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Conceptualising the future of HRM and technology research

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This paper examines the role of information technology (IT) directly on one central aspect of work in the twenty-first century, its impact on HRM itself. We use the long-established ‘Harvard’ model of HRM, offering a more contextualised view of HRM, a more expansive view of stakeholders, and a wider and more long-term approach to outcomes. Applying those principles to the literature on IT and HRM helps us clarify both the advantages and disadvantages to different stakeholders of the intersection between HRM and technology. We show that rapid technological developments offer a new, smart, digital context for HRM practices with the better quality HRM data and enabling a strong HRM ownership by all stakeholders. At the same time, we see a tension in HRM responsibilities between HRM professionals and organizational members who are not directly assigned HRM tasks but are the subject of them. On the basis of that analysis we offer suggestions for future research.

Keywords: contextual HRM; e-HRM; Harvard approach; HRM outcomes; human resource management; information technology; multi-stakeholder perspective

Uber, the world’s largest taxi company, owns no vehicles. Facebook, the world’s most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world’s largest accommodation provider, owns no real estate. Something interesting is happening. (Goodwin, 2015)

This paper addresses the interface between HRM and new information technology. In HRM we take our inspiration from the now ‘classic’ book published by Beer, Spector, Lawrence, Mills and Walton in 1984. That book, alongside a book with a similar title published at the same time (Fombrun, Tichy, & Devanna, 1984), is often dated in the European literature – though interestingly not as often in the USA (Kaufman, 2015) – as marking the beginning of HRM as an academic subject. Beer and his colleagues summarised their learning from running an HRM course at Harvard and offered what is frequently called the ‘Harvard map of the territory’ (see Figure 1): a view of HRM as being moulded by its different contexts, defined (sometimes differently) by its varied stakeholders, and having long-term outcomes that impact all of the potential stakeholders. In information technology (hereinafter referred to as technology) we start from observations that technologies have changed (through enabling and/or constraining) HRM practices by introducing for example, e-recruitment, e-training, or e-competence management (Stone, Deadrick, Lukaszewski, & Johnson, 2015). These technologies have brought a new vocabulary to the HRM discourse as the conventional terminology

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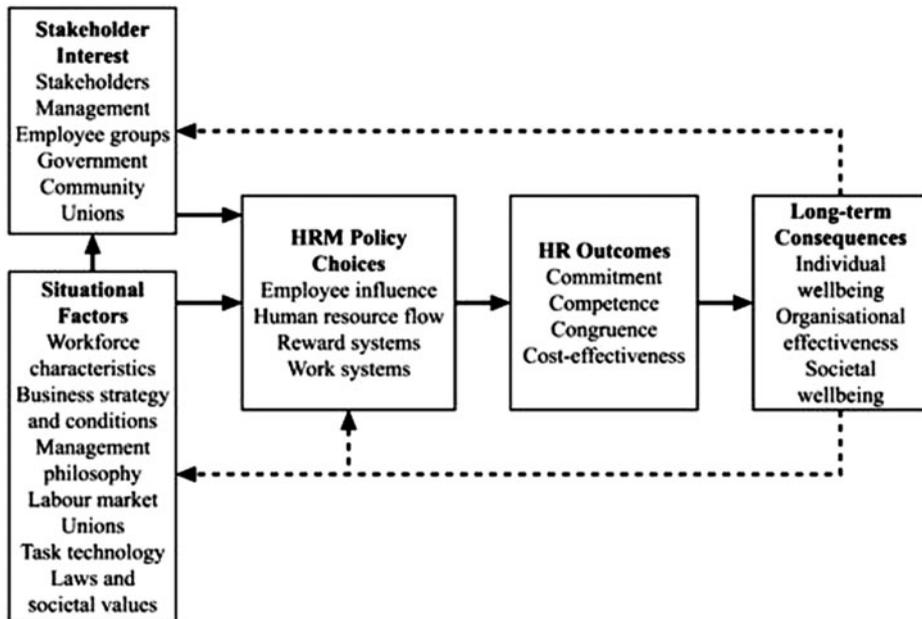


Figure 1. The 'Harvard' Model (Beer et al., 1984).

Source: Beer et al. (1984), Figure 2-1, p.16, Map of the HRM Territory.

is supplemented by new terms like electronic HRM (e-HRM), HRM data mining, HRM cloud computing, application of HRM (for mobile technologies), SMAC (for Social Media, Analytics, Clouds), and HRM big data (Bondarouk, 2014). These technologies have altered the HRM organisational communications (Kiesler, Siegel, & McGuire, 1984), introduced social robots to the HRM practices (Breazeal, 2002), and enabled new means of employer branding (Martin & Cerdin, 2014). To keep our arguments focused however, we exclude discussions about e-work in general, and an impact of information technology on jobs, recent developments in smart industries, and work relations.

Taken together, changes in HRM and technologies have stretched the geographical boundaries of HRM practices, distances in and between organisations have become shortened. Due to diverse technological advancements, organisations can offer their employees new ways of working by eliminating physical and time barriers and relying on such organisational forms as HRM shared services, telework, and virtual teams. In their turn, technology-enabled new organisational forms embrace new stakeholders in HRM processes. Employees, first line supervisors, middle and top managers get directly involved in co-creation of HRM. Even the notion of 'employees' shows a mismatch with organisational conventional reality as technological developments stretched contracts boundaries and impacted on time, so that it might be more appropriate to talk about 'workers', to include those who work for but are not employed by an organisation.

This paper looks forward, and discusses possible avenues for e-HRM research and practice. Since several overviews of the latest e-HRM developments are available (Bondarouk & Furtmueller-Ettinger, 2012; Geffen, Ruël, & Bondarouk, 2013; Ruël & Bondarouk, 2014; Stone et al., 2015; Strohmeier, 2007), we draw on that evidence but

have chosen to focus on the future. In particular, this conceptual paper was inspired by the questions: to what extent is the interface between HRM and new technology contextually bound? to what extent does new technology in HRM support the different stakeholders? and what are the short- and long-term positive and negative outcomes of e-enabled HRM likely to be for these different stakeholders?

