



# Global Knowledge Management

## Conceptual foundation

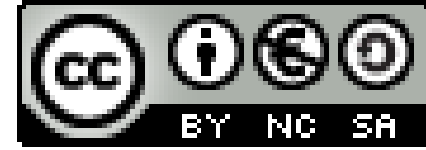
**Jan M. Pawlowski**  
Autumn 2013



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## Collaborative Course Development!

Thanks to my colleagues Prof. Dr. Markus Bick and Prof. Dr. Franz Lehner who have developed parts of the Knowledge Management Course which we taught together during the Jyväskylä Summer School Course 2011.

### Prof. Dr. Markus Bick (Introduction, CEN Framework)

ESCP Europe Campus Berlin

Web: <http://www.escpeurope.de/wi>

### Prof. Dr. Franz Lehner (Assessment, Process Integration)

University of Passau

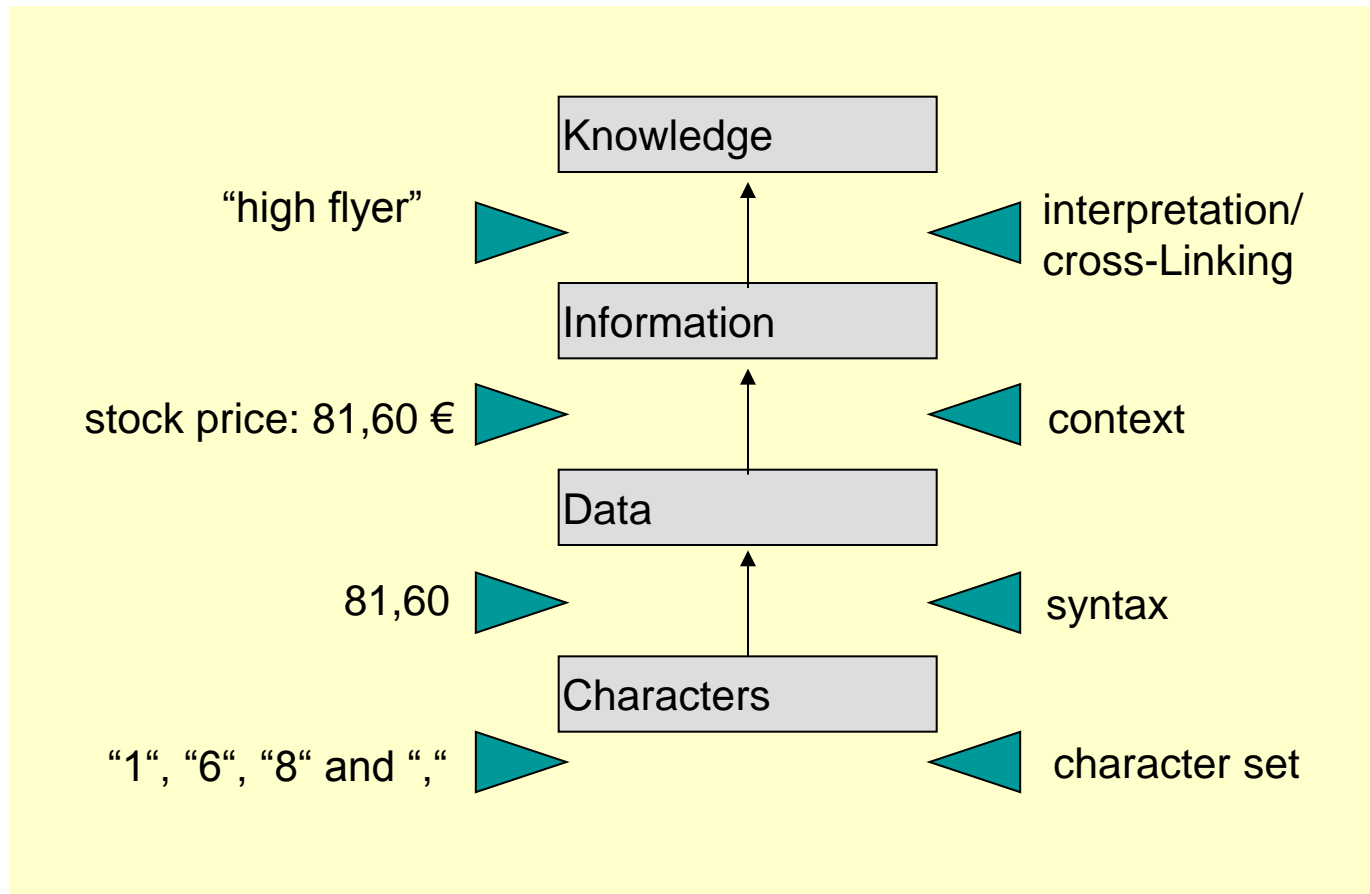
Web: <http://www.wi.uni-passau.de/>



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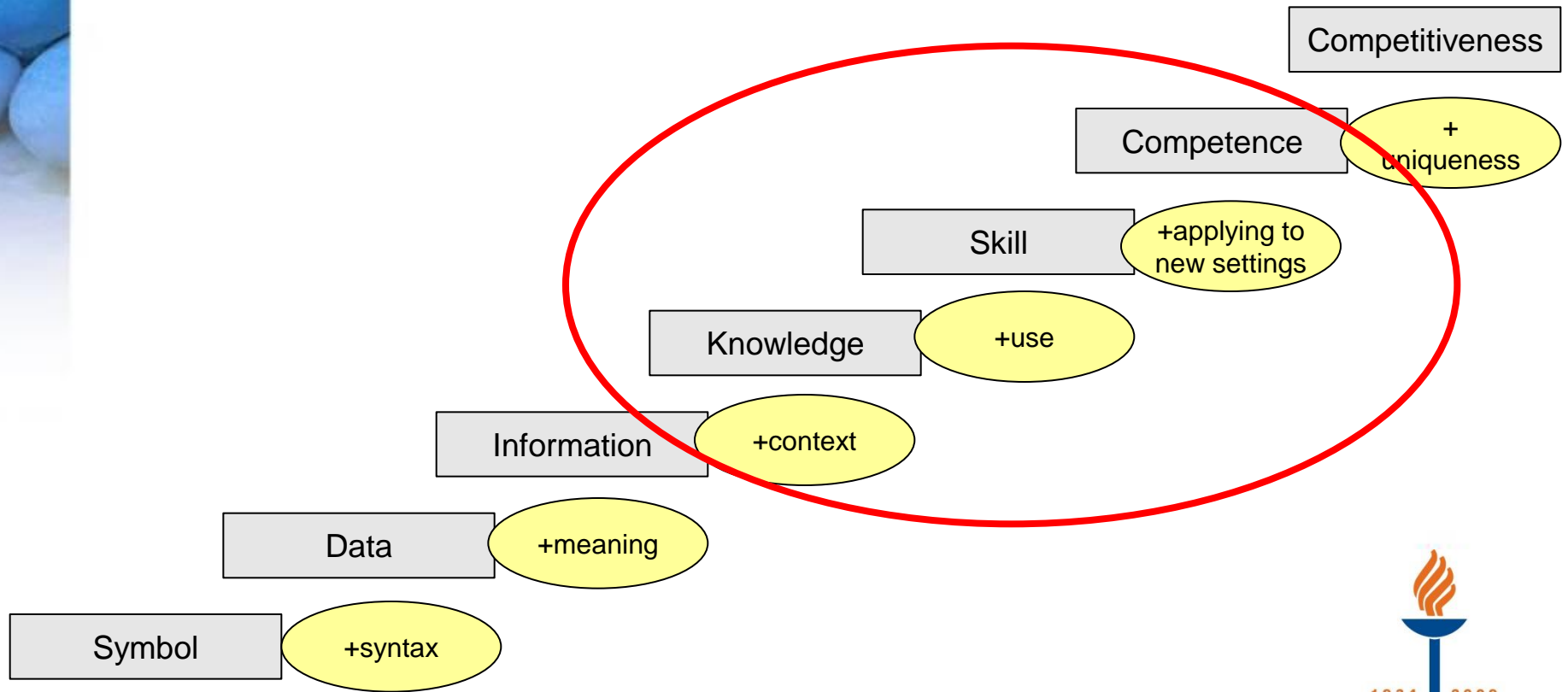
# Types and Classes of Knowledge



