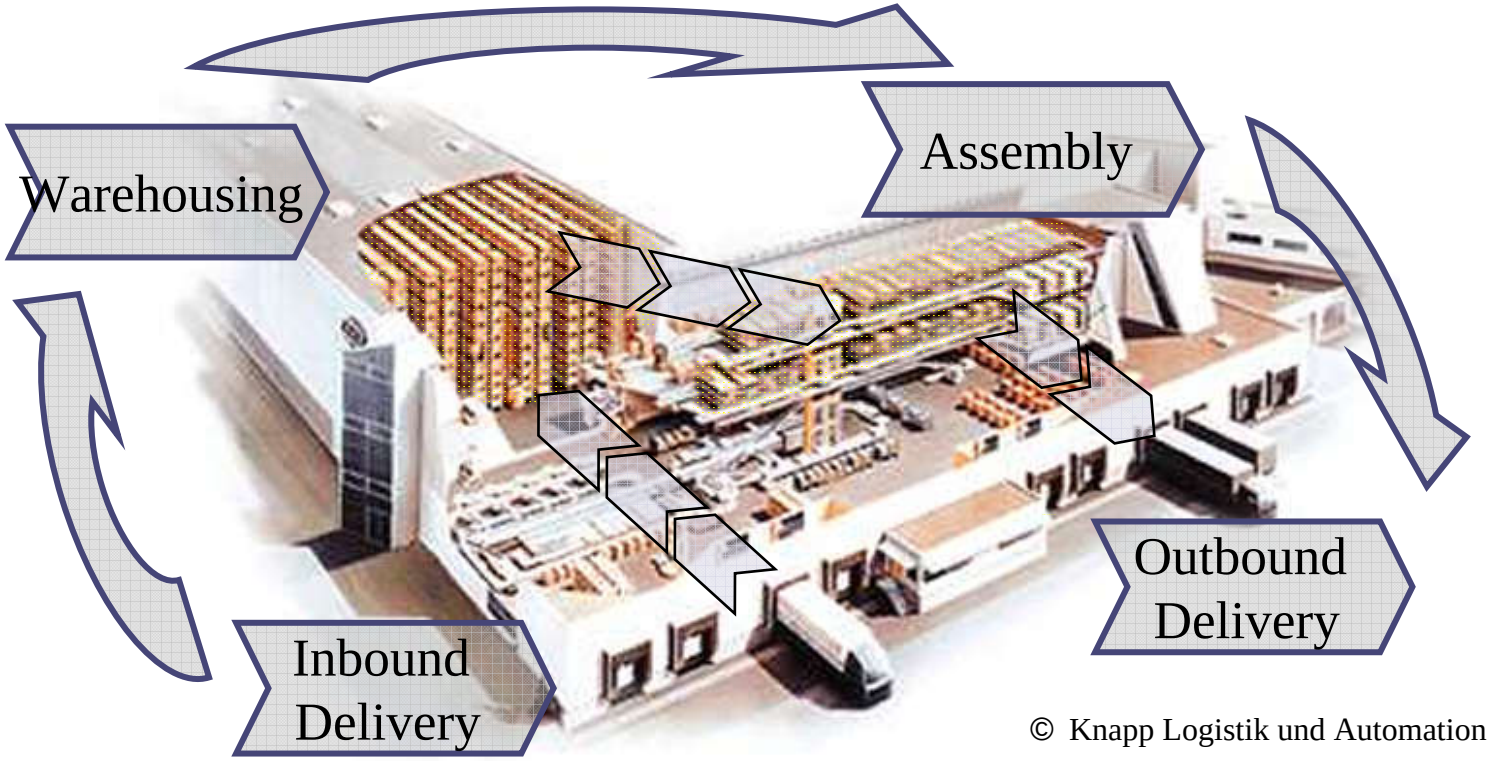
➔ **3 Main Dimensions:**



B-KIDE focuses on ...

Business Processes and Implications for Organizations

Example: A Logistics Center



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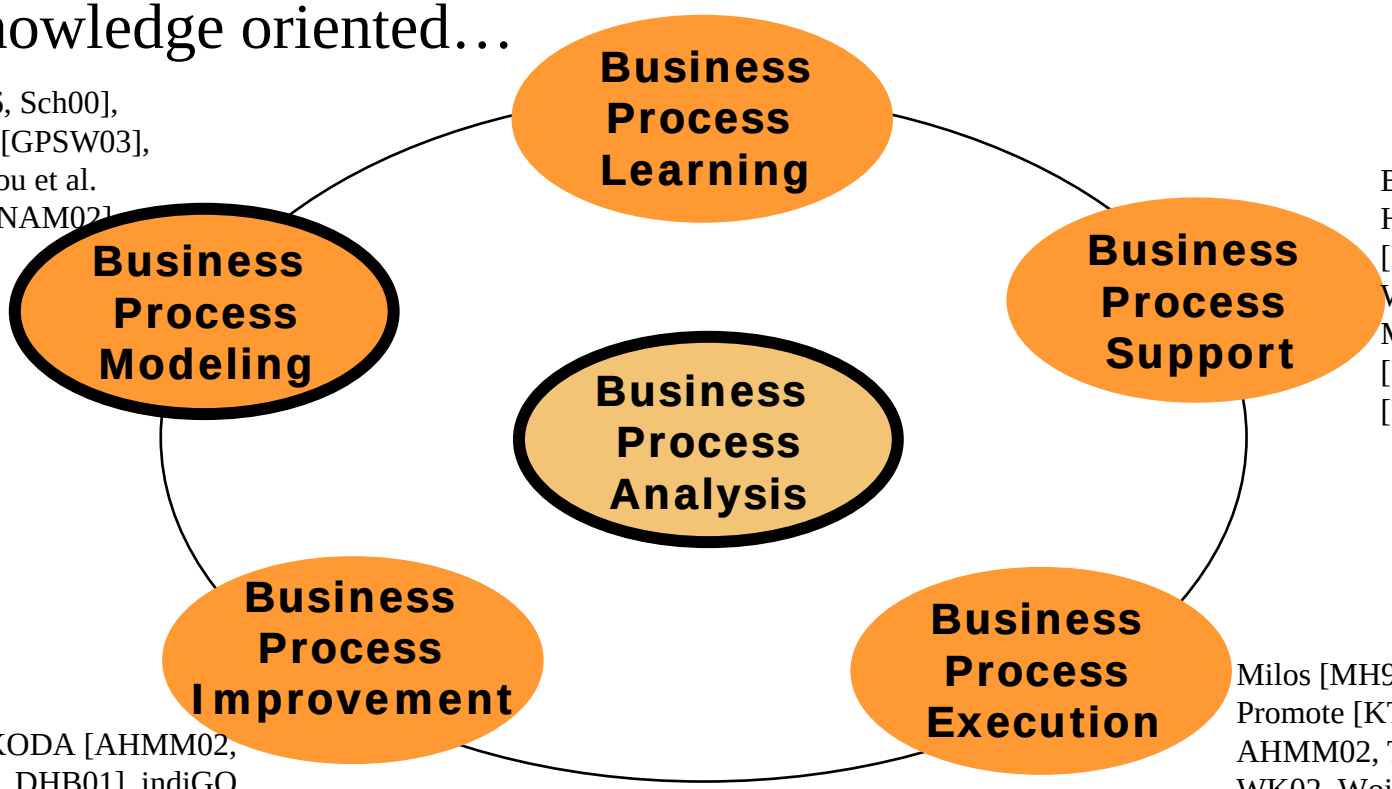
Business Processes pose Implications for the Architecture of Knowledge Infrastructures.

