

# What is Organizational Knowledge Maturing and How Can It Be Assessed?



*Organizational  
Knowledge  
Maturing*

Roman Brun, Barbara Thönssen (University of Applied Sciences Northwestern Switzerland)

Uwe V.Riss, Hans Friedrich Witschel (SAP Research, CEC Karlsruhe, Germany)



# Overview

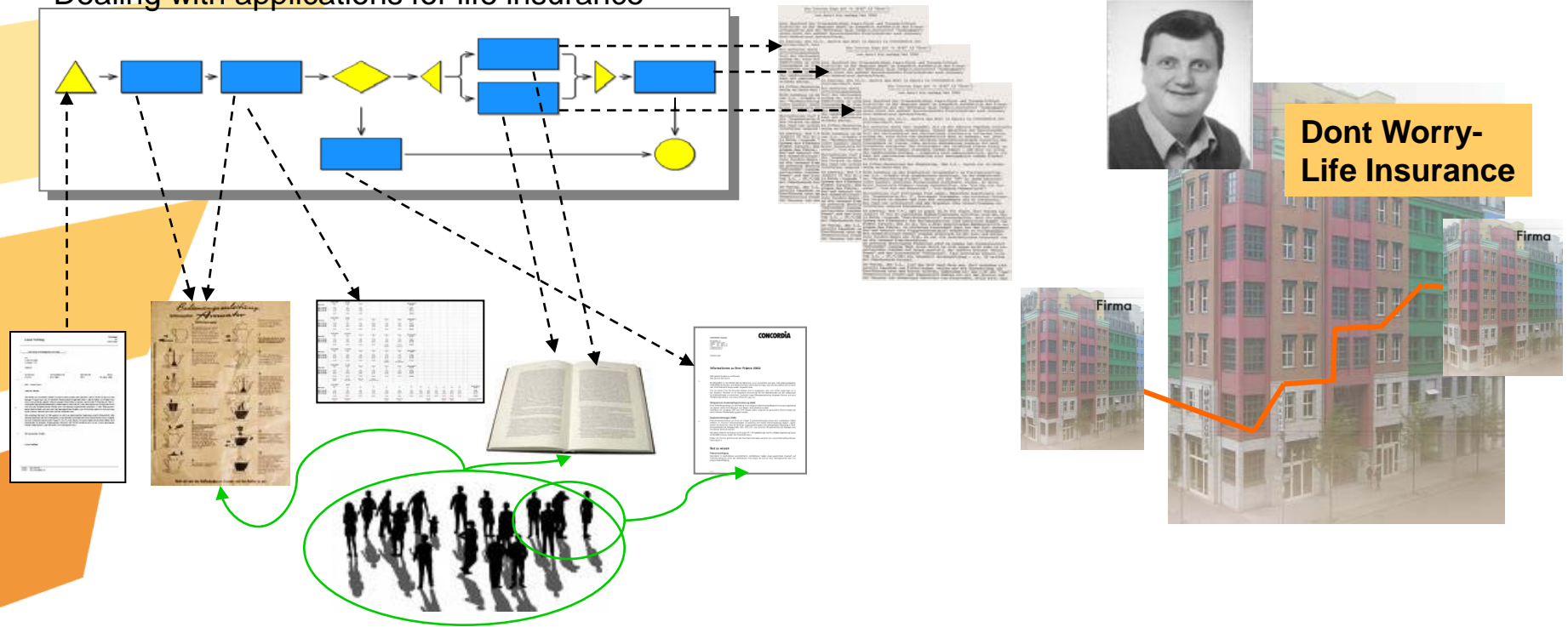
- Introduction
- An exemplary company
- Issues to be answered
- Knowledge Assets
- Phases of Knowledge Maturing
- The Knowledge Maturing Dimension Framework
- Maturing Services
- The Assessment
- Conclusion
- Discussion



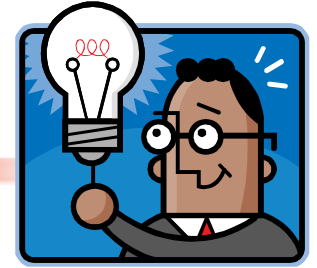
# Managing AND maturing of knowledge

- Managing knowledge:
  - The key asset of nearly every company
  - to perform tasks correctly & efficiently
  
- Challenges: Keep pace with
  - continuous business changes
  - emerging technologies
  - innovative developments
  
- What is knowledge maturing and what does it mean in an organizational context?

