Developing paradoxical guidelines for communities of practice in organizations

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Abstract

Communities of practice (CoPs) have been identified as a means to enable acquisition and sharing of tacit knowledge in organizations. CoPs complement or even replace approaches where the focus is on storing and retrieving codified knowledge in documents and systems. This paper highlights some of the problematic aspects of using CoPs as a tool to improve knowledge sharing. Theories on coordination are put forward as a theoretical frame to explain the role of CoPs in organizational functioning. Our study of CoPs in the Amsterdam Police Force shows how CoPs in organizations face several dilemmas. How can CoPs be self-directing and simultaneously contribute to organizational performance? How can they utilize the IT opportunities of contacting anybody, any time, any place and simultaneously circumvent the threats of low commitment and poor mutual understanding in virtual groups? How can members of CoPs produce shared repertoire without falling in the trap of groupthink? How can CoPs act as environments for sharing tacit as well as explicit knowledge? Coordination theory suggests how members of CoPs in organizations can deal with such competing values by making situational choices that reflect paradoxical guidelines. We discuss how police officers use such paradoxical guidelines in organizational prototyping sessions.

Keywords: Communities of practice, competing values, computer-mediated communication, coordination theory.
1 INTRODUCTION

Several authors (Huysmand and Wulf 2005, Kimble and Hildreth 2004) argue that current literature on CoPs is overly optimistic and tends to ignore, or simply not see the downside of the concept. The track ‘Communities and new forms of organizations’ invites contributions that pay attention to theoretical background and problematic aspects of CoPs in organizations to create a more balanced view. This paper answers that call in two ways.

First, the debate on knowledge management and CoPs is positioned in the larger debate on organizational coordination. We argue that the question of developing and applying knowledge by different members of an organization can be portrayed as a coordination problem. Furthermore there are strong similarities between the debate on knowledge management and the debate on organizational coordination. Both have historically started with a focus on formal approaches, emphasizing design, structure, rules and systems. Both have thereafter discovered ‘soft’ issues such as informal communication, intrinsic motivation, cultural values and the problem of mutual understanding rather than information exchange. Both initially had a very strong confidence in IT as a means to support knowledge sharing / coordination, and both have become more critical with respect to IT support later on. Therefore insights from coordination theory can inform the debate on CoPs in organizations.

Secondly, our study of CoPs in the Amsterdam Police Force highlights problems that can occur when CoPs are seen as means to improve knowledge sharing between geographically dispersed units. For instance, it is unclear how the activities of the CoPs contribute to overall organizational performance, there are problems in motivating police officers to share knowledge and participate in the CoPs, there are different opinions regarding whether the CoPs need to deal with explicit, tacit knowledge or both and it is unclear whether IT support helps or hinders the CoPs. These problems refer to issues currently debated in literature.

Based on our insights from coordination theory and our case observations in the police force we argue that CoPs in organizations face some inherent competing values. Such competing values have also been identified by Kimble and Hildreth (2004) in CoPs literature, as they state:

- CoPs may become more and more important for organizations, but as they are self managing and self directing, their contribution to organizational performance will always be uncertain.
- CoPs may need strong social ties to build commitment and to create a shared context for a common language, but as organizational work becomes more and more dispersed and CoPs rely more and more on computer mediated communication, they are actually becoming NoPs (Networks of Practice) based on weak social ties
- The underlying problem of knowledge management was not simply that it privileged one form of knowledge over another; it was that knowledge management had failed to recognize that knowledge itself was a duality consisting of both hard and soft knowledge. Hard and soft knowledge are not mutually exclusive, but mutually dependent: one cannot exist without the other.

Such competing values create dilemmas in organizational design and organizational functioning. A dilemma is a choice between two alternatives that both incur severe problems or that both are equally attractive (Twist et al 1998). The essence of a dilemma is that it is characterized by value-complexity (George 1980): “Value complexity refers to the presence of multiple, competing values and interests that are embedded in a single issue. When this is the case, it is difficult, if not impossible, for the decision-maker to formulate a single yardstick that encompasses and aggregates all of the competing values and interests.” A dilemma is by definition unsolvable in theory.

