

Striking a Balance Between Work Effort and Resource Regeneration

Vitality as a Sustainable Performance Concept

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Perpetuum Mobile: The desire to develop a system of Perpetual Motion is an old quest which according to the laws of physics is one of the impossibilities of nature. Perpetual motion implies that continuously more new energy is created than the amount of energy that is invested in the actual motion. For physicists this is an infeasible phenomenon (business economists might just call the phenomena profit). Nevertheless, for ages, scientists have sought to mechanically generate this “free” energy in experiments with so-called perpetua mobilia. However, it was not until 1996 that the Norwegian polymath Reidar Finsrud actually did manage to build a device that keeps an iron ball in ongoing motion – although theoretical physicists are still skeptical of the basis of this device. Time will, literally, tell who is right.

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Abstract In this chapter an individual mechanism of *sustainable* work performance as opposed to *high* work performance is explored – theoretically and empirically. It is stated that sustainable work performance is a joint function of high resource levels (energy, time and competences) and the allocation of resources which also allows for resource regeneration. Building on Conservation of Resource theory (COR; Hobfoll, 1989) and proactive work behavior literature (cf. Parker et al. 2006) the notion of employee vitality is discussed as a representation of the dynamic interplay between employee vigor and proactivity. An important feature is that high vitality employees can overcome the resource constraints to sustainable work performance over time. They can perform sustainably because high effort expenditure does not drain their resources but is likely to protect and help employees to regenerate them. In order to test some of the assumptions of employee vitality as a sustainable work performance concept, analyses of survey data from nearly 2,000 Dutch employees give empirical support for the assumptions. We close the chapter with an elaboration on employee vitality as a touchstone for Sustainable HRM activities and discuss the role of HRM in providing the right circumstances for employee vitality to occur.

1 Introduction

The challenge of managing human resources sustainably is possibly much like the challenge of building a perpetuum mobile. How can organizations and HRM ensure that employees themselves will “keep the ball rolling” now and in the future? How can – simultaneously – HRM support employees in regenerating their resources and their ‘vitality’ that they need for continuous work performance without burning themselves out? These questions relate to one of the core issues in this handbook: how can HRM create sustainable economic value for companies or organizations over the long term without destroying natural, social or human capital (e.g., Elkington 1999)?

Managing the work and organizational facets that unleash and support the optimal expenditure of employee energy is a key issue for (human resource) managers in the attainment of team and organizational goals. It is of particular importance in times where individual, team and organizational goals shift towards a more sustainable development in organizations (see chapter “[Sustainability and HRM](#)”). In recent years, more and more researchers in the emerging trend towards positive psychology or positive organizational behavior focus on human strengths and optimal functioning rather than on weaknesses and malfunctioning (Seligman and

Csikszentmihalyi 2000). As organizations seek to know if its workforce has what it takes to stay competitive and survive the demands of present day market dynamics, the assessment of those critical employee attributes that could make a competitive difference is an increasing object of practical and academic investigation (Ilgen and Pulakos 1999; Frese and Fay 2001; Sonnentag and Frese 2002). At the same time, organizations and HRM have started to understand that it is not sufficient to be competitive in order to ensure long-term viability (see chapter “Sustainability and HRM”) but that there is also a need for resource regeneration and renewal (e.g. health) at the individual employee level.

Focusing on human strength and functioning has led to various conceptualizations and measures for positive psychological constructs that tap the employee’s high-performance potential. Notable are, for instance, ‘work engagement’ (Schaufeli and Bakker 2004), ‘thriving at work’ (Spreitzer et al. 2005), ‘organizational energy’ (Kunze and Bruch 2010), ‘vigor at work’ (Little et al. 2010) or ‘zest (for work)’ (Peterson et al. 2009). What these constructs have in common is that they all contain an element that specifically focuses on the mental and physical energy that employees individually or as a work group “feel bursting” and are willing to invest in their jobs. Also, all of these constructs have been found to empirically relate to various individual work performance outcomes. For instance, a longitudinal study by Van Veldhoven et al. (2009) among more than 3,000 employees of a large Dutch bank showed that employees with high energy during the day received higher individual performance-ratings by their supervisors in the following year. This suggests that employee energy is a valuable human resource to contemporary organizations.

It is, however, also a vulnerable human resource. Or as Yeo and Neal (2004) put it: a “limited-capacity” resource. People can run out of energy on a daily basis, just like they can run out of energy over a longer period of time. As “high” work performance relies on the energy resources employees invest in their work, performing well can come at the expense of feeling well when with the effort put in the job employee energy gets drained instead of recovered or regenerated (Meijman and Mulder 1998). In the distinction made between *sustainable* work systems and *intensive* work systems the regeneration of resources instead of draining them is already regarded a key difference (Docherty et al. 2002). This difference poses that possessing enough energy resources is necessary to perform highly in the short run, but that this is not a guarantee for sustainable, long-term work performance or for maintaining long-term human sustainability (see also chapters “Sowing Seeds for Sustainability in Work Systems” and “Fostering Corporate Sustainability” in this volume).

Therefore, in this chapter the notion of “sustainable” work performance is explored and contrasted with more elaborated notions of high work performance. What are the differences between these concepts and what are implications for the emerging field of Sustainable HRM? In this chapter we will specifically focus on *employee vitality* as a sustainable work performance concept which is potentially useful for understanding how the dynamic interplay between employee well-being

and performance contributes to enduring organizational effectiveness and long-term viability. *Employee vitality*, in this chapter, includes mental energy as well as physical energy.

2 The Building Blocks of Sustainable Work Performance

A key characteristic of sustainability is the notion of regeneration (see also chapter “[Sowing Seeds for Sustainability in Work Systems](#)”). For the regeneration of human energy resources, recovery or recuperation is regarded as essential. Maintaining high levels of effort expenditure at work requires off-job recovery time and regular psychological detachment from work in order to “undo” the strain reactions after a hard day of work. Full recovery means that employees (once again) have a maximum amount of energy available for the next day, which enables employees to show high performance over a longer period of time. For instance, a recent diary study by Binnewies et al. (2009) finds that employees show higher work performance on days when they had recovered well in the morning than on days when they had recovered poorly. But if full employee recovery is all there is to sustain an energetic high performance workforce, HRM could suffice through the deployment of work leisure activities and sending employees home on time to enable them to have sufficient rest.

