Lecture 04:

KM Tasks and Methods

Learning objectives

Learners should

- understand what practically can be done in an organization under the “roof” of KM
- be able to distinguish the main activity levels of KM in practice and also to explain explicit actions on each level
- become familiar with the relationships between practical measures and theory which is represented by concepts and frameworks
- know methods and techniques that can support KM tasks in practice
- be able to explain the process of knowledge transfer and sharing in detail based on different transfer models and to compare the model characteristics

Content

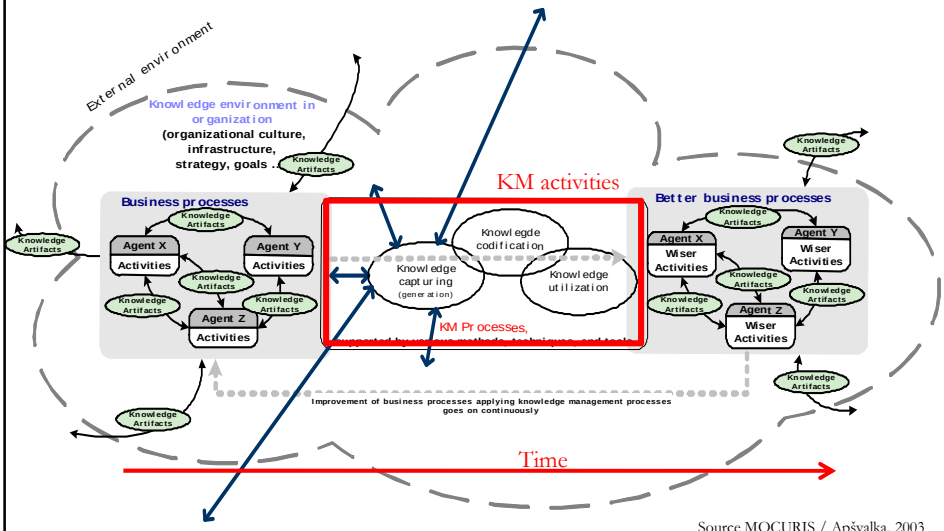
- Introduction and Preliminary Remarks
- Knowledge-centered Perspective
- Management Activities and Methods
- Interaction-centered Perspective - Transfer and Sharing of Knowledge
- Summary

(1) Introduction and Preliminary Remarks

Knowledge Management Tasks are derived from …

- a concept, framework or a theoretical approach, definitions of KM …
- practically by the way KM is understood (education or experience of people involved)
- the selected form of “institutionalization” (centralized vs. decentralized responsibility)
- project goals
- ad hoc as reaction to upcoming knowledge problems …

Role of KM activities in organizations

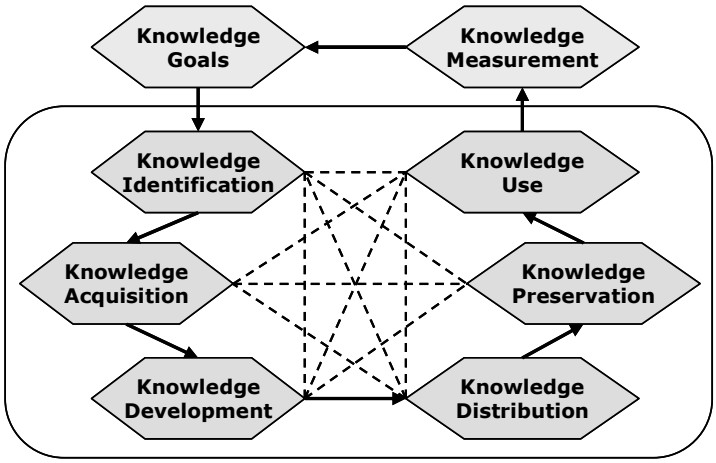


Source MOCURIS / Apšvalka, 2003

Getting started

- Starting point of systematic KM activities should be the Vision and Mission of the organization
- KM should meet the business objectives of the organization
- There are at least 3 levels of activities
  - Knowledge-centered activities
  - General management activities
  - Transfer Processes and interaction-centered activities