The paper takes the following form: first, we briefly discuss the notion of HRM, using the classic Harvard ‘map’ and argue that the ‘outer boxes’ have been neglected. We then explore those ‘outer boxes’, looking at context, stakeholders and long-term outcomes in order to take a fresh look at the extent and impact of new technological developments on HRM. In the third section of the paper we apply the contextual, multiple stakeholder and long-term outcomes perspectives to HRM technology. Finally, we draw some messages for future research.

The notion of HRM

Although originally the very notion of HRM was controversial in Europe – human beings are not just ‘resources’ (Guest, 1987; Legge, 1995) – in the USA the subject rapidly became established and, drawing more from the Fombrun et al. (1984) model, perhaps, developed into ‘strategic’ HRM (Wright & MacMahan, 1992). Given that one of the defining aspects of HRM was that it was meant to be strategic, it is not clear what the addition of the trendy word ‘strategy’ added, but it certainly emphasised a focus on the central boxes, HRM policy choices and immediate effects, defined as outcomes in terms of economic value (productivity and efficiency) for the owners of the business. Within a decade this had led to a whole stream of research testing the link between HRM and success in terms of short-term economic measures of firm performance (see Den Hartog, Boon, Verburg, & Croon, 2013; Nishii, Lepak, & Schneider, 2008; Paauwe, Guest, & Wright, 2013).

The Beer et al. model went wider and arguably involved a less neo-liberal and more comprehensive view of the topic, thus leading to its wide acceptance outside the USA. However, in the literature, rather than in practice, the focus on HRM policy choices and proximal (within firm) outcomes in much of the literature, the ‘outer boxes’ of the Harvard map of the territory were, with some laudable exceptions, ignored. Thus, the other stakeholders (Beer, Boselie, & Brewster, 2015) and employee well-being hardly featured (though see, for example, Collins & Porras, 1997; Pfeffer, 1994, 1998). And when they were taken into account, they were seen as means towards other ends (Kaufman, 2010). For example, employee engagement was argued to encourage employees to work harder and smarter and hence was linked to economic success (Harter, Schmidt, & Hayes, 2002), engagement with the local society created pragmatic legitimacy (Kostova & Zaheer, 1999; Suchman, 1995). The neglect of the human and societal outcomes as being of equal importance with organisational outcomes for assessing the effectiveness of an HRM system played to a dominant, narrow (though mythical: see Stout, 2012), neo-liberal view that the purpose of the firm is solely and simply to maximise shareholder value. Whilst, ironically, that has helped establish HRM as a concept in the business schools and within companies and made the discipline of HRM successful, it also ignored the complexity of the topic. It may explain, for example, why HRM scholars had so little to contribute to explaining the fact that HRM policies such as contingent reward systems for those at the top had played such a part in the global economic crisis that began in 2008, or in suggesting what should replace such systems.

In the next section we review, briefly, the original Harvard ‘map of the territory’, which we claim remains a good reflection of the reality of HRM in organisational life. We focus on the largely ignored elements of the model, the context, the multiple stakeholders and the long-term outcomes, because we aim to use these specifically in our analysis of the impact and future of new technology on HRM to provide a forthcoming research agenda. We acknowledge the value of the extensive, but narrowly focused, approaches to the HRM/new technology interface, but argue that it is time to go beyond that and accept the value, interplay, and relevance of the ‘ignored’ areas to the reality faced by those involved and ensure that our research reflects that.

Context

An important element of the HRM system (not external to it, but part of the system itself) is the context within which HRM is carried out. We define the HRM context from its Latin etymological roots (*contextus*, putting together) as the external and internal conditions and circumstances that are relevant for HRM. The Harvard model offers a systems perspective on HRM: all the elements interact such that the whole is greater than a sum of its parts. The systems perspective aims to promote the unity of science, and – in HRM – the unity and completeness of the management of HRs. General Systems Theory (GST) helps to establish principles that generalize across phenomena and disciplines, and focuses on the system’s structure instead of the system’s function. A consequence of the existence of system properties is the appearance of isomorphisms in different fields that govern the behaviour of entities that can be in principle, very different (Von Bertalanffy, 1969). HRM scholars tried to explain observable HRM phenomena by reducing them to an interplay of elementary units (HRM practices), GST suggests examining HRM as contextually-bounded, when phenomena are not resolvable into local separate events, but are integrated in dynamic interactions. Put strongly, HRM is essentially an open system consisting of people, technology, organisations, and management processes. It safeguards itself in a continuous inflow-outflow of HRs, a building up of new HRM practices and breaking down of outdated ones, in a state of equilibrium with the internal and external environment. Von Bertalanffy (1969) introduced the principle of equifinality, widely used in the configurational tradition in the HRM research, arguing that the same final state may be reached from different initial conditions and HRM antecedents, in different ways, through different mechanisms. Relevant to this paper is the notion of information. In the GST tradition, the quality of HRM information is determined by the quality of HRM decisions made, based on this information.

Unfortunately, the systems perspective did not develop into empirical work and, arguably, its influence has become largely metaphorical (Kozlowski & Klein, 2000).

There is an implicit assumption in the majority of research into HRM that research findings will apply in all circumstances, beyond those in which they were discovered: it is part of the ‘proper science’ response which seeks universal answers focussed on identifying ‘best practice’ (Brewster, 1999). Different sizes of firms and firms in different sectors of the economy have different HRM (Kinnie, Hutchinson, Purcell, Rayton, & Swart, 2005; de Kok, Uhlaner, & Thurik, 2006).