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# Related Concepts (modified, North, 1998)



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# Definition – Knowledge

*“Knowledge comprises all **cognitive expectancies** – observations that have been **meaningfully organized, accumulated and embedded in a context** through experience, communication, or inference – that an individual or organizational **actor** uses to interpret situations and to generate activities, behavior and solutions no matter whether these expectancies are rational or used intentionally.”* (Maier 2002)

*“A set of **data and information** (when seen from an Information Technology point of view), and **a combination** of, for example know-how, experience, emotion, beliefs, values, ideas, intuition, curiosity, motivation, learning styles, attitude, ability to trust, ability to deal with complexity, ability to synthesize, openness, networking skills, communication skills, attitude to risk and entrepreneurial spirit to result in a valuable asset which can be used to **improve the capacity to act and support decision making.**”* (CEN 2004)



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# Definition – Knowledge Management

*“Knowledge management is defined as the management function responsible for the regular **selection, implementation and evaluation of goal-oriented knowledge strategies** that aim at improving an organization’s way of handling knowledge internal and external to the organization in order to **improve organizational performance**. The implementation of knowledge strategies comprises all **person-oriented, organizational and technological instruments** suitable to dynamically optimize the organization-wide level of competencies, education and ability to learn of the members of the organization as well as to develop collective intelligence.”* (Maier 2002)

*“Planned and ongoing **management of activities and processes for leveraging knowledge** to enhance competitiveness through better use and creation of **individual and collective knowledge resources**.”* (CEN 2004)



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# Types and Classes of Knowledge

## Declarative Knowledge:

- knowing that



## Procedural Knowledge:

- knowing how



[Source:  
<http://kartta.jkl.fi>]

- Position, room
- Lecture time
- Traffic rules

- Navigation
- Lecture behavior
- Traffic behavior



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# Types and Classes of Knowledge

## Organizational Knowledge:

- consists of the critical intellectual assets within an organization

## Individual Knowledge:

- knowledge of each person (employee)



Building cars....

Steering / using  
production facilities

[Picture Source:  
<http://commons.wikimedia.org>]



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# Types and Classes of Knowledge

## Explicit Knowledge:

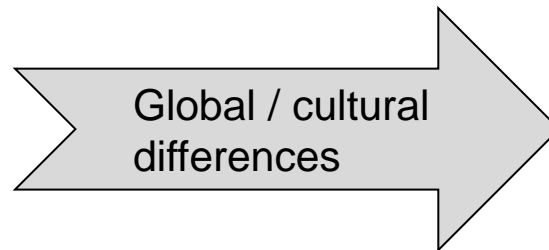
- codified knowledge that can be easily shared and understood

- Traffic rules
- Driving instructions
- ...

## Implicit / Tacit Knowledge:

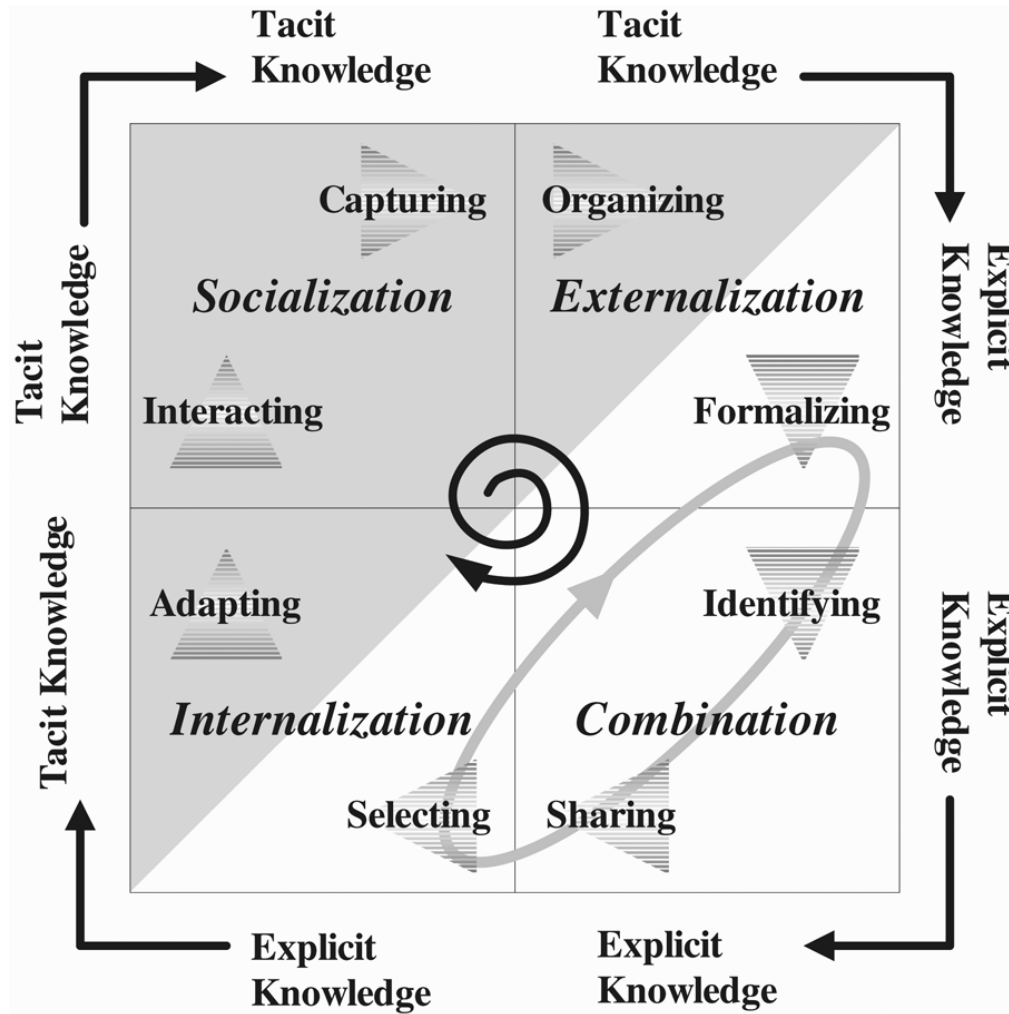
- knowledge that people carry in their minds and is, therefore, difficult to access

- Traffic customs
- Interpretations
- ...