In our research we focus on the question how to deal with a dilemma in practice. Handy (1994) argues that understanding the paradox is the key. Balancing the opposites, or switching between them, must not be a random or haphazard act, but requires a clear rationale for what is happening. Twist et al (1998) stress the importance of validation of the dilemma and the consolidation of learning
experiences in the quest for ‘dilemma-resistant-arrangements’. Bots and Bruijn (2002) argue that both opposites need to be combined: not by blending them into one gray indistinguishable whole, but by using them distinctly at the same time, all the time.

We propose that paradoxical guidelines can support managers and CoP members in dealing with competing values. Paradoxical guidelines stimulate organizational members to pay attention to both sides of a dilemma simultaneously. In our study at the Amsterdam Police Force such guidelines have been captured, developed and evaluated.

2 WHAT CAN COPS LEARN FROM COORDINATION THEORY?

2.1 CoPs and knowledge management

Kimble and Hildrith (2004) sketch how knowledge management initially focused on hard, structured, explicit knowledge. That knowledge could be captured from an expert, codified in a series of rules and stored in a computer. Huysman and Wulf (2005) refer to this as the first wave, stage or generation of knowledge management. They argue that this first stage is characterized by the fallacies of concentrating too much on the role of IT as an independent and de-contextualized carrier of information (IT-trap), imposing managerial control on knowledge sharing at the expense of addressing knowledge workers’ needs (management-trap) and a focus on individual learning ignoring the group level and the social embedment of knowledge (individual-learning-trap). To avoid these traps attention for social aspects and the collective emergent nature of knowledge sharing is needed (Ackerman and Halverson 2004, Husyman and Wulf 2005).

The concept of CoPs has been welcomed as a means to address such social issues and to guide sharing of tacit rather than explicit knowledge. CoPs are groups of people bound by informal relationships who share information, insight, experience and tools about an area of common interest (Wenger 1998). Scientists disagree on the relation between CoPs and knowledge management. Some argue that the CoPs approach has to replace the traditional knowledge management approach (Swan et al 2000), others argue that an organization can choose between a codification or personalization strategy (Hansen et al 1999), and finally there are those who argue that both approaches need to be combined as they are two sides of the same coin (Bots and Bruijn 2002, Kimble and Hildreth 2004). Authors that propagate the latter view conclude that CoPs compensate some of the drawbacks of the too formalized codification approach, but argue on the other hand that the CoPs concept has its own weaknesses. For example, Bots and Bruijn (2002) name threats of defensive reasoning, pigeon-holing and low motivation to participate as reasons why CoPs may not function as expected. Also, interaction in CoPs is seen as a relatively expensive way of sharing knowledge which may not be efficient when the CoPs only exchange standard issues that could more efficiently be shared in a codification strategy. Finally the risk that key experts leave the organization is mentioned. Kimble and Hildreth (2004) agree with Wenger (1998) that organizations are collections of interrelated CoPs and provide avenues for knowledge sharing and learning. But they state that the outcome of these processes are uncertain and cannot be managed by the organization: “members of a CoP have more in common with a troupe of altruistic volunteers than a band of paid employees”. Although the CoP characteristics of informality and self management are believed to be necessary to create intrinsic motivation of members an environment for learning, they are unsatisfactory from an organizational management point of view.

Ironically, the earlier disputed codification or knowledge management approach can compensate for parts of these ‘manageability’ requirements. Bots and Bruijn (2002) show how knowledge management can provide a perspective on action by defining activities, monitoring whether they have been executed and also create an integrated approach rather than incidental interactions. So, organizations have to make us of the strengths of both approaches while mitigating their weaknesses (Bots and Bruijn 2002, Kimble and Hildreth 2004).
The risks or potential threats of the CoPs concept become increasingly visible in situations where the members of the CoPs are geographically dispersed. The originating studies of Wenger (1998) are based on co-located groups. Key strengths of the CoPs concept such as informal interaction, intrinsic motivation and shared understanding of the practice, the community and their context are under pressure in a virtual situation (Cramton 2001, Kimble and Hildreth 2004). The danger is that CoP members do not learn and work in the social setting of the CoP, but become connected knowledge workers that more and more work individually and learn individually (the earlier identified individual-learning- trap). Building on social capital theory, Huysman and Wulf (2005) argue that IT systems that support knowledge sharing should address the structural opportunity dimension, the cognitive ability dimension and the relation-based motivation dimension. The structural dimension focuses on the ability to connect and on the density of networks. The cognitive dimension relates to the ability to understand each other in a historical context. The relation dimension refers to why and when knowledge is shared and to characteristics of the relationship such as trust, mutual respect and reciprocity. Huysman and Wulf (2005) conclude that currently most systems only focus on the first dimension. Furthermore, it is not so easy to say that codification tools (e.g. repositories and ‘yellow-pages’) are suitable for sharing of explicit knowledge and collaborative tools (e.g. shared workspaces) are suitable for sharing of tacit knowledge (Bots and Bruijn 2002). Following an ensemble view of technology similar technologies may be used in different ways (Orlikowski and Iacono 2001). Ackerman and Halverson (2004) show how the social capital dimension can be addressed in codification as well as collaborative ‘systems-in-use’.