## Dealing with applications for life insurance



- 💣 Lately a lot of people applying for life insurance do risky sports
- ☹️ An increasing amount of applications are refused



- Business objective: Development of new life insurance product for people with specific risks
- Maturity goal
  - Formalize knowledge about risky sports (Bungee jumping, Base jumping, Kickboxing, Paragliding, ...)

Business objective: Development of new life insurance product for people with specific risks

- Where do we stand with regard to knowledge availability, use and learning?
- How can we support and improve knowledge maturing?
- Which methods and tools can be applied in our environment?

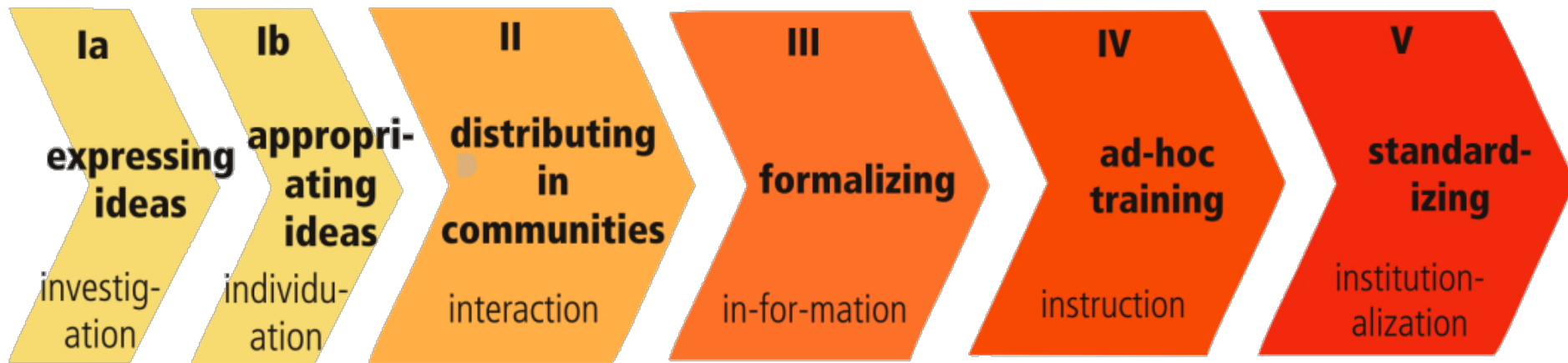
If we want to support the knowledge maturing process we have to deal with three types of knowledge assets:

- **Artefacts** - this means all kind of data that intend to store and transfer knowledge and information
- **Cognifacts** - this means all individual capacities to execute specific actions
- **Sociofacts** - all forms of social capacities required for organizational actions including the collaborative organization of work

Source: [Nelkner, 09] Nelkner, T., Magenheimer, J., Reinhardt, W.: PLME as a Cognitive Tool for Knowledge Achievement and Informal Learning: In A. Tatnall and A. Jones (Eds.): WCCE 2009, IFIP AICT 302, 378–387, 2009.



# Phases of Knowledge Maturing



An employee has the idea to develop a new insurance product.

He/She tries to find & combine existing products to serve the customers.

He/She realizes that other employees have similar problems.

A team formalizes the requirements for a new product based on lessons learnt.

The product is developed, reviewed and trained.

The product is taken into the portfolio and can be sold.



It is a fact that ...

“Although learning always takes place in organizations it is an observation that it is not consequently fostered in an organized and systematic way today.”