[Picture Source:  
<http://commons.wikimedia.org>]

# SECI Model (Nonaka & Takeuchi, 1996)



- Socialization
- Externalization
- Combination
- Internationalization



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# SECI Processes

- ❏ Socialization: Transfer tacit knowledge from one person to another person
- ❏ Externalization: Translate tacit knowledge into explicit knowledge in a repository
- ❏ Combination: Combine different bodies of explicit knowledge to create new explicit knowledge
- ❏ Internalization: Extract the explicit knowledge from a repository that is relevant to a particular person's need and deliver it to that person where it is translated into tacit knowledge
- ❏ Cognition: Apply tacit knowledge to a business problem



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

**Basic Processes**  
Knowledge Sharing  
Knowledge Exchange  
Knowledge Transfer



# Selected Knowledge Exchange Models

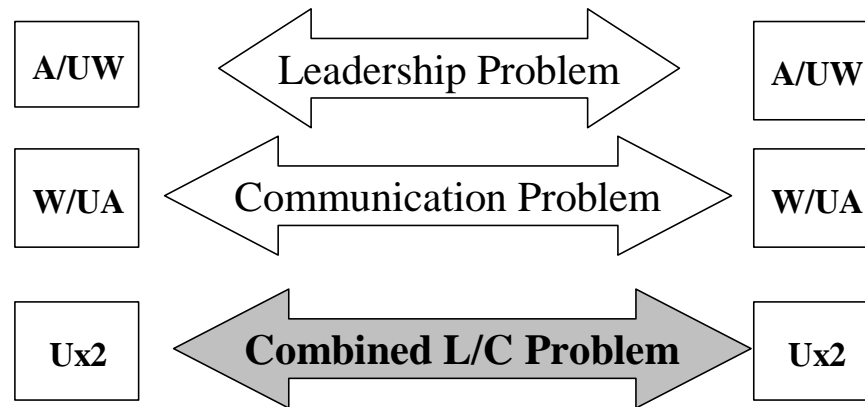
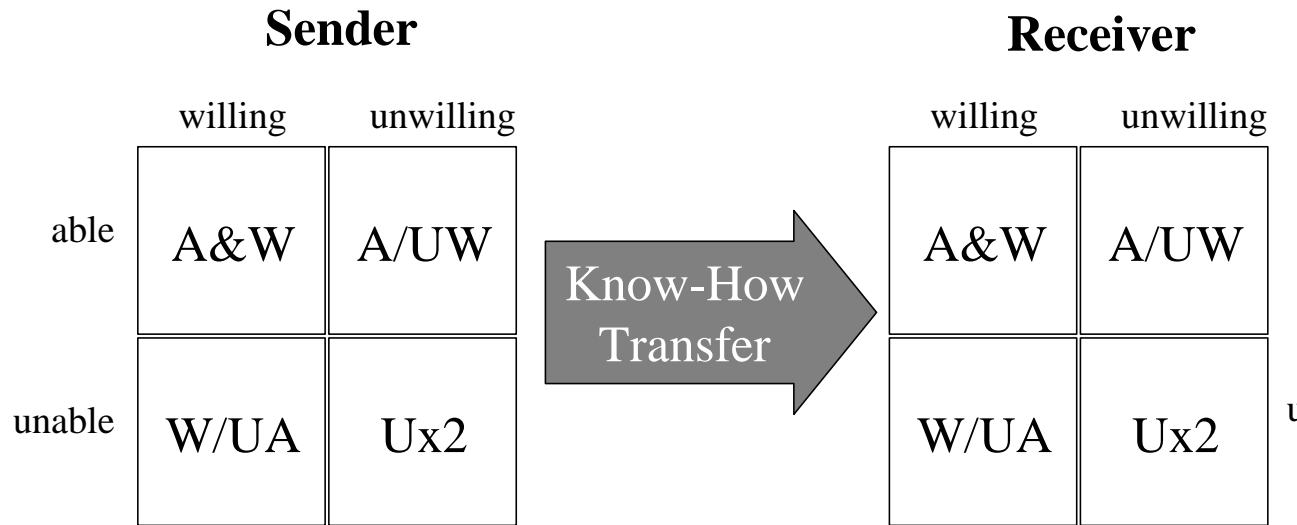
- Know-How transfer model (after Boeglin)
- Szulanski's stepwise model of Best Practices Transfer
- Internal Knowledge Transfer model (Krogh)
- Richter's Transfer Potential Absorption model
- Zander & Kogut's Transfer and Imitation model



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# Boeglin's model of Know-How Transfer

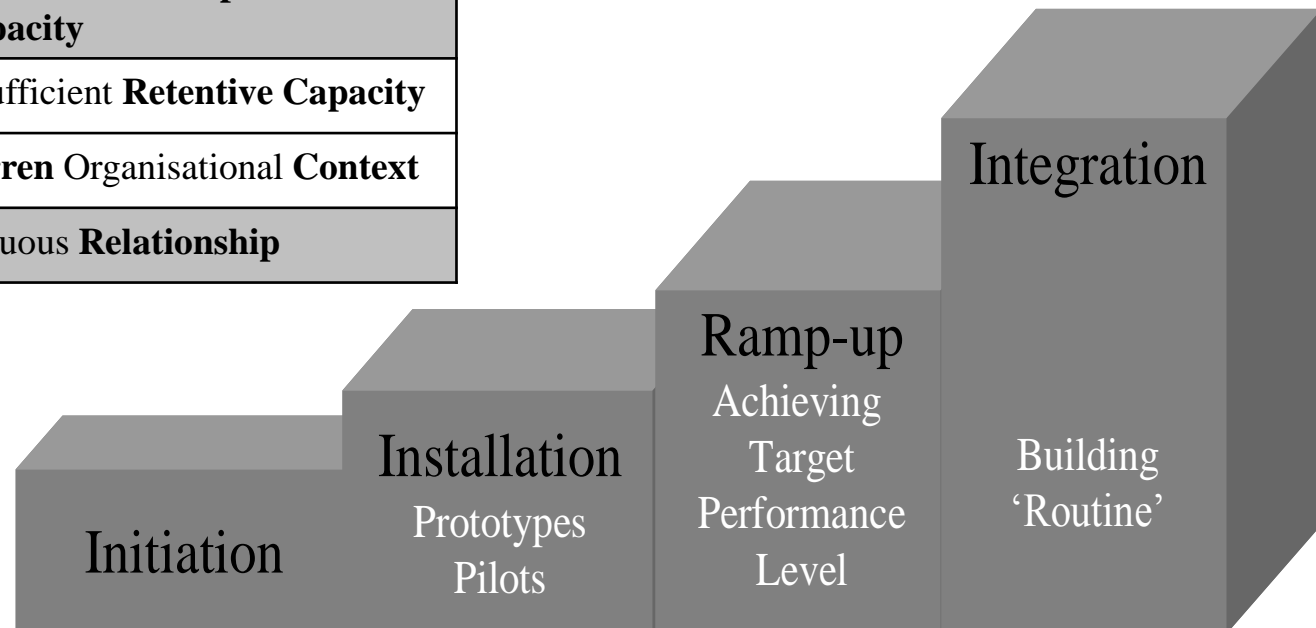


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# The Step-Model of Best-Practices Transfer (Szulanski, 1996)

<i>Influence Factors</i>	<i>Characteristics</i>
Knowledge Characteristics	<b>Ambiguity</b>
	<b>Unproven</b>
Sender Qualities	Lack of <b>Motivation</b>
	Perceived as <b>unreliable</b>
Receiver Qualities	Lack of <b>Motivation</b>
	Insufficient <b>Absorptive Capacity</b>
	Insufficient <b>Retentive Capacity</b>
Context	<b>Barren Organisational Context</b>
	Arduous <b>Relationship</b>



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

<i>Influence Factors</i>	<i>Hypothesis</i>
<b>Codifiability</b> ; 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
<b>Complexity</b> ; the number of capabilities and competencies required	The higher the complexity, the more difficult (and slow) the transfer and imitation
<b>Teachability</b> ; 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
<b>System Dependence</b> ; 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.
<b>Parallel Development</b> ; 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
<b>Product Observability</b> ; 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)



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

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



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# Some history of KM

- Historical Roots: Durkheims school of sociology
- Late 70's, early 80's: simple structural theories, knowledge representation (AI), group remembering (Hartwick et al.)
- Late 80's, 90's: Transactive Memory System (Wegner et al.), Organisational Memory (Walsh/Ungson), OM Architecture (Stein, Stein/Zwass), Technical Approaches of OM
- Late 90's: Growing Importance of Knowledge Architectures (eg. Borghoff/Pareschi et al.)
- -2011: Human-technology balance, social aspects, social KM, ...



