Truly international comparative e-HRM research is scarce. The comparative studies available are basically non-theoretical and do not refer to cultural or national contextual aspects as an explanatory factor. Most of the e-HRM research originates from the US and from Europe. All the studies on e-HRM so far have not been suitable to conclude anything on whether e-HRM in Western countries and non-Western countries looks similar or is developing similarly or not.

We propose a research framework for cross-national or cross-cultural e-HRM research that is based on a constructivist view of the relationship between technology and organization, adopting the lines of thought of Orlikowski (1992, 2000) and DeSanctis and Poole (1994). It can be used as a framework for international comparative e-HRM research. It is suitable for this purpose as it tries to be all-encompassing, including the main focus areas of e-HRM research so far (goals, implementation, adoption, outcomes, HRM transformation), and therefore allows comparison of these areas and variables across borders in a multinational context. It supports the convergence-divergence debate as the relevant debate where international comparative e-HRM research should be positioned as it offers a relevant and rich explanatory ground for differences and similarities across national and cultural boundaries.

Nowadays, IT and HRM are indissolubly connected. Human resource information systems (HRIS), often integrated as a HRM module of an enterprise resource planning (ERP) system like SAP or Oracle, are used to improve HRM in terms of administrative and analytical purposes (Kanthawongs, 2004). The greatest benefits of implementation of HRIS’ are the quick response and access to information, and the greatest barrier is insufficient financial support (Ngai & Wat, 2006). Since the middle of the 1990s, the influence of the internet has become noticeable in the field of human resource management (HRM) (Bondarouk & Ruël, 2009). Human resource information systems (HRIS) started to become more of an internet-based technology. The focus changed from mainly supporting the HRM department to targeting the effectiveness of managers and employees. The term e-HRM, which stands for electronic HRM, is used for labelling HRM services provided through the use of internet technology. The term ESS, employee self-service, is also used to refer to web-based HRM technology. That e-HRM is not a temporary phenomenon is illustrated by a recent study which examined the adoption of e-HRM in Europe. The results show national adoption rates varying from less than 20 to almost 90 percent of organizations.
A study by Foster (2008) stated that at least 91% of midsize and large US organizations use web-based HRM technology in some way. According to a survey in 2008, the most frequently used application is administrative e-HRM (62% of the surveyed companies) followed by talent acquisition services (61%) and performance management (52%) (Cedar-Crestone, 2008).

This work builds further on the e-HRM definition offered by Bondarouk and Ruël (2009) where e-HRM is understood as “an umbrella term covering all possible integration mechanisms and contents between HRM and Information Technologies aiming at creating value within and across organizations for targeted employees and management” (Bondarouk & Ruël, 2009, p. 507).

THE CONVERGENCE-DIVERGENCE DEBATE AND HRM

Today’s convergence-divergence debate in the area of organization and management practices started in the mid-1980s with increasing globalization. Since that time, economies have become more and more integrated, and there is increasing collaboration between companies. This integration led to a spreading of global management structures and the adoption of similar operating techniques. Hence it can be argued that global organizations are converging (McGaughey & De Cieri, 1999). The following circumstances led to this convergence: the rise of the internet, which simplified the global communication process and data exchange, increased travelling and the deregulation of economic activities by governments (Levitt, 2006; Doz & Prahalad, 1991; McGaughey & De Cieri, 1999). However, opponents of convergence state that despite the structural and technological convergence, cultural differences remain (McGaughey & De Cieri, 1999).

