

Human-Resources Mindfulness – Promoting Health in Knowledge-intensive SMEs

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Abstract

Highly qualified professionals are of vital importance for the long-term viability of knowledge-intensive organizations (KIOs). However, the regeneration of this human resource is threatened by two sources of uncertainty inducing chronic psychological stress at work, i.e. dynamic environments with fluctuating customer demands and the ‘deconfined’ nature of knowledge work reflected by unpredictable work processes and outcomes. Moreover, chronic stress at work is increased by an internal marketization of many KIOs linked to closer controls of finance, personnel and time. Strategic Human Resource Management (SHRM) practices are challenged by the threat of a successive depletion of knowledge workers’ health resources. In this chapter, it is argued that the concept of Human-Resources Mindfulness can be integrated in the concept of Sustainable HRM to foster sustainable work systems and employees’ health in KIOs. HR Mindfulness is conceived as enhanced organizational awareness related to anticipating and coping with sources of uncertainty that threaten KIOs’ HR base. HR Mindfulness can promote sustainable work systems in KIOs, if a mindful HR-infrastructure based on organizational routines and dialogue is established.

Table of Contents

1. Introduction	2
2. Empirical cases: HRM in Knowledge-intensive German SMEs offering ICT services.....	4
2.1 Core Characteristics of the German ICT service industry	5
2.2 The Hybrid Model of HRM in German SMEs offering ICT services.....	6
2.3 Unintended Effects of the Hybrid Model of HRM	7
3. Developing and Regenerating Health Resources by Human-Resources Mindfulness	9
3.1 HR-Mindfulness as a Sub-Concept of Organizational Mindfulness	10
3.2 HR Mindfulness in Application.....	13
4. Conclusion.....	16
References	18

1. Introduction

Knowledge-intensive organizations (KIOs) are characterized by a high significance of sophisticated or exceptional knowledge that is required to deal with complexity and uncertainty (Grey and Sturdy 2009, 135). In the economic perspective, this specialist knowledge and the ways, it is produced, divided, shared and utilized are regarded as the prime force of KIOs' performance, competitiveness and longevity (Swart 2008; Brödner 2009). This sophisticated knowledge is considered to be a specific form of economic capital in that it is embodied in highly qualified knowledge workers (Brödner 2009; Grey and Sturdy 2009). These draw on implicit or tacit, i.e. experience-based knowledge, and on explicit or codified knowledge involving abstract, technical and theoretical knowledge (Brödner 2009; Blackler 1995). Explicit knowledge is of little economic value without experience in application, i.e. tacit knowledge (Swart 2008; Blackler 1995). KIOs depend on highly qualified and adaptable experts that are capable of developing innovations, i.e. new products, processes or institutional arrangements (Brödner 2009; Grey and Sturdy 2009), to achieve competitive advantages and organizational longevity. Hence, attracting, developing, regenerating and retaining these critical and indispensable human resources turns out as a core challenge to Human Resource Management (HRM) (Grey and Sturdy 2009; Brödner 2009; Docherty et al. 2009) that – in a broad sense – can be defined as “the management of work and people towards desired ends” (Boxall et al. 2008, 1).

In the perspective of organizational sustainability directed to achieve companies' long-term viability in volatile environments, Sustainable Human Resource Management (Sustainable HRM) can be viewed as an extension of SHRM (Ehnert 2009). Sustainable HRM intends to balance the efficient deployment of 'human resources' with sustaining their long-term availability (Ehnert 2009) by two basic sets of sustainability strategies (Ehnert 2009): First, the reproduction of external sources of resources critical to ensure resource availability (Müller-Christ 2001) i.e. strategies that intend to “maintain the HR base from within” (Ehnert 2009, 165), and second, internal strategies that have the goal of regenerating and developing human resources, thereby, contributing to the development of sustainable work systems that are conceived as systems “where human and social resources are ... regenerated through the process of work while still maintaining productivity and a competitive edge” (Docherty et al. 2002b, 214).

This chapter primarily refers to the second set of sustainability strategies. Firstly, it addresses an under-explored core problem of Sustainable HRM: the development and regeneration of highly qualified knowledge workers' health resources (Becke et al. 2010a). It is assumed that knowledge workers can only contribute effectively to KIOs' long-term viability, if employees' health-related resources are developed and regenerated. In this chapter, it is argued that knowledge workers can develop and regenerate their health resources, if they are capa-

ble of balancing work-related demands effectively with available coping resources at work, e.g. job control or social support (Ulich and Wülser 2004). However, highly qualified knowledge work is often confronted with two sources of uncertainty problematic to knowledge workers' health resources: External uncertainty is related to dynamic and unforeseeable business environments, e.g. a variety of customers with fluctuating demands (Vogus and Welbourne 2003). Moreover, uncertainty results from the specific character of innovation-driven knowledge work that is reflected by complex problem-solving activities with often unpredictable work processes and outcomes (Brödner 2009). Both sources of uncertainty result in increased work intensity fostering a successive depletion of knowledge workers' health resources (Hatchuel 2002; Brödner 2009).

Secondly, it is the objective of this chapter to develop the concept of human-resources (HR) Mindfulness as a sub-concept of Organizational Mindfulness (OM) (Weick/Sutcliffe 2001). HR Mindfulness is defined in this chapter as enhanced organizational awareness directed to the anticipation of and coping with external and internal sources of uncertainty that threaten KIOs' HR base, specifically the development and regeneration of knowledge workers' health resources (see also Chapter 3 of this volume). It is argued that HR Mindfulness can be integrated into a Sustainable HRM so facilitating the development of sustainable work systems, specifically taking account of external and internal uncertainties related to highly qualified knowledge work. It is assumed that HR Mindfulness fosters sustainable work systems by establishing an HR-infrastructure that is comprised of organizational routines within and outside of work processes, and of participative and dialogue-oriented procedures.