Like Kimble and Hildreth (2004) we conclude that it is still unclear how opportunities and threats of the CoPs concept outplay and impact organizational performance. Also, the value of IT support for CoPs is still debated. Challenges are how to jointly optimize informal learning and organizational performance and how to simultaneously utilize IT opportunities and circumvent IT threats.

2.2 Coordination theory and competing values

Coordination is most often portrayed as managing dependencies between work, activities, actions or tasks: it resolves task dependencies that result from work division and specialization (Crowston 1997). There are however other conceptions of coordination. For instance, some authors define coordination as the management of energy in conversation (Quinn and Dutton 2005), the communication of requests, promises and reports of the status of the commitment (Winograd and Flores 1986), the integration of knowledge (Grant 1996) or as reducing equivocality by sensible interlocked behaviours (Weick 1979). Based on the observation of Schmidt and Simone (1996, p. 158-159) that “cooperative work is inherently distributed, not only in the usual sense that activities are distributed in time and space, but also – and more importantly – in the sense that actors are semi-autonomous in terms of the different circumstances they are faced with in their work as well as in terms of their strategies, heuristics, perspectives, goals, motives etc.” it can be argued that there are other issues to be coordinated besides tasks. From an extensive literature review on theories on coordination and observations in the police force we conclude that an organization may need to coordinate dependencies between:

- tasks, actors, their tacit knowledge and resources;
- goals, visions, objectives, norms, rituals, beliefs and decisions;
- frequency & timing of (in)formal communication and media choice;
- frames, labels, mental models, understanding, meaning, explicit knowledge.

Traditionally coordination is viewed as part of organizational design, where coordination mechanisms are defined for certain dependencies and are relatively static. We argue that work is essentially situated and consists of ad hoc improvisations (Hutchins 1991) and propose to shift the attention from the static concept of coordination mechanisms to the dynamic concept of situated coordination choice. A coordination choice is the ad hoc use of a certain coordination mechanism in a specific situation.
Coordination can then be portrayed as a combination of choices on four dimensions, namely: 
- composing a group of employees with appropriate organizational competencies,
- ensuring commitment among this group supported by an overall organizational cohesiveness,
- producing contacts between the group members enabled by available organizational connections,
- and sharing content with each other interpreted in an organizational context,

in order to produce the desired results for a given assignment (Laere et al 2005).

These dimensions help to explain why IT both enhances and complicates the coordination of distributed work. The often quoted opportunities of IT like flexibility of the division of work, greater access to scarce experts, greater utilization of the workforce, cheaper and faster information exchange, any time – any place communication alternatives (Haywood 1998) all relate to the dimensions of composition and contact. Furthermore most of the often identified threats, like difficulties with team building and cultural issues, difficulties with managing team process or work flow, difficulty of managing multiple tasks, difficulty of controlling employees at a distance, threat of becoming isolated, lack of recognition, decrease in the quality of interaction (Haywood 1998) relate to the dimensions of commitment and content. Our integrated view on coordination explains the apparent discrepancy between different theories and approaches about the impact of IT support on coordination and organizational performance. Those who emphasize that coordination problems are caused by uncertainty are enthusiastic about the added value of IT as it leads to more information processing capability and less uncertainty (for example Galbraith 1973). Others who describe coordination problems as a result of ambiguity are less enthusiastic (for example Weick 2001). The latter argue for more interaction and time for interpretation and sense making. Our integrated view on coordination emphasizes that the competing values of composition, commitment, contact and content need to be addressed simultaneously to arrive at successful coordination. Similarly IT opportunities need to be seized and IT threats need to be circumvented (Laere et al 2005).