Related to the convergence-divergence debate, the standardization-localization debate plays a role in the area of organization and management practices (e.g., Porter, 1986; Prahalad & Doz, 1987). This debate is concentrated on the company or meso-level, while convergence-divergence is more focused on the macro-level (Pudelko & Harzing, 2007). Rosenzweig and Nohria (1994) defined standardization-localization as: to what extent are subsidiaries of multinational companies (MNCs) behaving as local firms (localization) versus to what extent are their practices similar to those of the headquarters (standardization). SHRM plays an important role in this debate because it deals with the management of people and is therefore seen as the least likely to converge across countries. MNCs are more likely to localize practices than to export country-of-origin practices (Pudelko & Harzing, 2007; Leat & El-Kot, 2007). Wöcke et al. (2007) examined the differences between HRM practices of parent MNCs and affiliates. He concludes that there are several factors that influence the need for standardization or localization: variation in the business model, the need to accommodate national culture, and the type and role of organizational culture in the MNC. Additionally, the evolution of a MNC leads to a higher level of standardization of HRM practices.

Overall however, existing convergence-divergence- and standardization-localization studies do not address how convergence-divergence/standardization-localization process takes place. In order to be able to do this a different type of theory has to be used. In organizational studies the role of technology in organizations has been studied for a long time. In an attempt to overcome the limitations of contingency theory in linking technology and organizational structures, a number of studies (Barley, 1986; Orlowski, 1992, 2000; DeSanctis & Poole, 1994) have drawn on Giddens’s (1984) theory of structuration. The essence of structuration is that social reality is shaped by both subjective human actors and institutional properties. This led to a new view of studying this relation, assuming that technology is dualistic in nature. Technology is a product of human action, it is created by humans, and they are responsible for adjustments to it, but it also has to be used
by humans in order to accomplish some action. Later on, technology is seen as an emergent structure, meaning that during their interaction with technology in the daily use, humans enact structures which shape their emergent and situated use of that technology. In this article we adopted structuration theory as the basis the model to be developed.

**TOWARDS A FRAMEWORK FOR CROSS-NATIONAL E-HRM RESEARCH**

Following Strohmeier’s (2007) observation, e-HRM research has so far ignored the cross-national or cross-cultural focus. We propose a research framework to stimulate this kind of study, and to use as a lens through which one can look at e-HRM in different national contexts and understand and interpret differences and similarities. A map that can be used to guide research questions such as to what extent does e-HRM in different national contexts converge or diverge as well as questions that go beyond that focus and aim at studying how e-HRM converges or diverges in different contexts.

Building up the research model will take place in three steps. Firstly, as e-HRM emerged from the intersection between IT and HRM, or technology and organization, the theoretical fundaments of the research model will be defined. Secondly, the content of the model, the variables, will be presented and discussed. Thirdly, the model will be positioned in the convergence-divergence debate.

**THEORIZING TECHNOLOGICAL SIDE OF E-HRM IN ORGANIZATIONS**

The study of the role of technology in organizations has a long tradition. Over the years, different views on technology have developed in parallel with theoretical perspectives on organizations. Orlikowski (2000) mentions for example: contingency theory, strategic choice models, Marxist studies, symbolic interactionist approaches, transaction-cost economics, network analyses, practice theories, and structural models. Nowadays, technology and organizations undergo rapid and radical changes in form and function. Therefore, researchers on technology are also using the ideas of innovation, learning, and improvisation for a better understanding of the implications of new technologies on organizations (Orlikowski, 2000, p. 405).

In an attempt to overcome the limitations of contingency theory in linking technology and organizational forms, a number of scholars in the mid-1980s started to use Giddens’s (1984) theory of structuration (Schuessler, 2006). This led to a new view on studying the interaction between technology and organization, assuming that technology is dualistic in nature. Until that time, the dominating view was deterministic in nature (Orlikowski, 1992).

Barley (1986) was one of the first researchers to use Giddens’s structuration theory in order to study the relation between technology and organizational structure. Based on this theory, he argued that technology can be constraining and enabling. Technology was considered to be social in nature rather than a physical object. Most interestingly and opposing a deterministic view on technology, Barley’s study showed that the organizations responded differently to the implementation of the same sort of technology. He concluded that “technologies do influence organizational structures in orderly ways, but their influence depends on the specific historical process in which they are embedded” (p. 107).