In this chapter, HRM and its practices in KIOs are reflected in a perspective inspired by the sociology of work and organizations. This perspective is based on normative assumptions that differ from the economic perspective: In the latter, employees are primarily regarded as 'human resources' who are to be managed to achieve desired economic ends (Grey 2010, 150). Contrary to this functionalist approach, the sociology of work and organizations primarily conceives employees as individual and collective actors that can utilize their primary power resources, e.g. tacit knowledge, or secondary power resources based on collective interest representation to shape work environments and to place constraints on management control (Edwards 2003; Grey 2010; Thompson 1989). In this perspective, employees are regarded as resourceful human beings with specific work-related interests, expectations and needs (Sisson 2007; Becke 2010) drawing on individual and social resources generated in social interactions at work (e.g. trust and mutual support) (Ulich and Wülser 2004). Individual resources include intellectual and tacit knowledge, skills, motivation to work, emotional and social competencies, and psycho-physical health resources, as individuals' sense of coherence and convictions of self-efficacy (Antonovsky 1979). Human beings may develop and utilize their resources in the workplace, e.g. to effectively cope with the demands of their work environment (Antonovsky 1979).

In the perspective of HR Mindfulness, employees are acknowledged as resourceful human beings and actors in the workplace that can utilize their tacit knowledge to develop solutions that foster a balance between work-related demands and coping resources regarding the two sources of uncertainty. Moreover, HR Mindfulness provides an infrastructure of organizational routines and dialogue that is grounded in an active participation of knowledge workers in designing (more) sustainable work systems and shaping frame conditions of knowledge work at company level.

This chapter is structured as follows: The second part refers to the exemplary empirical field of reference, i.e. HRM-practices in knowledge-intensive German Small and Medium Enterprises (SMEs) offering Information and Communications Technology (ICT) services. In this part, the emergent hybrid model of HRM containing contradictory elements of ‘soft’ and ‘hard’ models of HRM (Legge 2005) and the introduction of ‘internal marketization’ (Becke 2010) are discussed in respect of its unintended adverse health effects on knowledge workers by drawing on empirical findings related to recent research studies and our own action-research based case-study results. In the third part, the concept of HR Mindfulness is developed. Moreover, the application of HR Mindfulness is highlighted by drawing on our empirical case-study findings. It is shown that the infrastructure of HR Mindfulness enables SMEs offering ICT services and knowledge workers to effectively cope with the unexpected, i.e. unanticipated events related to internal or external sources of uncertainty, that especially prove to be severe psychological stressors in the context of the hybrid model of HRM and internal marketization. In the final part, it is concluded that HR Mindfulness can be integrated in Sustainable HRM, thereby facilitating the promotion of (more) sustainable work systems taking account of internal and external sources of uncertainty linked to KIOs. Additionally, limitations of the concept of HR Mindfulness, and the relevance of institutional contexts are discussed.

2. Empirical cases: HRM in Knowledge-intensive German SMEs offering ICT services

This and the following section provide an overview of empirical findings drawing on two different sources: On the one hand, the section refers to different research studies on working conditions and health promotion in German ICT services (cf. Brödner 2009; Boes et al. 2010; Gerlmaier et al. 2010). On the other hand, this overview relates to results from our explorative qualitative case-study research at the Centre for Sustainability Studies (artec, University of Bremen) in three SMEs offering ICT services (Becke et al. 2010a). These case studies referred to an internet-service provider for mobile users and social-media networks (firm A), a high quality provider of internet-services and multi-media platforms (firm B) and a cross-media enterprise offering services at the interface of printing and IT-services

(firm C). Their mostly professional workforces contained between 20 (firm A) and 80 employees (firm C). In these cases, different forms of employees' interest-representation existed: Whereas in firm A an informal employees' spokesperson was elected regularly, in B and C legally institutionalized works councils were well-established. A and B collaborated partially with freelancers in project work.

Our research project aimed at two objectives: First, the analysis of health resources, psychological stressors and related collective coping patterns in German SMEs offering ICT services. Second, the development of a framework of procedures and tools directed to health promotion in SMEs of this type in close cooperation with case-study firms based on an action research approach (Becke and Senghaas-Knobloch 2011). This approach included an active involvement of employees and managers as 'experts of their work situations' in a series of dialogue-workshops (Becke et al. 2010a). The action-research process enabled to develop and to test (partially) the HR-infrastructure of HR Mindfulness in these case-study firms.

2.1 Core Characteristics of the German ICT service industry

ICT services encompass a variety of economic activities including consulting, web- and internet-design, software development, the development or maintenance of complex internet-based system architectures and platforms for social media networks. In the German ICT service industry SMEs prevail (Mayer-Ahuja and Wolf 2005; Hancké 2002) that mostly lack an established HR infrastructure. The entire workforce of German ICT service industry consists of about 372,000 employees and freelancers (Hien 2007). The average employee is a male academic in his mid-thirties (Mayer-Ahuja and Wolf 2005; Hien 2007). The industry is characterized by a variety of organizational forms covering enterprises with more or less bureaucratic structures, companies with project-based organizational forms or cross-sectoral business processes, and fluid virtual networks composed of legally independent small or tiny firms extensively collaborating with freelancers (Mayer-Ahuja and Wolf 2005). Market environments are characterized by dynamic and intense competition, and comparatively short innovation cycles (Brödner 2009).