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# Review of KM Field (1)

- We find a lot of companies with no or little conscious KM-activities – KM “happens“ (nevertheless the question arises in which situations an active conscious knowledge management is above simply letting things happen).
- The practically necessary activities do not refer to shared knowledge, resp. do not require the measures recommended in KM literature (theory – practice gap)
- KM-activities are intentionally introduced but are not known to all (resp. not to all that should know about them). Especially in bigger organisations uncoordinated KM-activities can be the consequence. TKM in this sense can mean a reduction of knowledge deficits about KM-activities.
- KM activities concentrate on information sharing, while knowledge processes and knowledge sharing are neglected (nevertheless they exist)



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# Review of KM Field (2)

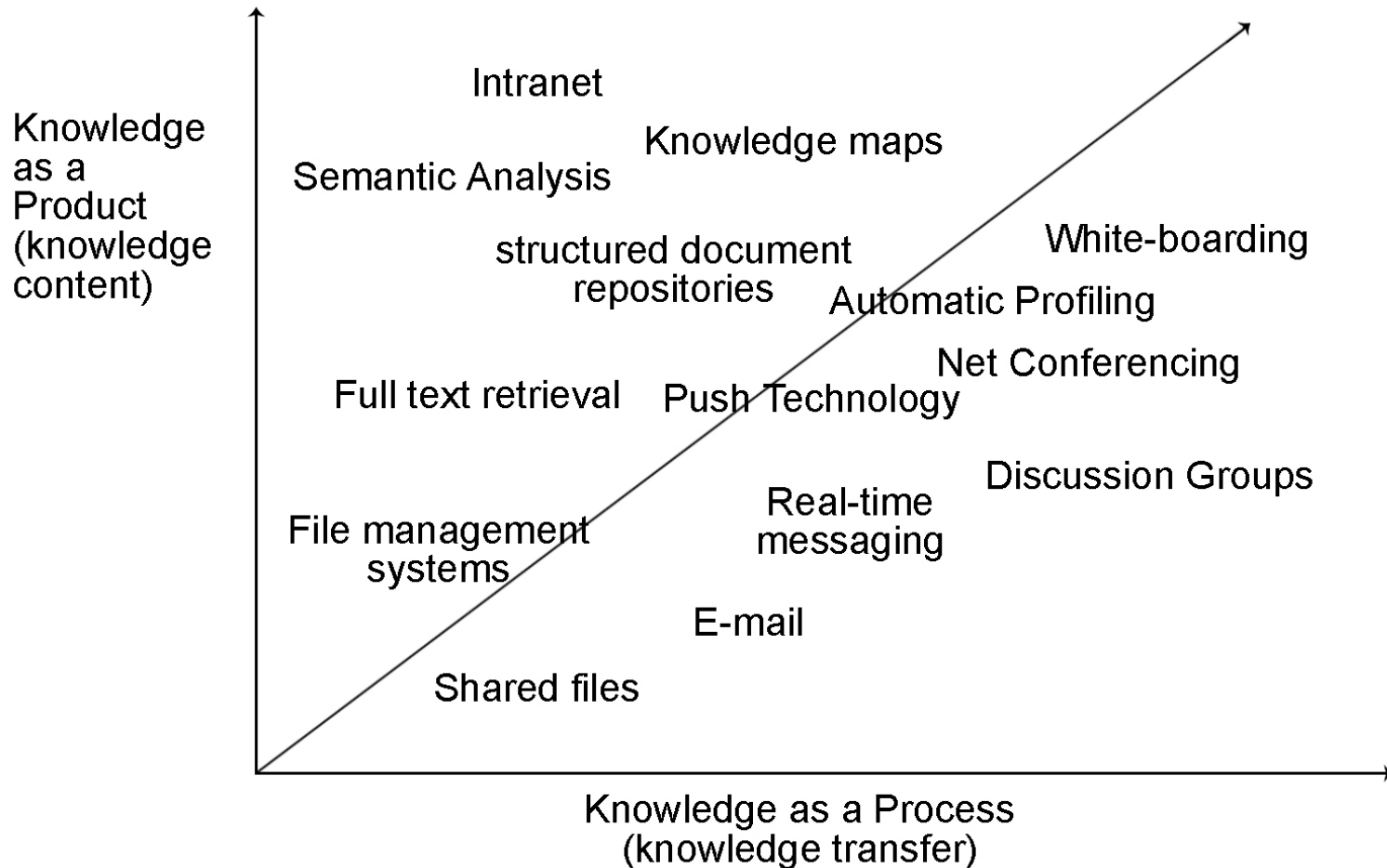
- Consequences of existing but not explicitly communicated goals of knowledge management (hidden agenda of KM resp. Management)
- essential KM-processes are understood as “autopoietical” (self-organising)
- significance of hidden knowledge structures; i.e. informal structures and relationships, which have a specific meaning and which are actually more important than formal structures and tasks (under control of KM)
- Lack of consciousness about the knowledge with business relevance (as a consequence it is not clear what should be addressed by KM)
- Explicit KM activities are related to the business activities – and contrast to hidden and not communicated expectations (e.g. related to unexpected events)



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# Types and Classes of Knowledge



