Interfaces between Human Resource Management and Knowledge Work Practices

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Abstract: Knowledge work has changed substantially in practice, partly due to using advanced information and communication technologies. Knowledge workers are increasingly self-organized and learn mostly informally on the work place. These changes have relevant implications for human resource management. Based on data that was collected in 11 semi-structured interviews with key people in two companies, four current knowledge work practices in the domains of competence management, knowledge management and innovation management are richly described. These practices are then analyzed with respect to highlighting and characterising potential interfaces to human resource management.

1 Introduction

In the last decades, practices of knowledge work and corresponding information and communication technology (ICT) workspaces have changed substantially and follow the course of organizations proactively or reactively developing into knowledge organizations [DB94]. There is a need to study the actual performed work of knowledge workers to design information systems (IS) which in turn are required to be capable of supporting employees during their everyday activities [KMS10]. Empirical assessment approaches, such as the investigation of work practices, shed light on everyday knowledge workers' activities performed by members of an organization. In this context, work practices refer to intentional, goal-oriented actions that follow certain general patterns, allowing transfer of experience and therefore trigger learning. This practice-oriented approach allows focusing on what people "actually" do rather than on what they know [BRW93], i.e. the theories-in-use rather than espoused theories in Argyris and Schön's terms [AS78], supporting the discovery of problems and challenges of

knowledge workers that today's human resource managers are faced with, particularly concerning personnel development.

This paper presents the results of two case studies of knowledge organizations in which knowledge work has been studied with a practice lens [Or00]. Goal of the paper is to point out interfaces, and their characteristics, between human resource management (HRM) and the knowledge work practices (KWP) described in the case studies. Fast and on-going market demand, regulation requirements and technological changes force these organizations to effectively reorganize business models, processes, organizational structures and internal work practices. Consequently, competences of the organization's workforce need to be permanently developed and maintained, in a way that is tailored to the workers. In this context, there are a number of organizational aspects that need consideration within the domain of HRM, such as (1) *competence-based management,* referring to a formal description and models of competences and skills as well as their integration within existing organizational repositories [vKLM99]; (2) *improvement of current learning strategies and processes*, enabled by standardized learning processes and personal working and learning environments (PWLE) [CGO10], and (3) the *improvement of products and services through innovation* are of crucial importance [SS01].

The two case studies illuminated in this paper were performed as the basis for the requirements elicitation process in a research project located at the intersection of HRM, Business Process Management (BPM), Knowledge Management (KM) and Innovation Management (IM). Goal of the project is the enhancement of learning and training of employees within their organizations, defining and developing models, methodologies, and tools to support the emergence of competences and creativity, by self-organizing acquisition, processing, and sharing of new information and knowledge with peers.

2 Related Work

Knowledge work is characterized by strong competence and communication requirements, collaboration, weakly structured and less foreseeable processes, as well as multiple roles per person [Ha01, KB00, Sc03]. Many of today's organizations heavily rely on knowledge-intensive processes for producing products and services allowing driving competitive advantage and sustainability [CB94, MHP09]. The management of knowledge has therefore received widespread importance, as knowledge is believed to have positive implications for organizations [SL02]. Studying knowledge itself is difficult due to its metaphysical nature [Sc00] and is embedded in collective systems of meaning and action [SS01].

In this respect, work practices have been recommended as a fitting approach to investigate knowledge work in general and study individual activities in the organizational context in particular [BRW93, KMS10, OY94]. However, the understanding of the concept *practice* is manifold and comprises terms such as (organizational) routines or patterns [CB94, Ge09, KZ06, PHH10]. Moreover, practices are characterized of being socially constructed, situated in context and emerge over time.

This strong empirical focus on what people do rather than on what they know and, one might add, why and how they do what they do, calls for a much more thorough investigation relying on interviews with experienced knowledge workers who are capable of reflection on action [Ge09]. In this case, their actions in knowledge work are investigated from the perspectives of competency management (CM), KM and IM. Work practices can therefore provide a major source for competence requirements and knowledge transfer as organizational experience is stored in such a form that allows rapidly transferring the experience to new situations and hence lowers the costs of problem solving [CB94]. Furthermore, also to improve processes related to HRM, we require to model, represent and harmonize knowledge within organizations [KIN00]. Organizational learning, as of central interest for HRM, as well as innovation depend on the ability to harness the potential hidden in the informal social architecture, including tacit knowledge, cooperation, informal learning, that emerge over a long period of time and are largely unplanned. However, while it is difficult to formalize what and how learning takes place, conditions can be set up to encourage it. Companies do so by mentoring, job rotation, periodic conferences, award and recognition programs [Th04]. Additionally, encouragement supported by ICT facilitates achieving effective organizational learning [LF03]. ICT in conjunction with the transfer of knowledge provides means to drive innovations by minimizing the chances of reinventing things that have already been created elsewhere. In this context, innovation, which involves the diffusion, implementation and utilization of new ideas, is typically seen as a recursive set of interactions between different sub-groups, agendas and forms of knowledge [SS01].