In ICT services knowledge work prevails. Knowledge work can be defined as generating, analyzing and diffusing, distributing and utilizing knowledge for business- and client-related means (cf. Hirsch-Kreinsen 2005). Knowledge work in the ICT service industry refers to the application and recombination of explicit knowledge ('know what') and tacit knowledge ('know how') embodied in human beings to solve complex, novel or ambiguous and abstract technological problems in order to achieve creative and innovative solutions, often tailored to specific customers' demands (Swart 2007, 452 p., Brödner 2009; Bleses 2009).

Problem-solving in ICT services necessitates an integration of knowledge from experts of different professional domains across professional and even organiza-

tional boundaries (Brödner 2009). Knowledge work in firms offering ICT services is often organized as project work in multidisciplinary teams (Brödner 2009, 54). This in-company core of project work is supplemented by freelancers that are hired flexibly for specific tasks. Project work more often involves a close collaboration with clients. This collaboration often includes mobile work requiring employees to work at clients' premises (Bleses 2009). Most projects in ICT services do not exceed several weeks or months extending up to half a year (Mayer-Ahuja and Wolf 2005).

2.2 The Hybrid Model of HRM in German SMEs offering ICT services

Since the turn of the millennium, a hybrid model of HRM has emerged in German SMEs offering ICT services containing contrasting or complementing elements of 'soft' and 'hard' models of HRM (Becke et al 2010b; Boes et al. 2010). The 'soft' model of HRM appreciating highly qualified knowledge workers as vital contributors to and "a source of competitive advantage through their commitment and adaptability of skills and performance" (Legge 2005, 224) prevailed in start-up and start-up-to-grown SMEs in the 1990s (Boes and Trinks 2006). Our case-study research underlines that features of this model still can be found partially today in elements such as training on the job, informal learning in communities of practice, and dense interpersonal communication structures (Becke et al. 2010b). Moreover, SMEs high performance work systems are often based on self-regulated project work taking account of the 'deconfined' character of innovation-driven knowledge work (Brödner 2009; Bleses 2009).

Furthermore, this 'soft' model-side of HRM is underlined by organizational cultures that can be characterized as variants of a "pragmatic production community" (Abel/Ittermann 2003, 105). Their backbones are mutual trust and consent-based labor relations. Often, informal modes of employee involvement and participation are practiced, as 'round tables' involving managers and employees' spokespersons or informal discussion groups (Abel and Ittermann 2003; Hancké 2002; Becke et al. 2010b).

Nevertheless, elements of the 'hard' model of HRM primarily regarding employees as "headcount resource ... to be exploited for maximal economic return" (Legge 2005, 223 p.) have been introduced to the ICT service industry, fostered by enhanced economic competition worldwide, mergers and acquisitions and recurrent economic crises, especially in 2001 and 2007+. The 'hard' model of HRM is reflected by the management concept of 'internal marketization' which is particularly driven by quests for closer controls over costs and performance at establishment level (Becke 2010). It combines the deference of economic responsibility to departmental and team levels with tighter centralized forms of economic control. Dynamic economic goals at firm level are transposed into cascades of 'manage-

ment by objectives'. Departments and self-regulated project teams are closely monitored by indirect forms of control focusing on economic performance outcomes encompassing profits, efficiency, and service quality (Boes et al. 2010; Bleses 2009). An advanced concept of 'internal marketization' was introduced in our case-study firm B.

Moreover, the 'hard model of HRM' was reinforced in economic crises by an enhanced off-shoring of tasks to ICT-service providers in countries with lower labor costs (Boes and Kämpf 2009) and by dismissals (Hien 2007). Although cost-cutting dismissals were utilized as an 'ultima ratio' to sustain firms' economic viability, this 'downsizing' often questioned the pragmatic production communities in German SMEs offering ICT services (Abel and Ittermann 2003; Boes and Trinks 2006; Becke et al. 2010b). In response to dismissals, informal and legally institutionalized forms of employees' interest representation were founded in German SMEs offering ICT services (Abel and Ittermann 2003).

2.3 Unintended Effects of the Hybrid Model of HRM

In the following paragraphs, the unintended effects of this hybrid model of HRM are analyzed in respect to enhanced work intensity and psychological stress at work. These unintended effects can be explained by two different sources of uncertainty that are closely related to the highly qualified project work. Uncertainty can e.g. arise from economic growth and decline, shortened innovation cycles and fluctuating or shifting customer demands (Vogus and Welbourne 2003). This external source of uncertainty requires SMEs' attentiveness to dynamic environments and their flexible external adaptation (e.g. by setting up new collaborative inter-organizational networks) and internal adaptation (Levinthal and Rerup 2006). The latter implies an adaptation of work systems and their related internal framing conditions, as overarching capacity planning of project work and personnel deployment (Becke et al. 2010b). The second, internal and work-related source of uncertainty refers to the specific features of innovation-driven and highly qualified project work as 'deconfined work' in which work content, work processes, outcomes and work environments cannot be determined or regulated precisely by management or work designers (Hatchuel 2002; Brödner 2009). Highly qualified knowledge work precludes precise advance planning and restricts direct forms of management control (Brödner 2009; Bleses 2009). 'Deconfined' knowledge work demands employees and freelancers to cope with unexpected events and imponderables, e.g. caused by unforeseen clients' demands (Brödner 2009; Bleses 2009). Therefore, it proves to be a key source of high work intensity reflected by long working hours and more or less continuous stress at work (Brödner 2009, 54).