Business Process Oriented Knowledge Management
An Overview

AD-HOC [Far03], Advisor [SP01], MODEL [PPS02], ...

Knowledge oriented…

Aris [Sch96, Sch00], K-Modeler [GPSW03], Papavassiliou et al. [PMA02, PNAM02], ...

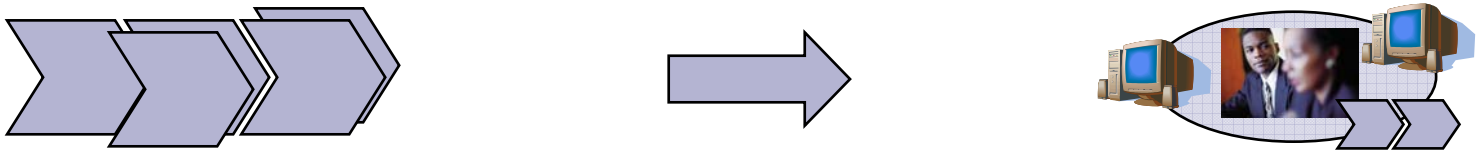


BKM [BsV00, Har02], KNRM [RES+00], GPO-WM [Hei01, MHV03], [HHDG02], [Jan00], [MHA03], ...

KODA [AHMM02, DHB01], indiGO [VA+02, DRA+03], ...

Milos [MH99, MT02], Promote [KT00, AHMM02, TK02, WK02, Woi03, WK03], Workbrain [WWT98], EULE [RMS00], ...

B-KIDE



„Introduce a set of instruments that
allows for the development of business process supportive,
technological knowledge infrastructures
for knowledge intensive organizations.“

In detail,

- **Improve environments** of knowledge workers
- **Enable role-oriented access** to knowledge
- **Enable autonomous routing** of knowledge
- **Standardize the execution** of knowledge work
- **Increase transparency** of knowledge

Definition

- (Organizational) Knowledge = Information that is relevant for undertaking (business) actions

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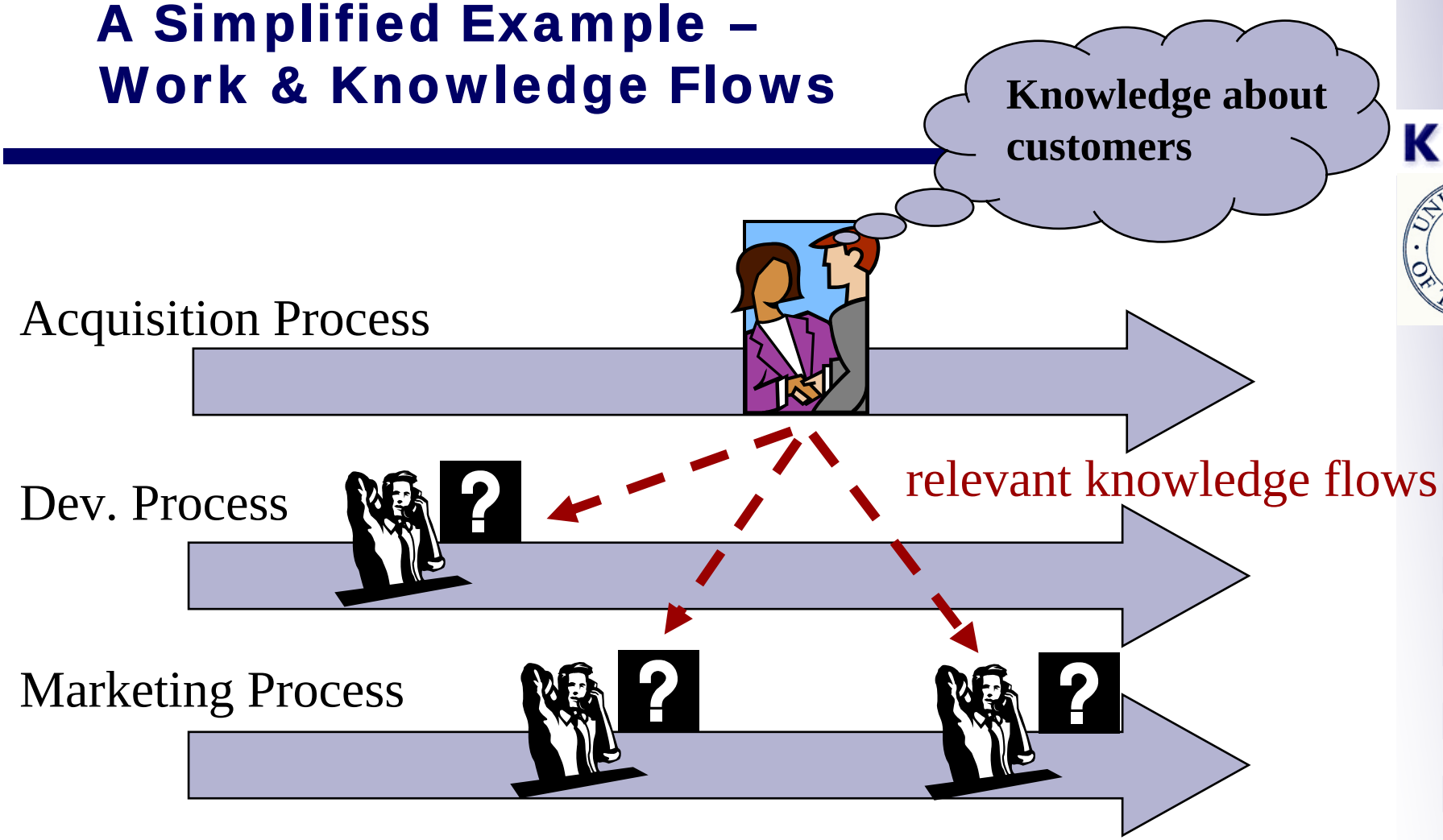
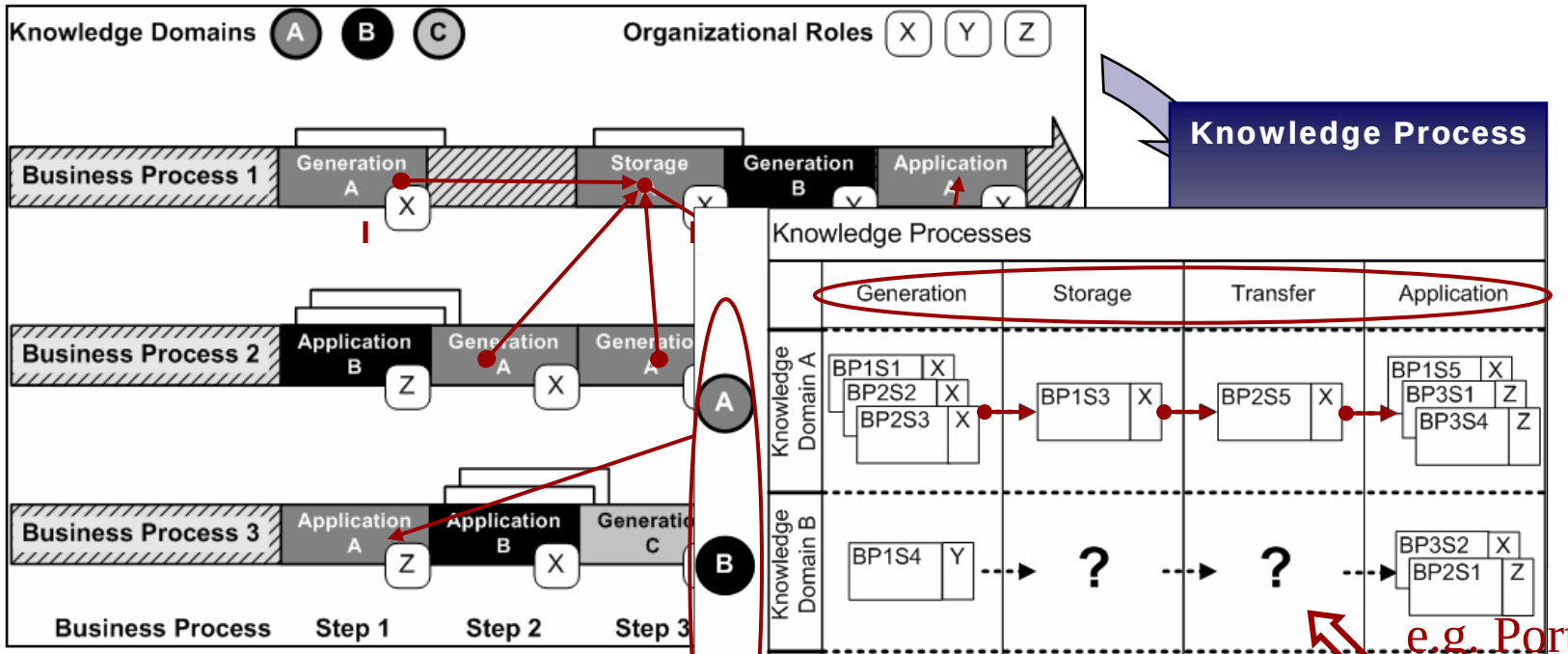
A Simplified Example – Work & Knowledge Flows