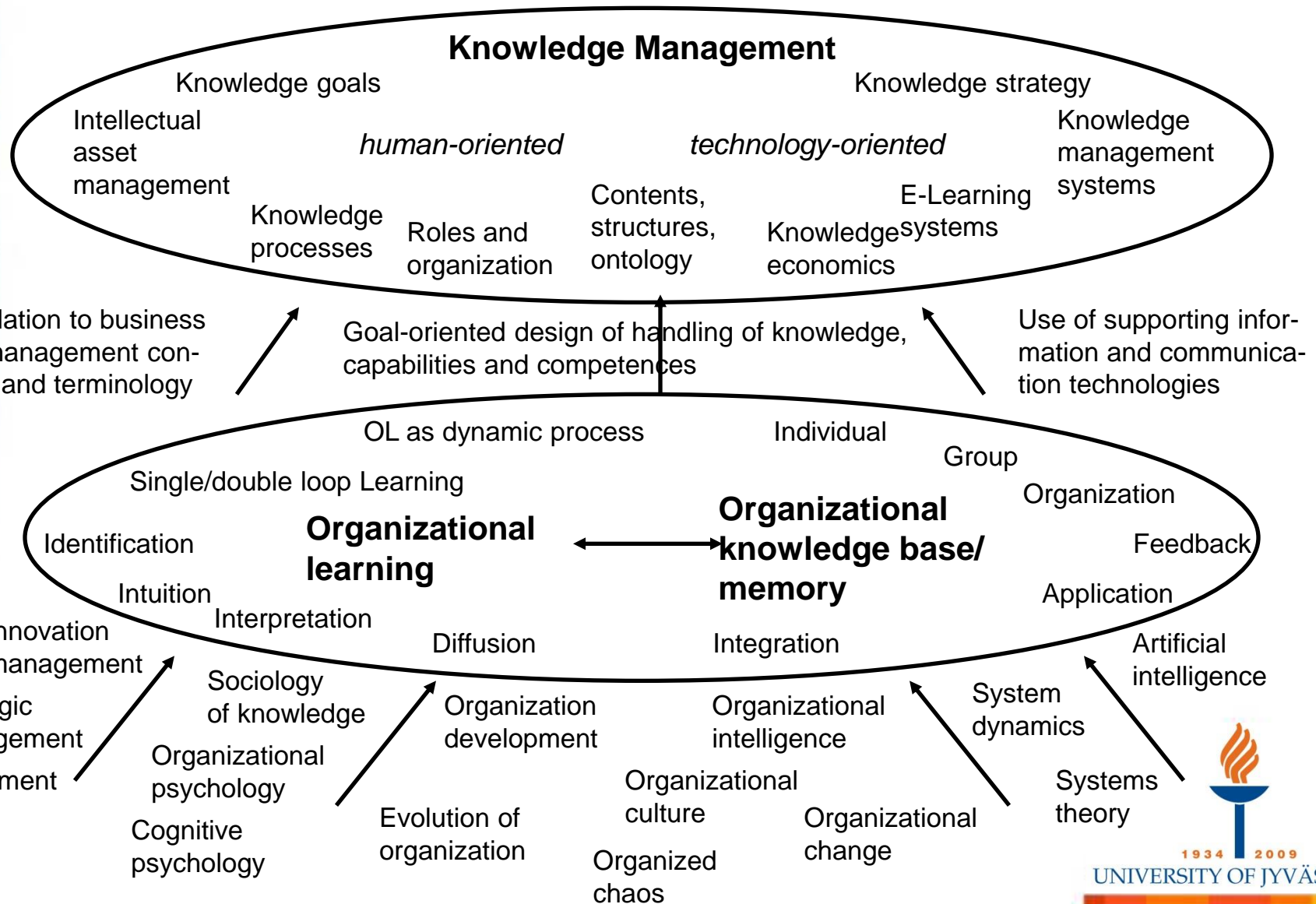
(Mentzas et al. 2001)



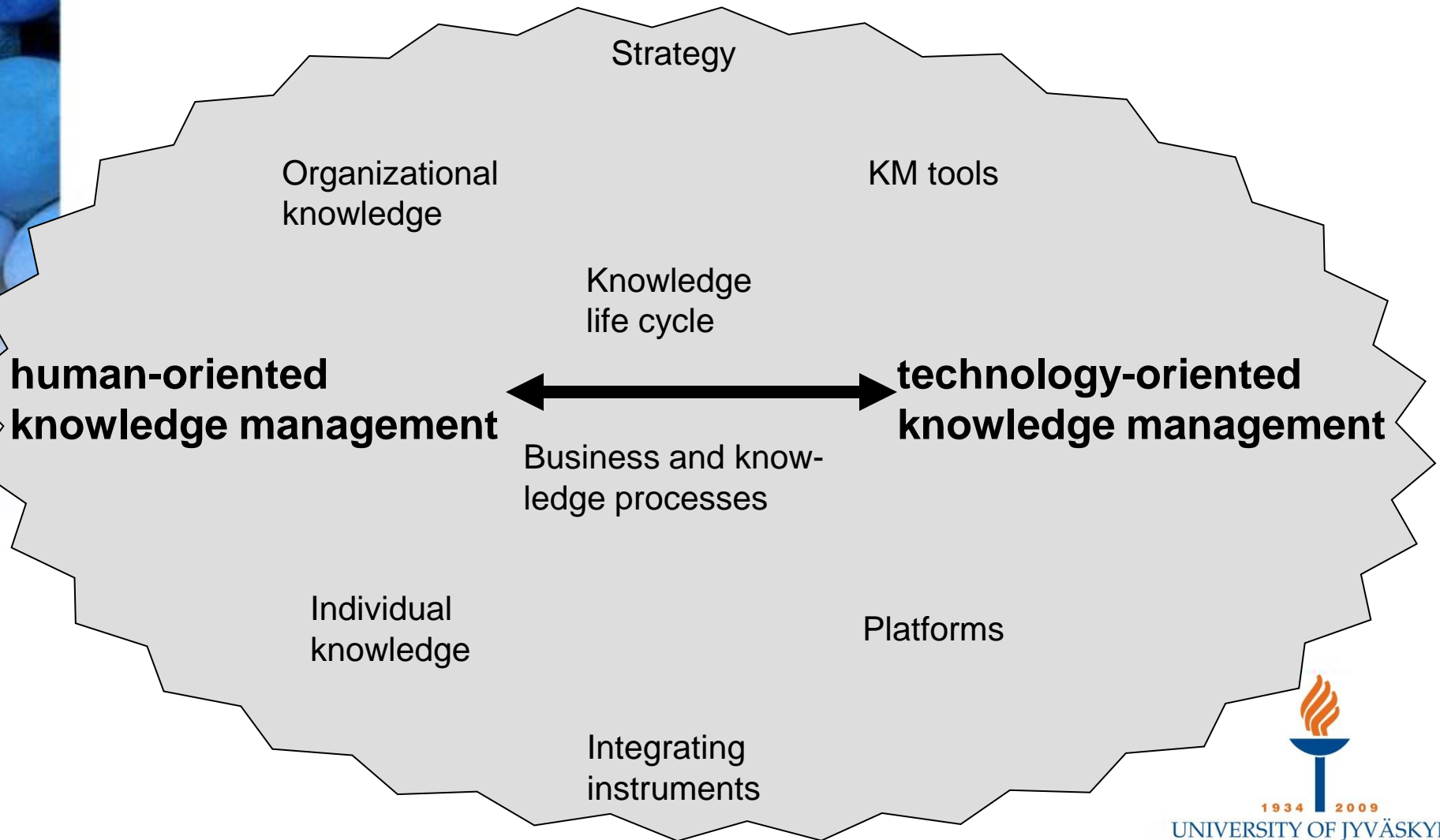
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# Conceptual Roots (Maier, 2002)



# Conceptual Roots



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# Conceptual Roots: Knowledge Management Approaches

	human-oriented	technology-oriented
knowledge management approach	personalization	codification
comprehension of knowledge	knowledge is contained in peoples head	documented knowledge; detached from employees
actors/roles	knowledge worker, networks, and communities of interest	authors, experts, knowledge broker
knowledge managements systems (KMS)	interactive knowledge managements systems	integrative knowledge management systems
prior knowledge management system functions	communication and co-operation, locating of experts, community-support	publication, structuring and integration, search, presentation and visualization of knowledge elements



