APPENDIX

Table 1 - Full list of articles

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Table 2 – Summarized articles

Article	Content	Keywords
An examination of e-hrm as a means to increase the value of the HR function.	The ways in which human resources (HR) are managed have changed dramatically in recent years E-HRM has been defined as 'a way of implementing HR strategies, policies and practices in organisations through a conscious and directed support of and/or with the full use of web-technology-based channels' (Ruel, Bondarouk and Looise 2006, p. 281) E-HRM can be used for transactional activities (i.e. those that involve day-to-day transactions and record keeping); raditional HRM activities such as recruitment, selection, training, compensation and performance management and transformational activities that add value to the organisation (Thite and Kavanagh 2009), and may be used to manage HR across the whole employee life cycle. Much of this literature has focused on two main benefits of e-HRM for the HR function: the improvement of efficiency and reduction of costs associated with HRM (Buckley, Minette, Joy and Bartel 2004) and the facilitation of a more strategic role for the HR function itself (Snell, Stueber and Lepak 2002; Gardner, Lepak and Bartel 2003). Past research has suggested that e-HRM can increase the efficiency of HR activities, improve HR service delivery and transform the role of the HR function into one that is more strategic (Hendrickson 2003; Ruel et al. 2006; Martin et al. 2008) We may, therefore, suggest that the use of e- HRM to perform routine tasks may replace the need for large number of HR staff, therefore producing a rent-generating advantage In relation to our controls, we found that organisation size had a significant positive relationship with both use and sophistication of e-HRM. This is in support of prior research (Ball 2001) and can be explained by the fact that e-HRM requires an initial investment that may be more accessible for large organisations. The efficiency savings produced by e-HRM may be greater in larger organisations due to the economies of scale caused by the larger number of people to be managed	e-hrm value for hr

Article	Content	Keywords
	Our second hypothesis, which states that organisations in which the HR function played a more strategic role would be more likely to use e-HRM, was supported for e-HRM use but not for e-HRM sophistication. This supports the literature that the use of e-HRM can facilitate the move to a more strategic role for the HR function and also supports our suggestion above that the release of HR staff from administrative tasks may result in them being deployed onto other activities, in this case more strategic activities, rather than being made redundant.	
E-HR and international HRM: a critical perspective on the discursive framing of e-HR.	In this context, the role of line managers in the delivery of HRM goals has attracted growing attention amongst analysts, linked to increasing devolvement of HR duties to line managers in the move towards more managerially focused HR functions (Wright, McMaham, Snell and Gerhart 2001; Larsen and Brewster 2003; Whittaker and Marchington 2003; Losey, Meisinger and Ulrich 200). On this basis, the role of IHRM can be categorized into three distinct areas, strategic, operational and support, and in the move to e-HR in the context of shared services, it is the area of support (including information and advice) that comes under most pressure for cost reduction (Reilly and Williams 2003).	Globalizati-on

Article	Content	Keywords
e-hrm effectiveness in a public sector organization: a multi-stakeholder perspective.	Lepak and Snell (1998) make a distinction in differentiating between: (1) operational HRM, (2) relational HRM, and (3) transformational HRM. The first area, operational HRM, concerns the basic HRM activities in the administrative area, for example salary administration (payroll), and personnel data administration. The second area, relational HRM, concerns more advanced HRM activities and its emphasis lies not on administering, but on HRM tools that support basic business processes such as recruiting and selecting personnel, training, performance management and appraisal, and rewards. The third area, transformational HRM, concerns HRM activities with a strategic character and refers to activities pertaining to organizational change processes, strategic re-orientation, strategic competence management, and strategic knowledge management. A recent example can be found in a study into the implementation of an HRM employee portal within the Italian subsidiary of Hewlett-Packard (Ruta 2005). It was shown that the usage of HRIS increased when IT user acceptance principles were integrated with change management principles, and that by analysing the context (at both the industry and company levels), change agents managed to adopt the most appropriate actions to support the HR portal implementation. For HRM, meeting the stakeholders' expectations implies gaining legitimacy and acceptance within the working organizations and in the eyes of external entities. Research by Tsui, Pearce, Porter and Tripoli (1997) indicates that expectations of 'traditional' HRM activities, or HRM services (Wright, McMaham, Snell and Gerhart 2001), tend to be similar for all firms. These traditional or so-called 'technical' HRM activities (Huselid et al. 1997) are shown to be more effective in the eyes of the stakeholders. Our findings, revealed by the interviews with managers and employees, showed that Emplaza was perceived differently by these different groups of users. Unfortunately, those differences were not fully taken into account in the content design of Emplaza. Table 1 portrays these differences. The differences revealed call for a multi-stakeholder approach in e-HRM studies. Line managers and employees do have different, sometimes conflicting viewpoints that result in their different perceptions of usefulness and value of e-HRM.	e-career different stakeholder expecta-tions

Article	Content	Keywords
Desired goals and actual outcomes of e-hrm.	e-HRM has a wide range of uses and may support particular HR activities – for example recruitment and selection, performance management, compensation and benefits, training and development, health and safety, employee relations, retention and policies on work–life balance (Enshur et al., 2002) and may be used to manage employee information across the entire employment cycle. Ruel et al. (2004) added a fourth goal for e-HRM; to improve the global orientation of HRM. Martin et al. (2008) suggested that the drivers of e-HRM are to assist in the achievement of the HR function's transactional or transformational goals. Relational impacts of e-HRM might, for instance, provide employees and managers with remote access to HR information and increase their ability to connect with other parts of the company and outside organisations, so that they can perform HR activities themselves. This idea is linked with Ruel et al.'s (2004) suggestion that e-HRM can be used to improve HRM services including supporting managers and employees. Evidence for improvements to HR service delivery through increased accuracy of data entry or by simplifying processes has been provided by Gardner et al. (2003) and also by Bondarouk et al. (2009), who found that e-HRM use was positively related to perceptions of general HRM effectiveness in line managers and employees. Similarly, Payne et al. (2009) found that reactions to an online performance management system were more positive than those to a paper-based version of the same system. We have listed five possible goals for e-HRM – efficiency, service delivery, strategic orientation, manager empowerment and standardisation. Five organisations demonstrated that changes to service delivery or to the HR role require the development of new skills within the HR team. Interviewees described how the HR function needed to have consultancy, strategic thinking, analytical, advanced communication, negotiation, process engineering, project management and	e-hrm goals

Article	Content	Keywords
	business writing skills. These are skills that may not already exist within the HR function but which might be necessary in order to achieve the required improvements in service delivery and the move to a strategic HR role. Efficiency and service delivery goals were stated and achieved by most organisations, evidence that supports the previous work in this area (Ruel et al., 2004; Ruta, 2005).Standardisation is an outcome that is both achieved through the realisation of a stated goal and as an unintended outcome. This can be seen as a strategically significant outcome as it improves the management process. We also found evidence of relational outcomes of e-HRM (Lepak and Snell, 1998). Whilst many of our case study organisations were providing a better service to their internal customers and reducing headcount, there was little evidence that they were actually contributing more to business decisions. The introduction of e-HRM alone is not sufficient for an HR function to become 'strategic'. Nevertheless, much of the HR activity is in support of corporate strategies, for example by developing organisational capability, through better resourcing and learning systems, helping to clarify strategic choices through more accurate data on costs and performance, and by implementing strategy through effective processes and better organisation. e-HRM has a part to play in all of this, as illustrated in the case studies described. We have provided some evidence for a strategic impact of e-HRM through enabling HR to support the organisation in achieving its strategic aims through improved efficiency and effectiveness. However, the realisation of improved efficiency and effectiveness is dependent on the design and implementation of the system, and increased effectiveness and involvement in delivering the business strategy may depend on appropriate redeployment and up-skilling of HR staff.	

Article	Content	Keywords
Concepts of e-hrm consequences: a categorisation, review and suggestion.	The rapid development of the Internet during the last decade has enhanced the adoption of electronic Human Resource Management (e-HRM). e-HRM can be understood as the (planning, implementation, and) application of information systems (IS) for both networking and supporting actors in their shared performing of HR activities (Strohmeier 2007). Surveys of HR consultants suggest that both the number of organisations adopting e-HRM and the depth of application within the organisations are continually increasing (e.g. Cedar Crestone 2007). In addition, numerous practitioner reports provide anecdotal evidence that e-HRM has meanwhile become a common organisational practice (e.g. Clark 2006). This common adoption is obviously founded on the expectation of diverse positive consequences of e-HRM, such as reducing costs, speeding up processes, improving quality, and even gaining a more strategic role for HR within the organisation (e.g. Lengnick-Hall and Moritz 2003). Generally, consequences of e-HRM are all phenomena that accompany and/or follow the application of IS in HRM, whether desired or undesired and whether expected or unexpected. To do so, this section revives, elaborates, and expands earlier work on consequences that revealed that consequences are variable and depend on the use made of the possibilities provided by information systems (Stewart 1971). Following the above statements, individuals and organisations use information systems as an attempt to reach some of their goals. Hence, information systems are rather seen as a means which is designed towards some final result. In addition, individuals and organisations have limited choice, first concerning the kind of information system and subsequently concerning the kind of usage. Consequences then are not causally evoked but rather ‘produced’. This indicates that the explanation given by the concept is obviously rather teleological than causal.	ehrm consequen-ces

Article	Content	Keywords
Content vs. Process in the HRM-Performance Relationship: An Empirical Examination.	the purpose of this article is to investigate whether the HRM system, expressed by integrating both content—reflected by a system of perceived HR practices (Nishii & Wright, 2008)—and process—reflected by distinctiveness, consistency,and consensus of an HRM system (Bowen & Ostroff, 2004)—influenceorganizational performance through collective employee reactions. The underlying assumption in these approaches is thatHRM systems may affect organizational performance through its impact on employee attitudes and behavior (Combs et al., 2006). This means thatalthough the employers were intending todeliver HR practices in order to achieve a specificpurpose (e.g., improved organizationalperformance), the employees perceived themeaning of these HR practices according totheir individual dispositions This is because thesame HRM system could lead to broadly varying employee reactions, resulting in differentlevels of organizational performance (Takeuchi, Chen, & Lepak, 2009; Takeuchi, Lepak, Wang, & Takeuchi, 2007). Greece is a peripheral country in the European Union that has been heavily affected by the 2008 economic and financial crisis. It would be interesting to extend the debate on the role of HRM systems in improving organizational performance in countries that are under severe financial and economiccrisis, such as Greece, and it can be extended to countries predicted to go down a similar route, such as Cyprus, Portugal, Spain, and Ireland. Purcell and Kinnie (2007, p. 540) write that "at the centre of the chain are employee attitudes and behavior and it is this which raises the most vitalquestion in the HR-performance debate." Under this augmented HRM system, it is argued that both the content and process of HR practices develop both human and social capital in an organization (Lengnick- Hall & Lengnick-Hall, 2003; Snell, Shadur, & Wright, 2002), which is reflected in the homogenization of perceived HR practices and employee reactions (Collins & Smith, 2006). Particularly, the study supports the view that strong HRM systems, based on human and social capital theories, shape shared employee reactions that have a positive impact on organizational performance.	ehrm perceived by employees e-hrm effective-ness in a public sector