However, to the extent that energy expenditure at work is misguided and allocated towards wrong things, then high work performance is likely to suffer. Therefore, Beal et al. (2005) already state that, besides the level of (energy) resources available, performance is a ‘joint function of resource *level* and resource *allocation*’. The issue of resource allocation is central to the HRM discipline. It deals with the question of whether resources at the discretion of employees are effectively deployed in the work process and add value to the organization. It is about what people do with their resources, i.e. how they behave. In the high performance work systems literature (HPWSs; Appelbaum et al. 2000) the key behavioral construct that is regarded to intermediate the link between HPWSs and competitive advantage is *discretionary work effort*. Discretionary effort encompasses those aspects of work behavior that employees contribute at their discretion which cannot be easily placed under formal management control and go beyond what is minimally required (Bailey 1993). Appelbaum et al. (2000, p. 26) state that for organizations it is of relevance to get ‘employees to apply their creativity and imagination to their work and to exploit their intimate and often unconscious knowledge of the work processes’. However, tensions may arise when employees who choose to engage in this “extra-mile” effort overtax and harm their resources (mental and physical energy) to a point that the employee cannot easily recover their workplace effectiveness (see also chapters “[Human-Resources Mindfulness](#)” and “[Paradox as a Lens for Theorizing Sustainable HRM](#)”).

The dilemma for managing human resources sustainably is clear. Only focusing on the positive psychological well-being and energy levels of employees does not guarantee high work performance. And only focusing on high work performance does not guarantee that the high levels of energy and finally also employee health can be sustained over time. Just as only focusing on the allocation of resources towards discretionary work effort might cause the drainage of energy resources which undermines future high work performance. For high work performance to be sustainable work performance, this chapter argues that expenditure of work effort itself should be sustainable and regenerative and lead to a surplus of new resources ready to be invested. Just like the principles of a *perpetuum mobile*. To understand what sustainable work performance might look like, we first elaborate the concept of *work effort* as an essential building block of work performance. Employees who invest greater effort into their work are likely to increase the possibility that they will contribute organizational labor productivity and competitiveness (Brown and Leigh 1996). However, work effort is an ambiguous term and both hard to define and to measure. In general, work effort is referred to as the level or amount of resources that employees expend in their job (Yeo and Neal 2004). At the same time, a stream of work psychological literature deals with a multitude of work performance concepts that point to desirable work behaviours towards specific performance domains (like organizational citizenship behavior, creativity, innovative work behaviours or personal initiative, for example, for a sustainable development) that employee's can engage in. To clarify the linkage between work effort, resources and contemporary work performance concepts, we distinguish between (1) the amount, (2) the allocation and (3) the type of work effort.

2.1 *The Amount of Work Effort*

Green (2001) distinguishes between two categories of work effort: 'extensive' and 'intensive' effort. Extensive effort refers to the time spent at work (i.e. the amount of working hours one attends). Meanwhile, intensive effort refers to the intensity of work carried out during that time of work. One could think of the mental and physical energy an employee expends in his work (Brown and Leigh 1996; Blau 1993). The difference between these categories of work effort is that an employee working 8 h could expend less energy than an employee could in 6 h, depending on the "porosity" of the working day. This refers to the extent to which a working day has gaps between tasks during which the body and mind rests (Green 2001). Together, time and energy are considered as basic (human) resources available to employees among whom the investment in work is within the discretion of employees. In addition to the time and energy resources, employees also bring intellectual resources like knowledge, skills and abilities (KSAs) (Kanfer and Ackerman 2004; Green 2001). Based on these three resources, high work effort expenditure would constitute 'high' work performance when employees work long hours in which a maximum of energy is expended while making full use of the employee's intellectual resources. However, from a sustainable work performance

perspective, the question is whether and when working long hours with a maximum of energy allows for employee resource regeneration and for maintaining employee health.

2.2 The Allocation of Work Effort

Although a greater investment of time, energy and KSAs is considered to relate to higher work performance, this does not necessarily mean that maximum performance is achieved. Green (2001) states that maximum employee productivity is also affected by organizational efficiency. For example, employees who are motivated to invest their time, energy and KSAs into their job can increase their task performance, but when important aspects of the work organization (e.g., ordering of tasks, communication, problem solving) are inefficient, job performance will not reach optimal levels. In contemporary work settings, increasing the efficiency of internal work processes or procedures are not regarded as sole a responsibility of management. Such efficiency is also associated with the “contextual” employee performance dimension in the widely accepted distinction between task and contextual job performance (Griffin et al. 2000; Sonnentag and Frese 2002). Other than the resources that are expended on formal and in-role core job requirements (task performance), contextual performance refers to non job-specific or extra-role effort which ‘does not contribute to the technical core but which support the organizational, social, and psychological environment in which organizational goals are pursued’ (Sonnentag and Frese 2002; p. 6). With regard to the effort-work performance relationship, it is likely that high performance would require allocation of resources towards tasks and contextual activities. For sustainable work performance, this raises the question how resources need to be allocated also towards employee regeneration and renewal of resources.

2.3 The Type of Work Effort

Arguing that a high amount or high level of resources directed towards task and contextual domains constitutes the building blocks of high work performance does not specify the type of effort and specific employee behaviours that would be relevant in contemporary organizations. With reference to task performance one could think of putting in either firm-specific skills or knowledge or generic skills (oral, writing or organizing skills) to do a better job. With regard to contextual performance, Sonnentag and Frese (2002) make a distinction between (1) “stabilizing” employee behavior which primarily aims at the smooth functioning of the organization as it is at the present moment and (2) “proactive” work behavior that focuses on self-initiated, future-oriented actions that aims to change and improve the work situation (procedures and processes) or oneself (Crant 2000;

Parker et al. 2006; Frese and Fay 2001). These proactive work behaviours adhere the most to the notion of discretionary work effort as applying creativity and imagination to the work and utilizing the intimate and often unconscious knowledge of the work process (Appelbaum et al. 2000). This view challenges the traditional view of effective employees being “satisfied, committed organizational citizens”, while they are not necessarily able to deal with the complexity and continuous changes in contemporary jobs and organizations (Frese and Fay 2001; Parker et al. 2006). Proactive employees would be more effective in modern work situations in which job structures get more ambiguous, more loosely defined and malleable, which leaves little or no structure to which one can adapt (Murphy and Jackson 1999; Parker et al. 1998). It is within these uncertain and complex work situations that an employee’s proactive approach to work helps to identify the optimal execution of present tasks and the long-term needs of the organization (see also chapter “[Sowing Seeds for Sustainability in Work Systems](#)”).