The argument is that knowledge workers are able to cope with both sources of uncertainty if they can balance work demands linked to these uncertainties with sufficiently available work-related resources (Maslach and Leiter 1997; see also

Chapter 5 in this volume). It is argued that the hybrid model of HRM leads to an imbalance between demands and work-related resources that fosters chronic stress and, in the long run, can result in physical and emotional exhaustion (Schaufeli and Greenglas 2001; Brödner 2009).

Since the economic crises of 2001 and 2007+, the economic pressure on project work in larger companies and in SMEs has been increased by the management concept of internal marketization. The introduction and establishment of this management concept enhanced work intensity and psychological stress: First, stress is heightened by the increased scarcity of resources in terms of finance, personnel and time available for project work (Boes et al. 2010). Internal marketization places constraints on knowledge workers' capability and resource base to cope with the unexpected in 'deconfined' and innovation-focused project work (Brödner 2009; Becke et al. 2010a). For instance, tight deadlines restrict the availability of time resources in project work that knowledge workers necessitate as a buffer to cope with unexpected events (Brödner 2009; Becke et al. 2010b).

IT-professionals often respond to restrictions of resources in project work by developing problematic coping patterns that foster a depletion of their health resources (Becke et al. 2010b). These coping patterns consist of a self-induced extension of working hours and work intensification in order to meet time-schedules. Work is intensified, if breaks at work are shortened or even avoided (Gerlmaier et al. 2010). Under time pressure, knowledge workers informally extend their working hours more often beyond the average of 45 to 50 working hours a week (cf. Hien 2007; Becke et al. 2010b; Gerlmaier et al. 2010), thereby decreasing their recreational ability: In a research study conducted by the Institute of Work and Qualification at the University of Duisburg-Essen, 29 per cent of the interviewed IT-professionals of German ICT service industry indicated that they were unable to relax after work and only 37 per cent of the interviewed knowledge workers were of the opinion that they were able to continue working in ICT services until retirement (Gerlmaier 2009; Gerlmaier et al. 2010). This result reflects IT-professionals' worries about a successive depletion of their health resources.

Second, chronic work-related stress can be attributed to the enhanced efficiency of HRM practices. In order to utilize human resources fully, IT-professionals have to work parallel on several projects (Gerlmaier 2009). In our case study firms, knowledge workers often had to work simultaneously on three or more projects. As our case studies show, IT-professionals identified this multiple project work as an important source of work-related stress (Becke et al. 2010b). It demands IT-professionals to individually co-ordinate their different projects taking account different tight time schedules and work packages. Hence, multiple project work leads to enhanced work-related stress because IT-professionals mostly do not have sufficient coping resources at their disposal, specifically to cope effectively with contradictory work demands (e.g. to provide high quality services in a short time) and unexpected events (Becke et al. 2010b; Gerlmaier 2009; Moldaschl 2002).

In internally marketed project work, work-related resources and high levels of psychological stress coexist more often (Brödner 2009). This coexistence contra-

dicts established approaches of work and organizational psychology, including the socio-technical work design perspective (Emery and Trist 1960) and the demand-control-model (Karasek 1979). According to these approaches, work related resources, such as job control, social interaction at work, or complete and meaningful tasks, are conceived as universal resources that enable employees to cope with high workloads and promote personal growth (Ulich and Wülser 2004). However, these approaches neglect the matter of work-related resources being context-dependent (Brödner 2009; Moldaschl 2002, Bleses 2009). In this relational view of resources, it is assumed that whether job characteristics can “serve as a resource or not depends on context and the framing conditions under which the work is performed” (Brödner 2009, 57). In this perspective, job control in project work of ICT services fails to buffer high workloads, if the context restrict its utilization by IT-professionals. For instance, knowledge workers cannot draw on job control as a resource, if they are expected to respond immediately to clients (Becke et al. 2010b). Unplanned clients’ demands and unanticipated interruptions at work attributed to emergent clients’ problems that are to be dealt with on the spot (e.g. in case of ‘service-level-agreements’ with customers) contribute to enhanced time pressure and demand that knowledge workers have to redirect their attention to the interrupted activities anew after having solved clients’ problems (Gerlmaier 2009).

Dismissals in German SMEs offering ICT services contribute to an increase in work-related stress. First, work-intensity is enhanced by staff reductions (Boes et al. 2010). Second, lay-offs and de-layering induce ‘structural holes’, i.e. gaps in the distribution of work-related responsibilities and the coordination of work processes (Becke et al. 2010b). In dialogue workshops carried out in case-study firms A and C, knowledge workers emphasized that they experienced these structural holes as a critical source of emerging psycho-social stress at work. In inter-departmental collaboration, recurrent stressful conflicts occurred that were attributed to structural holes. Work intensity was increased by disturbing and time-consuming conflicts (Becke et al. 2010b).

Although health-related problems can be attributed to enhanced work intensity and chronic stress, specifically German SMEs offering ICT services lack an established health promotion in the workplace addressing chronic psychological stress (Becke et al. 2010a).

3. Developing and Regenerating Health Resources by Human-Resources Mindfulness

The normative concept of sustainable development can be defined as “protecting the richness of the world’s resources in such a way that their utilization does not destroy them but rather leaves equal opportunity for future generations to benefit from them as well” (Docherty et al. 2009, 3). This definition reflects a resource-based perspective of sustainability that highlights the development and regenera-

tion of finite economic, ecological, social and human resources (Littig and Grießler 2005). Resources can be conceived as “enabling conditions for action in the present or the future” (Moldaschl 2002, 56; see also Chapter 1 in this volume).