An important element of the comprehensive HRM system (not external to it, but part of the system itself) is the context within which HRM is carried out. We define the HRM context as the relevant external and internal conditions and circumstances. The Harvard ‘map’ suggests these will include external elements such as societal

values, the laws, the labour market and the business conditions within which the organisation has to work. There will be elements that are more directly under the organisation's control but that are limited by previous managerial decisions and history, including the workforce characteristics, the task technology and the unions. There will also be elements that are directly related to the business but are outside the direct remit of HRM, such as the management philosophy and the business strategy. Other factors (the education system, tax and fiscal arrangements, national wealth) could be added or could be seen as included under these headings. Given the hegemony of the USA in HRM research, publications, consultancy and business schools, there has been only a limited, though increasing, assessment of the impact of context on HRM, since variations from the US model were seen as evidence of 'backwardness' rather than rational responses to different circumstances. The contextual elements of the Beer et al. map foreshadowed interest in contextual HRM (Brewster, 1999; Paauwe & Boselie, 2003), thus prefiguring some of the recent work in comparative HRM (Brewster & Mayrhofer, 2012).

Location has a major effect on how HRM is understood, which stakeholders it is meant to serve, what practices have legitimacy and what the effects of those practices are likely to be (Brewster & Mayrhofer, 2012). Only ten years after the establishment of HRM as an academic topic, Rosenzweig and Nohria (1994) identified the fact that HRM is the most localised of management practices. Countries have different HRM systems because they are in different situations, have different cultures and different institutions. HRM will be different between small countries and large ones, between rich countries and poor ones, between long-established countries and those just trying to establish themselves, between mono-lingual and multi-lingual countries, and so on. These basic situations will have substantial ramifications that will impact the way their organisations manage people.

The role of government and regulations, mentioned by Beer, Spector, Lawrence, Mills, and Walton (1984), and elaborated through further examples by Jackson, Schuler, and Jiang in their aspirational model (Jackson, Schuler, & Jiang, 2014), has been little explored empirically (Looise, 2015; Rodriguez & Johnstone, 2015). Looise (2015) raises the question of whether HRM scholars should address the role of government, regulations, or both? Regulations are one instrument for governments to reach their goals. Some scholars include information sharing, executing research, promoting, taxing, subsidizing and controlling in the list of 'soft' regulation (Edelman & Suchman, 1997; Mellahi, 2007). And regulations can also be initiated or developed by other parties than government, like the social partners through, for example, collective agreements. Building on these arguments, Looise (2015) suggests that it is important to differentiate and look at both the role of government and the role of regulations in HRM. He concludes that most management and HRM research projects focus on short term effects of rather easily measurable factors on a cross sectional bases, while the role of government and regulation in HRM is more complex and requires more longitudinal or even historical research approach.

There have been arguments that globalisation will apply to HRM too and that universal 'good practice' will inevitably spread around the world (see Cooke, 2003), but there is little evidence that countries are becoming more alike in the way they conceive of and manage HRM (Gooderham & Nordhaug, 2011; Mayrhofer, Brewster, Morley, & Ledolter, 2011). National differences are explained by cultural differences (Aycan et al., 2000) and institutional differences. The latter have more recently been drawn together by synthetic theories of comparative capitalisms (Amable, 2003; Hall & Soskice, 2001;

Jackson & Deeg, 2008; Whitley, 1999) and applied to HRM (Wood, Brewster, & Brookes, 2014). Capitalisms are distinguished in terms of embedded relationships between organisations and embedded relationships within organisations – the latter bringing the discussion close to HRM (Whitley, 1999). There may be debate about the balance between these explanations but together or independently culture and institutions will impact the HRM/technology interface too.

Stakeholders

HRM specialists have almost universally accepted the perspective of the single stakeholder (owner) for their subject. That perspective saw all HRM activities as having for their purpose the improvement of the efficiency of the firm (other organisations are much less commonly studied) leading to the enrichment of the owners of the business. It led, in a short space of time, to the adoption of a narrow focus on financial performance indicators and to attempts to prove that HRM contributed to that firm performance (Guest, 1997; Paauwe et al., 2013). The financial measures such as sales, profits and market value (Becker, Huselid, Pickus, & Spratt, 1997; Tichy, Fombrun, & Devanna, 1982) were easier to measure and have more legitimacy in the business community (and in business schools) than social indicators representing, for example, societal well-being. Over the years a (usually undeclared, implicit) paradigm in HRM has been that its sole purpose is ultimately to improve financial returns to the owners of the business. The employee perspective, including social partners such as trade unions and works councils, was often neglected or seen as the exclusive property of psychologists, industrial sociologists and labour relations scholars.

The Harvard ‘map’ though was concerned with a range of stakeholders, including owners and shareholders, of course, but also including employees and trade unions, management, community and government. Since it utilises a systems perspective, what matters is the influence and relevance of social interactions between the multiple stakeholders, their idiosyncratic experiences with HRM, and their influence on HRM policy choices. Perceptions of all stakeholders about HRM systems recurrently shape the contextualisation of HRM-in-practice. This approach, acknowledging multiple stakeholders, considers employee influence as a central aspect of the HRM policy choices, influencing all other policy areas, such as HR flows, rewards systems and work systems and, perhaps, the interface between HRM and new technology. From a European perspective this fits the European Democracy models in HRM (Paauwe, 2004) and indeed the HRM course at Harvard Business School included a case on workers’ councils in the Netherlands.

Long-term outcomes

The first two factors indicate a multiple range of outcomes, importantly noted in the Harvard map as being ‘long-term’. Firms need to create economic value through organisational effectiveness, but that has to be sustainable: ‘good’ HRM consists of policies and actions that work for the survival and success of firms in the long run, rather than just creating short-term returns to shareholders. HRM needs to contribute to long-term individual well-being, so where, for example, high performance work systems create strong financial returns but lead to stress and burnout, which have received more recent attention (van de Voorde, Paauwe, & Van Veldhoven, 2012), they cannot be counted as

'good' HRM. Finally here, since organisations derive their legitimacy from society, it is anticipated that HRM decisions will have long-term benefits for the society.