Article	Content	Keywords
Theorizing the links between e-HR and strategic HRM: a model, case illustration and reflections.	As we have set out elsewhere (Martin et al. 2008), the arguments for these claims are four-fold. First, e-HR can reduce HR transaction costs and HR headcount, for example, by supplying HR information to large numbers of people on a virtual rather than physical basis. Second, e-HR can substitute physical capability by leveraging the 'law of digital assets' to re-use information flexibly on an infinite number of occasions at little or no marginal cost, for example by delivering e-training and e-learning to large numbers of people across the globe both synchronously and asynchronously. Third, e-HR can facilitate more effective virtual 'customer relationships' and internal labour markets by increasing the reach and richness of two-way information and communications. Examples of such improved information flows are already evident in certain applications, including enabling internal/external recruitment and search of social networking sites', online-career development and performance management, employee engagement surveys to tailor specific 'employee value propositions' to small groups of employees, more flexible working to attract people from non-traditional recruitment pools, and outsourcing of key HR services. e-HR is concerned with the application of the internet, web-based systems, including newer Web 2.0 social media technologies, and mobile communications technologies to change the nature of interactions among HR staff, line managers and employees from a pure face-to-face relationship to a technology-mediated one (Florkowski and Olivas-Lujan 2007; Martin et al. 2008; Ruel, Bondarouk and Looise 2004). Thus, we can classify e-HR architectures according to the three dimensions discussed earlier in describing the e-HR value chain HR. The first draws on the classification of e-HR goals, that is whether the architecture draws on operational technologies and operational skills demands of HR (e.g., HRIS and basic ICT skills), relational technologies and	e-hrm outcomes hr function

Article	Content	Keywords
	HR skills (e.g., manager self-service (MSS) and employee self-service systems (ESS) and HR portals, etc., accompanied by skills in using technology-mediated HR transactions) and transformational technologies and HR skills in areas such as sophisticated online search technologies, online survey tools, career development tools, human capital management systems, new Web 2.0 social media software, e-learning and knowledge management platforms, virtual meetings software, etc.). Table 3 provides a summary the results of the questionnaire on three dimensions: satisfaction with HR roles and responsibilities; satisfaction with the e-HR tools, their perceived value and ease of use; and satisfaction with change communications and training for e-HR.	

Article	Content	Keywords
e-hrm: Innovation or Irritation. An Explorative Empirical Study in Five Large Companies on Web-based HRM.	since there is a fundamental difference between HRIS and e-HR in that basically HRIS are directed towards the HR department itself. Users of these systems are mainly HR staff. These types of systems aim to improve the processes within the HR departments itself, albeit in order to improve the service towards the business. With e- HR, the target group is not the HR staff but people outside this department: the employees and management. In our view it concerns the following: e-HRM is a way of implementing HR strategies, policies, and practices in organizations through a conscious and directed support of and/or with the full use of web-technology-based channels. In short, HRM departments must be strategy-focused, flexible, efficient, and client oriented; and all at the same time (Lepak and Snell, 1998). This division of objectives is in line with the conclusion of the annual study on e- HRM in the United States conducted by the consultancy firm of Watson Wyatt. The results from their 2002 study show that companies that had invested in e-HRM, and there were many, were driven by the aim of improving the strategic role of HRM, reducing administrative HR work, and improving employees' satisfaction with HRM services. The three types of goals are essentially the building blocks for the e-HRM research model we will develop. The literature seems to clear: e-HRM will not leave HR departments 'untouched'. Less administrative tasks for the HR department and therefore less administrative positions, more focus on the strategic goals of the organization and therefore an HRM staff consisting mainly of 'thinkers'; this is, in essence, what HR departments can expect or are already facing and experiencing. More specifically, they state that HR departments will be more involved in strategic planning processes if they are able to provide adequate, accurate and fast information through the use of information technology.	HRIS vs EHRM

Article	Content	Keywords
	As we saw at Dow Chemicals, the time taken for the adoption of e-HRM by users to catch up with the technical possibilities can be around three years! The main explanation for this, in our view, is that starting with e-HRM does not mean that users simply have to learn to work with a new version of a familiar system, but rather that employees and line managers have to be ready, able and willing to pick up responsibilities that were previously someone else's. However, not all employees are willing to pick up the full responsibility for their personal career development through the available web based HR tools. Some (and the cases suggest a certain group) find that their managers have to come up with career development initiatives. What tends to be forgotten is that e-HRM is not primarily technical; it is first and foremost a change in the mindsets and behaviors of HR personnel, line managers, and employees, as acknowledged by an HR manager Firstly, e-HRM seems to be providing an important 'push': to put HR responsibility in the hands of the line manager. After 15 years of 'preaching', an administrative component of HR is becoming a task for the line management. The introduction of e-HRM is accompanied by the decentralization of HR tasks and by the harmonization and standardization of HR processes. Our final observation is that employees and line managers' mindsets need to be changed: they have to realize and accept the usefulness of web-based HR tools.	

Article	Content	Keywords
Electronic Human Resource Management: challenges in the digital era.	We see new steps in the practice of e-HRM caused by (or due to) recent organizational developments. For example, e-HRM applications are no longer 'stand-alone' tools but mostly a part of more complicated ERP systems, where e-HR modules are integrated with financial or other modules. Therefore, after an almost two-year long discussion with e-HRM researchers, we put forward an e-HRM definition that we believe represents the consensus-based understanding of electronic HRM. We define e-HRM 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. One of the examples of restructuring and envisioning of the HR function due to e-HRM implementation is the emerging interest in HR Shared Service Centers (Farndale, Paauwe and Hoeksema, this issue). Therefore, for new applications to be useful, users need to acknowledge the usefulness. By definition, different users (groups) have different views of whether e-HRM is relevant and to what extent, concerning their HR tasks	use of strategic applications integrated systems e-hrm

Article	Content	Keywords
Organizational adoption of e-hrm in Europe: An empirical exploration of major adoption factors.	1. The size of an organization reveals an effect on the adoption of e-HRM since larger organizations will more frequently adopt e-HRM (First, larger organizations will take more advantages of automation. In larger organizations HR tasks such as applicant management arise in large quantities. This justifies even large investments in IT due to economies of scale. For instance, larger organizations with thousands of applications per week can clearly save administration costs by investing in e-recruiting systems, while small organization with few applications have difficulties in justifying such investments. In addition, larger organization will also take more advantage of information. While employees in small organizations are usually known personally and HRM tend to be lucid, with growing organizational size things become more anonymous and unclear. Larger organizations then have more information needs and therefore can take more advantages from the information function) Confirming previous results, it comes as no surprise that organizational size showed significant influences on adoption and, therefore, can meanwhile be seen as a well-established adoption factor. However, the rather moderate logit values in all models may indicate the fact that e-HRM is increasingly adopted by medium and even small sized firms. Though now as before in particular large organizations will profit from automation, information, and collaboration, two developments may weaken the influence of organizational size. First, the market for packaged software increasingly show specific offers adapted to the functional needs as well as to the financial capabilities of smaller organizations. 3. As expected, the organization of work influences adoption and telecommuting constitutes a significant predictor. Given the necessity to connect to spatial externalized employees and based on the existence of technical infrastructures and literacy, it is obvious to adopt e-HRM and utilized its basic collaboration potential. Concerning the basic state of adoption, our study first confirms that e-HRM definitely is a common organizational practice in Europe. Given that two thirds of organizations actually apply e-HRM, the informatization of HRM has massively forged ahead. However, there are also marked cross-national differences.	e-hrm outcomes e-hrm adoption

Article	Content	Keywords
Turnaround user acceptance in the context of HR self-service technology adoption: an action research approach.	HR self-service technology, as a building block of e-HRM, is developed based on legacy, web and/or voice technologies to create a virtual HR space where users, including line managers and employees within and outside HR functions, can have direct access to some of the HR services without the limitations of time and location (Harris 2008; Marler, Fisher and Ke 2009; Reddick 2009). hr self service goal: HR self-service technology in particular is that many HR personnel are freed from their day-to-day operational mandate to concentrate on value-added activities (Lengnick-Hall and Moritz 2003; Bondarouk et al. 2009; Reddick 2009; Parry and Tyson 2011). our research explores the possibility of perceiving users' technology acceptance, an essential aspect of technology adoption, as something that can be proactively changed, rather than merely a given organisational reality From the aspect of content, HR self-service technology encompasses the applications of existing and emerging conventional, web and voice technologies, HR service centres and manager and employee portals, accessible at any time, enabling managers and employees to have direct access to HR and other workplace services for communication, performance reporting, team management, knowledge management, learning and other administrative applications (Watson Wyatt 2002; Marler and Dulebohn 2005; Florkowski and Olivas- Luja´n 2006; Reddick 2009) Lack of user acceptance has long been an impediment to the success of new technology (Davis 1989, 1993; Davis, Bagozzi and Warshaw 1992; Agarwal and Prasad 1999; Boudreau and Robey 2005; Chin, Johnson and Schwarz 2008). Davis suggests that 'user acceptance is often the pivotal factor determining the success or failure of an information system project' (1993, p. 475). However, to effectively transfer to the new positioning, the HR professional needs to gain new skills and capabilities. Ulrich suggests that 'HR professionals will be at the intersection of three sets of skills: business strategy, HR mastery, and technology. Business mastery comes when the HR professional dialogues about how the new rules of the web-based economy affect a business. HR mastery comes from adapting HR practices, culture, and change to be both designed for and delivered through the web. Technology mastery comes from understanding how to use the Internet, intranet and the Web to process information' (2000, p. 20).	hr self-service ehrm outcomes user aceptance