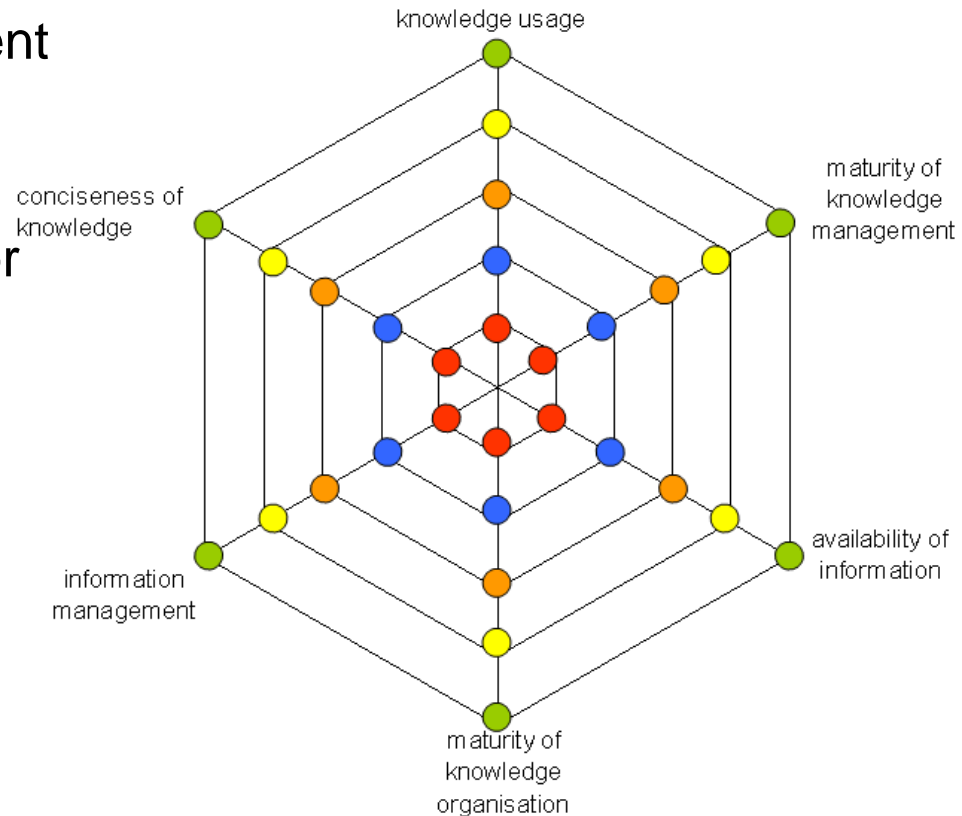
Source: [Schmidt, 09] Schmidt, A.; Hinkelmann, K.; Ley, T.; Lindstaedt, S.; Maier, R.; Riss, U. V.:  
Conceptual Foundations for a Service-oriented Knowledge and Learning Architecture: Supporting  
Content, Process and Ontology Maturing

- **How do we know what we know?**

- we have to assess the current state
  - > how can we do that?
- we need to have services for further improvement
  - > what kind of services?

- **Dimensions**

- Knowledge usage
- Maturity of knowledge management
- Availability of information
- Maturity of knowledge organisation
- Information management
- Conciseness of knowledge



# Maturity stages for the dimension “availability of information”

How to move to the next stages?



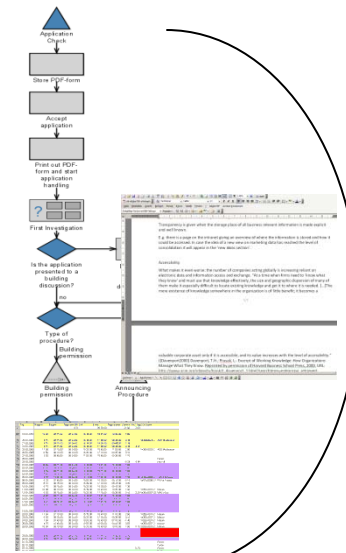
1  
explicit  
documentation



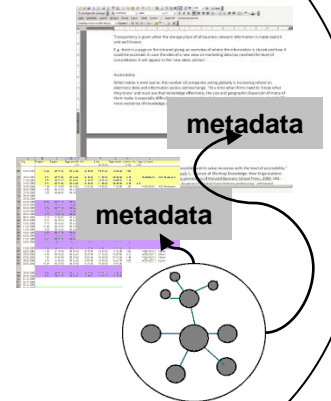
2  
transparency



3  
accessibility



4  
integrated  
information  
(unified metadata)