Knowledge-centered activities



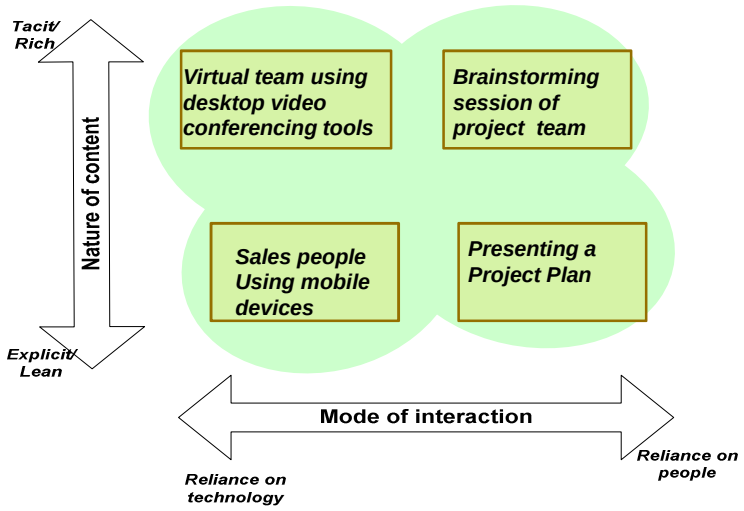
General Management

- At least five key areas for management activities can be identified:
  - Leadership and organization
  - Technology
  - People
  - Processes
  - Culture

Corporate Culture as a critical Factor

- Designing a culture of openness and readiness to learn is imperative for KM.
- It is necessary to create a climate in which employees volunteer their creativity and expertise, managers need to look beyond the traditional tools at their disposal: finding ways to build trust and develop fair processes.
- gatekeepers are needed to facilitate the flow of information and knowledge – but also reward systems and incentives.

Knowledge Transfer and Interaction



(2) Knowledge-centered Perspective

Knowledge Processes

- basic knowledge process:
  - Identify
  - Create / develop
  - Explicate / Codify
  - Store
  - Sharing / diffusion
  - Apply

Knowledge Process "Identify"

- Initial crucial step of the knowledge process
- Critical knowledge needed to build the core competencies of the organization is identified
- Knowledge gaps in the organization are identified in this step

Knowledge Process – Create / Develop

- Addresses knowledge gaps through knowledge conversion and generation of new knowledge
- Many ways to create new knowledge:
  - Individual level
  - Team level
  - Organizational level

Knowledge Process – Knowledge Codification / Explication

The aim of knowledge codification is to put organizational knowledge into a form that makes it accessible to those who need it.

Possible forms of codified knowledge

- Documented knowledge
- Mapped knowledge
- Modeled knowledge
- Knowledge codified in systems

MOCURIS

Knowledge Process – Store

- Collection and preservation of organizational knowledge
- Various forms of storage
- Organized for easy retrieval

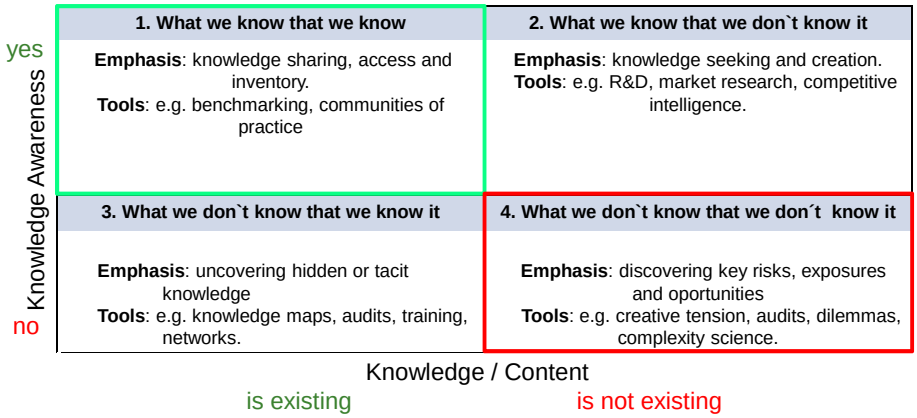
Knowledge Process – Sharing / Diffusion

- Regular and sustained exchange of knowledge
- Mutual trust and benefit help foster a culture of sharing
- Technology can be used to enhance sharing

Knowledge Process – Apply / Use

- The use and reuse of knowledge in the organization
- Translates knowledge into action
- Knowledge only adds value when it is used to improve products and services