Problem: How can such knowledge flows be **identified, visualized (and supported)**?

Basic Approach



Business Process Perspective

Data Transformation

Knowledge Process Perspective

e.g. Portals

Waste of Ressources?

So What are Knowledge Processes?

Simple Definition: The flow of information that is relevant for action

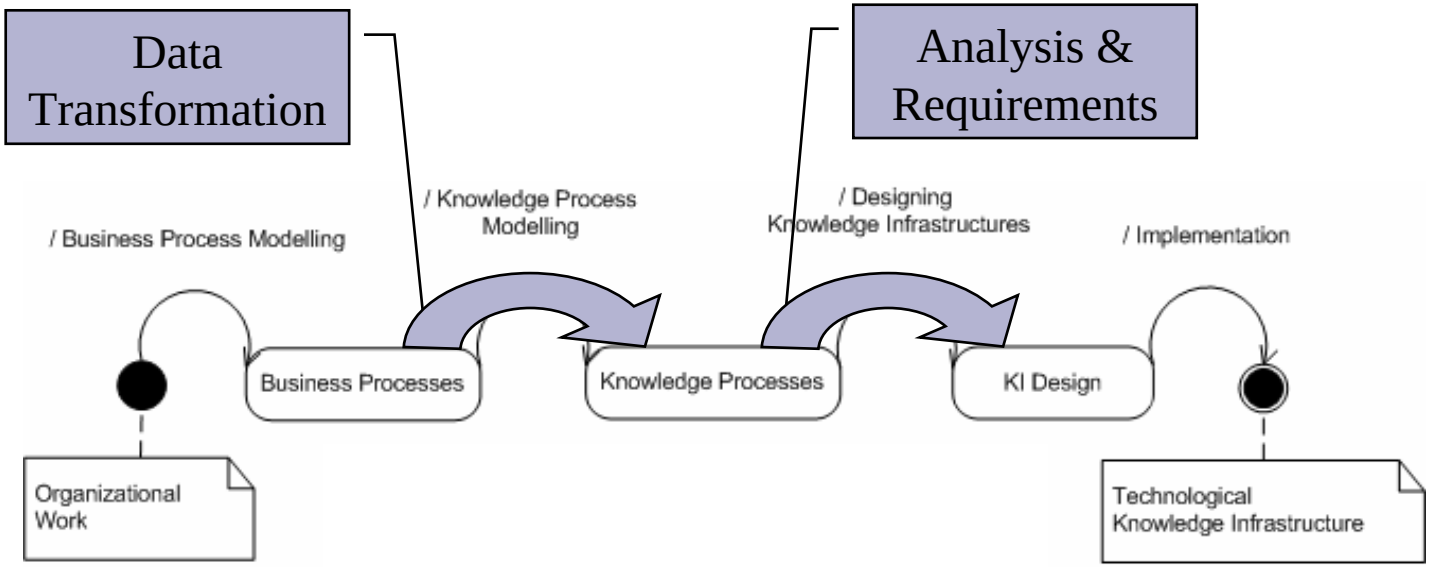
Precise Definition: Knowledge processes describe distributed, organizational knowledge work. Thereby, knowledge processes typically include descriptions of: knowledge flows, specific knowledge activities, involved persons or roles and associated business processes regarding a certain knowledge domain [Str03b].