Article	Content	Keywords
Electronic human resource management and organizational innovation: the roles of information technology and virtual organizational structure.	The adoption of IT by HRM is important for growth as organizations face rapid changing environments. More specifically, the systems of IT adopted by HRM contain HR Information System, HRM System, e-HRM, and so on. As key persons in organizations who are responsible for a capable workforce, HR managers must have full and real-time information to measure, predict, and manage workforce change and development. With the information analyzed by IT, HR managers are able to align goals of employees with corporate strategy to deal with changes proactively. With the help from advanced IT tools, HR managers also demonstrate critical influences of electronic learning, training, communication, and other assistances on employee's daily activities and creativities, and their impact promptly transforms employee's creativity into organizational innovation.	importance of e-hrm
Internal integration within human resource management subsystems.	The growing shift toward globalization, the increasing demands and complexity of the fast changing environment, as new technological changes, new social demands, the shift in the work generations expectations and work demands and more, put new and growing expectations and demands on HR management.	Globaliza-tion

Article	Content	Keywords
Employee perceptions towards web-based human resource managemen t systems in Sri Lanka.	The influence information technology (IT) has upon human resource management (HRM) is persuasive. The Internet is changing every aspect of the way an enterprise conducts business, and HRM is one of the latest developments of web enablement (Karakanian 2000). Since the beginning of the 1990s, organizations have introduced web-based applications for HRM purposes by transforming traditional HRM into a web-based/electronic HRM (web-based HRM or e-HRM) (Hempel 2004; Karakanian 2000; Ruta 2005). However, extant literature suggests that nearly half of all new technologies implemented in organizations fail (Aiman-Smith and Green 2002). The system usage is a measure of success to the extent that the system is used extensively provided it is perceived to be of value to the end-user and also perceived to be easy to use (Klenke 1992; Fisher and Howell 2004). Hence, the system usage reveals user acceptance of the web-based HRM system. With regards to the user satisfaction, as web-based solutions replace personal face-to-face interactions with computer-based information, some employees may view such systems with suspicion. Therefore, it is important to investigate how the system is perceived. The user satisfaction is based on attitudes and beliefs whereas the system usage is based on behaviors (Haines and Petit 1997). Together, user satisfaction and system usage provide a more complete picture of the user acceptance of the web-based HRM system than if either measure was applied in isolation. Furthermore, the results revealed that when the age of the web-based HRM system in operation is less, it is more likely that the users were to be satisfied with it. This suggests either more recent systems are better designed and better suited to the needs of the users, or satisfaction goes down with the age of the system because users become accustomed to it and forget about the benefits over the manual system. The findings of the study highlighted the conditions that support user satisfaction. The moderate level of system complexity reveals perception towards the ease of use. Furthermore, the level of complexity correlates significantly with the system usage. Further, employee perception was that the web-based HRM system results in a low level of additional HRM-related workload to line managers. Furthermore, they perceive that the web-based HRM system led to lower the level of dependency on the HRM department	user aceptance

Article	Content	Keywords
What makes human resource information successful? Managers' perceptions of attributes for successful human resource information.	1Increasing competition, narrowed talent markets, aging workforces and a shift toward knowledge-based work are forcing organizations to set a higher priority on improving workforce productivity. One way to improve workforce productivity is to make better decisions regarding human resources. Therefore, decisions about human resources and organizational effectiveness are becoming increasingly vital to the strategic success of virtually all organizations (Cascio and Boudreau 2008). Good decisions, in turn, are based on valuable information, in this case human resource information (HRI). H1: Ease of use will be a predictor of perceived usefulness of the available HRI. H2: Ease of use will be a predictor of information satisfaction. H3: Information quality will be a predictor of perceived usefulness of the available HRI. H4: Information quality will be a predictor of user information satisfaction. H5: Perceived usefulness will be a predictor of user information satisfaction. H6: Perceived usefulness will be correlated with HRI use. H7a: User satisfaction will be a predictor of HRI use. H7b: User satisfaction will not be a predictor of HRI use. This study outlined a theoretical model that is able to explain which variables are important for users of HRI and how these variables are interlinked. - Perceived usefulness is primarily determined by information quality, while ease of use explains only a relatively small amount of variance. This shows that practitioners should aim to find a close relationship between their users' needs and the content provided by the available sources of HRI. The items reveal that it is not the amount of information, but rather the fit between user requirements and the available HRI-related content which drives the perceivedusefulness. - user information satisfaction is influenced more by information quality than by ease of use, but ease of use (and perceived usefulness) also explained a significant amount of variance in user information satisfaction. Thus, practitioners should focus on all three influencing variables, namely information quality, ease of use and perceived usefulness, if they wish to increase users' satisfaction with the HRI - The results showed that HRI use was primarily determined by the perceived information quality and that there was a strong link with the perceived usefulness of the available HRI	managers perception

Article	Content	Keywords
How strategic considerations influence decision making on e-HRM applications	Although electronic applications (e-HRM) are being used in various disciplines of HRM such as recruitment (Stone, Stone-Romero, & Lukaszewski, 2003), selection (Chapman & Webster, 2003), performance management (Cardy & Miller, 2005) and payroll administration (Teo et al., 2001), organizations do not yet perceive that e-HRM systems can help them make better HR decisions (Stone & Lukaszewski, 2009). An HRIS is an electronic system to perform activities in the HR field, such as keeping personnel records, job information, information on job training,management tools in the area of HR (e.g. career development planning), salary planning/administration, performance management, and financial transactions in the HR field (Lawler & Boudreau, 2009: 90). E-HRM refers to internet-based electronic Human Resource Management (Marler, 2009: 515), and studies on this concept started around 1995 (Strohmeier, 2007). According to Strohmeier, e-HRM is "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 HR activities" (Strohmeier, 2007:20). This definition captures the potential of e-HRM to connect individuals and collectives beyond the job-role, organizational boundaries or even national borders by using information technology. According to Ruël, Bondarouk, and Looise (2004), who refined Lepak and Snell's (1998) classification of pressures for virtual HR by the implementation and usage of e-HRM, organizations can seek to (1) improve the strategic orientation of HRM, (2) reduce costs or increase efficiency, (3) improve client service or facilitate management and employees and/or (4) improve the organization's global orientation by standardizing and harmonizing the HR function (Ruël et al., 2004). Whichever perspective is taken, information on the state of affairs of the human resources of the organization is of crucial importance for the business strategy to succeed. Human capital data are needed to feed the process of strategy development, implementation, and evaluation. This information is necessary for the organization to be able to improve employee performance and business results The combination of the four conclusions formulated above suggests that the decision to introduce e-HRM is mainly a decision to introduce additional infrastructure, which is based	ehrm outcomes hris vs ehrm ehrm outcomes strategic hr conclusion ehrm not strategic

Article	Content	Keywords
	on general people trends and the availability of technology. One consequence of the absence of a strong relation with the business may well be that, over time, the e-HRM system that is implemented will 'degenerate' into a functionality comparable to a hygiene factor. 3. The most prominent HR deliverable and business case for the implementation of e-HRM is savings in the HR department. The anticipated savings are used to fund the costs of the implementation of the e-HRM system.	
An evidence-based review of e-HRM and strategic human resource managemen t	Only recently has this model been applied in an e-HRM context (Marler, Fisher, & Ke, 2009; Marler & Dulebohn, 2005), demonstrating that when employees perceive e-HRM technology to be useful and easy to use, they are more likely to actually use it.	user aceptance
	om this perspective, HRM could be strategic either as a specific capability or as instrumental in developing resources (e.g., human capital) that are value producing, rare, imperfectly imitable and without strategically equivalent substitutes (Wright et al., 2001). In fact, many authors have argued that the presence of a high-quality HRM "bundle" fits the RBV criteria quite well; it contributes value to the organization through productive, engaged employees, it is quite rare, it is hard to imitate because it is based primarily on knowledge resources, and there are no strategically equivalent substitutes.	hrm strategic
	Consequently, for the purpose of the present study we define strategic HRM as an interdependent bundle of planned or emergent human resource activities that are intended to achieve positive organizational outcomes.	hrm strategic
	Despite much of the rhetoric in the popular press or vendor advertising claiming that e-HRM makes HRM more strategic, the empirical evidence supporting this perspective is extremely weak.	hrm strategic
	Bell, Lee, and Yeung (2006) examined how implementation of e-HRM caused changes in the competencies required of HR staff. Results suggested that HR staff in organizations with substantial e-HRM implementations needed increased competency in knowledge of the business, functional HR delivery, and technology expertise.	changes on hr function
	Again, all these studies implicitly assumed that the use of e-HRM would in the aggregate yield positive HRM activities in support of organizational goals. However, none provide direct evidence supporting this assumption.	hrm strategic

Article	Content	Keywords
	Our evidence-based examination of e-HRM and strategic HRM relationships across 40 studies in peer-reviewed literature published over the last 12 years reveals several interesting themes and avenues for scholars to explore in future research. First, e-HRM is still at an early stage when compared to either the general information technology literature or strategy literature.	Organiza-tional adoption
	Relatedly, no studies directly examined the relationship between e-HRM adoption and any kind of organizational performance measures such as competitive advantage, organizational performance, reduced costs, or improved HR outcomes such as increased human capital, reduced turnover or increased organizational commitment or job satisfaction	e-hrm goals
An expanded model of the factors affecting the acceptance and effectiveness of electronic human resource management systems	For instance, almost all large organizations use electronic human resource (eHR) systems to attract job applicants (Stone, Lukaszewski, & Isenhour, 2005).	e-recruiting
	In an effort to overcome system-related problems organizations have begun to establish HR metrics or standardized criteria that can be used to assess system effectiveness (Cascio & Boudreau, 2008). Some commonly used HR metrics include: (a) system impact (e.g., new hire quality, turnover of high performers), (b) system effectiveness (e.g., vacancies filled internally, grievances resolved successfully), and (c) system efficiency (e.g., time to fill vacancies) (CedarCrestone, 2007).	Effective-ness
	Thus, there may be a number of problems associated with the design and implementation of these systems. In an effort to overcome these problems we expanded the model of eHR acceptance and effectiveness developed by Stone et al. (2006). Yale Model of Communication and Persuasion. Given the models noted above, we believe that a better understanding of communication processes should help improve the effectiveness of eHR systems. In summary our expanded model of eHR acceptance and effectiveness suggests that these systems change communication processes including media and message characteristics. Furthermore, these characteristics are thought to affect individuals' attention, comprehension, and attitudes toward the system and the organization. In addition, our model argues that the purpose of the communication moderates the relation between (a) media characteristics, (b) message characteristics, and (c) individuals' reactions to these systems	user acceptance