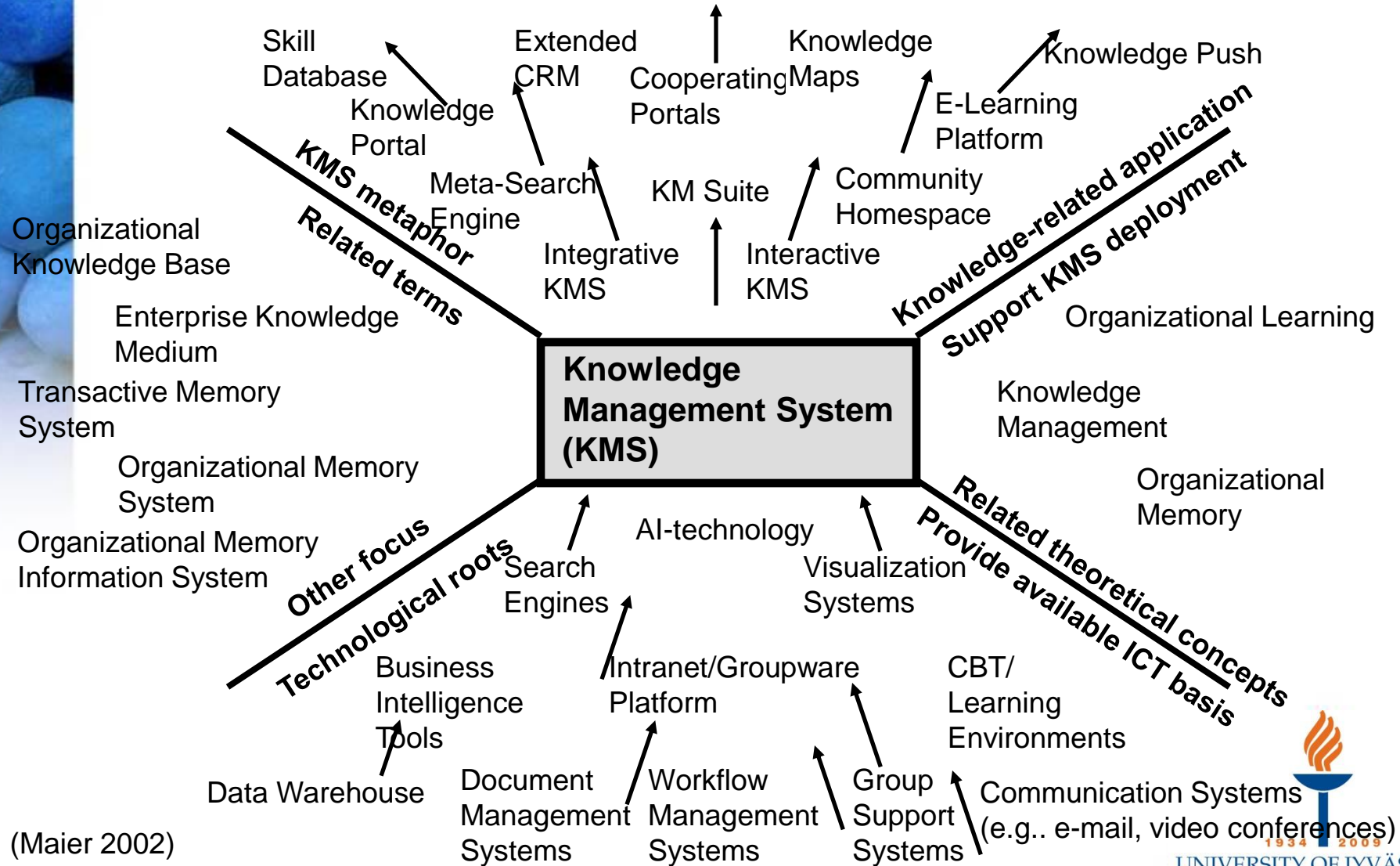
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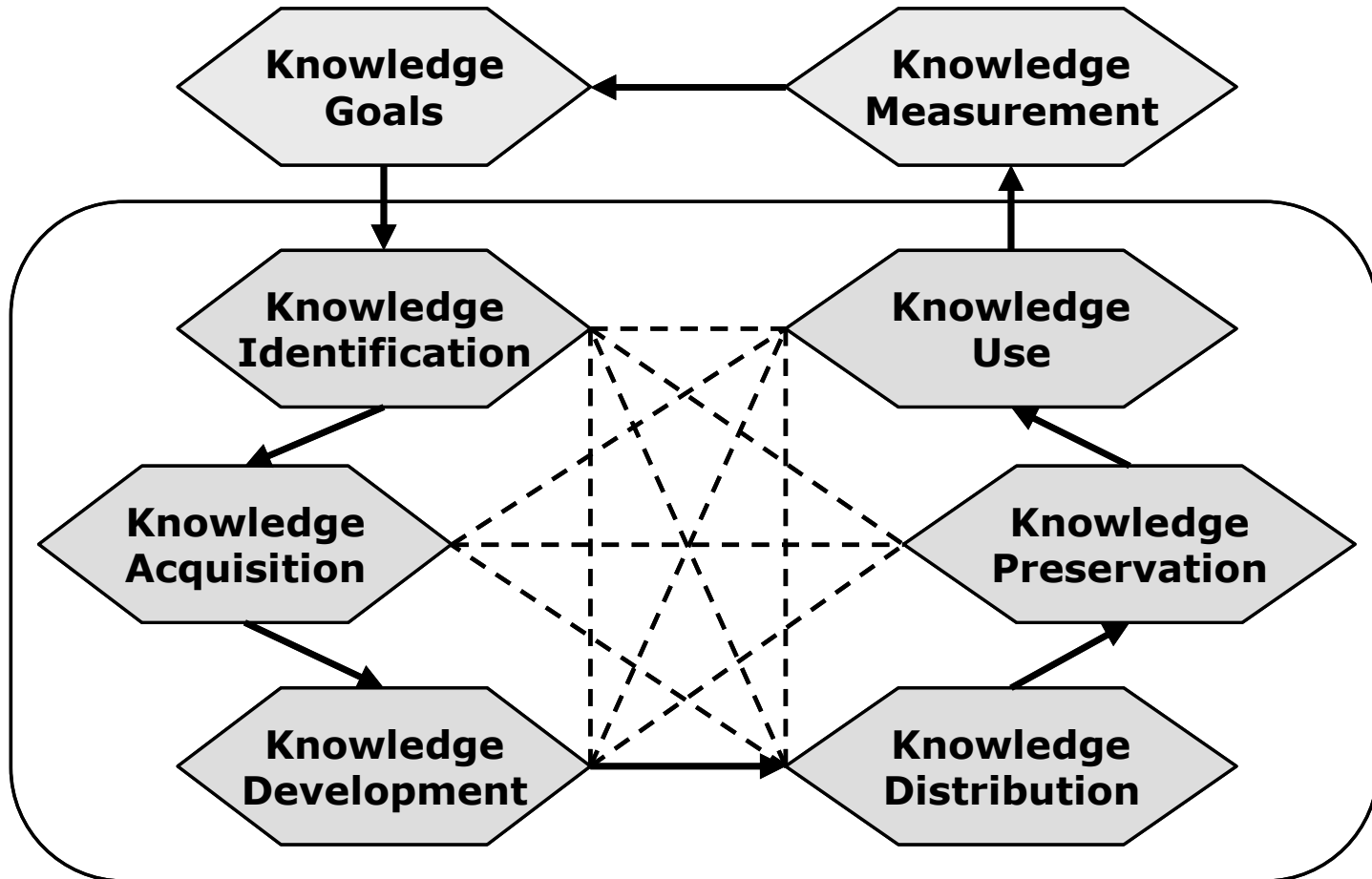