Knowledge Awareness vs. Knowledge Availability



(3) Management Tasks and Methods

Knowledge Management Types

- Competency Management
- Knowledge Sharing
- Competitive Knowledge Management

Classification of Methods and Techniques

Methods supporting the diffusion and usage of knowledge

- Lessons Learned
- Best Practice Sharing
- Story Telling/Learning History

Techniques for knowledge representation

- General Techniques for organizing Knowledge
- Knowledge maps
- Ontologies
- Process modeling

Methods for Planning and Organization

- Knowledge intensity portfolio
- Knowledge management profile
- Knowledge Asset Road Map
- Balanced Score Card

Knowledge objectives – knowledge topics on different management levels

Role

- The knowledge related translation of the business objectives

Function:

- Establishing a consistent direction of the organizational knowledge management and learning processes
- Benchmark for the success or failure of knowledge management
- Guide future actions of KM

	Structures	Activities	Behavior
Normative management	Corporate constitution • Legal structures, impacts on KM (confidentiality rules, etc.)	Corporate policy • Knowledge mission statement • Identification of critical knowledge areas	Corporate culture • Sharing knowledge desired • Spirit of innovation • Communication intensity
Strategic management	Organizational structures • Conferences, reporting lines, R&D organization, circle of experience Management systems • EIS, Lotus-Notes	Programs • Cooperation • Establishing core competences • Informatization	Problem behavior • Alignment to knowledge objectives • Problem orientated knowledge identification
Operative management	Organizational processes • Control knowledge flows Disposition processes • Knowledge infrastructure • Provision of knowledge	Tasks • Knowledge projects • Implementation of an expert database • CBT introduction	Performance and cooperation behavior • Sharing knowledge • Knowledge in action

Methods for promoting exchange and diffusion of knowledge – **Lessons Learned**

- Lessons Learned is a kind of formalized learning from *mistakes.* Formally conducted lessons learned sessions have to be held. The purpose of documenting lessons learned is to share and use knowledge derived from experience to
  - promote the recurrence of desirable outcomes
  - preclude the recurrence of undesirable outcomes
- Benefits
  - Learning effects (learning from mistakes)
  - Becoming sensitive to problems
  - Identification and conservation of knowledge
- Limits
  - Portability of knowledge and especially experience is questionable
  - Usage of documented experiences not guaranteed

Methods for promoting exchange and diffusion of knowledge – **Best Practice (Sharing)**

Especially *good* solution for a problem (project), which is exemplary because of its excellence Best practice is used to describe the process of developing and following a standard way of doing things that multiple organizations or organizational units can use.

Best practices are used to maintain quality and can be based on self-assessment or benchmarking. Best practice is a feature of accredited management standards such as ISO 9000 and ISO 14001.

Benefits

Experiences don't get lost

Solutions are not developed twice

Usage of existing experience

Limits

Portability to other persons and problems is questionable

Usage of documented best practice cases is not guaranteed

Methods for promoting exchange and diffusion of knowledge – **Story Telling**

Storytelling is a proven way to pass on insights and experiences, since most people are receptive to stories. Knowledge is transferred in form of stories in (distributed) groups, between groups and different organizational units

- Benefits
  - Procurement of complex circumstances in a concrete context
  - Less prone to criticism of doubters
  - Spread of Best Practices and Lessons Learned
  - Good for Promotion of a brand or products
- Limits
  - Imprecisions and ambiguities allowed
  - Context for target audience is missed

Techniques for Knowledge Representation – **Organising Knowledge**

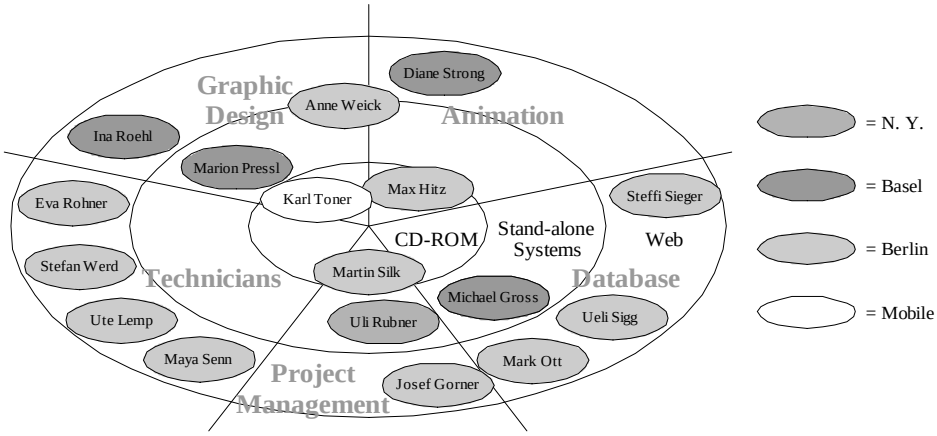
- Glossary / vocabulary - list of terms & their meaning; synonyms, homonyms
- Taxonomy - classifications or sub-groups of content; user-oriented organizing scheme
- Indexes - cross-references to sources & locations
- Catalogues - collection of indexes