Knowledge Process - Knowledge About Design Decisions

Process/Role

Knowl.-Domain	Generation	Storage	Transfer	Application	Description
Knowledge about Design Decisions	SD5.2 Planning & Design / PM			SD5.4 Implem-enatation / TL, MD	Design decisions that led to specific SRD & ADD are of interest for the employees that need to implement the requirements. (suggestion by the interviewpartners: meeting minutes, e-mail archives, TWSs)

The Principle Approach



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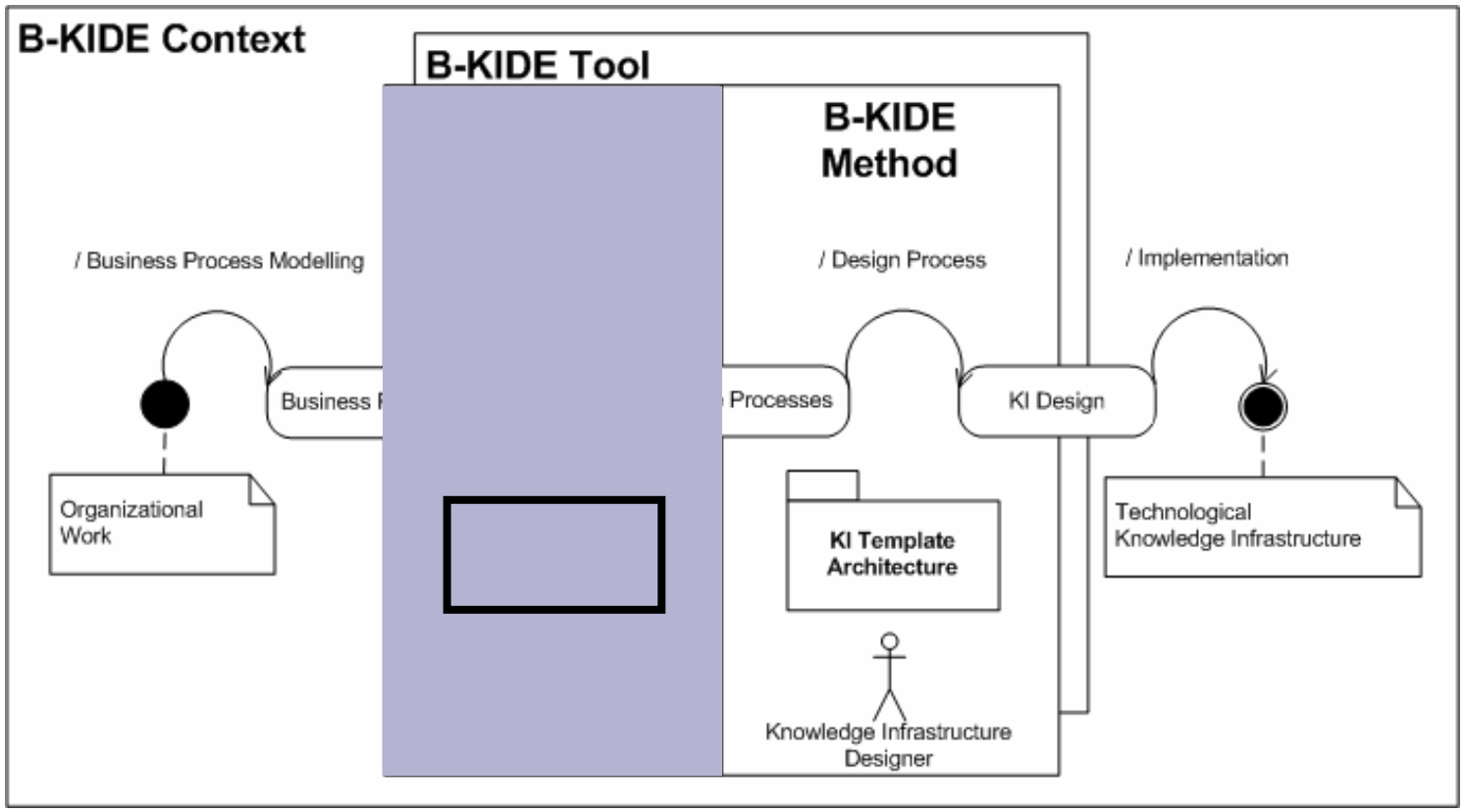
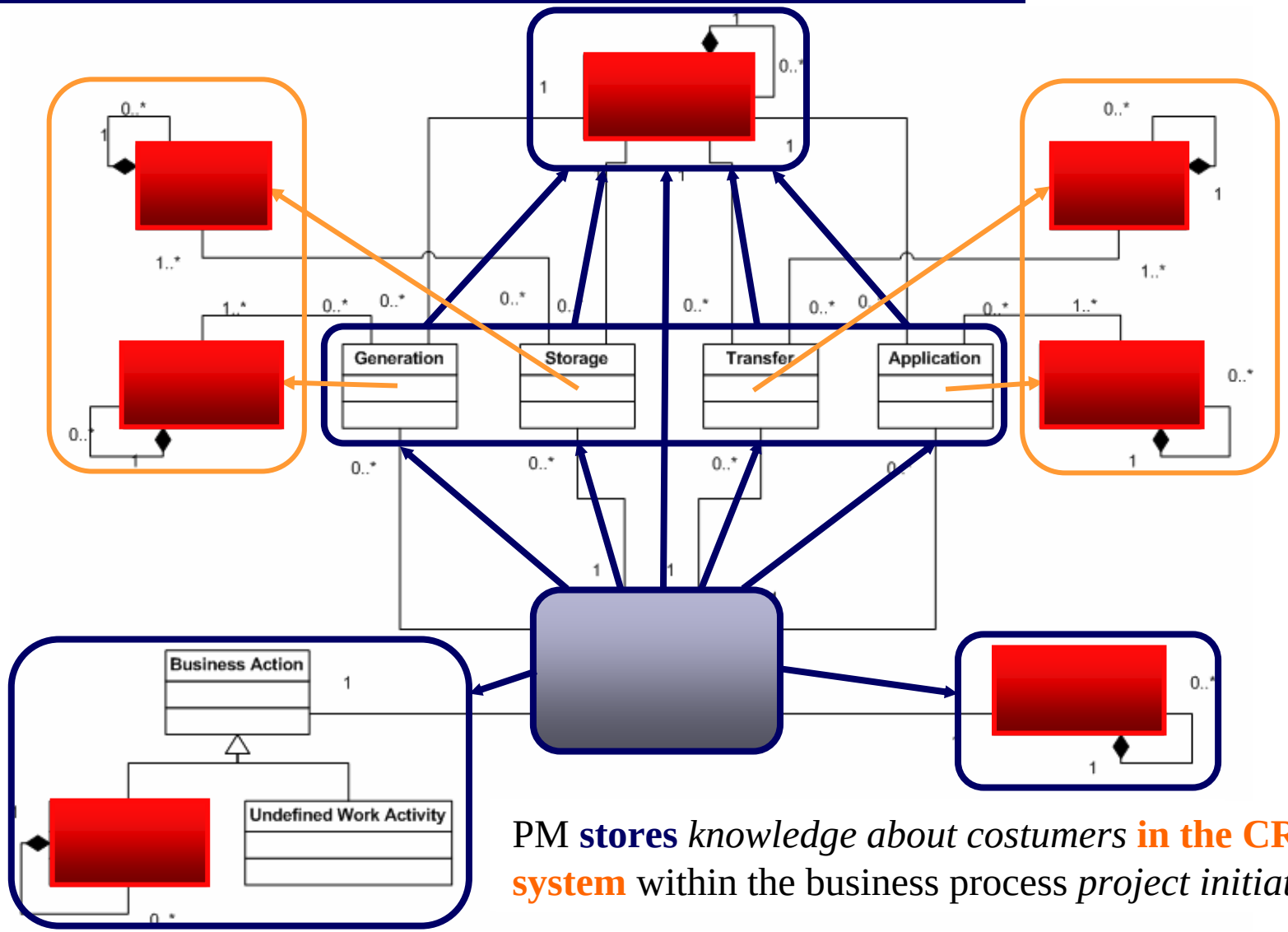
The B-KIDE Framework and The B-KIDE Tool