# Knowledge Management Systems

## Technological roots and influences



# Conceptual Roots: KM activities



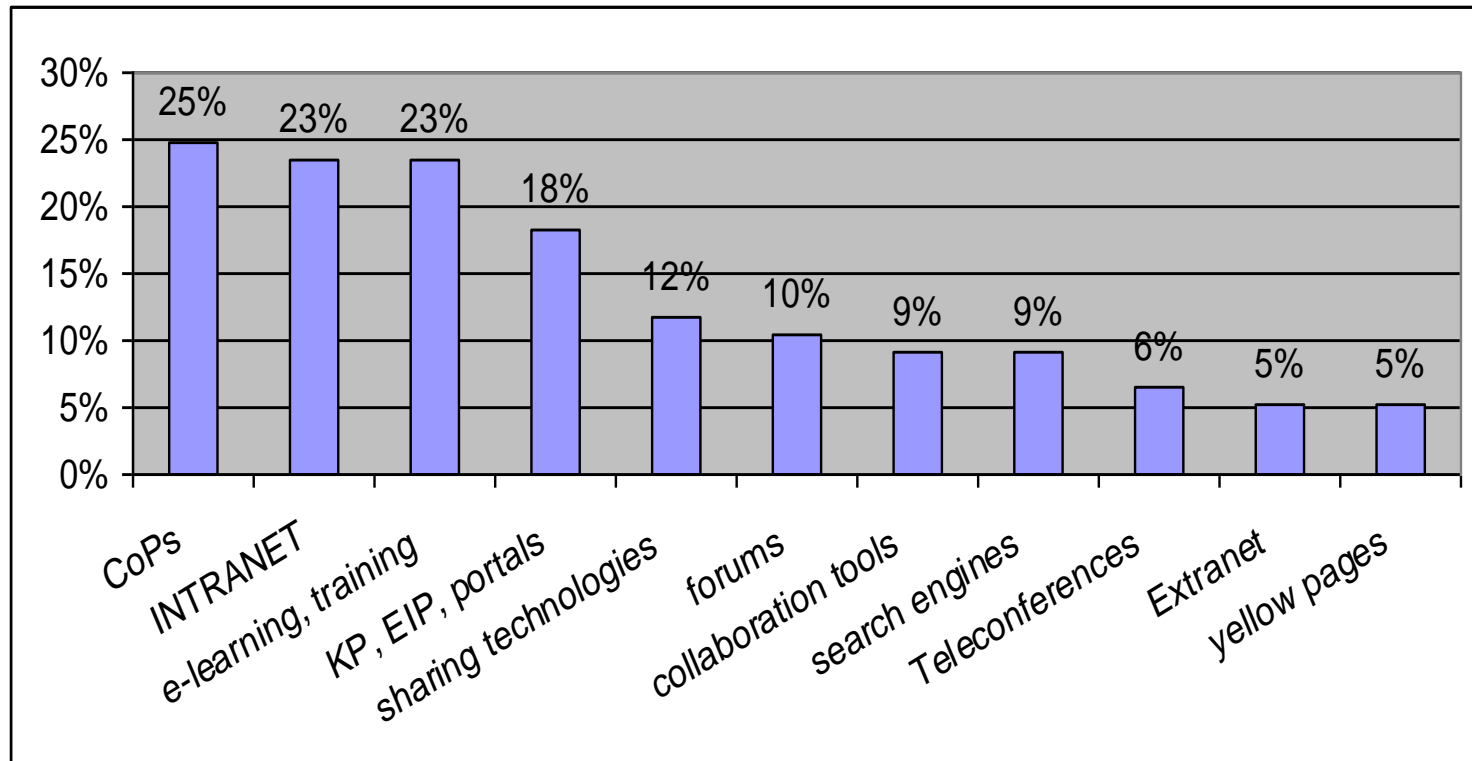
(Probst & Romhardt 2000)



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# Practical implementation of technologies for knowledge management



**Technologies for knowledge sharing**



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# Samples of KMS

- Many types of systems
- Issues
  - Integration in Processes
  - User acceptance
  - Usage frequency
  - Multilinguality
  - ...



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# Samples...Content Management

The screenshot shows the OpenKM web interface within a Windows Internet Explorer browser window. The browser's address bar displays the URL <http://demo.openkm.com/OpenKM/frontend/index.jsp>. The interface includes a menu bar (File, Edit, View, Favorites, Tools, Help), a search bar, and a toolbar with various icons. On the left, a 'Taxonomy' sidebar shows a tree structure with folders: 'okm:root', '123', 'PR', 'accounts', and 'mio'. The main content area displays a file list for the path '/okm:root/'.

Name	Size	Update date	Author	Version
123		31-10-2011 09:28:39	user0	
PR		30-10-2011 08:40:10	user0	
accounts		31-10-2011 11:50:19	user1	
mio		30-10-2011 19:03:04	user9	

Below the file list, there are tabs for 'Properties', 'Notes', 'Security', 'Staples', 'Contacts', 'Activity log', 'Forum', and 'Technology'. The 'Properties' tab is active, showing details for the selected folder:

- UUID: 7466c910-2811-4a73-a97f-97004fa47d64
- Name: okm:root
- Parent: okm:root
- Created: 30-10-2011 08:00:59 by system
- Subscribed: No
- Folders: 4
- Documents: 0
- Mails: 0
- URL: [icon]
- WebDAV: [icon]

At the bottom of the interface, there is a status bar showing 'Connected as user1' and '0 Bytes'. The Windows taskbar at the very bottom shows the system tray with various icons and the system clock.

<http://demo.openkm.com/>

# Samples...Content Management

Demo Knowledge Base - Home - Windows Internet Explorer

http://www.kbdemo.com/

File Edit View Favorites Tools Help

Google Search More >> Sign In

News & Announcements

- [eagle news](#) | Posted on: Mon, Oct 31, 2011 at 2:31 PM
- [Test News](#) | Posted on: Thu, Oct 13, 2011 at 5:23 PM
- [Documentation demo](#) | Posted on: Mon, Oct 10, 2011 at 1:04 PM
- [New State Added: Arkansas](#) | Posted on: Fri, Sep 9, 2011 at 2:50 AM

Browse Categories

Select Category

<b>Account Management</b> (31) All the questions related to your account are answered in this category.	<b>Android</b> (3)	<b>biobanking</b> (3) root of site
<b>Corporate Branding</b> (2) Contains logo identity, colors, fonts	<b>Corporate Identity Guidelines</b> (2)	<b>CustomTest</b> (2) A category for Custom field testing
<b>Embedded Linux</b> (4) Linux OS for embedded application	<b>Essentials</b> (3) Early adoption and education documents	<b>Great People</b> (5)
<b>Informatica</b> (4)	<b>Installation v11</b> (1) G v11 Installation	<b>IT Tools</b> (1)
<b>Medical Topics</b> (3)	<b>Outlook</b> (2) All articles relating to Outlook issues.	<b>Pre-sales Questions</b> (12) This category contains all the commonly asked pre-sales questions.
<b>Sample Category Abbey</b> (2)	<b>Sofico implementation</b> (5)	<b>Troubleshooting</b> (29) This section provides troubleshooting information for software users.
<b>Video Conferencing</b> (2) How to set up a P2P VC	<b>טוֹרוֹרָת</b> (0) אורחון וטוֹרוֹרָת	

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- [aşk sözleri kelimeleri](#)  
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- [How to link Documents within KB](#)  
Added on Thu, Oct 27, 2011 at 7:51 AM in *CustomTest*

Top Rated Articles

- [What Is Organizational Knowledge Management?](#)

Internet 100%

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http://www.kbdemo.com/

# Social Software

- Umbrella of technologies under a fuzzy concept
- Easy way to spread, distribute, and disseminate information to a wide community
- Encourage people to dialogue and discourse
- Easy content creation and sharing
- Aggregating wisdom of the crowds
- Transparent



# Samples: Social Networks

Sosiaalinen media oppimisen tukena - sosiaalinenmedia oppiminen kansalaismedia demokratia viihd - Windows Internet Explorer

http://sometu.ning.com/

File Edit View Favorites Tools Help

Google Search More >> Sign In

Favorites Vahvista sähköpostiosoite... Sosiaalinen media oppimi... x

Home RSS Print Page Safety Tools ?

