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# (Virtual) Communities of Practice within Modern Organizations

# J.UCS Special Issue

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The papers of this special issue were presented or were inspired by a special track on "I-Know'03 – Third International Conference on Knowledge Management" in Graz organized by the Know-Center. The guest editor wishes to acknowledge the contributions of the authors, reviewers, and discussants which have made the special track a valuable experience for all participants. This introduction gives an overview of the topics addressed and the papers presented. We conclude with a short summary of the group work and discussions which took place.

Communities of practice (CoPs) – collocated and virtual ones alike – increasingly attract attention in the business world. Bringing together employees of different organizational units and addressing business relevant topics across organizational units they play an important role for knowledge distribution and evolution within a modern organization. They can be conceptualized as strings of a web which tie organizational units closer to each other, ensure knowledge flow and support the creation of an organizational whole.

However, the question about "When, where and how to employ CoPs to serve business goals?" forces an organization to consider and decide upon a number of important trade-offs – which unfortunately often are not made explicit. Examples of such trade-offs are:

- knowledge centralization versus knowledge distribution
- one common knowledge structure versus diverse knowledge structures
- optimized knowledge distribution within one community versus making knowledge readily available to all other employees

Making these trade-offs explicit is an important first step to help organizations decide on which knowledge management activities will be effective for reaching the business goals as well as will fit to the organizational culture.

## 1 Goals of the Special Track

The goals of this special track were twofold:

1. Identify the trade-offs which a manager has to weigh when introducing CoPs into an organization.
2. Based on the priorities assigned to the trade-offs, provide guidance when considering IT-systems to support CoPs.

Here, we use CoPs to identify and examine the trade-offs faced within an organization. However, we believe that these trade-offs can then be applied to decisions about knowledge management activities in general. In order to achieve these two goals the special track brought together researchers and practitioners, people from different disciplines and with different perspectives on CoPs.

## 2 Overview of the Contributions

The contributions of this special issue approach the topics of application of the CoPs concept within organizations and the trade-offs encountered from two different sides: social and organizational aspects of CoPs and IT-Systems to support CoPs. Accordingly, the papers of this special issue are structured alongside the following categories, which are aiming at covering a large number of issues that arise from viewing CoPs from the two distinct perspectives laid out above:

1. Knowledge management trade-offs
2. Social and organizational aspects of CoPs
3. IT-systems to support CoPs
4. Needs of virtual CoPs

*Knowledge Management Trade-Offs*

Matteo Bonifacio, Pierfranco Camussone and Chiara Zini (all from University of Trento, Italy) in their paper *Managing the KM Trade-Off: Knowledge Centralization versus Distribution* distinguish between subjective and objective approaches to knowledge management. By doing so, they introduce this dichotomy as the fundamental, intrinsic trade-off which the field of knowledge management faces and from which a variety of other trade-offs can be derived. Their paper provides a conceptual map of major knowledge management approaches and lists knowledge management related trade-offs. Managing these trade-offs is proposed as a main challenge of knowledge management.

*Social & Organizational Aspects of CoPs*

The papers in this category focus on the social and organizational effects of employing communities of practice. In more detail, the following topics are addressed:

David Fuhr and Frank Fuchs-Kittowski (both from Fraunhofer ISST Berlin, Germany) provide a good overview over the bandwidth of the CoP concept by illustrating and analyzing four attempts to introduce CoP-related structures into industrial settings. Based on these case studies their paper *Against Hierarchy and Chaos – Knowledge Coproduction in Nets of Experts* introduces two management trade-offs: technology “vs.” the social and exchange “vs.” production. For the conception of solutions they show that it is useful to think in terms of another structure between “teams” and “communities”, which they refer to as “nets of experts”.

The contribution *Participative Process Introduction: A Case Study in the indiGo Project* by Björn Decker, Jörg Rech, Klaus-Dieter Althoff (all from Fraunhofer IESE, Germany) and Andreas Klotz, Edda Leopold, Angie Voss (all from Fraunhofer AIS, Germany) focuses on the aspect of process learning which is the key ingredient for organizations to ensure that their process models are up to date and can be applied effectively. They introduce the indiGo method and platform for eParticipative Process Learning and present the results of a three case studies.