The long-term impact of HRM on the business has not featured heavily in our research. The widespread silence of the academic community on HRM's culpability for contributing to the global economic crisis that began in 2008, and the failure of HRM specialists to suggest ways forward is indicative (though with exceptions, see for example the special issue of *IJHRM* (Zagelmeyer & Gollan, 2012), though even there the global financial crisis is 'an external shock' (p. 3287). Buying in to the short-term financial results focus has left HRM with a limited capacity to join the debates on the longer-term survival and sustainability of businesses.

There was a similar lack of interest in and evidence about the effect of HRM policies and practices on the community within which the business operates. Again, with the more recent development of notions such as sustainable HRM (Ehnert & Harry, 2011; Taylor, Osland, & Egri, 2012) and corporate social responsibility (see the special issue of the *International Journal of Management Reviews*, Lindgreen & Swaen, 2010) this is beginning to change. Interestingly, and linked to our argument that the wider view better reflects practitioners' reality, many of these developments started with practitioners (Palacios-Marqués & Devece-Carañana, 2013).

New technology in HRM

The integration of Information Technologies and HRM has been called electronic HRM (e-HRM). Attempts to define e-HRM have varied since its inception, at around the time of the Beer et al. book, and have different connotations. IT-oriented researchers called e-HRM: a 'specialized information system ... designed to support the planning, administration, decision-making, and control activities of HRM' (DeSanctis, 1986, p. 16). Later, it was defined as: conducting HRM transactions using the internet or intranet (Lengnick-Hall & Moritz, 2003) and even as: 'the administrative support of the HR function in organisations by using internet technology' (Voermans & van Veldhoven, 2007, p. 887). Strohmeier (2007, p. 20) defined e-HRM as: the planning, implementation and application of information technology for both networking and supporting at least two individual or collective actors in their shared performing of HRM activities. In a search for balance, Ruël, Bondarouk, and Looise (2004, p. 368) defined e-HRM as 'a way of implementing HRM strategies, policies, and practices in organisations through the conscious and direct support of and/or with the full use of channels based on web-technologies'.

The e-HRM territory focuses on all integration mechanisms and all HRM content shared via IT that aim to make HRM processes distinctive and consistent, more efficient, high in quality and which create long-term opportunities within and across organisations for targeted users (Figure 2).

Therefore, the HRM research should aim to improve the understanding of this phenomenon and to contribute to its progress in terms of its (1) content, (2) design, (3) implementation, (4) its interaction with the organisational context, and (5) its short and long term consequences for multiple stakeholders.

e-HRM and context

e-HRM consultants and sellers of HR information systems (HRIS) have made considerable efforts to assert that by making HRM digital, HRM systems will become

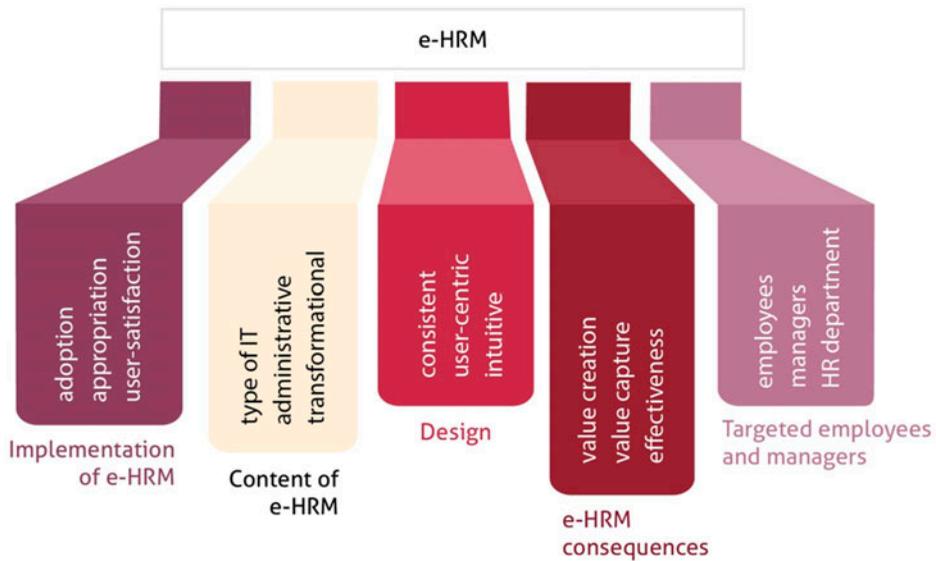


Figure 2. The e-HRM territory of enquiry.

considerably cheaper and more strategically oriented. This should happen as the systems free HRM professionals from administrative work and devolve HRM tasks to line managers and employees. e-HRM researchers have endeavoured to critically assess these claims and to understand how to orchestrate HRM and IT into an e-HRM symphony enjoyed by e-HRM user groups. Stone et al. (2015, p. 1), note, a little ungrammatically, that 'despite pervasive impact of technology on HRM in organisations, there has been relatively little research that examines its effectiveness'. It is clear from overview analyses (Bondarouk & Furtmueller-Ettinger, 2012) that across different e-HRM studies, research has found contradictory organisational realities: the adoption of e-HRM appears in some cases to have created benefits (cost savings, efficiency, flexible services, employee participation), whereas in others the results seem to be more negative (work stress, more HRM administration and disappointments with technological properties). Part of the reason for this is that e-HRM remains seriously under-theorised, but it is likely that much of the variation occurs because the studies paid insufficient attention to context.