In sum, contemporary research literature brings forth several aspects of work performance as a joint function of *resource level* and *resource allocation*. On the one hand, it deals with the amount or level of resources (time, energy and KSAs) the employee can and is willing to invest. On the other hand, it would matter whether employees allocate resources not only to formal tasks, but also to the work contextual domain in order raise performance levels that are suboptimal due to social or work- organizational inefficiencies. To the degree employees do so proactively is regarded as important when work situations become more complex and ambiguous. Altogether, this section makes clear that high work performance requires higher resource levels and a certain resource allocation. Nevertheless, it is argued that to the extent to which high work performance constitutes sustainable work performance is dependent on sufficient resource regeneration. For work performance to be sustainable, we argue that the allocation of resources itself should allow for resource regeneration, because resource levels are vulnerable to certain constraints that go along with high performance over time. Three of these constraints are discussed in the next section.

3 Resource Constraints to Sustainable Work Performance

With regard to the amount of time, energy and KSAs, as the three important resources, to the employee’s discretion, employees can allocate a certain amount of these resources to the task or contextual domain either by spending effort on it, for instance, in-role skill usage, organizational citizenship behaviors or take proactive action towards their work and/or career.

However, time and energy are considered to be “limited-capacity resources” (Yeo and Neal 2004; Hockey 1997), which means that these resources are naturally scarce and constrain individuals in their allocation of time and energy among task and contextual activities. Looking at daily job performance, employees have contractual work hours and incidental overwork hours to expend which competes

with the hours spend on their private life and sleeping (Bergeron 2007). The energy an employee can expend competes with physical and psychological costs (e.g., fatigue, exhaustion) that are associated with effort expenditure (Meijman and Mulder 1998). Furthermore, with regard to the investment of KSAs, current knowledge and skills are also limited as they run the risk of becoming obsolete. Especially in contemporary work settings, rapid strategic and technological developments require a constant update of employee skills and knowledge (Sennett 2006). Therefore, the current level of intellectual resources competes with future intellectual requirements. It also needs to be taken into account that from a sustainability perspective, time is a non-regenerative resource but energy and competences are regenerative. We now discuss three resource constraints to the possession and effective allocation of a maximum amount of resources, which might threaten the sustainable work performance over time:

- Time constraints
- Energy constraints
- Competence constraints

3.1 Time Constraints: Tensions Between Task and Contextual Performance

Bergeron (2007) addressed tradeoffs between task and contextual performance as individuals are constrained by time. Bergeron argues: 'For individuals constrained by time, it is unlikely that they will show both high task performance and contextual performance. Rather, resource allocation forces a choice such that most individuals will focus on one activity at the expense of the other' (p. 1084). A synthesis of research findings indicate that managers give relatively greater weight to task performance than contextual performance in determining overall performance evaluations, rewards and to lesser extent career advancement. Spending time on contextual performance might be good for the organization but costly for the individual. By choosing to allocate time to contextual activities like helping others or volunteering in extra-role activities, employees do not choose to invest their limited amount of time in task performance. Therefore, employees might risk a loss of personal value because, in comparison to task performance, contextual performance is worth "less" to individual employees. Additionally, in a sample of air traffic controllers, Griffin et al. (2000) found that the difficulty of the job constrains the allocation of effort to contextual performance. They find that a difficult job or assignment requires more of the employee's attention (e.g. time) directed towards the task performance domain. In sum, for employees to engage in high performance (task *and* contextual performance) they will face certain tensions due to the limitations in the amount of time there is to expend. Contextual performance can be costly to the individual, which might force him/her to allocate effort to task

performance at the expense of contextual performance. If an organization is interested in both high task and contextual performance, the question is how employees can be supported in coping with the trade-offs and tensions.

3.2 Energy Constraints: Tensions Between Effort Expenditure and Health

In a similar vein, the allocation of energy to both high task and contextual performance is also constrained. As high employee performance requires a maximum amount of effort, it also requires greater energy investments which bring into play the role the physiological and psychological costs (e.g., fatigue or anxiety) that come with the expenditure of effort (Meijman and Mulder 1998; Fay and Sonnentag 2002). The tension entails that to the extent that maximum performance overtaxes the amount of energy an employee possesses, the maximal amount of energy an employee can expend gets drained and gradually drops over time. Individuals who perform at the maximum while feeling fatigued drain their energy resources to a point that they may experience severe health problems such as high levels of job stress or burnout. The COR-theory (Hobfoll 1989) states that people want to conserve a healthy amount of their physical and psychological resources and react to the energy drainage by lowering their effort expenditure towards only those in-role activities that are minimally expected from them (Bakker et al. 2004). Consequently, this often results in a withdrawal from effort expenditure towards extra-role activities. Over time, when performance demands keep draining employee energy resources, a greater withdrawal (absenteeism) or a total withdrawal from effort expenditure (quitting the job) might follow (Schnake 2007). Hence, energy resources constrain the maximal amount of effort expenditure and can negatively affect contextual and task performance to the extent energy reserves are overtaxed. In order to allow sustainable work performance, the question is therefore, how tensions between effort expenditure and health can be overcome by the employee in the way that he/she will have energy and resources for work performance in the future.

3.3 Competence Constraints: Tensions Between Current and Future Skills

A last constrain to high performance is that a maximum expenditure of competences in the job is no guarantee of endurable high performance. More often, skills and knowledge need continuous updating to match the organizational requirements. Therefore, intellectual resources are less and less stable resources which one can rely on to perform well in the future. Sennett (2006) expresses the

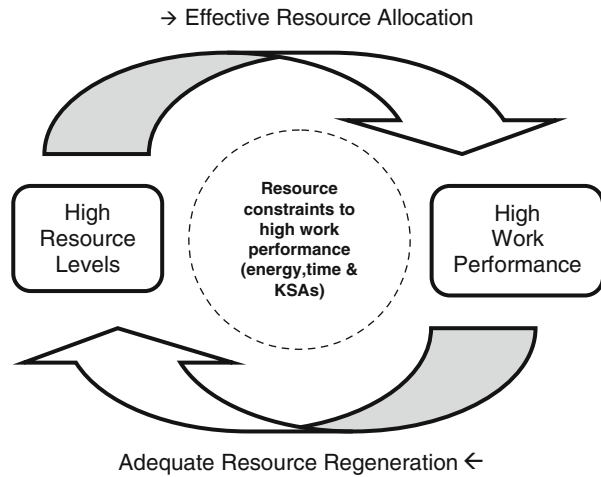
tension between current and future employee performance in a phenomenon called the “specter of uselessness”, which refers to the continuous threat to employees that their current skills devalue and will not serve them for life. Sennett (2006, p. 95) argues that ‘skill extinction has sped up not only in technical work, but also in medicine, law, and various crafts. One estimate for computer repairmen is that they will have to relearn their skills three times in the course of their working lifetime; the figure is about the same for doctors. That is, when you acquire a skill, you do not have a durable possession’. Given the tension between current competences and those needed in the future, enduring high employee performance is constrained up to the point that employees are unable to acquire new up-to-date skills and knowledge. The question is therefore, how organizations and HRM can support their high performers in allowing the life-long or career-long development of skills.