Sustainable HRM can be viewed as an extension of SHRM in respect to organizational sustainability that refers to maintaining organizational viability in the face of volatile socio-economic environments (Ehnert 2009). Sustainable HRM aims at achieving two opposite key objectives (Ehnert 2009), on the one hand, to harness employees’ potential fully and to efficiently utilize human resources for enhanced business performance; and on the other hand, to attract and retain human resources over time. The latter encompasses HR-practices that are focused on the development and regeneration of human resources taking account of employees’ health and well-being (Ehnert 2009; Docherty et al. 2002a; Brödner 2009; Becke et al. 2010a). Health and well-being relate to the extended set of human needs that are addressed in sustainability concepts (Littig and Grießler 2005, 68), in quality-of-work concepts (Becke et al. 2010a; Dahl et al. 2009), and in the approach of socio-technical work design highlighting the regeneration of employees’ health resources by designing tasks and work organizations (Parker 2002; Ulich and Wülser 2004). In this health-related perspective, Sustainable HRM can contribute to establish or to foster sustainable work systems at company level (see Chapter 3 in this volume) by facilitating a dynamic balance of demands and sufficiently available work-related coping resources that enable highly qualified knowledge workers to develop and to regenerate their health resources over time. The cornerstone argument of this chapter suggests that this facilitating function of Sustainable HRM is strengthened by integrating HR Mindfulness in its infrastructure.

It is assumed that Sustainable HRM necessitates an integration of HR Mindfulness focusing on organizational awareness directed to the above mentioned sources of uncertainty that are closely related to innovation-driven knowledge work in SMEs of ICT services. Furthermore, HR Mindfulness and its infrastructure can assist Sustainable HRM to direct organizational attention to contextual framing conditions related to the hybrid model of HRM, specifically to internal marketization, as such frame conditions interfere with the dynamic balance of work-related demands and resources.

3.1 HR-Mindfulness as a Sub-Concept of Organizational Mindfulness

The following considerations seek to conceptualize HR mindfulness tentatively. HR Mindfulness can be conceived as a sub-concept of organizational mindfulness (OM) (Weick and Sutcliffe 2001). HR Mindfulness can be defined as heightened organizational awareness focused on the anticipation of and coping with external and internal uncertainties that are potential sources of adversity in respect to firms’ HR base and, specifically, to knowledge workers’ health resources. In this chapter,

HR mindfulness and its infrastructure primarily relate to the growth and the regeneration of knowledge workers' health resources (Ulich and Wülser 2004).

This conceptualization of HR Mindfulness is based on three core assumptions: First, HR Mindfulness can support Sustainable HRM by creating a mindful infrastructure of HR-practices and routines that are highly sensitive to innovation potentials and detrimental side effects on firms' HR base in respect to the hybrid model of HRM. This infrastructure also enables people to reflect and to design framing conditions related to this HRM-model, especially to internal marketization. In this view, the mindful HR-infrastructure can be conceived as a vigilant, early diagnosis and flexible intervention system for the development and regeneration of employees' health resources. Second, HR Mindfulness facilitates a regular exchange of actors' perspectives and direct participation of knowledge workers at company level drawing on their work-related interests, expectations and experience-based knowledge for designing (more) sustainable work systems (Docherty et al. 2002b; Busck et al. 2010). Finally, the extent to which a mindful HR-infrastructure leads to outcomes that promote sustainable work systems is influenced by other organizational factors, specifically the existence of a reflective organizational culture that "allows for voice and criticism without fear of retaliation" (Jordan et al. 2009, 467) and intra-organizational power structures, i.e. coalitions of decision-makers at company level that promote or oppose to this endeavor (Hatch 1997).

In the following paragraphs, the concept of HR Mindfulness is specified as a sub-concept of OM. The concept of OM was originally developed by Karl Weick and Kathleen Sutcliffe (2001) in respect to 'High-Reliability Organizations' (HRO) that are defined by their "unique ability to operate high hazard-technological systems in a nearly error-free manner" (Vogus and Welbourne 2003, 878). OM refers to the quality of organizations' attention in dynamic and unpredictable environments (Weick and Sutcliffe 2007, 32). OM involves "both a sustained high level of sensitivity to errors, unexpected events, and, more generally, to subtle cues suggested by the organization's environment or its own processes; and the capacity to engage in a flexible range of behaviors in order to respond effectively to this potentially diverse and changing set of stimuli" (Levinthal and Rerup 2006, 503). The concept of OM originally focused on HROs' continuous adaptation to highly dynamic and unpredictable environments (Weick and Sutcliffe 2007). However, these features of environmental contexts can also be attributed to other organizations than HROs, as many business organizations are operating in comparable volatile and unpredictable socio-economic environments (Vogus and Welbourne 2003).