Techniques for Knowledge Representation – **Knowledge Maps**

Knowledge maps offer various possibilities for a structured (graphical) representation of the knowledge of an organization

- Benefits
  - Transparency (who got something respective what not)
  - Knowledge maps are a navigational aid to find relevant knowledge sources (information or people) and simplify search
- Limits
  - Don't map knowledge directly, only the way to it
  - Knowledge diffusion and usage not guaranteed
  - Acceptance problem of technical solution (yellow pages)

Knowledge Source Map



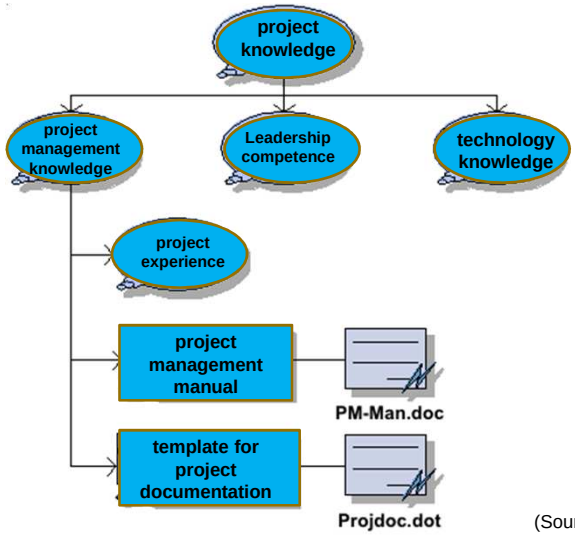
(source Eppler 2003, 195)

Knowledge Asset Map

Consultants	IT	Strategy	M&A	Accounting	Marketing
Tinner, Jeff					
Borer, André					
Brenner, Carl					
Deller, Max					
Ehrler, Andi					
Gross, Peter					
...					

(source Eppler 2003, 195)

Knowledge Structure Map



(Source: Allweyer 1998, 42)

Overall rating of knowledge maps

The different knowledge maps can be combined (e.g. knowledge structure map may be extended by a knowledge source map)

Advantages / benefit:

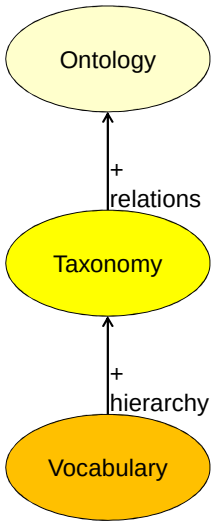
- Transparency of knowledge sources
- Fast access to expert knowledge
- Classification and documentation of new knowledge becomes easier
- Tacit knowledge becomes visible

Disadvantages / effort:

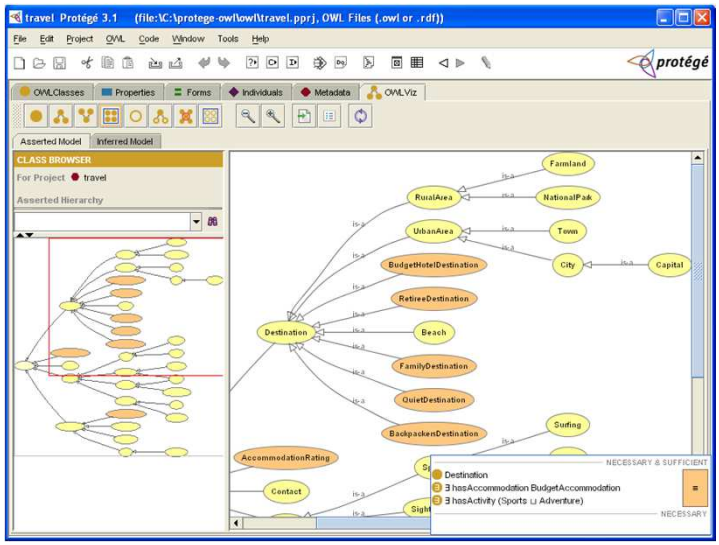
- Creation and updating is expensive
- Knowledge maps can't show more than two dimensions
- dynamic aspects of knowledge not covered