The specifics of the three resource constraints are essential to the difference between high and sustainable work performance. For keeping the ‘iron ball’ in perpetual motion, employees must be able and willing to allocate their resources in such way that they are expended to the maximum on the work at hand while overcoming the barriers that go with the high expenditure of resources. Only then is a surplus of resources likely to follow from high work performance which can flow back to the employee’s own resource pool allowing for a cycle of sustainable work performance to occur. This sounds easier than it is to achieve, also when taking into account common life changes in the careers of employees and work-life balance issues that accompany those changes over time. To dig further into the attributes of employees that are able create such personal cycles or spirals of sustainable work effort the next section elaborates on the notion of ‘employee vitality’ as a sustainable work performance concept.

4 Overcoming the Barriers: Employee Vitality as a Sustainable Work Performance Concept

As summarized in Fig. 1, the crux of sustainable work performance is the maximal amount, allocation and type of resources that (a) would be effective and discretionary for organizations in a contemporary work context and (b) are adequately regenerated despite the fact that time, energy and competence resources are limited by short-term (work time boundaries and energy drainage) and more long-term (skill extinction/obsolescence) constraints. Notice that the empirical work performance research in which discretionary employee behaviours/attitudes are found to benefit organizational performance rarely takes into account the possible performance constraints over time. As it is now, HRM research has concentrated on the management of short-term high work performance and far less on the management of sustainable work performance (Pfeffer 2010). As such, high work performance is not always sustainable work performance. However, sustainable work performance is preferably in line with organizational goals and should be considered high and effective work performance in order to create *both* social and economic value.

Fig. 1 From high work performance to sustainable work performance



Thinking of employees that can engage in high performance durably, the “vigorous and proactive” employee is distinguished from the “satisfied and committed organizational citizen”. Both characterizations do not have to fully exclude each other. However, the rationale presented so far depicts that, within the backdrop of an increasing dynamic work context, high energy levels and a proactive type of resource allocation are more salient employee attributes. From here, the combination of vigor and proactivity is characterized as *employee vitality*. Although it is not claimed that the exact definition of vitality would encompass both aspects, it adheres to Ryan and Frederick’s (1997) understanding of vitality as a “dynamic reflection of well-being”. More specifically, they state that vitality reflects the feeling of possessing energy together with feeling that one is the origin of action. In this representation, vitality depicts a human attribute of aliveness and vigor in which a person has the control over one’s energy to initiate action. This indicates that vitality is more than just feeling energetic – it also involves that someone initiates to do something with the energy available to oneself (i.e., proactivity). Translated to the work context, work-related vigor and proactivity are proposed to give more insight in the dynamics of vitality as a sustainable work performance concept. To elaborate on this, first, the constructs of vigor and proactivity are described in more detail. Second, the performance dynamics of the interplay between vigor and proactivity are discussed.

4.1 *Vigor*

Occupational health psychology literature differentiates between negative and positive concepts of employee health and well-being. The most important feature is that in contrast to (negative) strain-related concepts of health (e.g., illness,

fatigue, anxiety, depression and burn out) positive health includes concepts that go beyond the mere absence of unwell-being (Warr 1994; Schaufeli and Bakker 2004). In this view, employee well-being is defined by the presence of positive well-being, fitness or aliveness (Schaufeli and Bakker 2004; Spreitzer et al. 2005). An element central to active health constructs such as work engagement and thriving at work, is the extent to which an employee feels vigorous as opposed to a negative focus on feeling of being fatigued and exhausted. Maslach et al. (2001, p. 417) refer to the concept of vigor as ‘high levels of energy and resilience, the willingness to invest effort in one’s job, the ability to not be easily fatigued, and persistence in the face of difficulties’. Therefore, at the construct level, employee vigor signifies not only the availability of energy, but also the willingness to expend energy into work.

4.2 Proactivity

The notion of proactivity entered the organization behavior literature with those authors who regarded the employee as an active *actor* in contrast to those who considered the employee as an *object* of organizational stimuli and workplace conditions (Frese and Zapf 1994). Proactive work effort can be directed towards at least two work-related domains. First, an employee can show *job proactivity*. Here one takes initiative towards one’s own activities in the work process in which they act in a self-starting manner and shows a long-term perspective in order to keep the work process at an optimum level, also when circumstances change or process errors occur (Fay and Sonnentag 2002). Second, the employee can show *developmental proactivity* when one holds a proactive orientation towards one’s own development within the current job or towards future job requirements or opportunities (Warr and Fay 2001). This behavior relates to concepts such as *employability orientation* (Van Dam 2004) or *learning motivation* (Taris, et al. 2003), in which employees actively scan future requirements and seek to gain new knowledge or approach knowledgeable people to keep one’s own abilities at an optimum level. Together, job and developmental proactivity constitute core elements of the employee proactivity concept when briefly defined as ‘self-initiated and future-oriented action that aims to change and improve the situation or oneself’ (Parker et al. 2006, p. 636).

4.3 The Interplay Between Vigor and Proactivity

In relation to employee proactivity, which signifies the *type* of resource allocation, employee vigor encompasses the *level* of energy resources the employee is willing to expend at work. From a COR-theory (Hobfoll 1989) perspective, the level of energy resources can either boost or limit extra effort expenditure such as proactivity to the extent that employees evaluate this behavior to either benefit or

threaten a minimum (and still healthy) level of energy resources. Two COR principles play an important role. First, when low on resources, withdrawal from extra effort expenditure is likely as an employee wants to conserve their health by sticking to only what is necessary. In contrast, when energy levels are high, employees are able to ‘risk’ their energy resources on proactive behaviours that improve the job or themselves, without being devastated by the initial resource loss that goes with the higher effort expenditure. Another implication is that with the ability to risk resources, people are more likely to acquire new resources, which again provides them with higher resource levels that can be risked in the hope of making further resource gains (Hobfoll and Shirom 2000). This signifies a cycle of resource gain or a so-called *gain spiral*. Otherwise, *loss spirals* entail a situation in which low-energy employees do not risk their resources to solve or avert the energy drainers at work. Consequently, this could lead to further resource loss and so on.