OM is based on core principles that contribute to establish a 'mindful infrastructure' at company level (Weick and Sutcliffe 2001, 2007). These principles can be specified and applied to HR Mindfulness: The first principle refers to the reluctance to simplify interpretations. Taking account of different viewpoints and promoting skepticism to identify and to reduce blind spots, it provides a more nuanced picture of unforeseen events (Weick and Sutcliffe 2007). In the view of

HR Mindfulness, this principle mainly refers to organizing an exchange of different actors' perspectives (e.g. top managers, project managers, employees, self-employed) on framing conditions of innovation-driven project work related to the hybrid model of HRM. This exchange of perspectives is based on the involvement of employees and their experience-based knowledge (Becke et al. 2010a). It enables different organizational actors to reflect, to evaluate and to re-design the frame conditions of project work that restrict the development and regeneration of knowledge workers' health resources. This implies identifying unintended adverse health effects or unnoticed innovation potentials related to the HR base of SMEs providing ICT services (Becke et al. 2010b).

The second principle is sensitivity and attentiveness to local operations involving employees and their tacit knowledge (Weick and Sutcliffe 2007). This principle is also of importance for HR Mindfulness emphasizing employees' tacit knowledge as a core resource to anticipate or detect negative health-related side effects of fluctuating work demands and unexpected events in project work. Moreover, employees' tacit knowledge is regarded as storage of knowledge that enables employees to detect, to monitor and to reduce externally and internally induced interruptions at work restricting knowledge workers' opportunities to cope effectively with the unexpected in project work (Becke et al. 2010b). Finally, sensitivity to operations enables employees to develop work-related solutions to balance demands and resources in unpredictable work processes or to adapt work practices and routines to new circumstances or unexpected events (Jordan et al. 2009; Becke et al. 2010a). These two principles acknowledge the subject status of employees in HR Mindfulness as intra-organizational actors of creating sustainable work systems (Docherty et al. 2002a; Busck et al. 2010; see also Chapter 3 in this volume).

The third principle 'commitment to resilience' intends to maintain dynamic stability enabling firms' operational continuity after a severe crisis or in the face of continuous environmental strain. It entails "the ability to bounce back from errors and handle surprises in the moment" (Vogus and Welbourne 2007, 881). This OM-principle can be applied to HR Mindfulness in respect to intervention practices that alter problematic frame conditions of knowledge work in order to facilitate employees' regeneration of health resources (Becke et al. 2010b). Moreover, this principle can be focused on rebalancing reciprocity between management and employees, especially in respect to reorganization processes (Becke 2010). Rebalancing reciprocity enhances employees' social recognition by management that is reported to reduce psychic stress and the emergence of work-related psychic disorders (Siegrist 1996).

The fourth principle 'underspecification of structure' refers to "fluid decision-making" (Vogus and Welbourne 2003, 881) that enables organizations to turn decision structures upside down during periods of emergency or severe crisis, thereby utilizing local expert knowledge as an organizational resource for containing and coping with hazards (Weick and Sutcliffe 2007). In respect to HR Mindfulness, the underspecification of structure is reflected by deferred work autonomy

employees can draw on to cope effectively with unexpected events in work processes. According to the fifth OM-principle ‘preoccupation with failure’, the detection of errors and near misses is regarded as a core prerequisite of high organizational reliability. Errors and near misses are conceived as sources of organizational learning (Weick and Sutcliffe 2007). This principle can be applied to HR Mindfulness in a more fundamental way. It focuses the attention on a potential neglect of Sustainable HRM. In this view, potential failures or negative side effects of HR strategies and practices can be attributed to a structural imbalance between economic, social and ecological dimensions. Moreover, this principle highlights that HR Mindfulness requires an infrastructure that combines a vigilant awareness on unintended side effects and failures of HR strategies and practices with structures that facilitate (organizational) learning from failure.

3.2 HR Mindfulness in Application

HR Mindfulness is built upon individuals’ and groups’ mindful behavior in respect to work processes and work-related contexts, and their capacity to respond to unanticipated signals from these processes and contexts (Levinthal and Rerup 2006; Jordan et al. 2009). However, to establish mindfulness across time at an organizational level, HR Mindfulness requires an appropriate infrastructure involving procedures of dialogue and organizational routines (Levinthal and Rerup 2006; Becke et al. 2010a, see also table 3.1). Organizational routines can be conceived as “repetitive, recognizable patterns of interdependent actions, carried out by multiple actors” (Feldman and Pentland 2003, 95). Routines are characterized by the duality of structure and agency (Giddens 1984; Feldman and Pentland 2003): Routines as products of repeated social interactions can be maintained, reproduced and altered by human agency. This involves humans’ capacity to interpret, to modify, to reenact and to adjust routines to unpredictable work processes and contexts (Levinthal and Rerup 2006, 508). In respect to the mindful HR-infrastructure, organizational routines introduce instability and scrutiny to established work practices, operations and frame conditions of project work in order to promote sustainable work systems. Routines of HR Mindfulness can contribute to reflective learning within organizations (Becke et al. 2010a). Reflection can be defined as a “practice of inquiry that is concerned with past, current or future phenomena ...means engaging in comparison, considering alternatives, seeing things from various perspectives, and drawing inferences” (Jordan et al. 2009, 466).