Techniques for Knowledge Representation – **Ontology**

- An Ontology defines the terms used to describe and represent an area of knowledge. Ontologies include computer-usable definitions of basic concepts of the domain and also the relationships among them
- Ontology can be understood as Specification of a conceptualization whereby Conceptualization is an Abstract view on a part of the world, that is mapped for a particular purpose
- Conceptualization contains …
  - Concepts (e.g. car, jaguar, person, animal)
  - Naming by terms (e.g. "Auto", "car", "coche")
  - Relations (e.g. a Jaguar is a car)
  - Contexts (e.g. vehicle, biology, operating system)
  - Instances (e.g. "Jaguar X150")
  - Rules (e.g. transitivity, enumeration, property value)



Ontology Example: Visual Representation



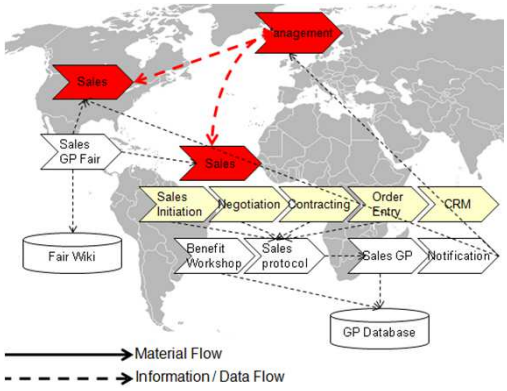
http://protege.stanford.edu/

Techniques for Knowledge Representation – **Process Modelling**

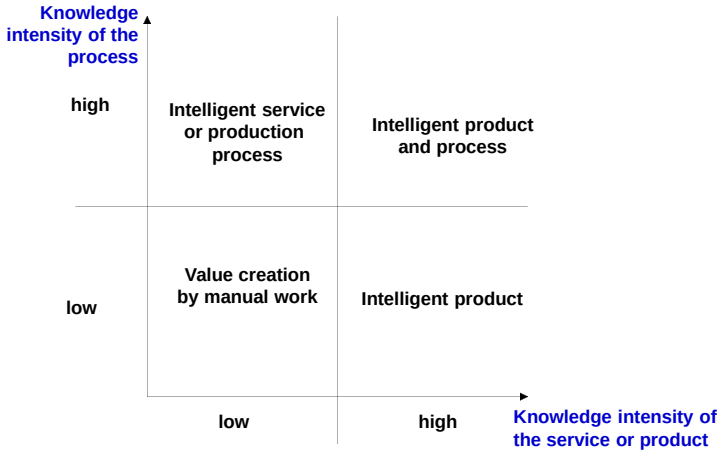
A Business Process is a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer. A business process has a goal and is affected by events occurring in the external world or in other processes (Hammer & Champy, 1993)

Process Modeling in the context of Knowledge Management

- Design and specify processes
- Align them with business context
- Document knowledge used in the processes
  - Develop knowledge descriptions / standards
  - Incorporate collaborators
  - Develop problem specifications
- Integrate KM activities / knowledge processes



Methods for Planning and Organisation – **Knowledge Intensity Portfolio**



Methods for Planning and Organisation – **Knowledge Asset Road Map**

	Year 1	Year 2	Year 3
Business Objectives	More effective product innovation More effective capture and use of knowledge about customer		
Leading projects and actions	Redesign-project	Novel products project	
Knowledge management enablers	Design rationale	Multi-disciplinary design teams New materials R&D project	
	Helpdesk System	Co-operative design tool	Data mining
Knowledge related processes	Preserve Design K.	Preserve and share customer knowledge	
Knowledge assets			

(source Macintosh et al. 1998)

Methods for Planning and Organisation – **Knowledge Management Profile**

Knowledge Acquisition			
Focus:	internal	__X_____	external
Search:	opportunistic	_____X____	focused
Problem-solving			
Location:	individual	__X_____	team
Procedures:	trial and error	___X_____	heuristics
Activity:	experiential	__X_____	abstract
Scope:	incremental	__X_____	radical
Dissemination			
Processes:	informal	__X_____	formal
Breath:	narrow	_____X__	wide
Ownership			
Identity:	personal	X_____	collective
Ressource:	specialist	X_____	generalist
Storage / memory			
Representations:	tacit	_____X__	explicit