We argue that to understand an integration of HRM and technology is to understand the context of such an integration. Some scholars view technology itself as one of the contextual factors. Thus, Shapiro, Von Glinow, and Xiao (2007) distinguish seven categories with more than twenty sub-categories that researchers need to study to offer a nuanced understanding of the management context. Among those are temporal-spatial (historical, geographical, time), environmental (technical, economic, political), cultural (behaviours, values), psychological (affective, cognitive), philosophical (aesthetic, moral), communication (verbal, gestures), and sensory (visual, auditory) (Shapiro et al., 2007). This list of contextual categories sees technology as but one of the contextual variables.

Scholars, who view technology as the context, will probably differentiate between levels of technological complexity. Advanced and technologically complicated e-HRM will offer just-in-time personnel information that enable real-time insights for HRM.

HRM data provided by smart technologies can significantly expand and improve the information potential of HRM in different ways. For example, sensing allows the measurement of aspects that are beyond human observation like work-related stress and can even differentiate between positive and negative stress. At the same time, once available for employees such sensing will ultimately put extra responsibilities on them to monitor and manage their work-stress level (Sharma & Gedeon, 2012).

While HRM analysis is often based on interpretations, political and other interests, smart e-HRM can offer trusted data. If traditional performance appraisal information may lead to debatable career opportunities, adding a sensor-based measurement of employee performance will show 'objective' performance challenges. Continuous tracking of employees' performance through quantity and quality of individual job tasks, or physical conditions will definitely inform HRM about the production level. But such an application of performance management may overlook crucial outcomes like commitment, intention to leave, or social behaviour of employees (Swan, 2012; Weston, 2015). However, if management chooses to delegate performance management to employees themselves, employees may individually decide which analyses to run, who will receive the analysis results, and which data are eventually transmitted to the manager and HRM department. This could lead to the self-assessment, with other challenges, requiring a high level of learning organisation, an open mind-set and flexibility.

Recruitment with advanced technologies can be realised *ad hoc* based on real-time requirements. At the same time, such smart technological options will require higher level of flexibility, on-call employee availability and a larger candidate pool of potential employees. New technologies will be able to optimise the job-person fit and match job tasks with employees' availability and qualifications, but such matching criteria as personal interests or job enrichment will probably be outstripped by 'objective' measures.

In general, new advanced e-HRM will provide great insights in different types of information, may empower users of technology in running different types of analysis concerning their own HRM data. But it may also transfer extra responsibilities onto the users of e-HRM regarding their own well-being, require extra flexibility and, in the end, will be dependent on their choices to share HRM-related information.

Other researchers argue that technology itself opens several layers of sub-contexts. Orlikowski and Scott (2008) claim that technology always encompasses physical and procedural dimensions. Information technologies constitute physical objects as hardware, software, wires, networks, and infrastructure. These physical 'objects' of technologies will not make sense unless people start using them and making sense of the rules they embody. Moreover, e-HRM technologies cannot exist without established HRM policies and rules. Adding a technological dimension to HRM exponentially complicates an already difficult-to-study HRM context.

Recent studies confirm the importance of context for the e-HRM 'environment', but show diverse results. For example, in the context of strong HRM leadership in a Belgian ministry, the contribution of e-HRM to the HRM service quality was shown to depend more on the HRM content than technological qualities (Bondarouk, Harms, & Lepak, 2015). Marler and Parry (2015) found that the deployment of e-HRM has significant effects on the strategic role of HRM in organisations but also that e-HRM is seen as a consequence of managers being involved in the strategic decision processes. Their study was inspired by the dilemma whether technological transformation is 'a precursor of strategic HRM, or technology is simply a tool to execute strategic decisions' (p. 18). Based on large scale cross-country and cross-institutional quantitative evidence, they confirmed both assumptions. Managers, who are involved in strategic

decisions, determine the extent of e-HRM capabilities. On the other side, the deployment of e-HRM has significant effects on the strategic role of HRM in organizations. Interestingly here, they showed that the significance of both effects differed depending on the external institutional environments. The relationships within organizations, specifically with respect to technology, were found to be contingent on the broader context. The outcomes of technology and HRM do not emerge within the organization but ‘co-evolve in tandem with external stakeholders..., political institutions and market competitors’ (Marler & Parry, 2015, p. 18).

Bondarouk, Schilling, and Ruël (2016) explored the adoption of e-HRM by multinational subsidiaries in an emerging economies context, and found that availability of the resources played a crucial role in e-HRM adoption and that, overall, challenges in e-HRM were found to be related to the complexity of legal, political and economic system, as well as to the predominantly administrative role of the HRM function in such contexts.

The research and practice of HRM occurs during the era of smart industries that do ‘nothing more than’ use ICT to interconnect machines for smart operations, not only within factories but also between companies and between companies and customers. This new industrial structure is built on three pillars: production technology, digitisation and a network approach. The aim of smart industries is to become more competitive through faster and better adoption of the information such technologies have to offer. The new breed of companies are the fastest-growing in history: Uber, Instacart, Alibaba, Airbnb, Seamless, Twitter, WhatsApp, LinkedIn, Xing, Facebook, Google. These companies are thin layers that sit on top of vast supply systems (where the costs are) and interface with a huge number of people (where the money is). It is logical to assume that the future of HRM is also to become ‘smart’, i.e. to enable and be enabled by digitisation and support and be supported through interconnectedness.

However, not all businesses operate in such a context. Whereas HRM may be the most localised of management functions (Rosenzweig & Nohria, 1994), information technology may be the most globalised. The purveyors of such systems like to claim the technology as ‘boundaryless’ – which incidentally ignores evidence that the take up and use of technologies generally seem to be heavily dependent on context (Geffen et al., 2013). When these two management functions come together there is inevitably a question about how ‘universal’ the operation and effects of the systems will be. It is noticeable that, almost inevitably, much of the research on e-HRM has been conducted in case study fashion, working with firms where it has been introduced or, even more restrictively, in firms that believe they are making a success of it (Bondarouk & Ruël, 2013). This is on any count a small minority of the businesses across the world.