B-KIDE: **B**usiness process oriented **K**nowledge **I**nfrastructure **DE**velopment

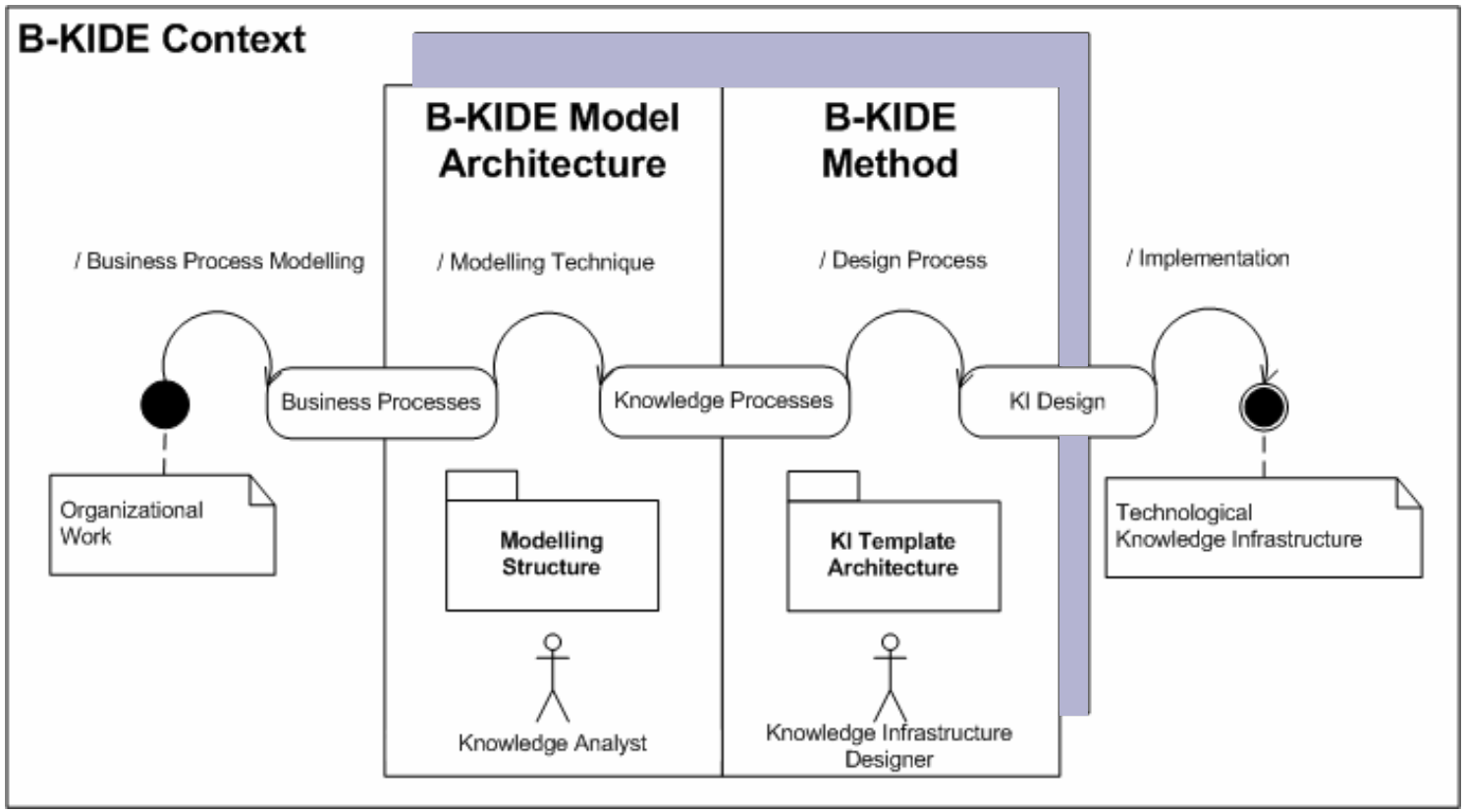


B-KIDE Model Architecture
The Modelling Structure in UML

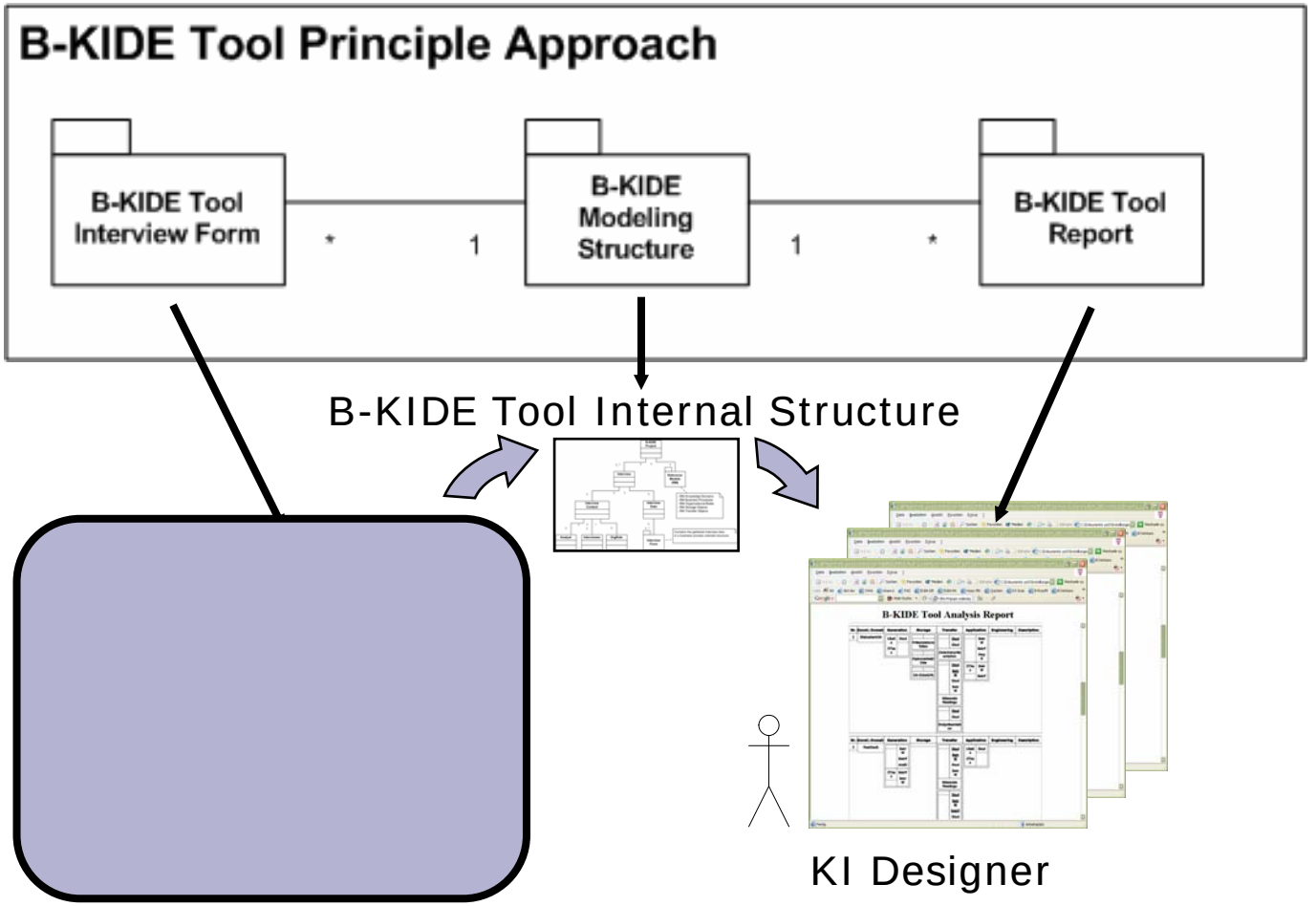


PM **stores** *knowledge about costumers* **in the CRM system** within the business process *project initiation*.