Article	Content	Keywords
An integrative model of e-learning use: Leveraging theory to understand and increase usage	Arguably the most dramatic trend in employee training and development over the last 20 years has been the increased use of technology to deliver training (Brown & Sitzmann, 2011; Heathfield, 2010; Patel, 2010; Rossett & Sheldon, 2001)	e-learning intro
	In the case of workplace learning, convergence allows learning materials of all kinds to be used by employees, on demand, through a variety of platforms — desktop computers, laptops, cellular "smart" phones, and increasingly agile digital book readers and media players. Digitally transmitted content accessed by employees for purposes of learning work-related knowledge and skill, which we label e-learning, is becoming an increasingly common aspect of work.	e-learning channels
	First, perceptions regarding a technology, particularly perceived usefulness and ease of use, influence subsequent use of that technology. Second, attributes of an employee's work role influence utilization, particularly workload. Third, contextual factors, including employer mandates for training utilization, the climate surrounding the use of learning initiatives, and the level of value placed on the learning itself by the organization, also exert influences on utilization. And, finally, individual motivation is perhaps the most proximal predictor of utilization.	e-learning predictor of utilization
	There is sufficient anecdotal and empirical evidence to suggest that the usage of e-learning resources is often much lower than organizations would hope. The model presented in Fig. 1 offers a parsimonious portrayal of the most proximal influences of e-learning use. e-learning usage model: The model incorporates learner characteristics (i.e., learning and development orientation and past learning and develop use), perceptions of the delivery technology (i.e., perceived ease of use and usefulness), and aspects of the workplace context (i.e., climate for e-learning, climate for confronting and reporting harassment, and learner workload). The model presented here also could help managers who seek guidance on how to push a desired change through the organization via e-learning	e-learning usage
Comparison of online and traditional performance	The purpose of this study is to address this gap in the applied research literature and examine the extent to which an online PA system influences employees' reactions to their PA. We believe this is an important applied research question that HR managers need to know the answer to before implementing eHRM/HRIS PA tools.	e-performan-ce

Article	Content	Keywords
appraisal systems	An online PA system is a software program that facilitates the completion of performance evaluations online. It can be an MSS tool such that only managers have access to this system or it can be a combination of MSS and ESS, in which employees also have access and can provide information into the system.	e-performan-ce
	Further, it can act as a historical archive, storing past evaluations and permitting comparisons between evaluations over time. The primary advantage of these systems is the accessibility of the data any time from any computer with internet access, as well as the ease and speed with which they can generate accurate HR-related reports. Such systems also offer HR managers the opportunity to readily monitor the extent to which supervisors complete their employees' PAs on time, in addition to making it easier for them to examine trends in performance ratings	e-performanc e benefits
	The purpose of this study was to examine the extent to which an online PA system influences employees' reactions to their PA. - Consistent with expectations, the online system appears to facilitate perceptions of supervisor accountability. To the extent that accountability relates to more accurate ratings. - As we predicted, employees evaluated with the online system perceived higher rates of participation in the PA process than employees evaluated with the traditional system. This may have been a function of the self-rating module. - Rather, online PAs may allow for greater accountability and participation than P&P PAs, suggesting more general involvement and attentiveness in the process. Yet, the P&P system was perceived as providing for higher quality ratings, suggesting that there is value to a more traditional approach. Greater familiarity and experience with the traditional system on the part of raters and ratees likely fostered these perceptions.	e-performan-ce employee reactions

Article	Content	Keywords
Emerging issues in theory and research on electronic human resource management (eHRM)	Organizations then began using Web-based technology to interact with both internal and external stakeholders (e.g., job applicants, employees, managers, benefit and payroll providers, etc.). For instance, these systems enabled organizations to developWeb-based recruiting systems that could be used to attract applicants anywhere in the world, and allow them to apply for jobs online. It was at this time that these systems became known as electronic human resource information systems (eHRM) because they enabled HR transactions through the Internet (Lengnick-Hall & Mortiz, 2003). Not surprisingly, the new eHRM systems facilitated and modified a number of HR processes including job analysis, recruitment, selection, training, compensation, performance management and HR planning. Even though HRIS and HRMS systems provided internal support for HR professionals, eHRM applications provided access to all internal and external stakeholders (e.g., job applicants, employees, managers, HR professionals, business partners).	HR processes
	Research on e-recruiting has examined the effects of a number of factors thought to affect applicants' attraction to organizations and application intentions. For example, some of the research has examined the effects of website characteristics (Braddy et al., 2009; Dineen & Noe, 2009) on organizational attraction. However, other research focused on organizational and individual factors that influence applicants' intentions to apply for jobs (e.g., McManus & Ferguson, 2003; Stone et al., 2005).	e-recruiting
	Also, there have been several articles on electronic compensation and benefit systems (e.g., Dulebohn & Marler, 2005; Sturman & Milkovich, 1995). Dulebohn and Marler (2005) argued that e-compensation involves the use of Web-based software tools that enable managers to effective design, administer, and communicate compensation and benefits information. These authors maintained that the use of e-compensation tools can provide HR professionals and managers with greater access to information that can be used to increase the effectiveness of compensation programs. Some research has also assessed the use of expert or decision-support systems to increase employees' satisfaction with benefits (e.g., Sturman, Hannon, & Milkovich, 1996; Sturman & Milkovich, 1995).	e-compensa-tion
Employee relationship management — Realizing	Basically, ERM has been openly borrowed from the widely used Customer Relationship Management or CRM and aims at transferring principles of technology-based relationship building from the customer to the employee domain.	Transforma-tional ERM

Article	Content	Keywords
competitive advantage through information technology?	ERM uses the components of the definition of CRM, meaning that we may create added value for the customer through personalization in order to gain his loyalty. Equally, ERM enables long-term relationship through consistent individualization to create mutual value for the organization and the employee in order to also gain his loytalty, hence attraction and retention.	ERM meu resumo
	Anticipating serious labor market shortages, such relationships should not only be built with current employees, but should also be sought with former employees (“alumni”) and potential employees (“candidates”).	ERM
	A first group exclusively focuses on recruiting (e.g., Keim & Fritsch, 2008; Lermusiaux & Snell, 2005; Moss, 2007), which explains the term “candidate relationship management”. By contrast, a second group focuses on all customary HR domains, i.e., beyond recruiting also development, compensation, etc. However, due to the individualization principle, the major difference lies in the customization of all activities toward single employees. In development, for example, career paths have to be individualized for each employee rather than offering uniform career paths and may therefore also include unique elements.	ERM e-recruiting e-career
	Completing the discussion of conceptual components, the following section presents the features of information systems, which are used as “enabling technology” to realize CRM processes, and, based on this, elaborates on features of information systems, which are necessary as “enabling technology” to realize ERM processes. In sum, ERM systems must provide collaborative functionalities to offer, administer and coordinate different modes of collaboration with employees.	ERM and system
	"As a consequence, it must be evaluated on a case-by-case basis whether a system offered actually contributes to the strategic objective of mutually valuable relationships and the resultant managerial responsibilities of ERM. In any case, the market for ERM systems seems to still be in the developmental stage, and a broader availability of systems that comprehensively support the concept should not be assumed without further investigation."	ERM
	The final definition of ERM as the strategy of building and long-term maintaining individualized mutually valuable relationships with selected former, current and potential employees, which is operationalized through collaborative, operational and analytical processes and realized through the collaborative, operational and analytical functionalities of information systems offers a first comprehensive understanding of the concept	ERM definition

Article	Content	Keywords
Factors affecting the acceptance and effectiveness of electronic human resource systems	Furthermore, the Internet has helped organizations modify work arrangements so that work can be performed from many locations (e.g., the office, home) at virtually any time of the day or night (e.g., telecommuting).	teleworking
	In terms of the organization's objectives, the primary goal of the recruitment process is to attract potential applicants (prospects) who have theKSAOs needed to meet the requirements of organizational roles. Thus, organizations are increasingly using the Internet to advertise job openings and attract qualified prospects. The web-based advertisements often provide prospects with information about (a) job vacancies, (b) job descriptions, (b) the organization's culture and its "brand identity," and (d) the inducements (e.g., pay, fringe benefits, learning opportunities, promotion prospects) offered its employees. Interestingly, some estimates indicate that 100%of large firms currently use the Internet to announce job openings, and 82% of large firms use intranet systems to post openings or identify qualified employees within the organization (Cedar, 2002).	e-recruiting
	Selection systems are important because they are one of the means that organizations use to increase the likelihood of incumbents meeting role requirements. Such systems may rely on a variety of specific strategies (e.g., interviews, ability tests, personality measures) for assessing the degree to which applicants have criterion levels of KSAOs. Interestingly, an increasing number of organizations are using the Internet to both (a) assess applicants' KSAOs, and (b) evaluate the effectiveness of selection systems (Kehoe, Dickter, Russell, & Sacco, 2005). Other organizations use e-selection systems to conduct online interviews or simulations that are designed to assess the critical thinking or decision-making skills of applicants (e.g., Price-Waterhouse Coopers; cited in Cappelli, 2001). Still other organizations (e.g., Texas Instruments) provide applicants the opportunity to complete online selfassessments of personality. The purpose of doing so is to assess the degree of fit between the applicant's traits and the organization's culture.	e-selection

Article	Content	Keywords
	The primary goal of a performance management system is to control employee behavior, ensuring its alignment with organizational goals. The typical system has subsystems devoted to (a) establishing performance standards, (b) assessing employee performance, (c) providing feedback to employees about the degree to which the performance standards are being met, and (d) taking remedial action if performance does not meet standards. In order to meet the overall goal of controlling employee behavior, many organizations now use e-systems to facilitate the performance management process. These systems typically help managers measure performance, write performance reviews, and provide feedback to employees (Cardy & Miller, 2005; Stone et al., 2003). For instance, computerized performance monitoring (CPM) systems facilitate the measurement of performance by keeping counts of such variables as number of work units completed, key strokes, time spent on tasks, and error rates. In addition, e-systems are also used to assist managers with the provision of feedback to employees. For instance, intranet systems are now being used for multi-rater or 360° feedback (Cardy & Miller, 2003). More specifically, such systems send emails to raters and ask them to complete online evaluations of the performance of ratees. The resulting data are merged and feedback is provided to the ratees. The unit-level data can be used to (a) identify human resource problems, (b) highlight exceptional performance, (c) uncover potential rating errors (e.g., leniency, central tendency), and (d) provide feedback to managers on the incidence of such errors.	e-performan-ce
	E-compensation systems are used for such purposes as developing and implementing pay systems, providing benefits, and evaluating the effectiveness of compensation systems (Dulebohn & Marler, 2005; Stone et al., 2003).	e-compensa-tion