The mindful HR-infrastructure embraces two basic variants of organizational routines: The first refers to routines that promote collective mindfulness by practices of reflection in ongoing work-related operations and interactions (Jordan et al. 2009; Levinthal and Rerup 2006). In this variant, the principle ‘sensitivity to operations’ is highlighted. Such “interactive routines” (Jordan et al 2009, 468)

primarily refer to a limited set of actors, i.e. project teams, project managers and collaborating self-employed. Examples of interactive routines in project work are start-, follow-up and regular team meetings or flexible and mostly informal meetings of project team members (e.g. 'scrum-meetings') that enable participants to update information, to adjust work co-ordination or to solve emerging unanticipated work-related problems. Such flexible and informal meetings reflect the OM-principle of 'underspecification of structure'. In our research project, still established interactive routines of project work were reenacted and extended by health-related dimensions. This integrative strategy of HR Mindfulness fosters continual self-monitoring and self-reflection of project teams in respect to dynamic work environments and to unexpected events emerging in project work. Contrary to more conventional tools and procedures of health promotion in the workplace, such as health promotion circles, health-related collective reflection and awareness is integrated into work processes (Becke et al. 2011). This integrative strategy does not require SMEs to set up a parallel structure of health promotion in the workplace (Schmidt 2010). In our action-research project, checklists and questioning practices for team members in respect to work-related stressors and health resources were developed in collaboration with SMEs (Schmidt 2010). Our case-study results indicated that these tools helped to sensitize team members for health-related issues in project work and to develop solutions to cope with stressors collectively in ongoing work processes, specifically by the flexible redistribution of project tasks, offering social support or addressing project managers to assist project teams in dealing with problematic clients (Becke et al. 2011; Schmidt 2010).

The second variant of routines facilitate 'reflection-on-action' taking place outside of work operations (Jordan et al. 2009), e.g. training, reviews of completed projects or steering committees. Interactive routines form the backbone of the integrative strategy to promote sustainable work systems, but necessitate an overarching locus of co-ordination and regulation (Becke et al. 2011) provided by steering committees. These committees consist of an extended range of decision-makers at firm level. In our case companies, these committees encompassed top managers, departmental managers and employees' representatives elected by the entire workforce. The latter were either works council members or a spokesperson. By involving employees' representatives an exchange of different perspectives on work-related issues was facilitated that mirrored the OM-principle of 'reluctance to simplify interpretations'. These committees served as a 'mindfulness radar' at company level by integrating and reflecting different signals of health-related problems or innovation potentials related to local work processes (Schmidt 2010). In this view, steering committees can be conceived as organizational routines that reflect the principle of 'preoccupation with failure'. Moreover, these committees reflected on health-related issues that had emerged in interactive routines indicating the need of an overarching reenactment of project work and framing conditions at company level. For instance, in our case-study firm B, top management and works council identified extra-long working hours as a core

stressor of project work. In response to their analysis, both actors negotiated a works agreement establishing a system of bilaterally monitored working-time accounts. Moreover, internal capacity planning was adjusted resulting in an increase of employment at company level. Since then, extended working hours were reduced significantly, establishing a working week with an average of 40 hours. This example reflects that steering committees can be regarded as an organizational key routine to design frame conditions of project work, thereby fostering sustainable work systems. Moreover, steering committees can act as collective power agents to decide on, to monitor and to evaluate solutions developed in 'spaces of dialogue' that facilitate the promotion of sustainable work systems (Becke et al. 2011). The OM-principle of 'commitment to resilience' is fostered by steering committees enabling a redesign of context conditions of project work.

Finally, the mindful HR-infrastructure can be built upon multi-actors' procedures of dialogue that provide opportunity structures for taking (regular) stock of entire work systems and related framing conditions by collective reflection, inquiry and problem-solving involving managers of different hierarchical levels, employees and their representatives at establishment level (Becke et al. 2010b). These procedures were developed taking account of participative dialogue approaches in the Scandinavian tradition of action research (Gustavsen 1994). Dialogue can be regarded as a participative procedure that is "flexible, changeable and open enough" to adapt work systems sustainably to dynamic environments (Kira 2002, 38). In our research study, 'spaces of dialogue' were introduced in all case-study SMEs. Employees and their representatives were involved in multi-actors' dialogue conferences that reflect the OM-principle of 'reluctance to simplify interpretations' by enabling an exchange of different actors' perspectives. In these conferences employees debated and negotiated work-related proposals with managers of different hierarchical levels. These proposals had been developed before in workshops as 'protected spaces of dialogue', only accessible to employees (Becke et al. 2010b). In the case of dialogue conferences, employee participation resulted in concluding consent-based agendas to be implemented accordingly and monitored by steering committees (Becke et al. 2010a).

In these spaces of dialogue, managers, employees and their representatives focused primarily on the collective reflection of overarching coordination of work processes, the specification and distribution of work-related roles and responsibilities, and practices of inter-professional co-operation and communication. Moreover, problematic frame conditions of project work were identified as important work-related stressors and redesigned (Becke et al. 2010b) reflecting the OM-principle of 'commitment to resilience'. For instance, in firm A psychological stress induced by 'structural holes' was reduced by defining responsibilities related to the interface-cooperation between different departments. In firm C, the entire work flow from acquiring projects to reviewing completed projects was collectively reassessed in dialogue-workshops in order to identify gaps of internal information and knowledge transfer and inter-departmental co-operation problems that induced stress at work and proved to be sources of internal conflict. Most of

these negotiated solutions enhanced the transparency and manageability of work processes, thereby reducing work-related stressors at company level (Becke et al. 2010a; see also Antonovsky 1997; Kira 2002).