(source Jordan/Jones 1997)

Methods for Planning and Organisation – **Balanced Scorecard (BSC)**

The 4 original perspectives by Kaplan/Norton

(Kaplan/Norton, 1996)

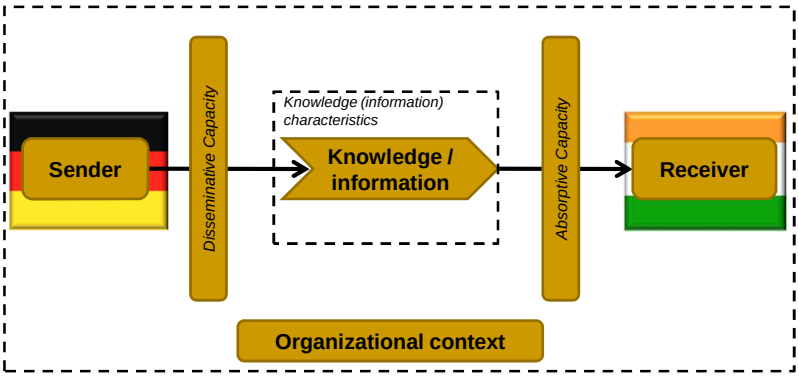
Knowledge Scorecard – adapted version of Balanced Scorecard

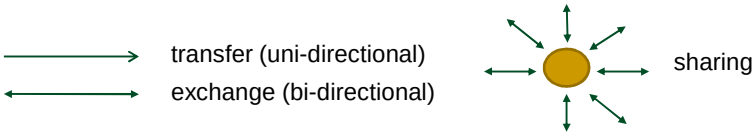
Possible Perspectives for KM:

- **Knowledge creation or development perspective**
- **Knowledge usage perspective**
- **Knowledge spreading / diffusion perspective**
- **Knowledge retention / storing perspective**

(4) Interaction-centered Perspective - Transfer and Sharing of Knowledge

General model of knowledge (resp. information) transfer





Basic Processes

Knowledge Transfer
Knowledge Exchange
Knowledge Sharing

	Person	Group	Organisation
Person			
Group		from team A to team B	
Organisation			

Information Culture

- information culture can be defined as the values, attitudes and behaviours that influence the way employees at all levels in the organization sense, collect, organize, process, communicate and use information

Knowledge Sharing / Knowledge Exchange

Knowledge Sharing is an even more complex process than Information Sharing and usually includes multiple exchange of information as (a) subordinated process(es).

The sharing and exchanging of knowledge goes beyond the 'receipt' of information followed by an internalization process for the receiver. New knowledge elements need to be integrated into the receivers own, already existing, individual knowledge base and memory. This usually requires the development of a common context and building a mutual understanding between the parties involved.

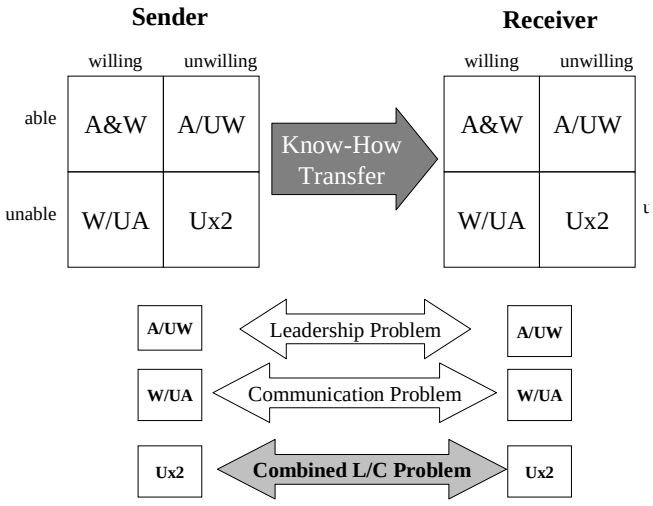
Sharing Mechanisms:

- Common access to explicit, recorded knowledge
- Directory of experts
- Mentor / coach / apprentice
- Joint projects - resource lending
- Meetings - in person, virtual