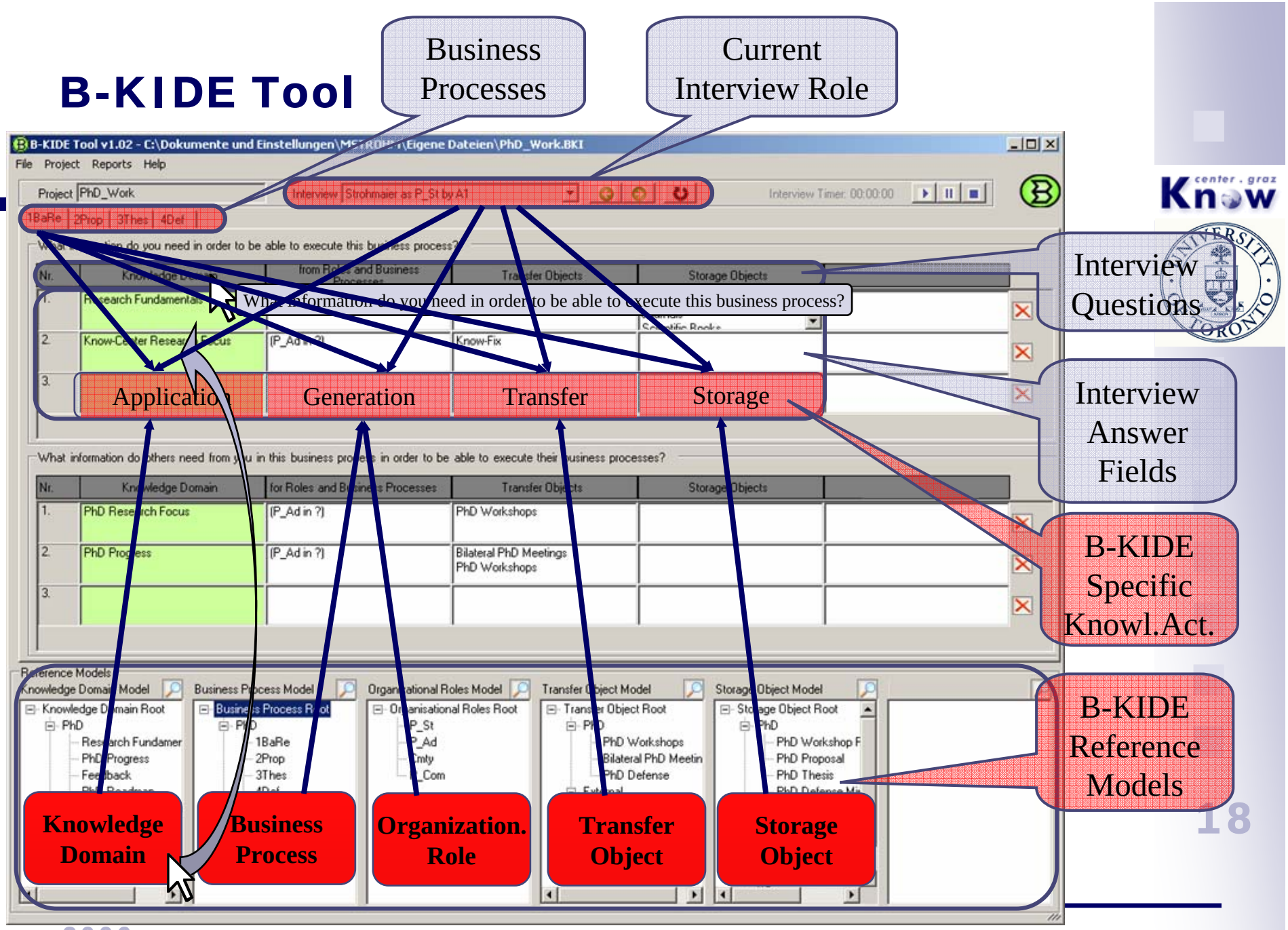
The B-KIDE Tool



B-KIDE Tool
Principle & Functionality



B-KIDE Tool


Business Processes
Current Interview Role
B-KIDE Tool v1.02 - C:\Dokumente und Einstellungen\MSTROH1\Eigene Dateien\PhD_Work.BKI
File Project Reports Help
Project PhD_Work
Interview Strohmaier as P_St by A1
Interview Timer: 00:00:00
1BaRe 2Prop 3Thes 4Def
Nr.
from Roles and Business Processes
Transfer Objects
Storage Objects
What information do you need in order to be able to execute this business process?
Application
Generation
Transfer
Storage
What information do others need from you in this business process in order to be able to execute their business processes?
Knowledge Domain
for Roles and Business Processes
PhD Research Focus
PhD Progress
(P_Ad in ?)
PhD Workshops
Bilateral PhD Meetings
Reference Models
Knowledge Domain Model
Business Process Model
Organisational Roles Model
Transfer Object Model
Storage Object Model
PhD
1BaRe
2Prop
3Thes
PhD Workshops
Bilateral PhD Meetin
PhD Defense
PhD Proposal
PhD Thesis
Knowledge Domain
Business Process
Organization. Role
Transfer Object
Storage Object
Interview Questions
Interview Answer Fields
B-KIDE Specific Knowl.Act.
B-KIDE Reference Models

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3 Industry Applications

	Case Study 1	Pilot Study 1	Pilot Study 2
Project Context	Software Industry	Automotive Industry	Consulting Industry
Project Goals	Knowledge Portals	EDM System Improvement	Intranet Improvement
Study Style	Explorative	Justificative	Justificative
Hypothesis Tested	Tentative B-KIDE Framework	B-KIDE Framework & B-KIDE Tool	
Framework Application	Design	Evaluation	Design
Results	4 Knowledge Portals	Improvement Potentials	KI Design for Acquisition Process
Evaluation Concerning		B-KIDE Objectives	