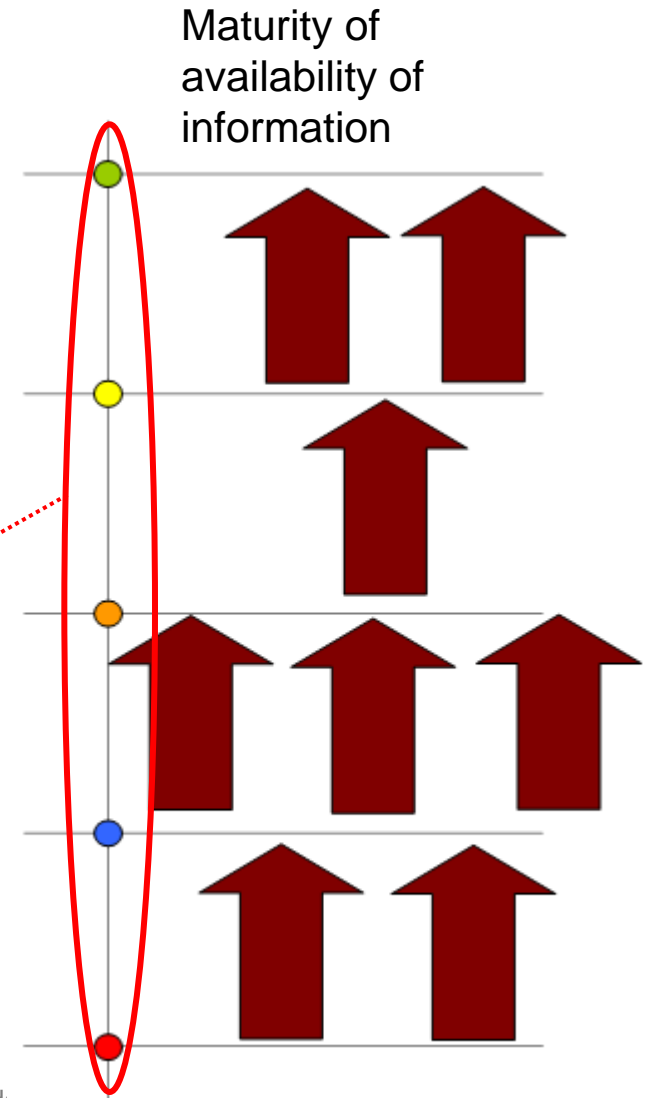
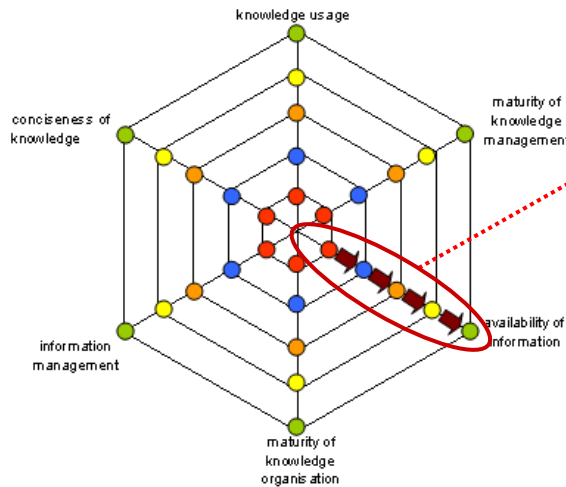


5  
automated  
metadata  
generation



# Maturing Services support achieving the next level

- Monitoring service
- Integration service
- Refinement service
- Dissemination service
- Negotiation service