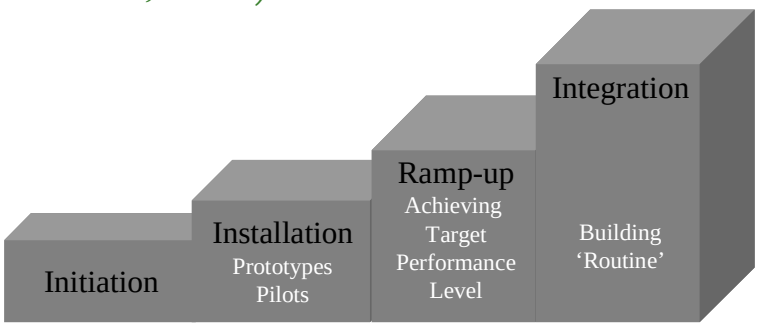
Selected Knowledge Exchange / Transfer Models

1. Know-How transfer model (Boeglin)
2. Szulanski's stepwise model of Best Practice Transfer
3. Richter's Transfer Potential Absorption model
4. Zander & Kogut's Transfer and Imitation model
5. Internal Knowledge Transfer model (Krogh)

Boeglin's model of Know-How Transfer



The Step-Model of Best-Practices Transfer (Szulanski, 1996)

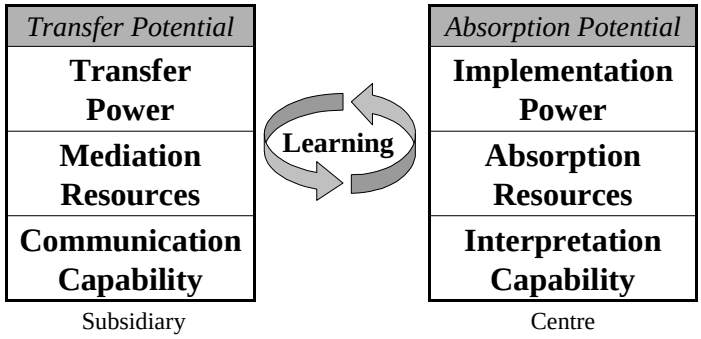


Factors influencing Best Practices Transfer

Influence Factors	*Characteristics*	*Significant?*
Knowledge Characteristics	**Ambiguity**	Yes(*)
	Unproven	No(*)
Sender Qualities	Lack of **Motivation**	No
	Perceived as **unreliable**	No
Receiver Qualities	Lack of **Motivation**	No
	Insufficient **Absorptive Capacity**	Yes
	Insufficient **Retentive Capacity**	No
Context	**Barren** Organisational **Context**	No
	Arduous **Relationship**	Yes

(Szulanski, 1996)

Richter's Absorption Potential Model



(Richter 1995)

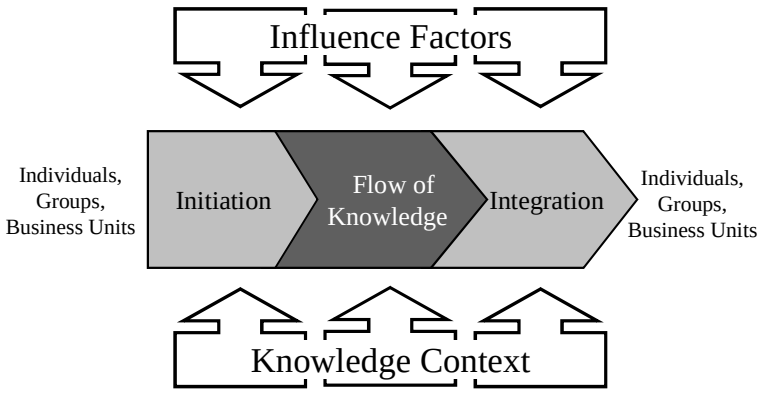
Overview of the factors that influence speed of transfer and early imitation risk (Zander and Kogut, 1995)

Influence Factors	*Hypothesis*
Codifiability; how far can the required knowledge be articulated into software and/or documents	The higher codifiability, the faster the transfer and the higher the risk of early imitation
Complexity; the number of capabilities and competencies required	The higher the complexity, the more difficult (and slow) the transfer and imitation
Teachability; how easy/hard it is to disseminate, teach and demonstrate the required knowledge	The easier it is to teach, the faster the transfer – and imitation
System Dependence; the effort required to assemble the necessary groups of experts and the technology needed	The higher the systems dependence, the longer before the transfer can be effected and imitations could be started.
Parallel Development; the number of competitors engaged in similar transfer and/or product development projects	The higher the competitive pressure, the faster the transfer and the earlier the risk of imitation
Product Observability; how easy is it to 'reverse engineer' the product in question or reconstruct it from published Information?	The more observability, the sooner imitations may be expected; (this factor does not apply to internal transfers)