Dimitris Apostolou, Kostas Baraboutis, Soumi Papadopoulou (all from Planet Ernst & Young, Athens, Greece) and Grigoris Mentzas (from National Technical University of Athens, Greece) introduce a different type of CoP: Learning Networks - inter-organisational structures, formally established to increase the participants' knowledge and innovative capability. Their paper *Facilitating Knowledge Exchange and Decision Making within Learning Networks* presents an integrated toolkit for supporting knowledge sharing and decision making in Learning Networks that consists of a software system and a methodology.

The concept of Knowledge Nodes is introduced by Roberta Cuel, Matteo Bonifacio, and Mirko Groselle (all from University of Trento, Italy). Their paper *Knowledge Nodes: the Reification of Organizational Communities. The Pizzarotti Case Study* uses Knowledge Nodes to reify communities within their distributed knowledge management approach. Here organizations are seen as constellations of communities, which "own" local knowledge and exchange it through negotiation processes. They argue that there are types of knowledge that must be managed in an autonomous way.

*IT-Systems to Support CoPs*

The papers presented in this category introduce new IT-systems and features which can be used to support the work of communities of practice. In more detail, the following topics are addressed:

In order to capture implicit knowledge in informal social networks Jasminko Novak (from Fraunhofer IMK, Germany) and Michael Wurst (from University of Dortmund, Germany) propose a system which enables the users to create personalized knowledge maps and to collaborate and share knowledge with their help. Their contribution *Supporting Knowledge Creation and Sharing in Communities based on Mapping Implicit Knowledge* discuss how this model resolves one critical shortcoming of the existing socialisation and externalisation approaches: the creation of a semantic representation of a shared understanding of the community which reflects implicit knowledge and incorporates personal views of individual users.

The contribution *Organic Perspectives of Knowledge Management: Knowledge Evolution through a Cycle of Knowledge Liquidization and Crystallization* by Koichi Hori, Kumiyo Nakakoji, and Yasuhiro Yamamot (all from University of Tokyo, Japan) and Jonathan Ostwald (from University Corporation for Atmospheric Research, USA) focus on the organic aspects of knowledge – its evolution within a community. The evolving process takes place through the interactions among conceptual worlds, representational worlds, and the real world. The approach is illustrated through three systems.

John Davies, Alistair Duke (both from BTexact Technologies, UK) and York Sure (from University of Karlsruhe, Germany) focus on the creation and evolution of a common ontology for a specific field. Their paper *OntoShare – An Ontology-based Knowledge Sharing System for Virtual Communities of Practice* shows and evaluates how an ontology-based knowledge sharing system can support this process. Observing that in practice the meanings of and relationships between concepts evolve over time, OntoShare supports a degree of ontology evolution based on usage of the system – that is, based on the kinds of information users are sharing and the concepts (ontological classes) to which they assign this information.

To wrap up the technological discussion Georg Droschl (Hyperwave R&D, Austria) in *Communities of Practice: An Integrated Knowledge Management Perspective* provides an overview of a commercial knowledge management tool suite. The benefits of integration different document management and collaboration tools into one platform are examined in the application context of CoPs.

*Needs of Virtual CoPs*

Jennifer Preece (University of Maryland Baltimore, USA) concludes this special issues with a summary of the requirements virtual CoPs place on supportive technology. In her contribution *Etiquette, Empathy and Trust in Communities of Practice: Stepping-Stones to Social Capital* she argues that the success of a CoP depends to a large extend on who is involved, what their goals are, their personalities and the community's norms and policies. Norms that lead to good online etiquette, empathy and trust between community members are needed.

We hope that the variety of topics covered by the contributions of this special issue provide readers with an overview of CoP related knowledge management aspects and trade-offs.

As mentioned above the papers of this special issue were inspired by a special track on CoPs at I-Know'03. At I-Know'04 we will continue the discussions on CoPs – this time focusing on how they integrate knowledge management and (e)Learning.

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