3 Study Design

The data collection approach chosen in the two case studies was semi-structured interviews (also known as unstructured, half structured, in-depth or informal interview) with leading representatives of different departments and contrasting experiences in the areas of KM, IM, and HRM. Semi-structured interviews are characterized as flexible due to the different types of questions asked by the interviewer and the possibility to individually focus on areas deemed important by the interviewee [Fr06]. Basis for the interviews was an interviewer guideline comprising 16 open-ended questions covering the domains of business process management and HRM, in particular CM, KM, and IM. The question regarding ICT support was thereby always included. The interviews were conducted by two research teams. One team interviewed six persons at a telecommunication company in Slovenia, who represented the organizational units IT, Human Resources, Legal and General Issues, Technology, and Project Management. The second team interviewed five persons at a digital healthcare communication company in Italy that operates in the medical information field, with high technical and graphical competencies. Interviewees represented organizational units, which will be further referenced as areas, Account, Technology, Art/Creative, Business, and Content. The data gained from the interviews was analyzed using the scenario technique and resulted in eight current knowledge work practices (KWP). These KWPs were developed according to the emphasis made by interviewees and the subsequent exploitation of transcriptions by researchers. They include sequences of actions, behavior of actors, changes in the setting, or the like, by telling a narrative. The user scenario technique requires seven

scenario elements: setting, actors, task goals, plans, evaluation, actions, and events [RC02].

4 Results

For this paper, four out of these eight work practices have been selected by their focus on HRM in order to discuss them with respect to CM, KM and IM on a more general level as it was done for the concrete description of the organizations for project's purposes.

KWP 1: Finding people with the right expertise (Telecommunication Company)

A project manager got assigned to a project in which a new, innovative service for IPTV should be introduced. He is elaborating the project analysis and plan that includes clarifying and determining the project objectives, results, tasks, their dependences, estimated effort, costs and risks to complete the project specification. The project manager also needs to define project roles and faces the problem to find the people with the right expertise. To find the most appropriate people, he takes into account project restrictions like deadlines, project budget and the requested quality level for results. The matrix organizational structure of the company enables him to invite for his team any employee that is deemed appropriate for the project. In the selection process, he relies on his knowledge about the skills "available" inside the organization, on his experiences gained in previous projects and on his social networks where more applicable information can be collected. He checks the job descriptions of the technical department and selects the profiles that he needs. To identify the people with the corresponding job positions, he talks informally to his colleagues and collects information. Then, he finds some people that fit to the profile he is searching for; unfortunately, he cannot find the appropriate performers for some of the specific technical tasks. Therefore, he consults the division manager of the technical department. Subsequently, knowing his subordinates, the division manager assesses the situation, and informs the project manager that there are no employees that actually possess the required skills. The needed expertise cannot be found within the organization and the project manager, together with the division manager, searches for subcontractors outside the organization. After completing the task of creating a proposal for a project team, the project manager defines the project roles and assigns the employees to the roles in a draft project specification that needs to be approved.

KWP 2: Notify peers about digital resources received in external trainings (Telecommunication Company)

An employee of the quality management department of the company recently received some external training that was encouraged by her supervisor. It is of common interest that the knowledge acquired by her is shared among her coworkers after completion of the training. She received a lot of useful information in the form of digital resources and she believes her colleagues would be interested in it. Unfortunately, the department she is in is busy with fulfilling their tasks so that no one has time for an informal talk. She

also does not want to set up a special meeting for her news, because they are not closely related to solving a specific problem in the company. She thinks about sending an e-mail to her colleagues, but realizes the file exceeds the attachment size the company policy allows. She also ponders the advantage of putting the digital resources on the common server of her department, but generally people do not like to search for information on the server, as there are numerous old files causing big folders. Also, the wiki tool is not the right place to store it because this would cause extra effort and the tool itself is not highly used by the people in her department. Therefore, she decides to save the digital resources somewhere on the shared hard drive and informs her supervisor informally on the next break because she thinks that superiors must know about new skills and capabilities of their department or division.