In many businesses, indeed in the vast majority, familiarity with IT may be much less than in those in ‘smart’ organisations. We might guess that the smart sector is most important in the take-up of e-HRM, so that it will be most common in the high tech sector and in businesses (finance, etc.) that use the latest technology most extensively in other areas of their work. But this will also vary with size of organisation (with the largest and, perhaps, some of the smallest and newest, exhibiting most acceptance; though effectiveness may vary between those two) and that country will also be significant. We know that country impacts the use and operation of other forms of technology (Bondarouk et al., 2016). It seems likely that this would apply to e-HRM too. Organisations based in smaller countries with high levels of education are likely to make more effective use of e-HRM than those based in larger countries with lower levels of education.

e-HRM and stakeholders

A key question for our analysis concerns the impact of e-HRM on the various stakeholders in the system. There has been discussion of the effect on the roles of two of the key stakeholders: HRM specialists and line managers, the politics between them and how the implementation of e-HRM also enables partnerships with HRM providers outside organisations (Heikkilä, Brewster, & Mattila, 2013). The involvement of IT in the HRM field questions the conventional sharing of HRM between the specialist department and line managers (see the special issue of *HRM*, 2013, 52 (6) and Brewster, Brookes, & Gollan, 2015). There has been less research on the impact of e-HRM on employees (with some exceptions presented in the special issue in *Employee Relations*, 36 (4)).

Scholars write about polarisation of jobs, due to the latest technological developments (Brynjolfsson & McAfee, 2014), and expect that jobs where humans have advantages over computers will increase in number, while jobs where computers and robotics have advantages will decrease (Levy & Murnane, 2014). Based on the skills model of Autor, Levy, and Murnane (2003), Levy and Murnane (2014) expect that while job numbers increase, technology will still change the nature of those jobs – requiring workers with new skills with problem-solving and communication, things that are difficult for computers to match. The same is true for the HRM profession. It is expected to enable new ways of participation and doing business, creating new products and services and providing new ways of organising the workforce – all at a distance.

Since HRM transformations involves different stakeholders, professionals, line managers, employees and external people and agencies, what are the objectives and focal points for each group? What are the benefits, and the dark side, that are specific to each group?

One distinction between e-HRM and other management areas that experience an ongoing IT ‘push’ is that e-HRM has more stakeholders. It involves almost all employees (Ruël et al., 2004) and even people outside of ‘employment’. There are differences in technological cognitive frames amongst the different stakeholders associated with the different intended goals of e-HRM, their e-HRM tasks and their involvement in HRM processes. There tends, partly as a result, to be a balance between mandatory and voluntarily use of e-HRM. Marler and Dulebohn (2005) noted that whilst the IT studies examine factors influencing the use of IT as part of users’ jobs and day-to-day tasks, in the case of e-HRM, for the majority of targeted users, it is often a matter of choice. Organisations build their business cases for investment in e-HRM on significant cost savings expected from the wholesale, but voluntary, use of e-HRM processes (Marler & Dulebohn, 2005). If the use of e-HRM is not necessarily binding for all stakeholders, and different target groups develop their own ways of dealing with e-HRM, then organisations often face the situation when individual’s technological enthusiasm and decision to first use e-HRM is different from the decision to enact and continuously work with e-HRM.

It is only for HRM professionals that e-HRM usage is traditionally directly related to their job tasks; line managers and employees are expected to use e-HRM for reasons other than direct job-related outcomes: they will not be expected to use e-HRM that often. Tasks such as recording a new home address, bank account, or family status, terminating a work contract, or changing working hours will be rare for employee. This may result in having to re-discover, repetitively, the ways to perform seemingly simple tasks that have been complicated by the e-HRM technology (Goodhue & Thompson, 1995).

However, the more advanced, interconnected and smart e-HRM becomes, the more diverse involvement of all stakeholders can be expected. All organisational members, with or without assigned HRM and/or managerial responsibilities, are likely to contribute because technology will increasingly offer possibilities to do so. The diffusion of HRM tasks will occur with the acceptance of monitoring and steering new ‘non-observable’ data like work-life balance and work stress, selecting data to run and display analysis of the individual job performance, scheduling own work time, or steering training and career development. At this point it is difficult to foresee the effects of such developments and the resultant increase in ownership of HRM data.

e-HRM and long-term outcomes

New context brings new questions. How do businesses ‘future-proof’ themselves in the era of smart industries? Unlike many HRM interventions the use of e-HRM is insidious – it will have undeclared and perhaps unexpected impacts on how HRM is conducted in the organisation in the future – and it is hard to reverse. It raises questions about the roles of the HRM specialists, many of whom risk becoming more or less confined to ‘feeding the machine’ but some of whom will find new space, and have significant new data, to develop longer term plans. Big data offers opportunities to monitor, steer and govern the work processes and job tasks with high levels of precision and will change the way that HRM specialists work.

The main challenges in terms of future-proofing, ensuring the longer-term survival and success of the organisation, will come from companies developing new smart business propositions with the deployment of new technology and knowledge and from learning to collaborate effectively and organise networks that make optimal use of the available data. But it will also require them to understand what employee competences they need to generate and maintain success and will, simultaneously, make it easier to monitor such competencies. Since the Web 1.0 times (1995–2000), some companies have seen the ‘internet’ as the part of their infrastructure. With new digital practices like e-commerce or open source, the internet was viewed as the way to monitor customer relationships, to gather relevant information and to sell advertisements. By 2005, Web 2.0 developments placed customers central to business models. Through social media businesses started to ask customers to contribute to the products design (user design), to generate ideas (crowdsourcing) or to raise funding (crowdfunding). Expectations of the ‘Internet of Things’ are now related to serving and operating machines, monitoring work conditions, generating data and designing new business models – all at a distance. We see the borders between consumption and production becoming tangled, a consumer becomes a producer or a co-producer. As Anderson (2012, p. 36) described this development, digital developments move us towards a ‘do-it-yourself’ economy, where one may expect the future workforce to consist of ‘consumer as a producer and *costless employees*’.