Orlikowski (1992) takes Barley’s point of view further and argues that in contrast to Barley’s view that technology’s physical form remains fixed across time, information technologies may vary with different users and contexts and with the same users over time. With this view she takes a step away from social constructivism, which assumes the interdependence of social and individual processes in the co-construction of knowledge (Palincsar, 1998). Orlikowskip states that technology may
become routinized because of repeated use, but it cannot become stabilized. Technology is built with the intention of being modified in time. Software is continuously updated to improve its stability or to fulfill user needs. Orlikowski’s practice lens (Orlikowski, 2000) does not make any assumption about the completeness of the technology or its stability.

DeSanctis and Poole (1994) adapted structuration theory to study the interaction of groups and organizations with advanced information technologies (AITs), like group decision support systems (GDSSs). They developed the adaptive structuration theory (AST). “The AST examines the process from two positions: the type of structures that are provided by advanced technologies and the structures that actually emerge in human action as people interact with these technologies” (DeSanctis & Poole, 1994, p. 121). Or formulated differently, AST is focused on the rules and resources of advanced technologies and how users in small groups adapt to the rules and use the resources. The adaption can lead to different outcomes even in the same context because users can act differently when utilising the same technology.

An important aspect of AST is spirit: “The spirit is the ‘official line’ which the technology presents to people regarding how to act when using the system, how to interpret its features, and how to fill in gaps in procedure which are not explicitly specified” (DeSanctis & Poole, 1994, p. 126). Another central aspect of AST is the concept of appropriation. Appropriation in the context of information systems in organizations refers to the process of actively selecting ‘structural features’ of a given system or application and incorporating them in their daily work activities. From a large set of potentially applicable features, individuals actively choose the ones they judge as most useful and easy to use, though in the way individuals interpret those features. This implies that a similar set of structural features of an information system can be used in different ways and therefore have different expected or unexpected consequences.

As mentioned earlier, the rapid and radical changes in technologies and organizations have called for new concepts, like improvisation and emergence, for studying and understanding the use of technology in practice. With similar intentions, Orlikowski (2000) extended her view on technology as being an emergent structure, a process of enactment (to constitute/perform). This view focuses on how humans enact structures which shape their emergent and situated use of the technology during the interaction with that technology in their daily life. This means that structures are not embedded in technology but enacted by users. There are three types of enactment: inertia—technology used to maintain the status quo; application—technology used to modify and improve (work) processes; and change—technology used to change the status quo considerably. By using this view, a better understanding of the recursive interaction between people, technologies and social action becomes possible (Orlikowski, 2000, p. 404).

THE VARIABLES OF THE RESEARCH MODEL

As the foundation of a research model, the framework of Ruël et al. (2004) will be adopted. The framework was evaluated based on the findings from five large organizations that had had several years of experience with e-HRM. The framework of Ruël et al. distinguishes four “phases” in e-HRM adoption in organizations. Each phase will be described and viewed through the perspective of structuration. This perspective is useful for information system (IS) research because it is able to connect two important aspects that play a role in the e-HRM context: firstly, how ISs are developed and physically shaped by the actions of the users, and secondly, how the organization is influenced by the implementation of an IS (Schuessler, 2006).

In the middle of the model are situated the internal agents who determine and influence the four phases. Orlikowski (1992, 2000), inspired by structuration theory (Giddens, 1984), states that technology only comes into existence through human action. Ongoing maintenance by human action sustains the technology, and it is
constituted through use. On its own, technology plays no role. Therefore, it seems legitimate to place internal agents in the middle of the model.

The internal agents and the four phases are situated in a context. The model distinguishes 6 factors that play a role: competition, technological development, the state of the art of HRM, labor market, societal developments, and government regulation. These are similar to the institutional properties Orlikowski (1992) refers to as influencing human agents in their interaction with technology. She described the following institutional properties: business strategy, ideology, culture, operating procedures, communication patterns, control mechanisms, expertise but also external forces like government regulation, competitive environment, vendor strategies, socio-economic conditions, and knowledge about technology (p. 409). These institutional properties can also be referred to as conditions and consequences (Orlikowski, 2000). Conditions can be subdivided into: 

- interpretive conditions (the way that members of a community share meanings and understandings to make sense about their world including the technology they use),
- technological conditions (tools and data available), and
- institutional conditions (social structures that form part of the larger social system within which users work).