KWP 3: Skill-based Working Team Creation (Digital Healthcare Company)

Projects are a common phenomenon within the organization that offers service solutions to other organizations. Thereby, the HR department and a specific internal committee are tasked to staff project teams. The HR manager has a complete and exhaustive view of workers' competencies. She and the committee appoint a project manager by selecting him from a number of area specialists, experts in their field, or senior developers; together they face the problem of searching for employees who have the required level of expertise and skills. The HR manager exploits the competencies management tool, where all employees are encouraged to keep track of their skills and expertise, to look if the requested skills are available. She proposes to the project manager a list of employees who evaluates them. Only if the required competences are present in the company, the project can start; otherwise, the HR department, always in coordination with the project manager, has to organize learning activities to create or improve the skills in order to fill the competencies gap. Learning activities are organized by the HR department and the process can be triggered from two different paths: *i) the reactive one*, when the request of a new product or service comes directly from a customer through an account manager, and *ii) the proactive one*, when the idea is proposed and developed internally thanks to brainstorming sessions or internal meetings. As soon as the learning activity is finished, a set of evaluation tests are applied to assess the quality of the supplied activities and the actual acquisition of the required competencies by the workers. Only if the tests are positive, the worker's skill profile is updated with the new competency.

KWP 4: Learning Activity Creation (Digital Healthcare Company)

Periodic worker skill assessment tests represent an ongoing process that allows monitoring of missing skills and giving the opportunity to trigger learning activities proactively. This process allows the HR manager to detect and find the correct learning activities needed to bridge the competency gap with respect to current and future company's requirements. The possible alternatives of identifying missing competences are manifold: the account manager could find them evaluating the customer requests, an area specialist can forecast a new important competence in a specific area and suggest to the HR manager to organize the activity, an area manager could find missing skills analyzing the competences of their co-workers, or an employee could suggest it on the

social network. Starting from these considerations, the HR department, taking the budget constraints into account, validates the gap and organizes a learning activity. After reviewing the available funds, the HR manager starts two parallel processes. In the first one, she identifies possible attendees for the learning activity using the CM tools. Thereby, she considers whether the competency gap is strategic for the company or not. In the case that the competency is of strategic value, she selects all employees that will need to have this competence in the future for the learning activity. Otherwise, only selected people will be appointed to participate in the learning activity. Parallel to the identification of attendees, the HR manager defines the learning delivering modality, taking into account proposals of area managers and the specialists, and selects the best way to provide the learning activity. In particular, the HR manager selects the modality with respect to the subject of the course (internal course, external course, coaching, web learning etc.) and subsequently, she identifies the teacher and the logistic details. After defining the organizational aspects, the learning activity begins. The last step of this scenario is the assessment of the activity itself; this evaluation depends on the modality of the learning activity, and the results are considered for updating the employees skills profile, and providing input for the next courses.

5 Discussion

Work practices of companies within the telecommunication and digital healthcare sector showed that knowledge workers are settled within a dynamic work environment which is expressed amongst other things by constantly changing organizational requirements and flexible assignment of tasks from multiple organizational units. Hence, these reoccurring practices are difficult to control and to govern. For both companies, it was observable that identifying the "right people for the right team" is one key issue (KWP 1 and 3). Knowledge about employees is to a great deal bound to a person and transferred informally within the organizational boundaries. Therefore a holistic CM support, as well as a defined team creation processes could be an approach to fill knowledge gaps when assigning employees to roles. KM initiatives such as the use of wikis for documenting knowledge collaboratively represent examples on how the company within the telecommunication sector is commiting itself to externalize knowledge to make it available for the whole organization while the digital healthcare company relies on specially prepared learning activities in this respect (KWP 2 and 4). In this context, further initiatives are necessary to ensure that IT-supported documented (new) knowledge finds continous update and maintenance so that employees have trust in artifacts. Awareness of externalized knowledge and acceptance of technology are examples for success factors as otherwise many knowledge workers keep relying on their informal networks and implicit knowledge will not be externalized (see KWP 2).

At this point also the design of collaboration systems is regarded as enabler to foster knowledge exchange and innovation within social networks. In the case of the digital heathcare communication company, knowledge transfer within the enterprise social network seems to be well accepted by the workforce. A further valuable insight represents the use of the CM tool which gives the HR manager decision-support for staffing projects or triggering learning activities (KWP 3). Hence, this approach

represents an example for bundling organizational knowledge within software. Additionally, this kind of knowledge about the workforce's competencies is mostly existent in an implicit form in key persons, such as departement heads. Furthermore, in the case that competences are not yet available, their development through workplace learning and trainings occurs in most cases in an *ad-hoc* manner and is not systematically supported (KWP 1).