3 RESEARCH DESIGN

The purpose of our research was to evaluate the usefulness of paradoxical guidelines for dealing with competing values in knowledge sharing and IT support. We chose for an action research method which is intended to have the dual outcomes of action (or change) and research (understanding). An action researcher participates or intervenes in the phenomenon studied by applying a theory to practice and evaluate its worth (Checkland 1981).

The Amsterdam Police Force was selected as an interesting organization for our research because it is a large service organization that faces the problem of sharing knowledge between geographically distributed units. The Amsterdam Police Force consists of approximately 5500 organizational members and is organized as a matrix organisation. On the one hand the core organisation is hierarchically subdivided in geographical areas called neighbourhood teams, who ensure safety, liveability and societal integrity and deliver a reliable service to the inhabitants of their area. On the other hand there are about 20 topical knowledge networks (communities of practice on for instance ‘fire-arms’, ‘youth’, ‘drugs and drugs addicts’, ‘car hijacking’ and ‘burglary’) each consisting of a central independent coordinator and 40 to 120 professionals who are formally members of the neighbourhood teams. The major advantage of this structure is that neighbourhood teams operate close to the citizens and can adjust their service to local problems. A drawback is the enormous coordination and control burden of the dualistic matrix structure. Police officers have to cross the geographical borders and share their expertise, but at the same time they need to have an integral vision and they need to look over the walls of their ‘pigeon holes’. IT opportunities are seen as potential avenues to solve these coordination problems. Given these characteristics the police force serves as an appropriate case to find out whether paradoxical guidelines can help improving knowledge sharing and IT support.
Various research techniques have been combined. A literature search has been performed to identify general competing values and paradoxical guidelines (section 4). Participatory observation of work and coordination practices in the police force has produced insight in current dilemmas and competing values (section 5.1). Subsequently, avenues for improvement regarding dealing with dilemmas and applying paradoxical guidelines have been generated during a computer supported group discussion session, by discussions with individual police officers and by discussing the intermediate and summarized results during two group presentations (section 5.2). Finally, the value of the identified improvements has been evaluated in two organizational prototyping sessions (Laere et al 2006). Police officers could freely experiment with the new work practices without worrying about unintended consequences. Also, fictive work conditions could be created that were hard to quickly realise in daily practice. In each session 3 CoPs took part, each represented by 5 police officers. So in total 30 police officers representing 6 CoPs participated. They experimented with new guidelines and work conditions and reflected on their experiences in debriefing discussions (section 5.3).

4 PARADOXICAL GUIDELINES

The literature search has resulted in 12 general guidelines grouped along our coordination dimensions. These guidelines are not exhaustive but highlight some key dilemmas which inspire thinking and discovery of dedicated guidelines in work processes under study. We shortly discuss each of them.

<table>
<thead>
<tr>
<th>Composition and competence</th>
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<tbody>
<tr>
<td>A. Consult distributed expertise extensively, but keep groups small, focused and productive</td>
</tr>
<tr>
<td>B. Select employees by standard competencies present and unique competencies needed</td>
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<tr>
<td>C. Deploy experts to specialist and generalist tasks</td>
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<th>Commitment and cohesion</th>
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<tr>
<td>D. Stimulate social communication and formulation of clear goals early in the process</td>
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<tr>
<td>E. Rotate leadership among group members to stimulate self-responsibility</td>
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<td>F. True support requires expressing a critical attitude</td>
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<th>Contact and connection</th>
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<tbody>
<tr>
<td>G. Contact regularly to show progress, but do not interrupt productive action if not needed</td>
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<tr>
<td>H. Let fast information sharing give room to interactive interpretation</td>
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<tr>
<td>I. Customized (unpredictable) media choice requires (predictable) communication standards</td>
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<tr>
<th>Content and context</th>
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<tr>
<td>J. Be to the point but do not omit relevant details</td>
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<tr>
<td>K. Add missing context and hide distracting context</td>
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<tr>
<td>L. Let experts assist consultation of knowledge systems</td>
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Table 1: General paradoxical guidelines for each coordination dimension