Consequences can be subdivided into: 

- process consequences (execution and outcomes of users’ work practices),
- technology consequences (technological prosperity available to users), and
- structure consequences (structures that users enact as part of the larger social system in which they are participating) (Orlikowski, 2000, p. 421). Based on a comparison of conditions and consequences with technology in practice, three types of enactment are distinguished: inertia – technology used to maintain the status quo; application – technology used to modify and improve processes (work); and change – technology used to change the status quo considerably.

Additionally, we “split” the research model into two parts. One side represents the part where institutional conditions are the dominant influential factors, phases one and four, and the other side represents the part where technological conditions are the dominant influential factors, phases two and three. The combination of the conditions and consequences can lead to three different types of enactments (inertia, application, and change).

Then the four phases of the model: the first phase, *initial HRM strategy and policy*, refers to the state of HRM in an organization. When companies start with or invest further in e-HRM, there will be certain implicit or explicit HRM policy assumptions and practices already in use. Based on the classic work of Beer et al. (1984), three types of policies can be distinguished: bureaucratic policies, found in organizations that operate in a stable environment; market policies, found in organizations that have to respond rapidly to changes in the environment; and clan policies, found in organizations that rely heavily on delivering quality and innovation. Ruël et al. (2004) assumes that within the context of an existing HRM policy type, internal agents select the role given to technology within the overall HRM strategy of the company.

The second phase refers to the goals of e-HRM. Goals are selected by internal agents within the existing HRM policy context (or internal institutional properties) in which they act, but intermediated by external institutional properties such as competition and technological developments. In terms of Giddens’s work, Orlikowski, and DeSanctis and Poole’s AST, the existing HRM policy is a set of ‘structures’ interpreted and applied by internal agents, in AST terms referred to as ‘appropriation’. The e-HRM goals selected, whether implicitly or explicitly, are outcomes of that appropriation process.

In general terms, the outcome can be one or a combination of the following goals: to improve the strategic orientation of HRM; to reduce costs and/or increase efficiency; and to improve the quality of HR service for management and employees. These goals are in line with the benefits/advantages of e-HRM found by Bell et al. (2006) and Lukaszewski et al. (2008) discussed earlier in this chapter.
These goals of e-HRM can be linked to what DeSanctis and Poole (1994) refer to as the spirit of technology. The spirit is concerned with questions like, “what kind of goals are being promoted by this technology?” and “what kind of values are being supported?” (DeSanctis & Poole, 1994, p. 127). For example, e-HRM applications can ‘contain’ the spirit of “improving client services”.

From the e-HRM goals selected, an e-HRM type emerges as an outcome of deliberations by internal agents interpreting and applying e-HRM goals in day-to-day organizational practices. e-HRM types refer to a combination of selected technologies and their appropriation by internal agents. Therefore, it is not a static context with a technological application deployed in a technical sense. Rather, e-HRM types are a dynamic context, in which at a certain point in time there can be a huge gap between available technological functionalities and real usage of these functionalities by internal agents. Analytically, three types of e-HRM can be distinguished: operational e-HRM, meaning that the dominant usage consists of more traditional administrative services like salary administration and record-keeping; relational E-HRM, meaning that the dominant usage consists of executing HRM processes, like recruitment, compensation, and training and development; and transformational e-HRM, meaning that the dominant usage has a strategic character, such as knowledge management, strategic competence management, and organizational change.