Overview of the factor structure of the Zander and Kogut transfer model

Internal Transfer	Imitation
Codifiability	Codifiability
Complexity	Complexity
Teachability	Teachability
Systems Dependence	Systems Dependence
Parallel Development	Parallel Development
	Product Observability
	Proprietary vs. Outsourcing
	Key Employee Turnover
	Continuous Development

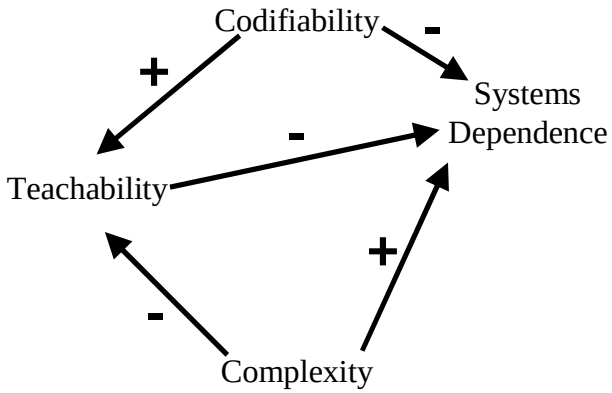
Phase structure of organisational knowledge transfer



(Krogh, 1998)

Factors Supporting or Inhibiting Information and Knowledge Sharing

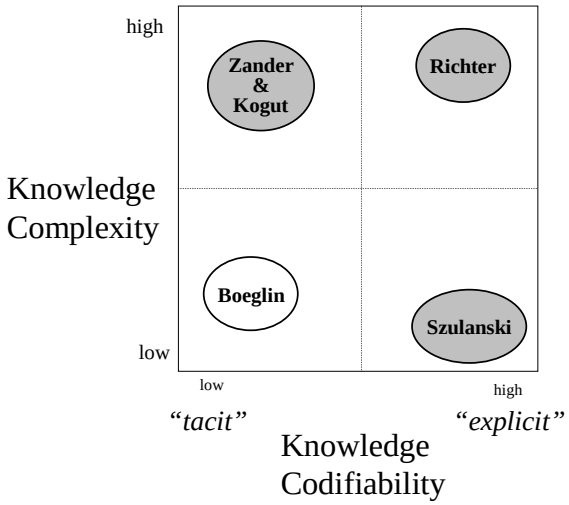
- individual factors
- collective factors
- context
- physical environment, layout
- technical factors, compatibility
- organisational aspects (e.g. power, hierarchy)
- cultural influences
- economic aspects
- legal factors



Notation:

A-> + ->B: the more of A, the more of B

A-> - ->B: the more of A the less of B



Utility of the knowledge transfer and sharing frameworks for knowledge of differing types of complexity and codifiability

(5) Summary

Challenges of Knowledge Diffusion

- No internal learning communities
- Lack of learning and knowledge sharing culture
- Lack of workplace trust and psychological safety
- Arrogance of people who believe they already know everything, so why try?
- Lack of communication within an organization
- Negativity and unrealistic expectations

Obstacles for Effective KM

People	*Management*	*Structure*	*Knowledge*
• Inertia to change • Too busy- no time to learn • No discipline to act • Lack of motivation • Constant staff turnover • Transferring knowledge to new people • Teaching older employees new ideas	• The fear of giving up power • The difficulties of passing on power • Challenging traditional company style • Imposed constraints • Lack of understanding about formal approaches	• Inflexible company structures • Fragmented organizations • Functional silos • Failure to invest in past systems	• Extracting knowledge • Categorizing knowledge • Rewarding knowledge • Understanding knowledge mgt. • Sharing between key knowledge groups • Making knowledge widely available

Characteristics of Successful KM Activities

- Relevant Information and knowledge is widely disseminated throughout the organization. Wherever it is needed, it is accessible.
- Knowledge is Accessible at a fast rate of speed.
- Virtual communities of practice share what is known independent of time zones and other geographic limitations.
- Collaboration to support continuous innovation and new knowledge creation.

Recommended readings

- Probst, G.; Raub, St.; Romhardt, K. (2000): Managing Knowledge. Building Blocks for Successful Managing Knowledge. Building Blocks for Success. Wiley & Sons, 2000.
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