How does this apply to the interplay between vigor and proactivity as a mechanism to overcome the barriers to sustainable work performance? Sonnentag (2003) describes several reasons why vigor supports proactive behavior. Firstly, in line with COR-theory, the amount of energy is regarded as a key element for employees to actually expend extra effort on self-starting and persisting in proactive behavior. Secondly, energetic employees can also accomplish their in-role tasks with less effort (Hockey 2000), which leaves extra resources to be spent on extra-role proactivity. Conversely, employee proactivity is also expected to restore and regenerate resource levels. For instance, Fay and Sonnentag (2002) propose that job proactivity, by solving operational and process inefficiencies, could actually save time and energy needed for high performance. Additionally, developmental proactivity by actively upgrading one’s skills and knowledge could also help to reduce the extra energy and time needed for difficult task performance that Griffin et al. (2000) found to come at the expense of contextual performance. With better skills and knowledge difficult tasks require less intensive thinking. Otherwise, instead of reducing the initial resource loss of high work performance or coping with its demands by increasing time efficiency or skill levels, proactive employees also seek new resources that fuel the energy one is able to expend. For instance, in a 4-wave longitudinal study by Frese et al. (2007), proactive employees were found to actively shape their work characteristics which energized them to be proactive the next year. This is phenomenon is also known as “job crafting”, which refers to the self-initiated actions employees take to shape, mold or redefine their jobs to constitute a better match with their needs, aspirations, passions or circumstances (Wrzesniewski and Dutton 2001).

In sum, showing proactivity supports high work performance as well as the employee’s preservation and regeneration of new energy, but can only healthily occur under the condition that one has enough energy resources to expend. Hence, with regard to the concept of employee vitality, a reciprocal relationship between vigor and proactivity can be expected. As a consequence this does not presume a one-way causal relationship between vigor and proactivity, but regards them as also mutually supportive components of which the interplay signifies employee vitality as a sustainable work performance concept.

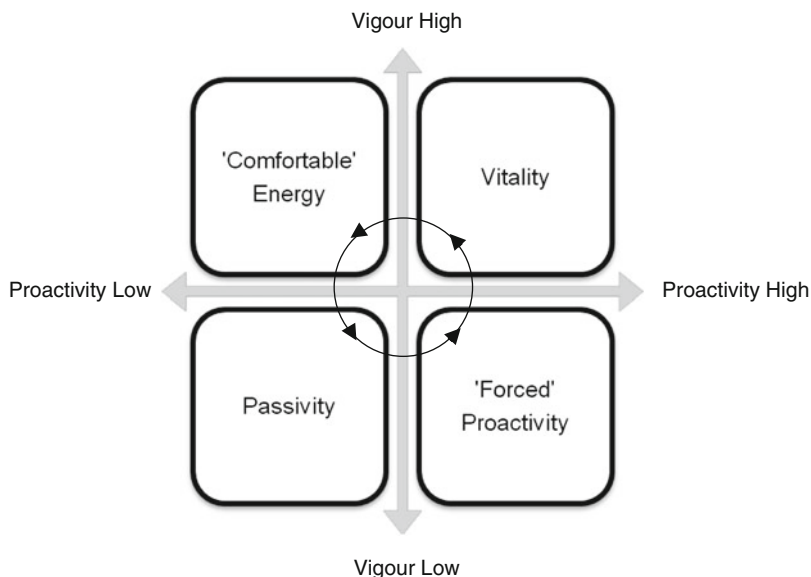


Fig. 2 A four-category framework of sustainable work performance

5 Employee Vitality: A Touchstone for Sustainable HRM?

Turning to the implications for Sustainable HRM, the following sections argue that the employee vitality concept can function as a touchstone for Sustainable HRM's goal to look after the long-term supply of skilled, healthy and motivated human resources (Ehnert 2009). How does one know, as an HR manager, that the workforce is well-equipped to contribute to the organization's sustained competitive advantage without running the risk that high organizational performance comes at the expense of employee well-being, employability and human sustainability? Taking vigor and proactivity in the workforce as core indicators of employee vitality sheds some light on this issue. As argued in this chapter, employee vitality is a sustainable work performance concept which holds the premise that employees, with vitality, can deal with work performance constraints that they might encounter in the future. Incorporating employee vitality as a touchstone for HRM discerns that HRM practices, or decisions that foster employee vitality, could be regarded as Sustainable HRM activities – just like organizations measure their degree of ecological sustainability of their organizational processes by their 'carbon footprint'.

In testing this assumption, several gradations of sustainable work performance are classified in four different categories to the extent that employees score higher/lower on either vigor or proactivity (shown in Fig. 2).

Each quadrant in Fig. 2 signifies a temporary category of sustainable work performance. Quadrants represent different gradations of the sustainability of work performance. Over time, employees falling into one category can move to

another category (depicted by the middle circle). With the dynamics between vigor and proactivity in mind this is not surprising. Each typical category, however, signifies different representations of the employee's resource expenditure and its consequent risks to their work performance in the long run. Below, each category is briefly addressed.

5.1 Vitality

High vitality employees have high energy resource levels, which they are willing to proactively allocate towards job improvements and/or self-development. As discussed in the previous paragraph, they are more likely to experience *gain spirals* in which they see the expenditure of resources also regenerate new resources. They can risk their resources on extra effort expenditure to gain new resources, without severely draining their resource levels in terms of health and well-being. All in all, this is likely, over time, to make high vitality employees more resilient to the various constraints to high effort expenditure.

5.2 Passivity

In contrast, passivity reflects a category in which vigor is lower and the engagement in proactive behavior at work happens less often. Passive employees form a precarious group in the light of the absence of energy resources to effectively allocate their discretionary resources to their immediate work and proactive behaviours. Passivity can result in total withdrawal to the extent that the already lower energy resources are heavily taxed by high or new work demands. This makes passive employees vulnerable to organizational dynamics over time as they are less likely to engage in proactive behaviours in order to improve or adapt to their work situation.

5.3 Forced Proactivity

In contrast to vitality and passivity, an in-between category represents a situation in which employees are less vigorous but keep expending effort on proactive work behaviours. Labeled as 'forced' proactivity, employees experience a decline in vigor which forces them to increase the effort to regenerate their vigor by making proactive changes in the work situation or oneself. As consequence, forced proactivity signifies incidences in which employees risk more resources than they can healthily expend. In this struggle for resources one can lose extra resources to the point that an employee gives up and slips into a state of passivity. Conversely, if

forced proactivity is eventually successful in terms of more resource gains than losses, one is able to walk away from the fight with vitality. Until that point forced proactivity is considered “risky business”.