From the appropriation of e-HRM applications, e-HRM outcomes emerge, intended and unintended ones. These outcomes should not be confused with the e-HRM goals described as phase two of the model. Ruël et al. (2004) state that e-HRM is a way of carrying out HRM, it is a way of thinking about and implementing HRM strategies, policies, and practices aimed at achieving certain goals: improving the strategic role of HR, improving the client services, and improving efficiency/administrative processes. Besides these goals, there are a number of overall HRM policy outcomes to which all e-HRM activities will be directed implicitly or explicitly. Beer et al. (1984) distinguish the following four: (1) commitment – the trust between management and employees; (2) competence – the ability of employees to learn and perform new tasks; (3) cost effectiveness – financial competitiveness; and (4) congruence – structuring the internal organization, the reward system, and the input-output of personnel in the interests of stakeholders. The e-HRM outcomes can be considered as interpretations by internal agents, applied and reflected in an organization’s HRM policy. The types of enactments described earlier can also be seen as types of outcomes and are added to the fourth phase of the model.

THE CONVERGENCE-DIVERGENCE DIMENSION TO THE E-HRM MODEL

The variables of the research model as described can be taken as the point of departure for comparative research in different national contexts. However, as we believe that international comparative research only becomes meaningful when it contributes to the convergence-divergence debate, we will now place our model in this debate by theorizing how converging and diverging forces affect the phases of e-HRM in organizations. The environmental factors in the model (Figure 1) can be categorized as being either an example of a source for business ideology features, or an example of a source for socio-cultural features.

Based on an initially small empirical study on e-HRM in four organizations in Lebanon, we came up with assumptions about this issue. In the four organizations, three of them multinational companies (a bank, two telecom companies, and a private university), we collected data by conducting semi-structured interviews with HR and IT professionals. The guiding research question was: How does the deployment of IT for HRM purposes impact the convergence or divergence of HRM policies and practices in Middle Eastern companies?
We expected to find that internal agents within an organizational context refer either to business ideology features or socio-cultural features in the ongoing interactions in an e-HRM implementation or upgrading project. This process of referring to either of these features results in converging, standardization tendencies, in line with widely, internationally shared ideas, e.g., regarding decision-making about the sequential steps of a performance management system, or diverging, localization tendencies, in line with local customs. Based on the outcomes of the study, we concluded that converging tendencies were indeed strongly reflected in phases one and two (the policy and goal defining stages) and that diverging tendencies predominantly emerged in phases three and four (the actual appropriation of the e-HRM applications by internal agents).

Earlier, we “split” the research model into two parts. One side represents the part where institutional conditions are the dominant influential factors, phases one and four: the e-HRM system is part of a larger social system, and the social structures of the social system will influence the way the technology is designed. For example, the type of HRM policies will be influenced by the environment of the organization. The other side represents the part where technological conditions are the dominant influential factors, phases two and three: agents will determine the goals of the technology and the type of e-HRM which eventually provides tools and data for the users. The combination of the conditions and consequences can lead to three different types of enactments (inertia, application, and change). The research framework as explained above is visualized in Figure 1.

Figure 1.
The framework proposed in this article is a stimulus for e-HRM studies that aim to contribute to this debate. In its current shape the framework hypothesizes that e-HRM in different national or cultural contexts will show predominantly converging tendencies during phases one (‘reigning’ HRM policy under which e-HRM decisions are taken in organizations) and two (explicitly or implicitly formulated e-HRM goals that most likely are to be chosen within the spirit of the business ideology). Diverging, socio-cultural specific tendencies will appear most likely during phases three (e-HRM types, reflecting the appropriation of e-HRM by internal agents) and four (e-HRM outcomes, reflecting the perceptions of internal agents regarding intended and unintended consequences of e-HRM appropriation).

The proposed framework can be used for quantitative as well as qualitative research approaches and allows different additional theoretical lenses. For quantitative studies, the framework triggers research questions such as: do converging forces have a dominant impact on how e-HRM is shaped in organizations in phases one and two? Do diverging forces have a dominant impact on how e-HRM is shaped in organizations in phases three and four? Do converging and diverging influences on the phases of e-HRM in organizations differ per national or cultural context? To what extent do different internal agents perceive converging and diverging influences differently related to different phases of e-HRM?