**Etusivu** Kutsu Oma sivu Jäsenet Keskustelut Ryhmät Tapahtumat Kuvia Videoita Opaste

Tervetuloa Sosiaalinen media oppimisen tukena, Jan Pawlowski!  
Voit suorittaa seuraavat toiminnot heti

**Kutsu ystäviä** **Lisää profiilivalokuva** **Lisää sisältöä**

Sometu on verkosto toimijoille joilla on kiinnostusta sosiaalisen median tuomien toimintamallien edistämistä oppimisessa.

**Klikkaa tästä alkuun**

**Aloita tästä**

**Jäsenet**

**SOSIAALINEN MEDIA OPPIMISEN TUKENA**

**Tule mukaan ja kutsu tuttavasi Sometuun!...**  
Sosiaalinen media on osallistumista ja vuorovaikutusta. Avoin Sometu-verkosto kokoaa ja yhdistää sosiaalisen media... oppimissoveluksista kiinnostuneita. [Sometu in English](#)...  
**Jos et ole vielä jäsen, rekisteröidy tästä...**  
Liity [ryhmiin](#) ja osallistu [keskusteluihin](#). >>Aloitusopastus...  
>>Perustietoja [wikissä](#) | >>Profiilikuva | >>Eroamin...  
>>Eroaminen | [Profiiliasetusten muuttaminen](#) | >>Pa...  
>>Palaute

Liity Sometu-verkkoihin! Klikkaa logoa.

facebook twitter SOMETU Qoiku

**Sometun Twitter-virtaa**

sometu: #sometu Matkatoimisto SoMen materiaali #dcl2011 konferenssissa 2.-3.2011 #seoppi /Pauliina <http://t.co/1ZZvIWbn>

sometu: RT @arongas: Nimi hukassa. Auta löytämään. #sometu #ITK2012 hakemus liveroolipeli koulumaailmassa <http://t.co/lr5DF05l>

sometu: Sometun Facebook-päivitykset on tänään laitettu menemään myös julkaisuun Twitterissä. / Pauliina <http://t.co/rYCXi8zo>

sometu: Mahdollista-bloqissa Open Government Data and People in Finland

**Jan Pawlowski**

Kirjaudu ulos

Saapuneet  
Hälytykset  
Ystävät - Kutsu  
Asetukset

**AVO-hanke**

Vuorovaikutus EU:lta

**Foorumi**

**Edu g.o - oppimisympäristö, mitä sille kuuluu?**  
Jäsenen Mirja Niskala aloittama: [Keskustelut](#) 2 tuntia sitten .

**Avoin työpaikka: Haetaan verkko-opetuksen tukihenkilöä läälikseen Helsinkiin**  
Jäsenen Marja Silenti aloittama: [Keskustelut](#) keskiiviikkona.

**Sosiaalinen media aikuiskoulutuksessa**  
12 vastausta  
Jäsenen Eija Kalliala aloittama: [Keskustelut](#). Viimeisin vastaus jäseneltä Eija Kalliala Lok 24.

**ITK ja TVT vielä kaukana perusopettajan arjesta?**  
7 vastausta  
Jäsenen Vesa Iloa

Sosiaalinen media oppimisen tukena Chat | 5 Online

Internet 100%

http://sometu.ning.com/



# Ready for Use?

- Is there management support in all parts of an enterprise?
- Does a system fit the users' work behavior?
- Does a system fit the purpose? What kind of knowledge needs to be shared?
- Are there incentives for knowledge sharing?
- Are there communication options fitting the users needs?
- ...



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# Ready for Global Use?

- Is the process clear, within and outside the organization?
- Are there clear procedures for inter-organizational knowledge exchange (who shares with whom?)
- Is the system multilingual?
  - Multilingual ontologies
  - Tag / Query translations
  - ...
- Are there communication options support multilingual communication (e.g. translation support, facilitation)?
- ...



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# Global aspects to KM

- ❏ **Coordination:** In international team work several problems such as time differences have to be taken into consideration and managed.
- ❏ **Communication:** Common ways of communication including language need to be agreed on.
- ❏ **Collaboration:** Team work has to be facilitated by providing suitable mechanisms and support.
- ❏ **Knowledge Management** including knowledge sharing and transfer is crucial to establish a common knowledge base of all team members
  - KM as a horizontal aspect!



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# Global aspects to KM (2)

## Challenges

- Lack of Trust
- Different vocabularies, frames of reference
- Status and rewards of knowledge owners
- Behavior towards mistakes...



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# Global aspects to KM (Vaidyanathan, 2007)

Dimensions	Factors	Description	References
Structural	Ties	Strong ties between members; Prior partner relationships and repeated transactions; constructive consensus	Inkpen & Tsang (2005); Griffith et al. (2003); Fjermestad (2005)
	Configuration	Decentralization of authority by headquarters; group structure	Inkpen & Tsang (2005); Rulke & Galaskiewicz (2000)
	Stability	Personnel relationships; Low personnel turnover	Inkpen & Tsang (2005)
	Flexibility	Flexible work rules; lack of formal structure; synergistic group processes	Lee & Choi (2003)
	Management	Disciplined project management; leadership	Massey et al. (2002); Bassellier & Benbasat (2004); Grover & Davenport (2001)
Cognitive	Shared goals	Shared vision; collective goals; goal clarity	Inkpen & Tsang (2005)
	Shared Culture	Cultural diversity; accommodation	Inkpen & Tsang (2005)
	Learning	Learning environment; training; mentoring	Lee & Choi (2003); Alavi & Leidner (2001)
Relational	Trust	Clear and transparent reward; incentives to reduce mistrust	Inkpen & Tsang (2005); Ba et al (2001)
	Collaboration	Active available help within team; sharing of knowledge; expertise credibility; perceived status	Lee & Choi (2003); Herzog (2001); Thomas-Hunt et al. (2003); Sussman & Siegal (2003)
Technical	Tools	IT to enable DKM; technology acceptance & adoption; compatibility; ontology; security	Bonifacio et al. (2003); Ba et al (2001); Grover & Davenport (2001); King et al. (2002); Gregor & Benbasat (1999); Edgington et al. (2004)
	Support and Maintenance	Support from IT; knowledge maintenance; loose structure	Lee & Choi (2003); Hahn & Subramani (2000)

# Preliminary Summary

- Broad field with
  - ...a variety of conceptual foundations
  - ...interdisciplinary approaches
  - ...different viewpoints
  - ...possibilities of interventions
  - ...uncertain success probabilities
  - ...unknowns!
- Need for frameworks and comparable models!



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# Guiding questions

- ❏ What is the different between knowledge and competence?
- ❏ Give an example for explicit and implicit knowledge. Find an example where explicit knowledge in one culture is implicit in another.
- ❏ Do you know international communities on the web where knowledge on a certain topic is shared – is this human- or technology oriented? Give an example.
- ❏ In a development process for mobile applications, which knowledge is organizational, which is personal?



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