5.4 Comfortable Energy

The last quadrant represents employees that are highly vigorous but to a lower extent expend their effort on proactive behaviours at work. Here, employees are characterized by so-called comfortable energy. Their availability of energy and willingness to expend energy is fuelled and preserved by the current job circumstances with less anticipation to future job or skill requirements. This makes it likely that a proportion of the comfortable energy is not expended to attain constant optimal levels of performance. Energy is preserved by not risking it, leading to sufficient but not necessarily high work performance. It is questionable whether being employees high on comfortable energy stands the test, over time, to sustainably perform in dynamic and turbulent work contexts.

The four different gradations of sustainable work performance are distinguished by placing the level of vigor in juxtaposition to the degree of proactive work behaviours. This underlines the chapters’ notion of sustainable work performance as a joint function of resource levels and the allocation of resources to work activities that allow for the regeneration of resource levels. As a touchstone for Sustainable HRM practices, employees can be monitored in belonging to each of these categories through the combined measurement of their levels of vigor and proactivity. In the next section, some empirical insights are presented with regard to the validity and relevance of this four-category framework in relation to work unit performance and employee well-being.

6 The Dynamics of Employee Vitality: Some Empirical Insights

This section draws on our own cross-sectional survey data from 1,966 Dutch employees. Employee survey data were collected (before the economic crisis) between May 2006 and February 2007 in 112 work units from a total of 13 Dutch organizations. Organizations were from a diversity of sectors, including for instance, health care (hospital, child care), industry (mobile phone repair, technical support and construction), service sector (IT services, security services), (semi) government (civil service, customs) and education (elementary schools). For further details see Dorenbosch (2009) or Van Veldhoven and Dorenbosch (2008).

Two issues with regard employee vitality as a sustainable performance concept are elaborated upon. First, are high vitality employees more able to expend effort without draining their energy than employees categorized otherwise? In other

words, can the employee vitality concept be validated by the outcome of employees with high vitality and ability to perform well without running the health risk of becoming fatigued? Second, what are the indications that work units in which employees score high on vitality are better performing than those where work unit members fall primarily in the other three categories? In other words, is the vitality of work unit members economically relevant to work unit effectiveness?

6.1 Employee Vitality, over Hours and Need for Recovery

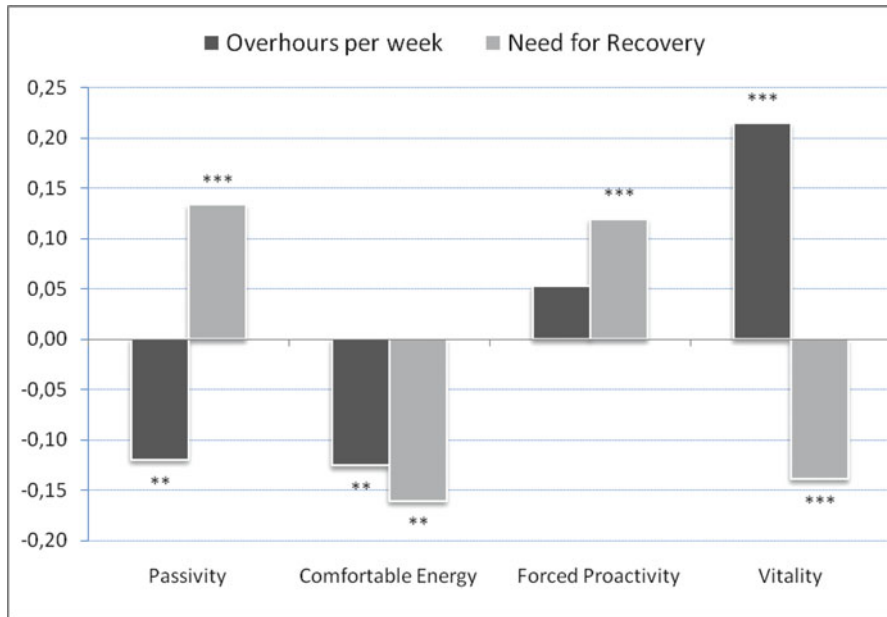
A key to sustainable work performance is whether high vitality employees (operationalized as vigorous *and* proactive employees) are able to expend resources without draining them. Hereto, based on the joint function of *resource levels* and *resource allocation*, employees were categorized in four groups characterized by higher/lower levels of vigor in combination with showing more/less proactive work behavior.

The *vigor*-scale consists of two dimensions. The first dimension, the *availability of energy*, taps the employee's feeling of energy during the whole work day (e.g., 'At the beginning of a working day I have plenty of energy', and 'By the end of the working day I can still adequately concentrate on my work'). The second dimension, the *willingness* to invest energy, measures the employee's absence of a personal resistance to invest in their job (tasks) was tapped (e.g., 'I have to continually overcome personal resistance in order to do my work'). Here, a higher score means *less* resistance and *more* willingness to invest effort in the current job.

The *proactivity*-scale also exists of two dimensions. First, *job proactivity* reflects the extent to which employees initiate new ways of working and solve problems when work processes contain inefficiencies (e.g., 'In my work, I make suggestions to improve the way we work'; 'When work methods or procedures are not effective, I try to do something about it'). The second dimension, *developmental proactivity*, taps the degree to which employees set challenging goals and actively look for situations in which they can expand their skills and knowledge was tapped ('In my work I set myself challenging goals', 'In my work, I search for people from whom I can learn something'). Also, the degree to which employees are concerned with and self-assess future skills and knowledge needs was included in the measure ('I think about how I can keep doing a good job in the future' and 'With regard to my skills and knowledge, I see to it that I can cope with changes in my work'). Both scales had good reliability (see Dorenbosch (2009) for details).

Employees scoring either higher/more or lower/less on both scales were determined by using median-splits on scale-means for vigor and proactivity. In accordance with the four-category framework (Fig. 2), the categories were labeled as *passivity*, *comfortable energy*, *forced proactivity* or *vitality*. Table 1 shows the differences between these employee groups with regard to their investment of time resources (average over hours per week) and the extent to which they indicate

Table 1 Over hours per week and need for recovery across four gradations of sustainable work performance (n = 1.966)