Article	Content	Keywords
	In summary, eHR systems have the potential to yield a number of functional and dysfunctional consequences for both individuals (e.g., prospects, applicants, incumbents) and organizations. First, they should promote bi-directional flows of valid information between and among individuals and the systems. Second, they should allow for sufficient types and levels of social interaction between and among individuals. Third, they should not threaten the perceived control of incumbents. At a more general level, the acceptance and effectiveness of eHR systems will be enhanced to the degree that there is congruence between the values and goals of individuals and those of organizations. For instance they may increase an organization's ability to access, collect, and disseminate information. In addition, they may give individuals greater access to information about job opportunities, benefits, and performance feedback. Nevertheless, such systems may lead to a number of dysfunctional consequences. For example, they may decrease social interactions and negatively affect the quality and accuracy of information about organizational expectations, incumbent performance, and compensation. In addition, theymay decrease the degree of perceived control of incumbents and increase the degree to which the systems are viewed as invasive of privacy. As a result, system acceptance may suffer, leading to reduced organizational efficiency and effectiveness	e-hr acceptance
	number of strategies might be used to increase the effectiveness eHR systems.We offer a few recommendations for achieving this goal. First, we urge organizations to use what might be called “blended” HR systems, i.e., systems that combine eHR systems with traditional HR systems. For instance, organizations might allow applicants to apply for jobs online, but use interactive systems to give applicants the opportunity to clarify role requirement with recruiters or current employees. Perceptions of control can also be increased by e-selection systems that are both easy to use (e.g., touch screen systems, kiosks), and do not require high levels of computer-related KSAs. Such systems will allow individuals who are not very proficient with computers to access information about jobs and apply for them.	strategies for effective-ness and acceptance
Research in e-HRM: Review and implications	Strohmeier (2007) performed a research review in e-HRM and concluded that "Due to the recency of the field, studies are descriptive or explorative rather than focused on testing clearly stated hypothesis or cumulatively contributing to the state of knowledge."	review

Article	Content	Keywords
	However, concerning the role of initial screening, e-selection seems to be a growing field since organizations anticipate an increasing application using technologies like key word search, web-based tests, or videoconferencing for all kinds of employees (Chapman & Webster, 2003).	e-selection
	Not surprisingly, ease of navigation, systems speed, and user friendliness of the technologies considered lead to better image and attraction of applicants (Braddy et al., 2003; Cober et al. 2003; Sinar, Reynolds, & Paquet, 2003).	e-recruiting
The strategic value of e-HRM: results from an exploratory study in a governmental organization	To address this inadequacy and contribute to the debate on the strategic contributions of e-HRM, we build on a well-established theoretical framework: the organizational capabilities approach (Teece and Pisano 1994; Teece, Pisano and Shuen 1997) and use this framework to examine the strategic outcomes of e-HRM in organizations.	strategy
	The findings of our single case study reveal that e-HRM did not enable the HR professionals to become more strategic, nor did e-HRM enable the HR function to achieve undisputed operational efficiency gains. Our single case study, using mixed method data collection, showed that the HR professionals themselves were more positive and to a certain extent saw changes in their roles and the focus of their work, but line anagers and non-managerial employees did not perceive this change as such.	hr strategic
	Interestingly, in our case study, we found that the HR headcount had been reduced since the implementation of e-HRM. More research is needed to understand fully the relationship between e-HRM adoption and the HR headcount.	reduce costs hr headcount
	We found that the line managers did perceive that they were expected to carry out more HR tasks.	Effective-ness
	Our study also revealed that line managers were not pleased with their greater involvement in HR activities.	user acceptance
	The results from the single case study, using mixed methods, presented in this paper show that e-HRM does not automatically result in direct strategic benefits, and therefore does not necessarily strengthen the HR function's dynamic and operational capabilities. HRM had become more strategic, but that this was largely due to the HRM re-envisioning programme, and the facilitating role of the HR director, not due to the implementation of Oracle HR.	hr strategic

Article	Content	Keywords
HR portal alignment for the creation and development of intellectual capital	Human capital refers to the knowledge each employee has within the organization. Their knowledge, abilities and skills are part of the company's knowledge treasure and constitute a unique source of innovation and strategic renewal (Schultz 1961). Social capital is the knowledge in groups and networks of people (Burt 1992; Nahapiet and Ghoshal 1998). Likewise, as individuals learn and increase their human capital they may be creating knowledge that potentially forms the foundation for organizational learning and knowledge accumulation (organizational capital).	hr portal
	Portals are then interactive instruments; this means they enable bi-directional exchange flows. They also allow the user to personalize the use they make of the portal, tailoring ad hoc information, personalizing views on corporate information and adapting the portal interface. This personalization process is extremely important, because it enables people to set the portal in accordance with their own needs and requirements. On the other hand, individual employees are responsible for uploading personal data (e.g. personal information, etc) as well as directly and autonomously consulting some areas of personal interest (e.g. compensation, benefits, working hours, holidays, communities of practice, databases, etc).	hr portal
	Although recognizing this crucial function of IT, and the HR portal specifically, its role can be extended by stating that an HR portal can boost the development of the three dimensions of intellectual capital through a series of applications that can impact on skills, knowledge, networks, documents, etc.	hr portal
	The company's workforce should always be concentrated on increasing the stock of intellectual capital, as well as doing so in a way that is consistent with the company strategy. As far as HR portals are concerned, HR managers are accountable for HR portal design; they are responsible for choosing the contents and the proper configuration. This means they decide how to build the HR portal through the adoption of different applications and the design of specific practices. They decide on the different components and this configuration will intrinsically guide and support employees' activities coherently with the company strategy. HR managers, through the configuration of the HR portal, can align and leverage the workforce contribution to the company strategy. The case considered confirmed that HR portals, through their easy access to a substantial amount of data, information and knowledge, and through their characteristics of integration, personalization and interaction can be a strategic tool for HR managers in order to perform their role in a more effective and efficient way.	hr portal

Article	Content	Keywords
In-sourcing HR: shared service centres in the Netherlands	More common is the reorganisation of the function to be more customer-focused (applying the professional logic), with better flow and management of work processes and reduced costs (the delivery logic). This appears to be leading to the transformation of HR, resulting in new functions such as demand management, contract (SLA) management, and service/value chain management within HR (see also: Hoeksema 2007) but located outside the HR SSC. The companies surveyed stated the main problem as not having performance data on how well the centre is operating, despite the original aims of wanting to cut costs and improve service quality (cf. Cooke 2006). More general issues of communication, collaboration, staff competence and external service provider reliability were also highlighted (cf. Forst 1997; Reilly 2000; Reilly and Williams 2003; Redman et al. 2007).	SSC focus
	The HR SSC appears to be beyond the stage of being a fad; the data show that all the companies in the sample have a growth strategy in place in terms of the planned increase in eHRM functionality coming from the SSCs	SSC technology
	This copycat behaviour may be beneficial because companies can realize very low cost levels by a 'one size fits all' approach. However, as organisations need to compete to sustain their competitive advantage, this might turn into a disadvantage or a lower level of agility.	SSC costs
	Moreover both the delivery and professional logics will increasingly be determined by the systems and (technological/ICT) support offered by vendors. Gradually we are experiencing the evolution of the old-fashioned stand-alone Personnel Manager developing into a highly sophisticated partnership between in-house specialist staff based at different locations and outside suppliers.	SSC technology
The use and impact of human resource information systems on human resource manage-ment profession-nals	There is strong evidence that HRIS were used in support of strategic tasks. The findings are consistent with organisations being increasingly more reliant on the use of HRIS in support of advanced strategic business tasks, irrespective of company size	hr strategic
	The overall use of HRIS in support of strategic decision making was highly consistent for SME and large companies. Furthermore, this overall use was seen to be substantially greater than routine for both company size groups. These findings demonstrated that most companies that have HRIS, used them extensively in support of strategic decision making, regardless of company size.	hr strategic

Article	Content	Keywords
	Hypothesis 3. HRIS will be used more in support of strategic decision making in organisations in the future. HR professionals anticipate using HRIS increasingly in support of strategic based decision making in their organisations, regardless of the size of the company. However, the test to see if a difference in the degree of future take-up for company size suggested a significant difference. This showed there was a difference between the size of company and predicted increased relative use of strategic decision making. These results were consistent with organisations being increasingly more reliant on the use of a MIS to maintain competitive advantage, perhaps by supporting flat organisational structures and being more responsive.	hr strategic
	There was very strong evidence that those using HRIS for strategic decision making believed that undertaking this strategic partnering role enhanced their standing. Similar results were obtained regarding perceived enhancement to professional standing by the organisation, again even when excluding neutrals and treating neutral responders as disagreers.	hr strategic
	Strategic decision making allows HR professionals to participate at the organisational level and to work closely with strategic management, potentially enabling and facilitating the formation of strategic partnerships.	hr strategic
	It therefore appears that the driving forces of ROI and increasing efficiency, functionality and flexibility are sufficient motivation for the take-up of HRIS, regardless of company size. Our study at least provides evidence of this trend.	Organiza-tional adoption
	Our research suggested that for senior HR professionals, strategic use of HRIS is increasingly the norm, irrespective of company size. This has led to the HR profession providing a value-add for the company. Moreover, strategic use of HRIS enhances the perceived standing of HR professionals within their organisations, a view however, not shared by their more senior non-HR executives. Nonetheless, these executives acknowledge that HRIS has provided value-add and increased the status of the HR profession as a whole.	hr strategic
Making human resources strategic by going to the	The goal of this paper is to show why e-HRM will rarely deliver on these strategic expectations. This does not mean an investment in e-HRM can never be strategic; however, the currently popular conception of e-HRM making HR strategic may be overly optimistic.	hr strategic