Table 3.1: The mindful HR-infrastructure in knowledge-intensive SMEs

Core Elements and OM-principles	Range of Actors	Focus
Interactive Routines in Work Processes OM-principles of ‘under-specification of structure’ and ‘sensitivity to local operations’	Project-team members: Project manager, employed and self-employed knowledge workers ► Direct Participation	Coping with emergent psychological stressors in work processes
Routines outside of Work Processes (e.g. steering committee) OM-principles of ‘reluctance to simplify interpretations’, ‘preoccupation with failure’ and ‘commitment to resilience’	Managers of different levels, employees’ representatives, ► Representative Participation	Reflection and analysis of interactive routines; Strategy-Development related to the promotion of sustainable work systems; Monitoring and evaluation of measures negotiated in dialogue conferences.
Spaces of Dialogue OM-principles of ‘reluctance to simplify interpretations’ and ‘commitment to resilience’	Employees, managers ► Direct Participation and Negotiation	Taking stock of work systems and frame conditions; Consent-based measures for sustainable work systems

Source: Own table

4. Conclusion

In this chapter, it is argued that HR Mindfulness and its underlying infrastructure strengthens the capacity of Sustainable HRM to foster sustainable work systems in knowledge-intensive SMEs by coping with two key sources of the unexpected, i.e. volatile and unpredictable environments, and unanticipated events closely linked to ‘deconfined’ knowledge work. Against the background of an emergent hybrid model of HRM, exemplified by German SMEs offering ICT services, these sources of the unexpected are identified as critical psychological stressors for the depletion of knowledge workers’ health resources. HR Mindfulness provides an HR-infrastructure that enables Sustainable HRM to sustain knowledge workers’ health resources by coping effectively with these sources of the unexpected: First,

participative interactive routines integrated in ongoing work processes of project work enable knowledge workers to anticipate and to identify unanticipated and emerging psychological stressors at work and to develop mutual coping strategies. Second, participative routines outside of work processes, especially steering committees involving managers and employees' representatives, enable an overarching collective reflection and inquiry of psychological stressors and health resources related to project work. Such routines provide a multi-actors' platform for decision-making on strategic initiatives of health promotion at establishment level. Finally, participatory spaces of dialogue involving managers, employee representatives and knowledge workers as organizational actors facilitate to review entire work systems in order to enhance the organizational resources of transparency and manageability (cf. Antonovsky 1997; Becke et al. 2010a), thereby supporting the development and regeneration of knowledge workers' health resources. Moreover, spaces of dialogue enable organizational actors to reflect and to redesign frame conditions of project work closely linked to the hybrid model of HRM. By reducing problematic frame conditions, highly qualified knowledge workers' capacity to effectively cope with the dual source of the unexpected is strengthened.

However, limitations of HR Mindfulness have to be addressed. First, its outcomes tend to be ambiguous because expenditures and efforts of an enhanced and continual organizational awareness on HR Mindfulness, including the maintenance of a mindful HR-infrastructure, have to be taken into consideration (Levinthal and Rerup 2006). Second, organizational routines and procedures related to HR Mindfulness can become taken for granted (Jordan et al. 2009). In this case, HR Mindfulness fails to adapt work systems sustainably in the face of the unexpected. Hence, future research is to analyze how business organizations can establish adaptable, self-monitoring meta-routines of HR Mindfulness. Third, the application and outcomes of HR Mindfulness are dependent on organizational cultures facilitating trust-based critical reflection of established work systems (Jordan et al. 2009; Schmidt 2010). With this perspective, it has to be considered how cultural change at organizational level can be promoted so opening up space for critical collective reflection and learning. Finally, the application of HR Mindfulness can collide with established power structures at company level (Feldman and Pentland 2003). Hence, the participatory design of its mindful HR-infrastructure can be conceived by managers as a threat to management control and authority (Becke 2010; Bucksch et al. 2010). Further research is required to explore the development of internal coalitions of actors and their specific interests regarding the application of HR Mindfulness.

The extent to which HR Mindfulness is implemented at company level and the range of involved intra-organizational actors varies with institutional contexts. Institutions can be conceived as "both legal and quasi-legal frameworks and of the constraints imposed by the presence of actors ... endowed with rights and resources resulting from these frameworks" (Hancké 2002, 76). Core legal institutional frameworks shaping the application of HR Mindfulness at company level

specifically refer to national systems of Industrial Relations and legal frameworks of occupational health and safety or health promotion in the workplace. These frameworks define the range and resources of potential actors in respect to HR Mindfulness at company level. For example, there exists a differentiated framework of health and safety legislation in Germany that especially obliges larger companies to set up an elaborated health and safety management (Schneider and Beblo 2010). Compared to SMEs, the range of potential actors of mindful HR-infrastructures is extended in larger German companies by establishing medical and safety personnel with specific institutionally based rights and resources. These actors can join and support power coalitions at company level promoting mindful HR-infrastructures and sustainable work systems.

Future research necessitates a closer analysis of the impact of different systems of Industrial Relations regarding the application of HR Mindfulness. Institutional contexts that shape national systems of Industrial Relations can be roughly distinguished in liberal market economies, e.g. the USA and the UK, and coordinated market economies, such as Scandinavian countries or Germany (Hall/Soskice 2001). In coordinated market economies, systems of Industrial Relations with a legally institutionalized representative participation of employees prevail at establishment level, either by trade unions (as in Sweden) or by works councils elected by the entire workforce (as in Germany) (Weitbrecht 2003). Unlike coordinated market economies, there hardly exists a legally guaranteed basis of employees' interest representation at company level in liberal market economies (Becke 2010). For instance, our case-study research underlined that the institution of works councils in German SMEs offering ICT services proved to be a key actor regarding the application of HR Mindfulness and the regulation of frame conditions of project work by drawing on their legally institutionalized co-determination rights in work design and occupational health and safety (Becke et al. 2010b; Gerlmaier 2006). It remains an open research question whether any, more stable functional equivalents to works councils can be identified in liberal market economies that promote HR Mindfulness at company level.

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