EDM...Engineering Data Management
KI...Knowledge Infrastructure

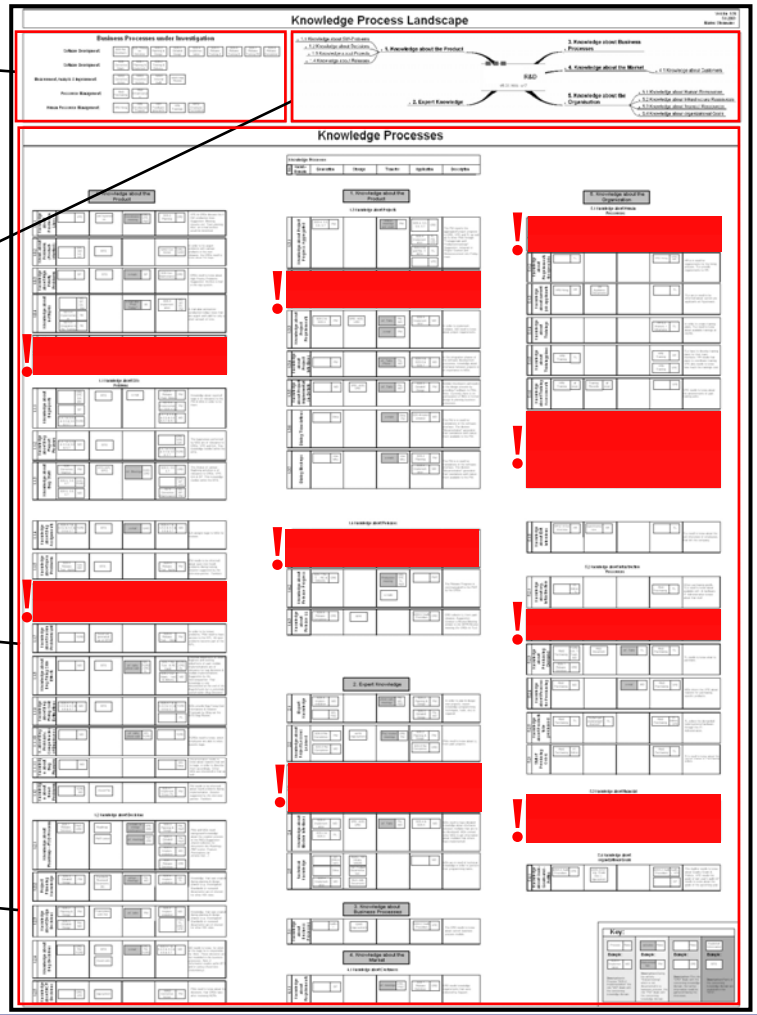
Case Study 1
Framework Application

Business Process Reference Model

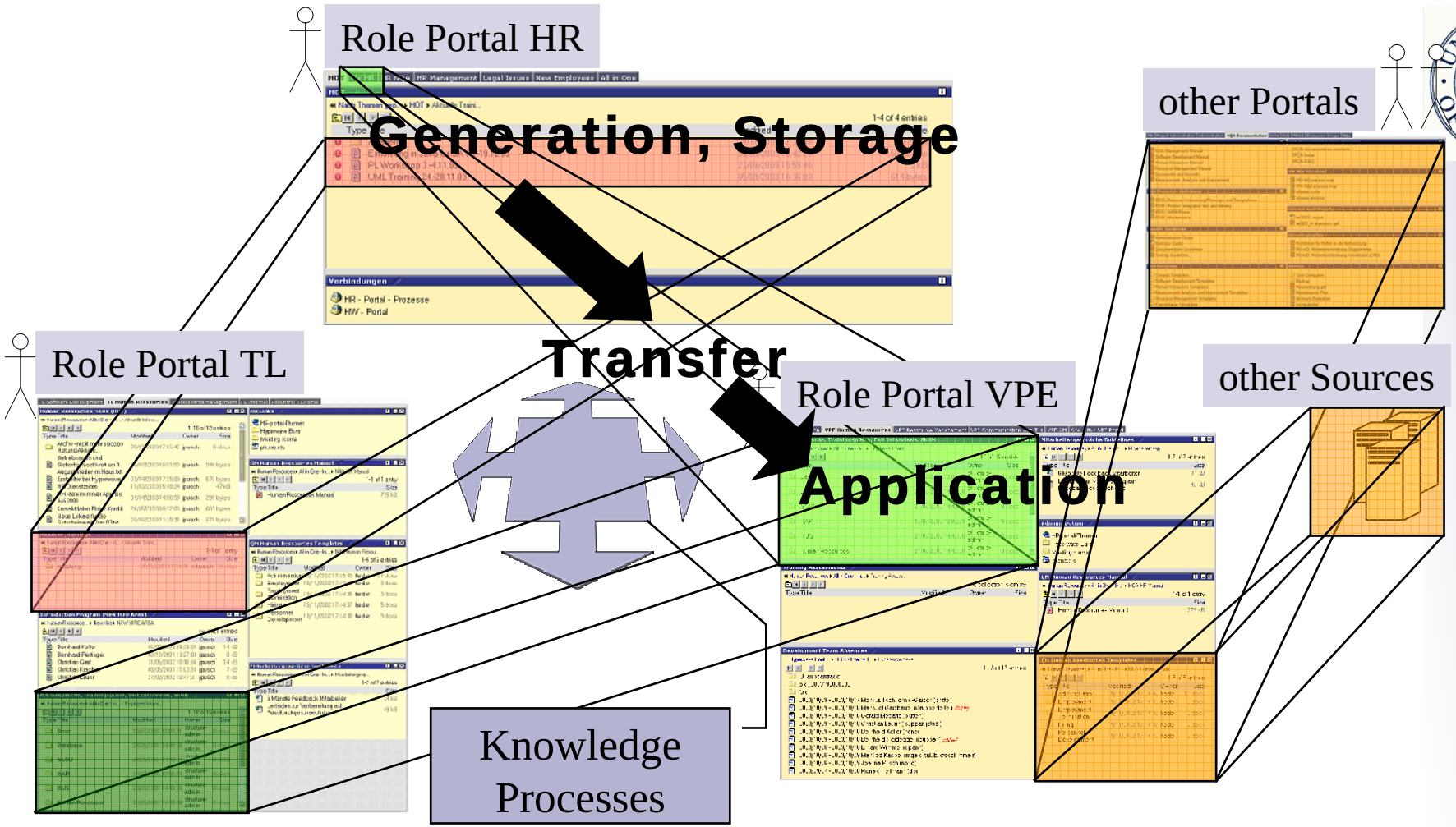
Knowledge Domain Reference Model

More than 50 Identified Knowledge Processes

Priorization and Filtering



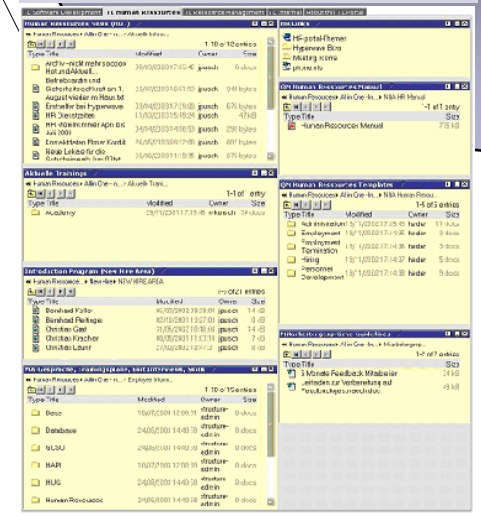
Case Study 1: Results
A Developed Knowledge Infrastructure



Case Study 1: Results
A Developed Knowledge Infrastructure

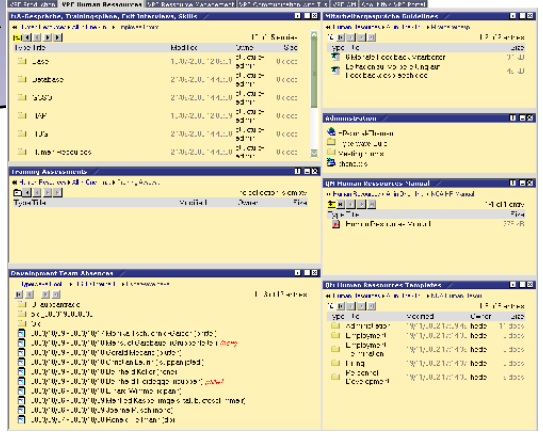
Role Portal HR

Role Portal Div. Mgr.



Hyperwave eKnowledge Infrastructure

Role Portal Top Mgt.



Objectives:

- Improve environments
- Enable role-oriented access
- Enable autonomous routing
- Standardize the execution
- Increase transparency

Challenges

- Matching of Reference Elements
- Model Merging
- Scalability / Managing Complexity of Models
- Managing Modeling Productivity
- Model Interpretation
- „Solution Generation“

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KM Maturity Models - The KPQM Model

[Paulzen02, based on CMM, CMMI]

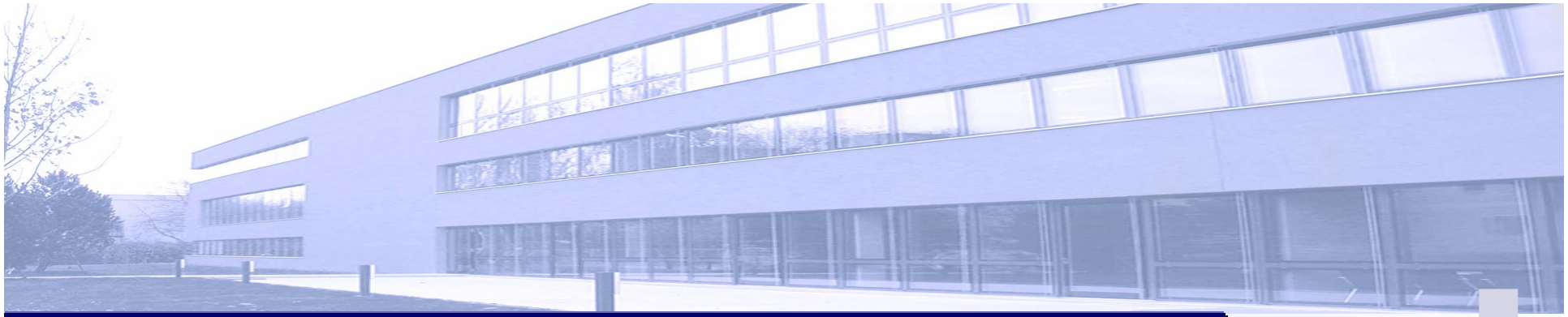
Maturity Stage	Description
1 - Initial	The quality of knowledge processes is not planned and changes randomly. This state can be best described as one of chaotic processes.
2 - Aware	Awareness for knowledge processes has been gained. First structures are implemented to ensure a higher process quality.
3 - Established	This stage focuses on the systematic structure and definition of knowledge processes. Processes are tailored to react to special requirements.
4 - Quantitatively Managed	To enhance the systematic process management, measures of performance are used to plan and track processes.
5 - Optimizing	The focus of this stage is on establishing structures for continuous improvement and self-optimization.

Industrial Relevance
B-KIDE and KnowFlow

- KnowFlow represents a further development of B-KIDE and
- A Strategic Professional Service of the Know-Center

> **<u>Vision:</u> KnowFlow** represents a **Solution** for the **Identification and Visualization** of **Knowledge Flows** in Organizations based on **Employee Interviews** and **Graph-based Analysis Reports**

- Ongoing development driven by the *Know-Center* and a *spin-off company*



Discussion

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