Article	Content	Keywords
Net: reality or myth?	in the literature strategic hrm can have 2 different perspectives: Models based on external positioning depict SHRM as playing a secondary role in achieving competitive advantage (Wright and McMahan 1992; Delery and Doty 1996; Chadwick and Cappelli 1999). In this model, SHRM only contributes to competitive advantage when it fits with or is in vertical alignment with firm-level business strategies. In this conception of SHRM, achieving competitive advantage is contingent on whether HR policies and practices fit the firm's business strategy. If there is no fit then achieving competitive advantage is unlikely. The second model, based on the RBV, accords a more direct role for SHRM. In this model, SHRM can represent a strategy that creates competitive advantage. In other words, an organization's business strategy can be its human resources strategy in which developing human capital and organizational capability achieves competitive advantage (Wright et al. 2001). Interestingly, the emerging strategic e-HRM research appears to emphasize fit with an externally focused business strategy. Less attention is given to applying an RBV perspective. In this literature, HR becomes more strategic when the HR function moves from being primarily administrative to being 'more strategic' where the phrase 'being more strategic' reduces the HR function to supporting the organization's external business strategy. The model represents business strategy as a process in which HR strategy formulation requires top managers to decide whether their HRM policies and practices are critical to achieving competitive advantage. If business strategy is focused on external positioning then execution to achieve competitive advantage involves HRM playing an alignment role. Alternatively, if business strategy involves building internal resources and capabilities, then the HRM function will be more directly involved.	hr strategic
	Cost reduction is achieved by eliminating (e.g. automating or outsourcing) HR transactional functions.	cost reduction
	In the proposed model, therefore each e-HRM goal is associated with a primary HR role. Managers will make investments in e-HRM technology to the extent it best supports them in executing their primary role successfully.	e-hrm goals

Article	Content	Keywords
	Companies with an HR function that spends the most time on administrative tasks are more likely to justify and evaluate e-HRM on the basis of cost savings through the automation and or outsourcing of these administrative transactions. Consequently, in organizations with an HR function that is administratively oriented, the primary goal of deploying any type of e-HRM capability will be to achieve efficiency and costs savings. Proposition 1: Organizations whose HR functional role is primarily administrative will have e-HRM goals that focus primarily on cost savings.	e-hrm goals
	Although greater efficiency and cost reduction are important HR deliverables, these outcomes alone are unlikely to contribute to competitive advantage because they can be easily copied. Given the variety of e-HRM software products and consultants making it easy to 'buy' operational effectiveness, it is hard to argue cost reductions from e-HRMwill lead to superior performance compared to competitors. Consequently, achieving value or competitive advantage through e-HRM requires more than simply focusing on cost savings as the primary objective.	hr strategic
	Applied to e-HRM, strategic positioning implies that customizing Internet-based technology is important. Through configuration and customization, an e-HRM deployment better supports execution of the company's business activities to deliver on overall strategic positioning objectives. Customization, however, means a willingness to adapt an 'off-the-shelf' e-HRM software application to best support the organization's strategic positioning rather than to adapt to the so-called 'best practices' assumed in the software.	hr strategic
	For example, from early on General Electric valued the HR function as strategically important to making GE a leading company (Groysberg et al. 2005). Thus, when General Electric implemented PeopleSoft's web-based benefits module, it spent several years in development customizing the software to insure it aligned with the overall corporate strategy that included being completely web-enabled, global, innovative, and able to deliver six sigma qualities. Although cost was important it was not the dominant goal. Strategic alignment was the dominant goal, which meant customizing a commercially obtained e-HRM technology despite increasing the overall cost.	hr strategic

Article	Content	Keywords
	RBV: In other words, an organization's e-HRM system may be value producing when it is configured as a combination of Internet based information technology resources, human resources consisting of IT, HRIS and HR knowledge, skill, and experience and organizational processes that facilitate organizational agility, learning, and innovation. Firms with an HR capability building role are also more likely to justify and evaluate e-HRM not simply by cutting costs, or aligning with strategically positioned product strategies, but by making sure e-HRM contributes to a unique system that develops and supports dynamic organizational capabilities and growth of human capital.	hr strategy
	As developed, the model shows how the formulation of e-HRM goals that guide e-HRM implementation are unlikely to make the HR function more strategic or achieve competitive advantage. Investments in e-HRM that have the best chance of creating a competitive advantage are more likely to be in organizations where the HR function already plays a strategic role.	hr strategy
The influence of technology on the future of human resource managemen t	Technology has transformed the way HR processes are currently managed, mainly in terms of how organizations collect, store, use, and disseminate information about applicants and employees. In addition, it has altered the nature of jobs, job relationships, and supervision. Innovations such as telework, virtual teams, andweb-based job applications are due to commensurate innovations in technology. It has also reduced the influence of distance in organizations so that employees can work from home or interact with team members across geographical boundaries. Furthermore, it has enabled organizations to hire individuals with specialized skills in remote parts of the world (e.g., software developers) (Aguinis, Henle, & Beaty, 2001; Aguinis & Lawal, 2013).	telework and virtual teams

Article	Content	Keywords
	These technologies do not give applicants the opportunity to ask questions or interactwith organizational members. As a result, applicants do not have the opportunity to communicate with actual organizational members or clarify the nature of jobs or the benefits of working for the organization. Thus, we believe that current e-recruiting practices may be extremely impersonal, passive, and create an artificial distance between applicants and organizations. In contrast to one-way technology, some new interactive technologies may enhance the personalization of e-recruiting, and increase its overall effectiveness (e.g., Web 2.0, social media, virtual reality, blogs, virtual job previews) (see Dineen & Allen, 2013; Sullivan, 2014). Some organizations are already using Second Life Virtual Environments to conduct job fairs (T-Mobile, eBay, Verizon, U.S. Army) (Kaplan & Haenlein, 2009). Second Life Virtual Environments allow multiple users to access simulated worlds, and take the form of avatars that are visible to others. The users are also presented with perceptual stimuli, allowed to manipulate elements in the simulated world, and experience a degree of telepresence (http://secondlife.com/whatis/ retrieved June 14, 2014).	e-recruiting
	Based on the current research, it is not clear if e-selection systems enable organizations to hire the most talented applicants or increase the diversity of their workforces. One reason for this is that studies indicated that scores on computerized cognitive ability tests, SJTs, and personality inventories were not always equivalent to paper versions of these assessment methods (e.g., Ployhart et al., 2003; Potosky & Bobko, 2004; Stone et al., 2013). Another reason is that computerized versions of tests and personality inventories may be much more cognitively demanding than paper versions because applicants must perform two tasks simultaneously (i.e.,manage the computer and complete the test	e-selection

Article	Content	Keywords
	In view of this latter finding, some researchers argued that organizations using e-learning should adopt a blended approach, or incorporate technologies that increase opportunities for interpersonal interaction and communication among participants (Salas et al., 2005).Moreover, we believe that some of the new technologies such as Web 2.0 will enhance the effectiveness of e-training because they allow for greater levels of interpersonal interaction than current ones. For instance, in the future, organizations are likely to use virtual environments, virtual simulations, gamification, knowledge repositories, and crowdsourcing to improve the effectiveness of e-training. However, research is needed to assess the degree to which these methods help organizations enhance employees' knowledge, skills and abilities. Furthermore, current e-training methods are often viewed as inflexible, and do not always include provide trainees with control. As a result, we believe that the increased use of mobile technologies, virtual environments, and gamification should enhance trainee engagement in the learning process, and increase opportunities for them to practice or gain feedback.	e-learning
	In terms of measurement, e-PM can potentially facilitate the process by using technology to track employee performance throughout the evaluation period, and record both formal and informal evaluations on an ongoing basis. In terms of feedback, e-PM technologies can be used to tabulate the results of multi-rater feedback, disseminate those results to employees and managers, and prompt managers to meet with employees to discuss their performance and needed improvements.	e-performan-ce
	Despite thewidespread adoption of eHR practices, there are still a number of questions about whether these newsystems enable organizations to achieve their primary HR goals. In addition, the current systems have a number of limitations including the fact that they (a) employ one-way communication systems, (b) are impersonal, (c) passive, and (d) may preclude individuals with low computer skills from gaining access to jobs.	hr service delivery

Article	Content	Keywords
	Second, the general take-away from eHR research is that many of the traditional HR research findings also apply to eHR. In this sense, even though the technologies used may be new, the basic HR goals still hold true; e.g., the goal of recruitment is to make successful placement, the goal of selection is to hire the most talented and diverse employees, and the goal of training is to enhance the knowledge and skills of the workforce.	hr goals
	The danger is that the more HR becomes technology-focused, rather than employee-focused, the field of HR as a whole may be viewed as more of a management "tool" and less as a valued strategic partner. We are not saying that technology doesn't matter, but we are saying that technology is merely a decision support tool that should enhance, not replace, the role of managers and HR professionals in organizations.	hr strategic
The limits of institutional isomorphism in the design of e-recruitment websites: a comparative analysis of the USA and Spain	To conclude, e-recruitment has the potential to grow as a valuable tool for employers to find the best talent and minimize costs associated with large pools of global candidates. Although e-recruitment provides obvious benefits to the organizations, it presents a number of challenges for companies as well. Our study, comparing the recruitment website functionalities of two large sets of multinational companies, one in Spain and the other in the USA, explains the institutional forces, mainly cultural and socioeconomic, that stimulate isomorphism within national realities, and not between them	e-recruiting
	Our study shows that powerful institutional forces may lead companies to select the functionalities of their recruitment websites based on imitation of peers in their reference networks and groups. As other research works both from the IT field (Furtmueller et al., 2011) and the e-HRM one (Ru¨el, Bondarouk, & Van der Velde, 2006) also remark, more research is needed to propose a structured framework of e-recruitment functionalities that HR managers can use to adapt the application to their specific needs and cost-benefit criteria. This study represents a step toward that framework.	e-recruiting
	Our study puts forward several implications, both for research and practice. First of all, despite the growing importance of this technological application, there is very little research on the design and actual level of implementation of e-recruitment functionalities at a company level. We addressed this gap in the literature by providing an integrative framework and testing it in a cross-national comparison analysis.	e-recruiting

Article	Content	Keywords
Technology adoption in employee recruitment: The case of social media in Central and Eastern Europe	The use of social media in employee recruitment, often referred to as 'social recruiting', includes different practices and offers several advantages. Recruiters use platforms such as LinkedIn, Facebook and Twitter to post job ads, attract and recruit job applicants, and pre-screen applicants (Caers & Castelyns, 2010; Cain, Scott, & Smith, 2010; Melanthiou, Pavlou, & Constantinou, 2015; Ollington, Gibb, & Harcourt, 2013; Pike, Bateman, & Butler, 2013; Zide, Elman, & Shahani-Denning, 2014). As a result of this social media use, the recruitment process becomes more dynamic, relational, and authentic, and the employer brand and attractiveness are enhanced (Carrillat, D'Astous, & Morissette Gr egoire, 2014; Girard & Fallery, 2011; Girard, Fallery, & Rodhain, 2013; Henderson & Bowley, 2010).	e-recruiting more relational
Introducing the impact of technology: a 'neo-contingency' HRM Anglo-French comparison	Our proposition is that the level of technology that a firm has affects the way HR managers devise HRM policies and practices; however, the technology impact is regulated by country factors where the firm is located.	technology influence HRM policies
	Technology could be defined as: 'the organization and application of knowledge for the achievement of practical purposes. It includes physical manifestations such as tools and machines, but also it includes intellectual techniques and processes used in solving problems and obtaining desired outcomes' (Kast and Rosenzweig, 1985: 208). Additionally, technology means the systematic application of scientific or other organized knowledge to practical tasks (Galbraith, 1972: 31).	technology definition
	National culture will moderate the relation between levels of technology and HRM policies and practices. National culture and the levels of technology will interact to predict the operation of HRM policies and practices.	culture vs tech vs HRM