For employees the larger implications of new technology are unclear – does it destroy work or create more opportunities? One thing that is apparent is a decline in standard long-term, full-time employment and a growth in contingent employment forms, some of them ‘only-just’ employment forms, like zero-hours contracting. On-call, part-time, self-employed and other forms are expected to grow by up to 25% by 2020 (Van der Ploeg & Vermeend, 2014). It is mobile technologies that facilitate the expansion of such jobs. For standard employment in the firm, managing the knowledge-skills-abilities of employees gets a new dimension as new non-routine cognitive

tasks are expected to comprise three main elements (Levy & Murnane, 2014, p. 16): first, solving unstructured problems, tackling problems that lack rule-based solutions (the role of computers here is to complement human work by supplying high resolution information); second, work and processing of new information, acquiring and interpreting new information for use in problem-solving or to influence decisions of others; and, third, execution of non-routine manual tasks, carrying out routine tasks that cannot be described in rules and have proven to be difficult to programme (computers do not complement human work here).

So far, the explanations offered for the difficulties that organisations experience in implementing e-HRM have tended to overlook an important aspect of e-HRM adoption: the dynamic nature of the process. Time is an important but under-researched aspect of all HRM activities and studies (George & Jones, 2000; Hippler, Brewster, & Haslberger, 2015). Believing that human interactions with technology play a key role, we view implementation as complete only when users are contentedly working with IT and have acquired the necessary skills to master and fully understand it. In other words, the objective is the stable use of an e-HRM technology, rather than the stabilisation of the technology itself. The main indicator of successful e-HRM implementation is, in this view, the skilful and task-consistent operation of the application by the targeted employees.

New technology and HRM: a research agenda

Effects of e-HRM on employment relationships are tightly intertwined with the overall role of technology in organisations. Issues like work pressure, role ambiguity or overload, enrichment of jobs, identification and de-personalisation of work, justice and equality, intra and inter organisational inequality, inclusion and exclusion, loss of jobs and creation of new jobs, power and loss of power for various stakeholder groups, re-skilling and de-skilling, appearance of new organizational forms – these new old issues will continue to determine the research agenda for HRM and technology.

Using our revisiting of the Beer et al. (1984) ‘map’ we suggest that there are three areas in which e-HRM needs to develop over the next few years: by taking account of context, multiple stakeholders and long-term outcomes. We call for the plurality of political, behavioural, institutional, economic, sociological, design and cultural conceptual lenses. Each of them brings its own specific set of research questions. A political lens questions the role of power and how it is exercised in e-HRM projects and rollouts, and how power plays a role in the standardisation and localisation of e-HRM. A behavioural lens focuses on the role of individual actions and interpersonal interactions. An economic lens focuses on quantifying the costs and benefits of standardisation and localisation of e-HRM. An institutional lens deals with social construction, and a cultural lens helps to clarify how the cultural background of factors involved in e-HRM projects play a role in shaping e-HRM. Experts in design science could enrich the e-HRM research by opening up the ‘black box’ of IT for HRM specialists.

Context

The universalist approach with, currently, a heavy emphasis on human capital theory and the resource based view, is very different from the contextual HRM approaches that highlight multiple stakeholders and take into account the institutional environment (Brewster, 1999). The increasing number of studies from emerging countries

(Collins, Zhu, & Warner, 2012; Davilla & Elvira, 2012; Horwitz & Budhwar, 2015) may lead to even less consensus on how to conceptualise HRM.

The diffusion of e-HRM in various international contexts has been broadly researched (e.g. Florkowski & Olivás-Luján, 2006; Ruël & Bondarouk, 2012). Multi-national corporations tend to introduce e-HRM in an attempt to standardise HRM practices across borders. How far they are able to do that is a matter for empirical investigation: of practices and employee perceptions as well as of policies (Wright & Nishii, 2013). It is important, therefore, to re-open this page in the research and to study e-HRM implementations with the focus on the international context and explore what effects the international context has on the implementation process of e-HRM. Therefore, another challenge is to empirically investigate the international context of e-HRM adoption (Ruël & Bondarouk, 2012; Strohmeier, 2007), including comparative analysis of developed and developing host countries' effects of e-HRM implementation in MNCs. The strides that have been in this area are summarised in Ruël and Bondarouk (2012), but their analysis emphasises how limited is the geographical spread of studies up to the present.

The context of e-HRM will always include its targeted users; organisational support; and the technology characteristics. To enact e-HRM in daily organisational life, the targeted users have to be placed in the centre of e-HRM adoption. Alongside the influence of the organisational context, human actors are also influenced by the e-HRM technology. During the process of e-HRM enactment, human action is both facilitated and constrained through communication on the goals of e-HRM, the extent to which it provides personal outcomes, and whether there are intrinsic benefits to be gained from using the e-HRM. As IT becomes more accessible, personnel management becomes increasingly dependent on its use and the benefits of using e-HRM cannot be limited to improving job outcomes. The technology does not determine HRM practices. For e-HRM to be integrated into daily HRM processes it must be enacted by human actors. We see three scenarios for contextual e-HRM enactment. *Inertia-based* e-HRM enactment is characterised by a situation in which users (HRM professionals, line managers and employees) choose to work with e-HRM in the 'old-fashioned' way. This may result in the preservation of the existing technological circumstances with no changes to the HRM processes. Top management is not involved in the e-HRM implementation in many respects: their attention has shifted from the e-HRM implementation to other organisational issues; insufficient resources are allocated to the e-HRM project; and responsibilities for e-HRM implementation are left to consultants and vendors (Heikkilä et al., 2013). The actual use of e-HRM is highly restricted; users have only limited involvement in the implementation process, they are not invited to participate in e-HRM projects, or their participation is requested, but then ignored.