Thus far, the analysis of KWPs has elicited a number of potential points of contact for improvement. The question arises how HRM can leverage on these kinds of findings? We think that so-called interfaces represent linkages between HRM processes and KWPs. Thus, the most important interfaces identified between HR and KWP in these two case studies are:

- *Skill request:* An essential basis for most KWPs identified is a coherent process dealing with new required skills. So far, department and project leaders at the Telecommunication Company have acted independently from the HR department when identified a missing skill.

- *Digital resources received in external trainings:* KWP 2 has shown that valuable digital learning resources received at external trainings are hardly made use of inside the organization. Often, only the employee who took part in the training knows where the learning documents are saved.

- *Selected employees with required skills:* Within the Telecommunication Company employees' competences are not formally tracked but in the personal knowledge of the team manager. This challenge is performed more structured at the Digital Healthcare Company where HR managers are conducted and a competence management tool gives disclosure about employees.

- *Assessment test:* For developing skills, maintaining competencies, and assigning learning activities, assessment tests are the key instruments in the digital healthcare company and a vital interface between HR and KWPs in all departments.

- *Suggestions for learning activities:* Whereas in the Digital Healthcare Company HR is strongly involved in coordinating and organizing learning activities, in the Telecommunication Company superiors are mostly responsible for their employees' continuing education.

- *Job descriptions:* The definition of job descriptions is regarded as essential for recruiting new employees, building teams with existing employees and defining responsibilities in the organization. In the case studies it was shown that job descriptions are provided by the HR department but only used in a limited way and regularly updates are not anchored yet.

- *Competence profiles:* An essential basis for successful team creation, tracking learning activities and discovering competence gaps are competency profiles and therefore they are a key interface between KWPs and HRM.

- *Coordination instruments:* Coordination, as well as collaboration and communication, instruments supporting employees, departments and organizations in their daily tasks represent interfaces between HRM and KWPs.

Beside these interfaces identified between HRM and KWPs, the interchange and operation between HRM and KWPs can be delineated according to the following characteristics:

- *Formal versus informal*: Whereas the Digital Healthcare Company KWPs deploys a number of formal CM processes, the Telecommunication Company KWPs are characterized by having mostly informal CM processes but formal processes in other HRM areas.

- *ICT supported communication versus face-to-face communication*: Both organizations analyzed use several ICT tools for coordination and collaboration inside and outside the organization. However, personal face-to-face communication is seen as a strong anchor of organizational culture and was observable in several KWPs, particularly at the Telecommunication Company.

- *Reactive versus proactive*: Leaks in the documentation of competences force employees in several KWPs to act reactive when planning learning activities, organizing teams, etc. At the same time e.g., regular assessment tests support proactive competence planning.

- *Workplace versus off-workplace learning*: Where workplace learning is part of daily KWPs, barriers and organizational effort for off-workplace learning are present. Both ways of learning request further guidance and support by HRM, also to gain more up-to-date information about employees' competencies.

Summing up, in order to improve employees' capabilities for more effective and efficient knowledge work, adressing the interfaces and their characteristics identified above seems to be a promising way to create important levers for HRM. Organisational and technological infrastructure for managing competencies, knowledge and collaboration in organisations are seen as instruments to adress these interfaces.

6 Limitations

This work strives to give relevant representations of typical practices during knowledge work. Despite this contribution, there exist several notable limitations that need to be considered. This investigation of knowledge work and its implication to several domains was conducted within a project that aims at designing an ICT solution supporting and enhancing these and further work practices. As a pre-study, we studied documents

provided by the organizations on the organizational structure and business processes as well as interviewee descriptions extensively to enhance interpretation. Ambiguities within results were communicated and discussed among company partners or interviewers. Language represented a barrier in conducting the interviews. Whereas interviews within the digital healthcare company could be held in the language spoken in the company (Italian), personnel and interviewers in the telecommunication company in Slovenia needed to rely on a common language; in this case English. A further limitation relates to the restriction on two cases and therefore generalizable results cannot be made.

7 Conclusion

The discussed work practices show the importance of interfaces between KWPs and HRM. Therefore, regulating and integrating solutions for HRM are needed. As the success of both organizations strongly depends on how knowledge-intensive tasks are performed, the lingering question stays whether people doing the jobs have all the competences and knowledge to responsibly make their daily decisions and at the same time be creative and support the company's innovative course. To cope with this challenge, currently only restricted ICT support is given which partly could be filled with tools available on the market, but potential is seen especially in the complex area of workplace learning in connection with CM. This also calls for closer collaboration between HRM and department managers in guiding knowledge workers developing their competencies. Thus, not only HRM can be in focus, but also coordination with business process management, in particular when it comes to process description and documentation, KM, and IM initiatives need to be considered.

Acknowledgement

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