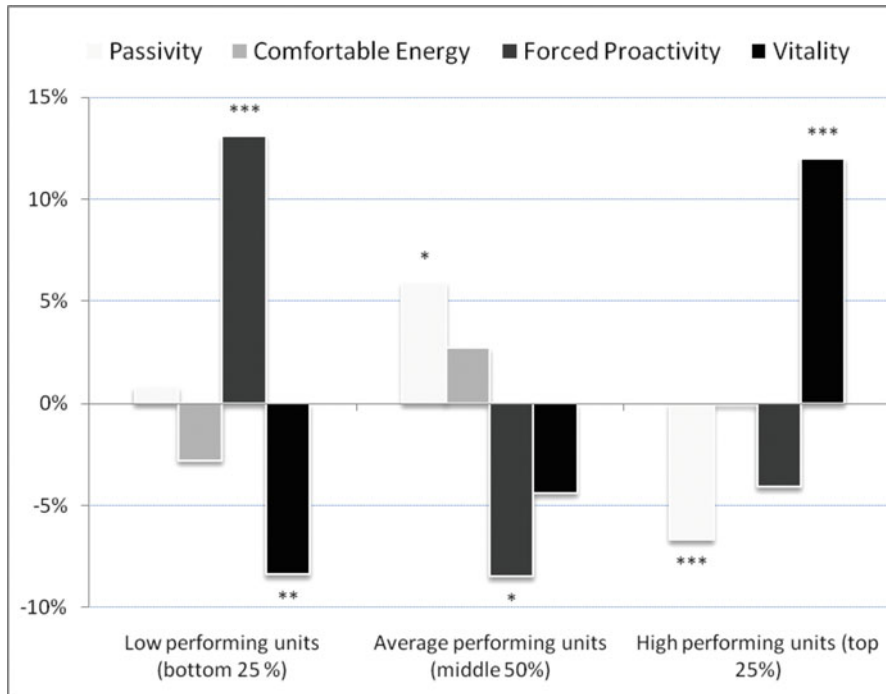


Means are tested with a t-test (horizontal comparisons). The figure depicts above-mean and below-mean difference scores. Difference score significance: *p < 0.05; **p < 0.01; ***p < 0.001

that they feel fatigued after work (need for recovery). The average number of over hours was included with an ordinal measure consisting of four categories (1 = no over hours; 4 = 10 or more over hours per week). The need for recovery-measure (Van Veldhoven and Broersen 2003) taps the frequency of showing after work fatigue symptoms indicating that employees did not fully recover from the effects of sustained effort during the working day (e.g., ‘I find it difficult to concentrate in my free time after work’ and ‘When I get home from work, I need to be left in peace for a while’).

The differences between the groups are in line with what was expected. High vitality employees seem to be able to invest more time without draining their energy levels after work. In contrast, those employees who show *forced proactivity* also report to making above-mean over hours (not significant), but also show an above-mean need for recovery. Employees characterized by *comfortable energy* during work make less over hours as well as they feel less need for the recovery of energy after work. Those characterized as *passive* employees show a different pattern as they also undertake less over hours but still show above-mean levels of after work fatigue. As theorized in previous paragraphs, passive employees who lack energetic resources run the risk of greater energy loss as these employees are also more likely to withdraw from extra activities to regain energy or protect against energy drainage. In contrast, high vitality employees have more energy resources at their

Table 2 Proportion of employees in different gradations of sustainable work performance (n = 764) across low/average/high performing work units (n = 53)



Percentages are column percentages, and are tested with the Pearson Chi-square test (horizontal comparisons). The figure depicts above-mean and below mean difference scores. Difference score significance: * p < 0.05; ** p < 0.01; *** p < 0.001

discretion and therefore are more likely to accept or seek opportunities to risk resources (in terms of over hours) in order to obtain new resources (Hobfoll and Shirom 2000).

6.2 Employee Vitality and Work Unit Performance

The second issue concerns the question of whether high vitality employees work in high-performing organizations or work units. In other words, is vitality among employees likely to contribute to better work and business performance? Table 2 shows the results for employees who are in work units of which the unit managers indicated that it was performing at the lower-end, on average, or higher end of expectations. In a subset of 53 work units which employed a total of 764 employees, each unit manager was interviewed asking them the extent to which (1) internal/external customers or clients are positive about the work unit, (2) work unit goals are attained, (3) the financial situation is good and (4) the competitive position is

strong. Also, an overall performance score was included in the measure, which together formed a reliable scale. Based on the scale means for subjective unit performance, the bottom and top 25 % performing units were identified, which led to the classification of work units in three categories (including the middle 50 %). By combining individual employee data with unit manager data, Table 2 depicts to what extent higher/lower performing work units have employees working for them who are in different categories (using a similar median-split procedure as in the previous paragraph). The percentages indicate the positive or negative deviance from the average proportion of employees divided over the three work unit performance categories.

Of the total proportion of employees in low performing units, a significantly greater number of employees show ‘forced’ proactivity. Otherwise, the number of high vitality employees in low performing units is significantly less than average. In contrast, in high performing work units, the proportion of high vitality employees is significantly above average. There are, however, significantly less passive employees working in high performing units. Furthermore, the proportion of employees higher on comfortable energy seems to be evenly distributed across low, average and high performing work units. The cross-sectional data and the conducted analysis at hand do not allow for causal interpretations of the relationship between employee vitality and better work unit performance. What it does show is that high performing work units are more strongly characterized by employee vitality and less by employee passivity. Additionally, within lower performing work units there are more incidences of forced proactivity to be found which discerns the precariousness of proactive behavior when it runs counter to the energy that employees are healthily able and willing to expend.

With survey data from nearly 2,000 employees, the findings in this section is that the combination of high vigor and high proactivity links to high effort expenditure without energy drainage. This finding is in line with the idea that high vitality employees expend their resources in a way that allows them to regenerate and perform simultaneously. On top of this finding, in a smaller subset of work units and employees, it was shown that employee vitality is most common in work units of which line managers rated the performance to be high – independently from the employee survey data. This adds to the notion that employee vitality is also relevant to the operational effectiveness of work units.

7 Conclusions and Recommendations for Sustainable HRM

This chapter contributes to the emerging literature on Sustainable HRM that emphasizes the organization’s understanding of the use and misuse of its human resources (Docherty et al. 2002; Ehnert 2009). Although the term ‘human resources’ and the management thereof often refers to strategically managing

personnel or headcount as opposed to other organizational resources (e.g. financial assets, technology, processes and patents) that are owned or controlled by the organization, this chapter emphasizes the individual human resources such as time, energy and competences that are owned, controlled *and* protected by employees themselves. A key issue this chapter raises is to what extent employee vitality characterizes employees that manage their own resources in such way that they attain high performance goals without draining their resources needed for sustainable work performance.

This chapter expresses the need for a sustainable work performance concept as the quality of the organization's human resource pool is in constant flux. Over time, employee energy could be drained by the high effort expenditure, skills and knowledge so run the risk of becoming obsolete and time pressures might disrupt the allocation of resources to the maintenance themselves or the work situation. In analogy with the search for the principles of perpetual motion caught in the notion of the *perpetuum mobile*, this chapter addressed the value of high vitality employees as vigorous employees who proactively allocate their resources in such way they can overcome the different resource constraints that can diminish work performance over time. Employees do this by seeking less resource-draining ways to conduct their tasks or by upgrading their KSA's to cope with new job demands.