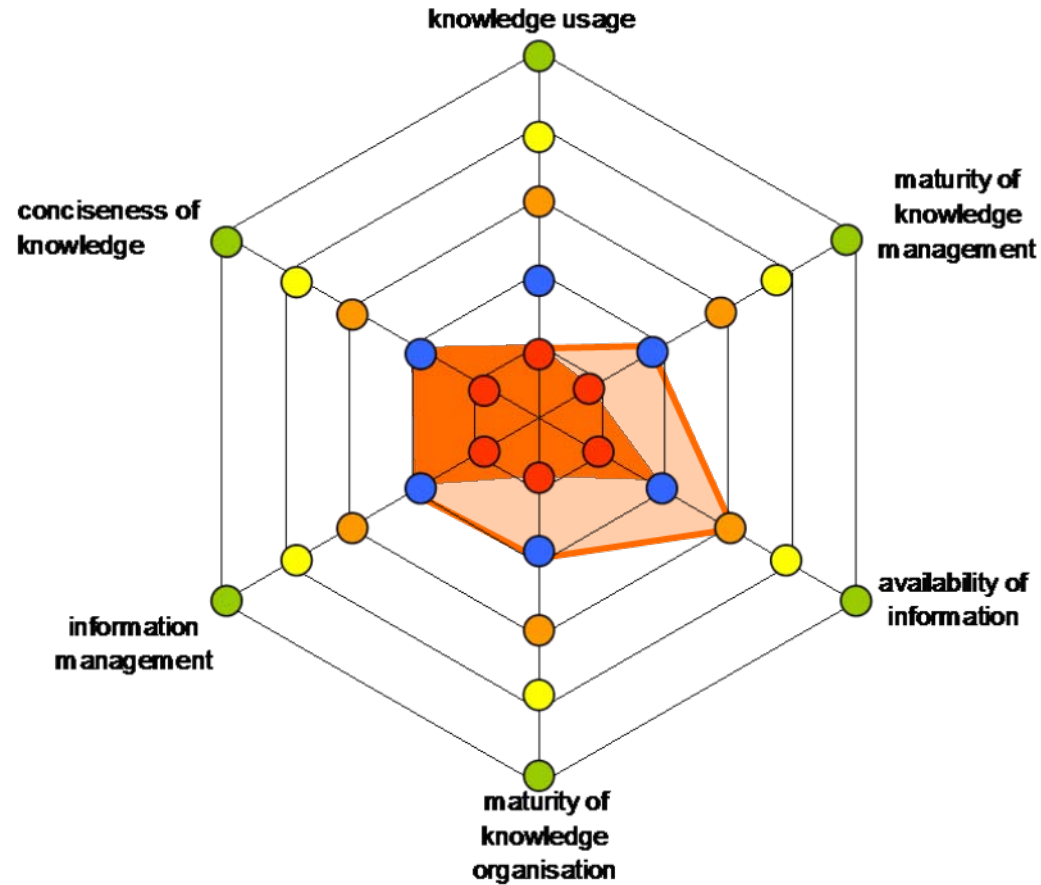
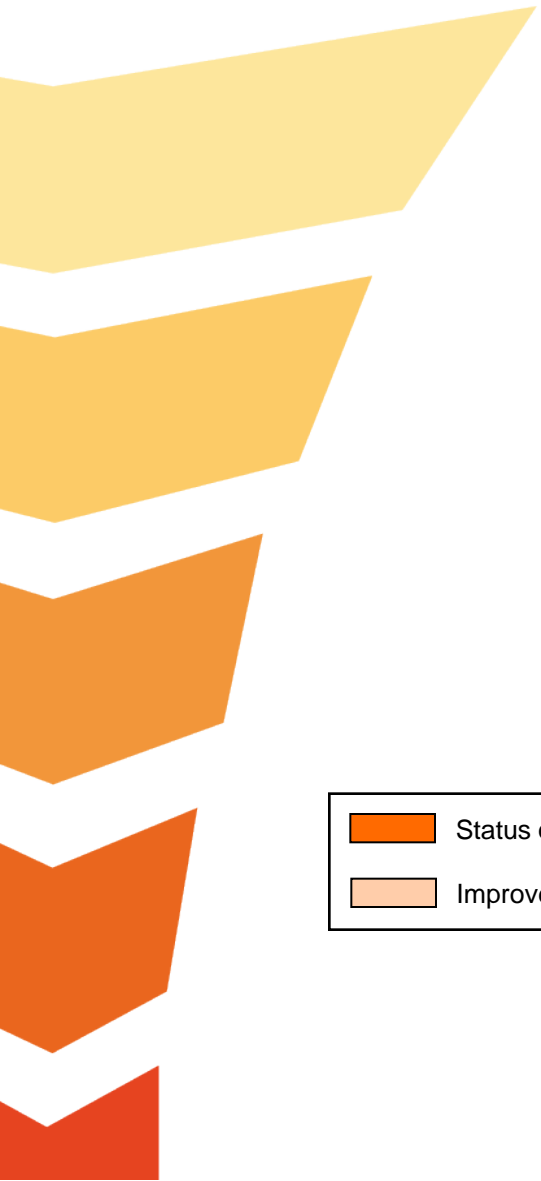


# How services support the maturing (1)

- **Integration Service:** Increase the dimension 'Availability of Information'
  - e.g. the access to the knowledge will be improved setting up a wiki to discuss topics like risky sports and all employees are asked to bring in their information
  
- **Dissemination Service:** Increase the dimension 'Availability of Information'
  - e.g. training videos about risky sports are made available for insurance agents



# How services support the maturing (2)



- **Explicit Learning**
  - Make knowledge gaps with respect to the related actions explicit
  - Support the filling of gaps
  
- **Implicit Learning**
  - Support the reflection on acquired capacities
  - Examine user tasks to automatically analyze implicit learning

- Assessing the status quo of knowledge maturing in an organization is a starting point for knowledge maturing
- The KMDF supports assessment of knowledge artefacts
- Maturing services support implicit and explicit learning (the acquisition of knowledge) to achieve the next stage
- Next step: not only provide the framework for assessment but also for improvement (e.g. what services supports the maturing from a certain stage to another best)