Mutual adjustment, as the second e-HRM enactment scenario, may be characterised as a situation in which all groups of users strive to find a consensus that refines their 'old' face-to-face HRM practices and integrates new IT possibilities. Users engage in HRM search activities, create HRM documents and databases, or record and analyse problems. Users draw on existing organisational structures, but also try to enhance the e-HRM properties over time. In this enactment mode, top management and individual users are able to participate by offering advice at any stage of the e-HRM implementation.

Improvisation-based enactment of e-HRM calls for the refinement of existing methods of performing HRM tasks. Such enactment results in dramatic alterations of HRM work processes and the use of e-HRM applications. Users show a great deal of

understanding of the technology and its purpose and are committed to working with it. The HRM function manages to maintain organisational attention on the e-HRM implementation. Senior managers are actively involved in e-HRM project groups as they advise and control the enactment process, and they discuss adjustments that need to be enacted in the system and in the HRM work processes. The majority of users are engaged with the idea of improving existing HRM processes with the help of e-HRM. In this enactment mode users may be asked to participate by taking control of the e-HRM implementation, or through their involvement in working groups, as design team members, or in prototyping groups.

Multiple stakeholders

Amongst the more immediate stakeholders are the HRM professionals, line managers and employees. It is their perceptions of e-HRM applications that determine, to a great extent, how and whether e-HRM will be used. There have been few studies of the advantages and disadvantages for each of these groups in the study of e-HRM. It is by being transferred and filtered through perceptions, understanding and experience that an HRM system gains its quality (Wright & Nishii, 2013) and e-HRM is a part of that wider picture. There is case-study evidence that even in a high-tech operation, employees prefer to get their HRM information from people (their line manager, their HRM specialist or their trade union representative) rather than from the system (Sparrow & Brewster, 2012). Social cognitive theorists have shown that incongruent frames lead to different understandings and conflicting interpretations expressed in process loss and misaligned expectations, contradictory actions, resistance and scepticism. We need more studies of the impact of e-HRM on employees and the work of managers in trying to reconcile the different interests amongst the stakeholders.

Line managers are crucial actors with the responsibility of directly managing employees (Bos-Nehles, 2010; Brewster, Gollan, & Wright, 2014; Wright & Nishii, 2013) and, it is argued, more work being devolved to them over the past few years, although the evidence for that is slim (Brewster et al., 2015). Line managers play an important strategic role in designing, conveying information about and implementing HRM practices. 'Line managers' themselves can be divided into middle-level and front-line managers (Bos-Nehles, 2010). The latter have direct supervisory responsibility, whereas middle managers are responsible for the coordination of an organisational unit's day-to-day activities. Involving line managers in the implementation and enactment of the HRM system enabled by IT is another challenge for future research. Therefore, the next challenge is to empirically explore the HRM frames responsible for differences in interpretations of e-HRM by different stakeholders and, thus, for its success. A key question is whether success in this context means the same thing of all stakeholders and, if not, how their interests are to be moderated.

The views of other employees have been rather over-shadowed, as we have noted above. Rather than starting with e-HRM technology and examining how people adopt, appropriate, adapt, or accept its applications, we call for research to start with the targeted users and explore how they develop their work with e-HRM (Francis, Parkes, & Reddington, 2014). The enactment approach to e-HRM implementation emphasises the prominent and decisive roles that users play in the recurrent use of an e-HRM technology in the belief that various stakeholders engaging in implementation exert social influence in order to change the pattern of technology use in ways that, over time, remove or ameliorate its potential to constrain human action.

Long-term outcomes

Developments in stakeholder theory (Freeman, Harrison, Wicks, Parmar, & de Colle, 2010) are gradually being reflected in HRM (Beer et al., 2015). The satisfaction of stakeholders is directly connected to their values and assumptions and the values and assumptions that exist in a workplace. (Heskett, Sasser, & Wheeler, 2008): This is central to HRM: fundamental to a multi-stakeholder approach is trust between the different stakeholders. As Francis et al. (2014, p. 1341) note 'there is a dearth of critique in [the] literature about the impact on the people involved'. We need research to help understand how firms deal with their owners, employees, customers and their communities as stakeholders in HRM.

The long-term implications of e-HRM for the organisation will depend very largely on context. In some countries, in some industries and in some sizes of business the implications will be minimal. For others, they will be part of the package that contributes to survival and even success in a highly competitive marketplace. For those firms we suggest that the key is not e-HRM itself but managing what we have called above its complete integration. As Marler and Parry (2015) confirmed in their empirical multi-context study, the role of e-HRM in organisations is much more complex than just supporting existing HRM processes; that both internal and external forces in organisations appear to operate reciprocally and result in transformation of the HRM function towards a strategic player but that, at the same time, the e-HRM deployment itself is a result of HRM managerial decision-making. It forces researchers and practitioners to view e-HRM and HRM as co-evolving, mutually reinforcing and structuring each other. With new smart technologies that accelerate networked collaborations within and across organisations, long-term outcomes depend even more on the e-HRM context.

For the workforce the long-term effects may be different: they may range from the development of new ways of interacting with their bosses and the HRM department, through an increasing distancing from them, to dramatic work intensification and redundancy (Brynjolfsson & McAfee, 2014). One implication of e-HRM is the risk of distancing: the potential is for an increasing lack of direct contact between HRM specialists, line managers and workers. These effects, and particularly the 'dark side' need further research. For the researchers this may indicate the need for different, qualitative, research that may involve action research and may go beyond the formal boundaries of the organisation.

Conclusions

There is a substantial research agenda here. We believe that to date much of the work on e-HRM has been based on un-declared assumptions about the interests of shareholders being paramount, about context being largely irrelevant, and about the long-term effects on various stakeholders being of less import than short-term efficiency and 'doing more with less'. If e-HRM research is to remain realistic and relevant these assumptions need to be challenged and we need a much wider focus for our work.

Disclosure statement

No potential conflict of interest was reported by the authors.

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