Guideline A balances the distributed expertise and labour resources versus the problem of keeping control and building group spirit (Haywood 1998). The first favours large groups, the latter small groups (Moorhead and Griffin 1989). Large groups can also more easily suffer from sense making problems, especially when they are geographically distributed (Cramton 2001). Guideline B warns for the danger of relying too much on overview of competencies of employees based on a list of standard categories in an electronic engine. Such overviews help to quickly locate and select employees when the knowledge needs match these standard competencies. However, work groups should not always rely on this standard list. Sometimes unique competencies are required, and alternative coordination mechanisms to locate those unique competencies need to be available (Ackerman and Halverson 2004). Guideline C argues that experts need to engage in the complex assignments they are trained for to utilize and develop their specialist expertise. But on the other hand they need to cross their CoP boundary to participate in integrative customer oriented problem solving processes where their expertise needs to be connected to other domains. That prevents they get stuck
in ‘pigeon-holes’ (Mintzberg, 1983, Wenger 1998). Guideline D promotes the balance between socio-emotional and task needs in group work (Chidambaram and Boström 1997, Jarvenpaa and Leidner 1999). Social interaction contributes to group performance by enlarging social affiliation, but limits the time available for delivering the product or service. The dilemma of balancing attention for formal goals (task focus) and for social support (people focus) warns for too longwinded social interaction. Guideline E takes into account that members in geographically distributed groups have a lot of freedom and performance is hard to control from distance. So a central manager can easily be deceived. Shared responsibility may mean that nobody takes overall responsibility. Rotating leadership (Haywood 1998, Jarvenpaa and Leidner 1999) balances this dilemma and stimulates self responsibility as well as responsibility for what the others contribute. Guideline F addresses that strong group norms, cohesiveness and commitment to the group goals make groups efficient and effective performers. However, too much harmony may have negative consequences, like groupthink. The dilemma for a work group or a group of employees involved in a work process is to be both enthusiastic about the current way of working and current goals and simultaneously criticizing them and suggesting changes (Jarvenpaa and Leidner 1999, Weick 2001). Guideline G questions the common belief that groups are more productive if they spend more time together. Andriessen (2002) argues that most part of group work is individual work. Individual work is more productive when done on your own in full concentration. In the group you may suffer from distraction and disturbance by others. The dilemma faced is that too few interactions may harm effectiveness, whereas too many interactions may harm efficiency (Haywood 1998). Distributed groups are closer to the danger of too few interactions; co-located groups are closer to the danger of too many interactions. Guideline H promotes a balance between low and high communication richness in interactions (Ngwenyama and Lee 1997). Rich contacts emphasize interpretation by high interaction and direct feedback, whereas poor contacts stress fast and multiple information exchange. Work processes and even tasks may have contradicting requirements. Gathering too much information complicates interactive sense making, whereas collaborative sense making around a few issues leaves less room to gather and share information on other related issues. The challenge is to balance both needs. Results of fast information gathering and sharing can widen the scope of the discussion during sense making episodes, and outcomes of sense making discussions can limit the information sharing around topics that are judged as less relevant (Weick 2001). Guideline I acknowledges that the introduction of IT creates more opportunities to match media characteristics and situational needs. The link between purpose and preferred medium can be different for different situations and people involved. For instance one distributed group can prefer voice mail for urgent matters, while another can prefer e-mail. Such variety is manageable as long as employees have the same mental model considering media use (Haywood, 1998). Especially in asynchronous communication, issues like availability, acknowledgment of message receipt and ‘taking action upon it’ need to be captured in standards. So when voice mail and e-mail are used for communicating urgent matters, they should be checked several times each day. Such standards need to be made explicit in the group forming stage or be similar for the whole organization (Jarvenpaa and Leidner 1999). Guideline J aims to weigh content overload against content shortage. Senders can clearly distinguish between the core of the message and the details. As a result the receiver can better divide his available time between reading and interpreting both aspects of a message (Haywood 1998). By clearly phrasing his needs the receiver can for his part give the sender clues what parts need more or less emphasis. The challenge is thus not to simply increase or reduce content, but to distinguish between different kinds of content and communicate them concurrently. For instance, oral communication can convey the core while written communication can add the details (Woerkum 2002). Guideline K explains that groups need to strive for adding and reducing context simultaneously. Distributed groups tend to suffer from a lack of context whereas co-located groups may suffer from too much task-irrelevant context. As context is important to ease interpretation of content, distributed groups need to add missing context (Cramton 2001). On the other hand co-located groups may take the availability of context for granted and may forget to distinguish between relevant and irrelevant context. They may suffer from context overload. Although their starting points are different, both co-located and distributed groups need to discuss what context is important to address and what context is distracting in their work process. Finally,
guideline L points at the need to integrate consultation of explicit and tacit knowledge (Ackerman and Halverson 2004). Often it is argued that novices should consult the knowledge system for simple problems and consult experts for complex problems. Otherwise experts are flooded with consultation requests or get bored by giving the same advice over and over again. However, novices lack an overview of the knowledge area and they may use wrong key words for full text search and for consulting the index. The art of linking the relevant bits of knowledge to a particular problem may be hard to capture in a knowledge system. There needs to be a balance between consulting a knowledge system and consulting the expert. To deal with this dilemma experts need not only to be motivated to maintain the knowledge in the system but should also be available to pinpoint novices where they can find what information. Note that pinpointing is different from giving the full answer.