For qualitative studies, interesting research questions are for example: how do internal agents appropriate business ideological and socio-cultural features in the different phases of e-HRM? How do internal agents among each other arrive at decisions on how to shape e-HRM in different national or cultural contexts? How are e-HRM outcomes perceived and interpreted by internal agents in different national and cultural contexts and ‘translated’ into the HRM policy? How do internal agents bring about change in e-HRM in different national and cultural contexts? How do converging and diverging influences ‘interact’ during an e-HRM change project?

In terms of additional theoretical perspectives, researchers can take political, behavioral, economic, as well as cultural lenses to shape and specify their research questions. Political lenses will help to understand the role of power and how power is exercised regarding e-HRM and how it results in converging or diverging tendencies. Behavioral lenses will contribute to revealing the role of individual actions and interpersonal interactions, and economic lenses may focus on quantifying costs and benefits of converging and diverging tendencies in shaping e-HRM in organizations. Finally, cultural lenses will help to understand how the cultural backgrounds of internal agents play a role in shaping e-HRM in organizations and how this results in either converging or diverging tendencies.

This special issue consists of four articles. The first article opens the discussion by aiming to contribute to the e-HRM field by assessing its current characteristics, identifying weaknesses and going on to propose ways to support future e-HRM research. The authors, Poutanen and Puhakka, start by observing that many discussions in the field of e-HRM and human resource information system (HRIS) research are still in their early days, and that they see a lack of research attempting to construct a synthesis out of the fragmented HRIS studies. E-HRM research to date has failed to integrate organisational and technological perspectives, and most e-HRM studies are positivistic, variance-based and therefore unable to answer why and how questions. Therefore, the authors introduce a conceptual framework for e-HRM research which aims to send out a signal that the field needs to build more rigorous theoretical frameworks and to conduct theory-driven empirical studies. The authors also call for a greater diversity in methodological approaches to studying e-HRM.

The second article, by Bourgault, DrOuin, Sicotte, and Daoudi, addresses the
issue of geographically distributed work teams that carry out new product development projects. These are task-oriented, goal-driven temporary teams that use ICTs. Their exploratory study attempts to measure the moderating effect of team distributedness on the relationships between organizational and workforce management best practices and two measures of project success (efficacy and effectiveness). The results show a moderating effect of team distributedness, which is interesting in that the distributedness factor is examined from a different perspective, as a moderating rather than an explanatory dimension.

The third article by Oiry, Ologeanu-Taddéi, and Bondarouk focuses on the concept of appropriation which is frequently used in IT implementation research. Rooted in the analysis of the diffusion of innovation, this concept is usually linked with characteristics of the organizations such as structure, size and sector. Since the 1980s appropriation has been actively studied by IT researchers, who linked it with the technological attributions, on the one hand, and with the characteristics of the users on the other. The authors observed that the application of the appropriation concept developed from an extreme of giving full credit to the technology towards another extreme of fully crediting end-users. They argue that in order to capture a full range of benefits from technology and human interaction, researchers may not ignore the third aspect in this interaction—an organizational structure. By presenting three case studies, this paper shows that it is necessary to reintroduce this “side” to have a complete analysis of appropriation.

The fourth article, written by Bolognesi Prado, Freitas, and Sbrici describes a project on business intelligence for human resource management that was carried out in an HRM department of a Brazilian university. The authors observe the increasing need for information to feed management processes such as HRM. If HRISs are seen as a way to enable an HR team to play a role in strategic decision-making and planning, then their ability to produce information on business performance is important. An On-Line Analytical Processing (OLAP) system for HRM is proposed that could meet this objective. This is a system that provides a means to access a database, for getting information based on the users’ needs, for relating information and for constructing reports. With such a system, users such as HRM staff do not have to be able to operate a range of systems, and neither do they have to rely on IT involvement. The authors make a plea for using OLAP systems to serve HRM.

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REFERENCES


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