# MATURE Discussion



- [Abecker, 02] Abecker, A.; Hinkelmann, K.; Maus, H.; Müller, H.J. (Hrsg.) (2002): Geschäftsprozessorientiertes Wissensmanagement - Effektive Wissensnutzung bei der Planung und Umsetzung von Geschäftsprozessen ISBN 3-540-42970-0. Springer-Verlag.
- [Brun, 08] Brun, R., Hinkelmann, K., Telesko, R., Thönssen B.: *Towards an Integrated Approach to Assess the Potential of an Enterprise to Mature Knowledge*. In: Hinkelmann, K. and Wache, H, (eds.). WM2009, GI-Edition LNI P-145, 440-449, 2008.
- [Ehms, 08] Ehms, K.; Langen, M.: Holistic Development of Knowledge Management with KMMM®, Siemens AG 2002, Siemens AG / Corporate Technology, Knowledge Management & Business Transformation. [http://www.knowledgeboard.com/doclibrary/knowledgeboard/kmmm\\_article\\_siemens\\_2002.pdf](http://www.knowledgeboard.com/doclibrary/knowledgeboard/kmmm_article_siemens_2002.pdf), access 2008-10-27.
- [Eraut, 04] Eraut, M.: Informal learning in the workplace. *Studies in Continuing Education* 26(2), 247-273, 2004.
- [Kern, 06] Kern, A.: *Quellen des Wissens*. Frankfurt, Suhrkamp, 2006.
- [KMMM, 09] Knowledge Management Maturity Model, <http://www.kmmm.org/>, access 2009-04-22
- [Maier, 07] Maier, R., Schmidt, A.: Characterizing Knowledge Maturing. A Conceptual Process Model for Integrating E-Learning and Knowledge Management. *Proceedings of WM 2007 - 4th Conference on Professional Knowledge Management. Experiences and Visions, Potsdam 2007*, 325-333.

- [Maier, 08] Maier, M., Thalmann, S.: Informal learner styles: Individuation, interaction, information. In: Proceedings of the 1st International Workshop on Learning in Enterprise 2.0 and Beyond. [Online] [http://mature-ip.eu/files/leb08/leb08\\_maier\\_thalmann.pdf](http://mature-ip.eu/files/leb08/leb08_maier_thalmann.pdf)
- [Nelkner, 09] Nelkner, T., Magenheimer, J., Reinhardt, W.: PLME as a Cognitive Tool for Knowledge Achievement and Informal Learning: In A. Tatnall and A. Jones (Eds.): WCCE 2009, IFIP AICT 302, 378-387, 2009.
- [Nonaka, 06] Nonaka, I.; Peltokorpi, V.: Objectivity and Subjectivity in Knowledge Management: A Review of 20 Top Articles. Knowledge and Process Management 13(2), 73-82, 2006
- [Orlikowski, 02] Orlikowski, W. J.: Knowing in Practice: Enacting a Collective Capability in Distributed Organizing. Organization Science 13(3), 249-273, 2002.
- [Polanyi, 66] Polanyi, M.: The Tacit Dimension. London, Routledge & Keagan Paul, 1966.
- [Reber, 93] Reber, A. S.: Implicit learning and tacit knowledge: an essay on the cognitive unconscious, Oxford, Oxford University Press, 1993.
- [Riss, 05] Riss, U. V.: Knowledge, Action, and Context: Impact on Knowledge Management. In: K.-D. Althoff, A. Dengel, R. Bergmann, M. Nick, T. Roth-Berghofer (Eds.): Professional Knowledge Management, Lecture Notes in Artificial Intelligence, vol. 3782, 598-608, 2005.
- [Schmidt, 05] Schmidt, A.: Knowledge Maturing and the Continuity of Context as a Unifying Concept for Knowledge Management and E-Learning. In Proceedings of I-KNOW '05, Special Track on Integrating Working and Learning, Graz, 2005.
- [Schmidt, 09] Schmidt, A.; Hinkelmann, K.; Ley, T.; Lindstaedt, S.; Maier, R.; Riss, U. V.: Conceptual Foundations for a Service-oriented Knowledge and Learning Architecture: Supporting Content, Process and Ontology Maturing.. In: S. Schaffert, S. Auer, K. Tochtermann, T. Pellegrini (eds.) Networked Knowledge - Networked Media: Integrating Knowledge Management, New Media Technologies and Semantic Systems. Studies in Computational Intelligence, Springer.
- [Schmidt, 09] Schmidt, B.; Riss, U. V.: Task Patterns as Means to Experience Sharing. In: ICWL'09 Proceedings of the 8th International Conference of Web-based Learning. Aachen, Germany, 2009.