5 COPS AT THE AMSTERDAM POLICE FORCE

5.1 Problem situation

Police officers express concerns like ‘we are regularly re-inventing the wheel’ and ‘we only use 10% of our best practice’ because the communication and coordination via the knowledge networks is minimal. The knowledge networks consist of one central coordinator and for the rest of decentralized experts who are a member of neighbourhood teams and as such only part of their work time available for the knowledge network. The question is if knowledge exchange via intranet and bulletin boards can compensate for the current mechanisms of poorly attended monthly meetings, outdated handbooks and hard to locate and hard to contact experts. Currently the content and structure of the knowledge networks’ intranet sites are not linked to the questions that neighbourhood team police officers have in daily practice. Furthermore it is not clear how quality and speed of answers on the bulletin board need to be guaranteed. It is obvious that the regional coordinator of a certain topic cannot perform all these tasks himself. Often he is not an in-depth expert on the topic, but rather a good coordinator. Besides he cannot monitor the bulletin board 24 hours a day, 7 days a week. Consequently it seems that the distributed experts working at the neighbourhood teams need to play a role in maintaining the intranet site and guaranteeing answering speed and quality on the bulletin board. However, neighbourhood team managers are often not approving that their experts spend too much time on knowledge network duties.

5.2 Dedicated paradoxical guidelines

Table 2 shows how the dedicated guidelines, which have been identified in the individual and group discussion with involved police officers, relate to the earlier discussed general guidelines.

<table>
<thead>
<tr>
<th>Dedicated guidelines for maintaining intranet and managing bulletin board</th>
<th>General guidelines</th>
</tr>
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<tbody>
<tr>
<td>1. Allocate some tasks to a core group, to balance involving all experts versus no experts</td>
<td>A, E</td>
</tr>
<tr>
<td>2. Motivate contribution of non-core group experts formally and socially</td>
<td>D, K, F</td>
</tr>
<tr>
<td>3. Guarantee up to date but reliable knowledge on the intranet</td>
<td>C, A, J, L</td>
</tr>
<tr>
<td>4. Balance answering quality and answering speed on the bulletin board</td>
<td>H, C, A</td>
</tr>
<tr>
<td>5. Leave room for diversity in the uniform intranet structure</td>
<td>B, K, L</td>
</tr>
</tbody>
</table>

*Table 2: Dedicated paradoxical guidelines for CoPs at the Amsterdam Police Force*
Guideline 1 addresses the problem of allocating tasks between the central coordinator and the decentralized experts. Currently the central coordinator has too many tasks to perform and may lack sufficient expertise. Assigning the task to all decentralized experts (between 40 and 120 depending on the topic of the knowledge network) makes the collaboration process unmanageable (guideline A) and creates the risk that nobody takes overall responsibility (guideline E). A virtual core group is proposed as a compromise between involving all experts and involving no experts at all. Experts are not claimed full time, as their expertise would then be completely lost for daily problem solving in the neighbourhood team. However, concurrently guideline 2 addresses the problem that even the non core group members need to spend some time on CoPs. The variety of their knowledge and expertise obtained in different work contexts is necessary to enrich and criticize the possibly limited views of the core group (guideline K and F). The current unilateral emphasis on voluntary contributions of enthusiastic individual experts needs to be accompanied by formal approval of neighbourhood team managers (guideline D).