Article	Content	Keywords
	According to the results presented, the moderator effect of the national culture on the relation between the Level of Technology and the HRM was validated for two variables: (1) recruitment technical policies and (2) long-term approach to training. Hypotheses H1.2 and H2.2 are supported. Nonetheless, only France shows a significant statistical difference between the technology intensive firms and the low-tech firms for the variable recruitment technical policies, hypothesis H1.1 is supported only in France. Britain shows no significant statistical difference. On the other hand, France and Britain present a statistically significant difference between the technologically intensive firms and low-tech firms for the factor long-term approach to training; thus, hypothesis H2.1 is supported. Finally, the moderator effect of the national culture was not supported for the Compensation Based on Performance; hypotheses H3.1 and H3.2 are not supported, see Table 7. The differences presented between France and Britain in their education systems illustrate the variations found between these two countries. Thus, it is not surprising that technology intensive firms will recruit employees with a more sophisticated profile than low-tech firms in France. This evidence also gives support to the fact that technology intensive firms would place more emphasis on soft-skills training than low-tech firms, which is statistically supported in France and Britain. On the contrary, low-tech firms do not require high levels of investment in these HRM because their workers possess a public knowledge that can be purchased in the labour marketplace. The results presented demonstrate how both national culture and technology have an influence on managers' behaviour. Thus, this research has modestly validated the neo-contingency proposition.	recruitment and training
Antecedents and outcomes of implementing flexibility	FWA usually comprehend organizational initiatives which enhance employees' flexibility on the time and place where work has to be accomplished, and also various policies exerting influence on the number of hours worked	Flexibility work arrange-ments definition

Article	Content	Keywords
policies in organizations	In general, employee commitment is found to be positively related to FWA availability (e.g. Thompson et al. 1999; Allen 2001; Casper and Harris 2008). Also, most of the investigations reviewed have found a negative association between benefits availability and intent to leave (Allen 2001; Batt and Valcour 2003; Thompson et al. 1999; Behson 2005). In two other studies, as well as in ours, no relationship is found between these variables (Thompson and Prottas 2005; Casper and Harris 2008). This result might be due to the fact that benefit availability must be accompanied by a favourable work-family culture to enhance employees' desire to stay in the organization. Finally, our data reveal that the availability of FWA is associated to a decreased work-to-family conflict (as found in Allen 2001). Nevertheless, most reviewed research finds no relation between these two variables (Thompson et al. 1999; Batt and Vacour 2003; Behson 2005; Mennino et al. 2005; Thompson and Prottas 2005). This may be due to the fact that some flexibility policies, such as telework or flextime, can increase work-to-family conflict as they allow work to invade family life (Clark 2001; Shockley and Allen 2007; Breaugh and Frye 2008). Another possible explanation is that not all employees react well to these new and flexible ways of working as some prefer a more conventional schedule.	outcomes of flexible work
Comparing traditional and virtual group forms:	This increase arises from forces such as interorganizational alliances, globalization, outsourcing and alternative work arrangements, such as job sharing and telecommuting (Saunders 2000).	Globaliza-tion

Article	Content	Keywords
identity, communication and trust in naturally occurring project teams	In the present research, we had the opportunity to conduct a field study of naturally occurring project teams in a global firm. In this study, some groups were traditional (that is, co-located or face-to face), some were purely virtual (completely distributed), and some were what we call 'semi-virtual' or hybrid (composed of a local subgroup as well as remote team members). More research is needed on semi-virtual teams (Pauleen 2003) because these types of groups may interact differently from completely distributed groups (Burke, Aytes, Chidambaram and Johnson 1999; Webster and Staples 2006). In this study, we compare employee attitudes such as trust across these three types of teams. Employee attitudes are important to understanding team functioning since they relate to critical outcomes such as performance, organizational commitment and withdrawal behaviours (Cohen 1994).	virtual teams
	In this study, we compare employee attitudes such as trust across these three types of teams. Employee attitudes are important to understanding team functioning since they relate to critical outcomes such as performance, organizational commitment and withdrawal behaviours (Cohen 1994).	virtual teams definition
	Some argue that technologies transform the ways that teams work (Beranek 2000). However, this transformation may be equally true for all types of teams because many of the technologies distributed employees use today (e.g. email, shared workspaces, shared databases) are used equally by face-to-face employees.	virtual teams communi-cation

Article	Content	Keywords
	Group identity Two items to assess group identification were adapted from Jetten, Hogg and Mullin (2000), such as 'I feel strong ties with these team members', ranging from 'Strongly disagree' (1) to 'Strongly agree' (7). Cronbach's alpha for this study was .84 for remote members and .83 for local members. Communication frequency Based on the communication media utilized in this organization, the frequencies of communication with eight media were assessed: 'Face-to-face', 'Phone (1:1) or Voice mail', 'Teleconference', 'Email', 'E:Room/Network file share', 'NetMeeting', 'Videoconferencing', and a free-format item called 'Other' (for participants to indicate any communication medium not listed; the mostfrequentlylisted one was instant messaging). Cognitive-based and affect-based trust Eleven items for interpersonal trust were adapted from McAllister (1995). For example, the item 'To what extent do you feel that the team members approach their jobs with professionalism and dedication?', ranging from 'Strongly disagree' (1) to 'Strongly agree' (7), captured the dimension of 'Cognitive-based trust', and the item 'We have a sharing relationship. We all can freely share our ideas, feelings, and hopes', Perceived task skills Three items from Gomez, Kirkman and Shapiro (2000) perceived task skills scale, such as 'These team members are efficient', ranging from 'Strongly disagree' (1) to 'Strongly agree' (7), were used. Cronbach's alpha for this study was .85 for both remote and local members.	virtual teams factors that differs from traditional teams
	virtual team members may have had high 'presumptive trust', or trust arising from membership in like categories. Presumptive trust is based on substitutes or proxies for direct knowledge of others, and results in individuals who are 'generous with respect to giving others the "benefit of the doubt" when "noise" or uncertainty regarding their trustworthiness is present' (Kramer 1999, p. 583). Further, when roles are clear, virtual teams may develop 'swift trust', or the rapid formation of trust (Meyerson, Weick and Kramer 1996; Jarvenpaa, Knoll and Leidner 1998). Therefore, we may have found similar levels of trust for virtual as for co-located teams because of the presumptive and swift trust experienced by virtual team members.	virtual teams trust

Article	Content	Keywords
	Virtual team members were even more satisfied with their projects than were members of co-located teams. This may be because virtual employees feel that they have better access to distributed experts, more freedom to manage their work tasks, and a better balance of work/family duties.	virtual teams job satisfaction
Enjoying New Ways To Work: An Hrm-Process Approach To Study Flow	At this level, teleworking can be considered as an important job resource and/or demand that may have an impact on well-being (Sardeshmukh, Sharma, & Golden, 2012).	well-being
	Much in line with the "happy-productive workers" thesis (T. A. Wright & Cropanzano, 2007), it is believed that a bundle or set of HRM practices, such as the NWW practices, supports a "mutual gains perspective" (Guest, 2002; Peccei, 2004). Due to NWW, both employer and employee may profit from work being more efficient, on the one hand, and more meaningful and enjoyable, on the other hand (Peters, 2011; Ten Brummelhuis et al., 2012). As a potential source of competitive advantage, NWW is believed to enable organizations to respond more flexibly to new market requirements, to improve service quality, and to enhance operating efficiency (European Commission, 2002).	HRM practices

Article	Content	Keywords
	We aim to contribute to the debate on NWW by empirically investigating the relationships between a set of HRM practices associated with NWW on the one hand and employees' experiences of work-related flow on the other. Flow can be defined as a shortterm peak experience and can be conceptualized by three dimensions: (1) absorption, (2) work enjoyment, and (3) intrinsic work motivation (Bakker, 2008). Absorption refers to a state of total concentration (i.e., a state in which employees are totally immersed in their work). Work enjoyment refers to employees' evaluation regarding the quality of their working life. Intrinsic motivation refers to the desire to perform an activity in order to experience satisfaction due to the inherent pleasure of the work activity itself (Bakker, 2008).	outcomes flow
	Hypothesis 2: Employees experience more "workrelated fl ow" when teleworking constitutes a structural part of their weekly work routines (that is, when they work from home at least one day per week). Teleworking was shown to be positively associated with absorption ($B = .43$, $p < .001$), work enjoyment ($B = .24$, $p < .01$), and intrinsic work motivation ($B = .40$, $p < .001$), which supports Hypothesis 2. In the third place, it can be concluded that employees who worked from home at least one day per week have the potential to reach higher levels of flow in comparison with their peers. By regularly working from home, perhaps more time for reflection and recovery is found, which could influence employees' flow levels positively (Peters & Wildenbeest, 2010). Of course, also teleworking does not always have to be caused by a top-down policy, such as, for instance, by the implementation of NWW. Our results, however, indicate that the actual teleworking practice runs parallel with higher levels of flow. Of course, the optimal teleworking frequency and the effects of teleworking on other work outcomes affecting employees' flow demand further investigation, using bottom-up approaches as well.	telework flow

Article	Content	Keywords
Managing electronic communications: a new challenge for human resource managers	Employees are central to the efficient and creative use of modern workplace technology, and the key to this is in the way in which people are recruited, trained, remunerated and 'empowered' to make decisions in order to use technology effectively (Fitz-enz 2009). This is particularly true for workplaces recruiting 'generation Y' employees (those born after 1980) who are more likely to expect both an advanced use of technology and the Internet along with the autonomy to operate across work and personal boundaries (McCrindle Research 2011).	workplace
	A fundamental challenge for the HR profession is the need to strike a balance between the interests of the organisation and employees in the context of increasingly blurred boundaries between home and work and the private and the public domains.We argue that there are implications not only for the role of HR but also for employment relations, specifically the development of trust, collaboration and respect between managers and employees.	managing employees
	It is not surprising that HR managers have sought to control employees' online behaviours. The three key ways of managing this behavior have been through policy and procedures in the workplace, monitoring and surveillance, and dismissal. We turn first to the literature (Australian and international) on managing e-communications through policy and procedures.	managing employees
	The use of technology for the purposes of improving efficiency or increasing control over employees is widespread. For example, there are devices designed to capture employees' physical movements in the workplace and software to record their activities on computers. Websites can be blocked or monitored using surveillance technology and filtering software which can track employees' time spent on the Internet and their movements through various websites, including their keyboard strokes (from which communications can be reconstructed and read by employers or their agents).	managing e how to prevent use of internet