An essential component of sustainable work performance is that the expenditure of discretionary work effort itself allows for resource *regeneration*. Also based on the empirical insights from nearly 2,000 Dutch employees, it is claimed that knowing the level of employee vitality in the workforce can serve as a touchstone for HRM professionals to evaluate whether HRM activities enable employees to "keep the iron ball rolling" now and in the future. However, this is only possible if employees know how to strike a healthy balance. Workholism and overcommitment are indicators of excessive work ambition which eventually will erode the effectiveness of work effort as employees forget to refuel.

Other than contesting the laws of physics when building a *perpetuum mobile*, the dynamics of employee vitality draws on Hobfoll's Conservation of Resource (COR) theory (1989) in combination with the research literature on proactive work behavior. As the *gain spirals* in COR-theory represent the idea that resourceful employees are able to 'risk' their resources on extra effort expenditure in order to gain new resources, proactive work behavior literature discerns the type of extra work effort that would be valuable to employee and organization while allowing for resource regeneration. Otherwise, COR-theory also includes the possibility of *loss spirals* in which people evaluate their resource levels to be low which makes them likely to withdraw from extra effort expenditure to protect minimum levels of health and well-being. By withdrawing, employees conserve a healthy amount of resources, but they become more vulnerable to turbulences and changes at work as they do not allocate sufficient resources to proactive adaption or improvement-making in the work situation. To the extent that employees are unable to deal with future variability in work performance demands, greater or total withdrawal is likely to follow. In other words: *over time, the vulnerable become more vulnerable,*

while the resourceful get more resourceful. With these psychological processes occurring among employees in organizations, HRM professionals seeking to manage their human resources sustainably can take the following actions:

7.1 Formulate an Explicit Sustainable HRM Strategy

Sustainable HRM actions are likely to be more effective when backed by an explicit Sustainable HRM strategy. For instance, for 2020, the new European Union's employment strategy emphasizes the notion of sustainable work through, in their own words, 'creating working environments that attract and retain people into employment, improve workers' and companies' adaptability, create sustainable working practices and environments, boost human capital through better training and skills development while still protecting workers' health' (Eurofound 2010, pp. 1–2). This might just as well reflect the pillars of a Sustainable HRM strategy at the organizational or work unit level.

What a Sustainable HRM strategy does is communicating the essence of sustainable employment to both managers and employees. This means organizations reward those work units who are able to strike a balance between work performance and resource regeneration. In practice this could mean that high-performing work units are not applauded by top management if high performance is attained at the cost of employee well-being and development. To follow-up on a strategy it is important that an organization can monitor the degree of sustainable performance in work units. In this chapter it is proposed that employee vitality could serve as a touchstone for Sustainable HRM activities and the Sustainable HRM strategy in general.

7.2 Monitor Sustainable Work Performance at the Work Unit Level

The results shown in this chapter indicate that high-performing work units also employ a higher proportion of high vitality employees than employees in the categories passivity, comfortable energy and forced proactivity. Monitoring the proportion of employees falling in each category by surveying their level of vigor and proactivity in annual employee questionnaires gives HRM and line managers an indication of the magnitude of high vitality employee per work unit but also the degree to which the work unit's performance is at risk. Work units whose performance runs a 'sustainability risk' are those that employ a high percentage of employees that score high on passivity and forced proactivity. The sooner these work units get identified the better, because the expected long-term consequence is that this will lead to further (dysfunctional) employee withdrawal from the work

process and diminished work unit effectiveness. Combining the employee vigor and proactivity measures used in this chapter (together with the theoretical underpinning) already shows that integrating instead of separating the information obtained by these measures provides a better proxy for sustainable work performance. Having identified those work units at risk provides HRM managers with the opportunity to effectively target their efforts in support of line managers who are responsible for the work unit at risk.

7.3 Recognize and Manage Job-Specific Resource Constraints

In understanding the obstacles that risk groups encounter to healthily attain required work performance levels, HRM professionals or line managers should acquire knowledge on the job-specific resource constraints to work performance over time. This chapter outlined three of them: energy, time and competence constraints to sustainable work performance. Questions to ask oneself towards each of these constraints are for instance: What job aspects threaten employee energy to expend on high performance? What restricts the work time to expend on both task performance as well as contextual performance? Are job-specific skills and knowledge likely to expire or become outdated? HRM's knowledge of the resource constraints are likely to lead back to different work practices that could minimize the obstacles to sustainable work performance. For instance, the mental and physical energies of employees can be overtaxed by high and heavy work demands when employees have no control over their energy expenditure (Karasek 1979). To some extent work time flexibility or job autonomy have been found to provide employees with the time and task control to avert health and well-being risks of high effort expenditure (Barnett et al. 1999; Van der Doef and Maes 1999). With regard to the allocation of time to the immediate tasks and contextual performance, Bergeron (2007) argues that managers often give relatively greater weight to task performance in performance evaluations (and pay), which is likely to diminish the allocation of time to contextual work performance. Sustainable performance is therefore facilitated by a good mix of short-term performance goals and long-term developmental goal-setting by managers. When employees are evaluated on their attainment of short-term goals and their progress to long-term goals, employees are less afraid that time spent on contextual job or developmental improvements will eventually backfire in their performance appraisal. Last, with regard to skills and knowledge for future performance, managers must think ahead by providing regular on-the-job or off-the-job training needed to avert the future competence constraints to work performance. It should be noted that HRM should act out relevant HRM activities which fit the most to the performance constraint at hand.

This chapter closes with the remark that sustainable work performance is an issue of time. The empirical analyses presented, in the chapter, do not include

longitudinal data and it would be useful to monitor *how* employees shift from one category to another over time and *how* a Sustainable HRM could support employee vitality and resource regeneration. Monitoring sustainable work performance concepts such as employee vitality should preferably also be linked to multiple measures of organizational performance. Integrating sickness absence rates and employee turnover figures with operational or financial performance information can show whether high organizational performance objectively comes at the expense of employee health and well-being. By asking the right questions, monitoring the right employee indicators and interpreting the right information, organizations can open up to the complex matter of managing human resources sustainably. On the other hand, organizational reality knows many internal and external disruptions that can cause the *perpetuum mobile* of work effort to come to a halt. Recognizing and understanding these disruptions form a first important step for HRM professionals and line managers to develop a Sustainable HRM strategy. This chapter shows that the issue of sustainable work performance is theoretically and empirically not as infeasible as perpetual motion is to theoretical physicists. Still, more research is needed to fully grasp the fundamentals of Sustainable HRM. Time will, literally, tell.

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