A major dilemma that is both present in intranet maintenance and bulleted board moderating is the balance between speed and quality. Police officers at the neighbourhood teams stressed that they require both fast answers and reliable answers. A wrongful advice from the knowledge network would be disastrous for their performance, but a thoughtful advice that comes too late is also useless. The dilemma is clear. Opportunities in composition and contact increase the reach and speed of expertise supply. But simultaneously the increased handling speed results in a more critical dependency on strong commitment of actors (always ready to act) and good understanding of the content shared (critical on correctness and shared understanding of the advice). Only when these efficiency and effectiveness criteria can be optimized both, productivity will really grow. In the discussions we perceive that on the intranet the emphasis tends to be too much on guaranteeing quality, which threatens the up-to-date-ness. In contrast, the bulletin board tends to be a medium for quick exchange of advice, which may threaten the quality of advice. Therefore we stress the need for speed on the intranet, and quality control on the bulletin board in guidelines 3 and 4. In both cases the core group is better suited for the job than a central intranet moderator. The core group experts have both topic expertise and are engaged in daily work at the neighbourhood teams (guideline C), which enables them to empathize with knowledge needs of general police officers (guideline L). Furthermore they are still a manageable group that can easily coordinate their efforts and guarantee a reasonable throughput time (guideline A). Regarding gathering information for the intranet site the core group needs to balance comprehensiveness and brevity (guideline J). Considering the bulletin board we introduce options of ‘not-showing’ answers that not yet have been controlled or using ‘different colours’ for controlled and not-controlled answers. The latter is a mechanism that is more vulnerable to wrongful advice, but less vulnerable to too slow advices. Moreover it utilizes the opportunities of fast information sharing (showing not-controlled answers directly with a warning colour) and interactive interpretation (intense open discussion why answers are right or wrong) to the fullest (guideline H).

Guideline 5 deals with identified dilemmas considering the structure of the intranet. A uniform structure for all 20 knowledge networks eases search ability for neighbourhood team police officers, but hampers knowledge networks in highlighting the unique expertise they may have (guideline B). To balance these competing values deliberations are necessary to determine what contextual conditions justify a change in the uniform intranet structure (guideline K). Also, support and coaching is needed to guide novices in locating these unique knowledge chunks (guideline L).

It is hard to tell from the discussions whether these dedicated paradoxical directions for coordination are applicable and useful for police officers in daily practice. Also, it is unclear when CoPs will prefer the core group to perform a certain task and when they will choose for alternative more centralized or more decentralized options for executing a certain task. In other words, there was a need to further explore and fine-tune this design in an organizational prototyping session.
5.3 Application of the paradoxical guidelines

Unfortunately space constraints prohibit us to fully explain the nature and functioning of the organizational prototyping sessions. For a detailed description we refer to Laere et al (2006). Important to know for the proceeding discussion is that 30 police officers representing 6 different CoPs participated in a simulation-game that enabled them to experiment with the dedicated guidelines and evaluate them in a safe setting that resembled their daily work situation. They played the role they have in daily work, they had full access to (a copy of) the police intranet and a bulletin board, they were located in different rooms to simulate geographical dispersion, they perceived similar time pressure as in daily work and they had to answer (fictive) questions on the bulletin board and to deal with (fictive) knowledge developments that need to be incorporated in their intranet websites. The police officers judged the simulation-games as valid representations of their work situation.

A first observation is that all the 6 knowledge networks unanimously emphasize quality of information and quality of answers to questions at the expense of speed (ignoring guideline 3 and 4). For instance, answers are most of the time verified before they become visible, despite the longer answering time. The danger that a police officer uses the wrong answer immediately, and does not (or too late) notice the correction that is made afterwards, is perceived as more important than the decrease in handling speed. For the neighbourhood teams, who ask for both quality and speed, this approach is unacceptable. However, from the figures can be concluded that verification speed strongly varies between knowledge networks. Some do succeed in optimizing speed and quality better than others. Those differences can be explained by how they deal with the other dilemmas.

Although assigning a single task to a group of dispersed employees (the core group) complicates coordination, this option has been chosen frequently for several tasks (guideline 1). The benefits (continuous occupation, larger contribution of expertise) are valued more than the ease of making one person responsible. However, two knowledge networks choose for rather centralized task allocations. In both cases this can be explained by their history. The first network is new and has only a few experts in the neighbourhood teams. The central coordinator is a strong supporter of electronic communication and is used to quickly insert and monitor changes. A risk of his centralized strategy, identified in the debriefing, is that his CoP is less sensitive to neighbourhood team needs. The other network is an older one but they have just started to use the intranet. As such they choose for intense face to face discussions in a small group of core experts to agree on their first moves. From the other four networks who choose for more decentralized task allocations, two perform well and two have severe problems. In one well performing network the coordinator and publishing expert are more profoundly describing their proposed changes and explicitly stating what points they doubt. As a result they get more and more detailed comments from their distributed experts. Their relation is more productive because the central employees direct the decentralized experts in what information they would like to receive as comments (guideline 1). In contrast another network had severe ambiguity problems when judging the quality of answers. A reason suggested in the debriefing was that their topic is inherently more complex and that that might urge more face to face or phone supported knowledge exchange in addition to putting postings on a bulletin board (guideline H).

Another observed difference between the well performing networks and the less performing ones is that some decentralized experts decrease their contributions when they do not feel acknowledged (guideline 2). In one network the coordinator has been actively checking by phone whether e-mails had had the intended effect and whether the group as a whole was still one-minded.

With regard to guideline 5 some knowledge networks conclude that their uniqueness and topic complexity requires that they have their own webmaster, who can for instance create links between related issues and deliberate in detail about phrasing. Others prefer to deliver their knowledge summaries directly to a general webmaster. In the debriefing session is concluded that both options can exist simultaneously and that the central webmaster can prompt individual CoP webmasters to stay closer to the uniform intranet structure.
6 DISCUSSION

Our discussion of knowledge management, CoPs and coordination theories reflects that it is problematic to formulate straightforward guidelines how knowledge can be shared in organizations and how IT can be applied to support this process. Our integrated view on coordination explains how the competing values of the traditional knowledge management approach (focusing on structured and controlled sharing of hard knowledge) and the CoPs concept (emphasizing the informal and freely flowing sharing of soft knowledge) can be jointly utilized.

Our experiences in the Amsterdam Police Force illustrate that there is no ‘best avenue’ for all CoPs, but that several ways of coordination can all produce satisfying results. We have observed that two CoPs with different labour divisions both are successful in balancing quality and speed. Thus, the issue is not to look for the best coordination mechanism and rely on it permanently, but rather to critically monitor the costs and benefits involved in a coordination mechanism, and switch to or add other mechanisms when benefits are too low or when costs are too high. Police officers also argue that different coordination mechanisms should exist concurrently to be able to utilize both their benefits. For example, they suggest that centralized publishing and decentralized publishing can coexist. This is an example of a ‘dilemma-resistant-arrangement’ (Twist et al 1998).

The guidelines presented in section 4 and 5 should be seen as a starting point rather than a complete set. This single case study has shown that the concept of paradoxical guidelines is worth further exploring. More studies in a large variety of organizations are needed to identify more dilemmas and paradoxical guidelines in knowledge sharing and IT support.

A final issue worth further exploring is how to know whether the situational ‘balance’ of the paradox is satisfying or optimal? In this study police officers have mutually agreed what balance was preferable. But research needs to be conducted to further specify and measure rather vague purposes like “making use of the strengths while mitigating the weaknesses” (Bots and Bruijn 2002).

7 CONCLUSION

Within knowledge management literature traditional codifying approaches and the CoPs concept have been presented as extremes or opposites. In that discussion the CoPs concept is often portrayed as superior, or at least as better fitting today’s more decentralized and flexible forms of organizing. However, some authors have pointed at negative aspects of the CoPs concept such as the difficulty to control their contribution to organizational performance and their vulnerability in virtual contexts. Drawing upon discussions in theories on coordination we argue that competing values have to be weighed in situational coordination choices. Such coordination choices may refer to knowledge sharing and to the application of IT support. In this paper we have shown how paradoxical guidelines can help knowledge workers to become aware of and to balance different competing values.

References


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