Article	Content	Keywords
	Clearly, organisations have benefited from the fact that the widespread use of email and Internet systems has entailed that office work is no longer confined to the workplace but can be performed almost anywhere and, depending on the nature of the work and its deadlines, at times and on days outside the traditional span of working hours (McCallum 2000). Additionally, because e-communication is a rapid and efficient way to share information within a workplace and with clients, the freedom and flexibility this provides represents a double-edged sword for both employers and employees. For instance, as we noted above, employers face risks in the form of lower productivity, loss of intellectual property, theft of valuable information assets and higher legal liability through employee misuse of email and the Internet (Wheelwright 2002; Whitty and Carr 2006). Employees gain the flexibility of working from home, and, as we noted earlier, GenYemployees expect the flexibility of playing at work and working at play. On the other hand, working from home can also seriously disrupt employees' home lives.	Internet
	These sites (Facebook and LinkedIn, for instance) can distort the boundaries between work and private life as never before. We have seen above that information posted on these sites is sometimes used by employers to sanction employees for misconduct, even though an employee's use of the social networking sites may have been intended as strictly personal. The danger is that these sites potentially open their information to a large audience at the discretion (but not necessarily with full knowledge and awareness) of the individual posting information on the Internet.	managing e negative outcomes
	This is a particularly vexed issue for employers and HR managers: on the one hand, organisations benefit by having in place policies and procedures that maximise the creativity and value contributed by their employees, but access to these tools in the workplace and beyond is fraught with risks including productivity loss, costs and legal liability. On the other hand, policies and procedures that focus too heavily on managing these risks infringe widely held conceptions of fairness and employee desire for autonomy in the process jeopardising the goal of maximising employee performance.	control vs. Non control

Article	Content	Keywords
Comparing telework locations and traditional work arrangements: Differences in worklife balance support, job satisfaction, and inclusion	Telework is a broad term used to describe a variety of arrangements that involve working away from the employer's main campus.	telework
	Numerous telework researchers and theorists have pointed out that working away from the central office changes the motivational qualities of work, as well as employee attitudes and organizational perceptions.	telework change motivations
	Allowing employees to work away from the office may be viewed as a gesture of kindness and trust, which in theory should be reciprocated through employee loyalty and appreciation.	employee loyalty
	Due in part to the autonomy and flexibility it provides, and the entrusted status it may symbolize, telework is likely to impact employee perceptions of work-life balance (WLB) support and job satisfaction.	WLB
	Paradoxically, however, telework can be a source of work-life imbalance. Working from home increases the permeability of work and personal life domains (e.g. Hartig et al., 2007; Marsh and Musson, 2008). Especially in high stress jobs, working from home may not allow workers to escape work, both mentally and physically (Russell et al., 2009). In qualitative research, subjects reported a breakdown of the psychological distinction between work and family (Hill et al., 1998; Sullivan and Lewis, 2001). Telework enables workers to continue working for longer hours (Hill et al., 1998). As a result, teleworkers may experience increased stress and overload (Hill et al., 1998; Konradt et al., 2003; Russell et al., 2009; Towers et al., 2006).	WLB imbalance
	WLB support may be defined as individuals' perceptions of the organization's willingness to and interest in supporting their family and personal life needs.	work life balance definition *page 6

Article	Content	Keywords
	Research has yielded mixed findings regarding the impact of telework on work-life balance. The present study expanded on extant research by examining employee perceptions of WLB support. As hypothesized, home-based workers reported higher WLB support than satellite and client-based workers. Satellite and client-based work is more likely to be a function of the organization's or client's needs. Furthermore, while working at the satellite location is a form of telework, it may do little more than reduce employee commute. Contrary to expectations, home-based workers reported similar WLB support as main office-based workers. The finding that home-based employees did not report greater WLB support may be because home-based work has benefits and drawbacks, which may counteract one another.	WLB support
	Yet, after controlling for differences in inclusion, the observed differences resembled our original hypothesis: home-based workers reported higher job satisfaction than main-office workers. Additional research is needed to understand the mechanisms through which telework relates to job satisfaction. For example, research should measure the relative importance of worker autonomy, flexibility, and inclusion on job satisfaction and should determine if teleworkers do indeed regard their status as a privilege. Personality is presumed to impact telework outcomes (Feldman and Gainey, 1997). Workers may differ to the extent that they value autonomy and flexibility and require social interaction .	job satisfaction

Article	Content	Keywords
	To our knowledge, the present study is the first to examine the issue of professional isolation in a sample of both teleworkers and workers in traditional work arrangements. The findings of this study support claims (e.g. Bartel et al., 2007; Golden et al., 2008; Montreuil and Lippel, 2003) that social isolation is a drawback of teleworking. Main office workers reported significantly higher inclusion than home, satellite office, and client-based workers. Golden et al. (2008) found that the impact of professional isolation is more severe as workers spend more time teleworking. Since our focus was on primary work locations, we likely captured the telework-isolation relationship at or near its highest point. Indeed, this may be why inclusion had a large impact on the telework-job satisfaction relationship.	social isolation
Counterproductive use of technology at work: Information & communications technologies and cyberdeviancy	As observed by Weatherbee and Kelloway (2006), while technological advances bring new capabilities into an organization's arsenal; tools for fostering organizational goals such as increases in efficiency, productivity, or enhancing the benefits of new forms of communicating – they will inevitably be accompanied by newer and more innovative forms of counterproductive or cyberdeviant behaviours.	technology misuse
	However, the two most common forms of ICT based counterproductive behaviour found in organizations (American Management Association, 2004, 2005, 2007, 2008) are a function of the order and the prevalence in which ICTs were introduced to the workplace: first, corporate email, and second, network connectivity yielding access to the Internet (Negroponte, 1995, 2000; Sproull & Kiesler, 1986, 1994). As a consequence, this is where technology misuse was first enabled in the workplace and it is here where the majority of research attention was drawn first.	technology misuse
	The initial focus used to investigate and understand the phenomenawas through the conceptual framing of these behaviours as non-sanctioned ICT use, with the behaviours considered to be deviations from the expectations and norms of use for corporate technologies. The outcomes of ICT misuse were viewed as having costs for the organization; the loss of employee time which was not spent onwork tasks and the loss of resources, the computing time, and related network usage expended in pursuit of non-work purposes.	Conterpro-ductive behaviours

Article	Content	Keywords
	Cyberslacking has been defined by behaviours which include online gambling, stock trading, online romance, chat, or visiting pornographic websites (Johnson & Indvik, 2004). Lim (2002), however, positions these behaviours within a more restricted construct, cyberloafing incorporating only behaviours based upon the use of organizational Internet access or email. Between these constructs, the set of behaviours while similar, are not the same. Due to the variation of behaviours these constructs are intended to account for, measurement and empirical results vary accordingly. In Lim's study, cyberloafing was found to consist of two factors; one comprised of non-work related Internet surfing, and the other incorporating personal email use. Blau, Yang, and Ward-Cook (2006), on the other hand, found that cyberloafing was actually comprised of three factors; the first consisted of Internet surfing or browsing; the second, non-work related use of email, and a third factor, consisted of behaviours requiring high degrees of interactivity (e.g., online gaming) than found in Lim's surfing behaviours. These results are similar to Johnson and Kulpa (2007) who contend that online behaviours are separable based upon their degree of 'social-ness', their utility, or their degree of interactivity.	Conterpro-ductive behaviours
	In each of these cases, the counterproductive behaviours engaged in by organizational members, whether line workers or executive management, resulted in significant cross-level harms to their organizations. The impacts were not restricted to targeted individuals within the organization. The behaviours had extensive and adverse outcomes upon the organization as a whole, including not only the individuals within them, but external stakeholders as well. These outcomes served as initiating conditions for further actions that were reflected back upon the organization resulting in compounded harms.	Counterpro -ductive outcomes

Article	Content	Keywords
Is telework effective for organizations?: A meta-analysis of empirical research on perceptions of telework and organizational outcomes	However, since the advent of the personal computer and the emergence of the internet, this scene has not only become one of the present, but is itself fading into memory as technology advances at a frenzied pace. From hand-held devices that receive e-mail, to smart phones that link photos to social media web sites, information and communication technologies (ICT) have integrated into mainstream society.	technology
	Central to a possible explanation of why this might be is the fact that much of the empirical research on telework has been conducted at the individual level of employee outcomes, whereas the decision to implement a telework program ultimately lies at the top of the firm, and is driven by organizational outcomes.	telework drive by organizational outcomes
	Productivity is regularly reported as a perceived benefit of telework (Callentine, 1995; Pitt-Catsouphes and Marchetta, 1991; Hill et al., 1998). Reasons cited include working at peak efficiency hours, reducing distractions and interruptions, being in an environment conducive to increased concentration, and reducing incidental absence (Belanger, 1999; Baruch, 2000). Productivity is often measured in terms of respondents' perceived actual or potential increase or decrease in work output associated with telework adoption, often in comparison to a non-adoption state. Naturally, increased productivity is of high organizational interest. Hence, the first hypothesis is derived as follows: H1. Telework will be positively associated with perceptions of increased productivity. Retention is looked at in the telework literature by measuring perceptions of retention and turnover intentions, from both the employee and managerial perspectives. Both constructs are commonly reported as benefits of telework, where retention is predicted to increase in teleworkers, and turnover intentions to decrease. For the purposes of this meta-analysis, these constructs are collapsed into the retention variable through reverse coding of turnover intentions with the rationale that, if employees do not intend to leave the organization they will be better retained by the organization. Thus, the second	telework outcomes

Article	Content	Keywords
	hypothesis of the framework is derived: H2. Telework will be positively associated with perceptions of employee retention. Organizational commitment in the telework literature is a multidimensional construct. In some studies, it is broken down into specific types of commitment, such as the three-dimensional model of Meyer and Allen (1991) that measures affective commitment, normative commitment, and continuance commitment (Desrosiers, 2001; Piper, 2004). In other studies, only one of these types of commitment is measured, or a general commitment variable is defined that is something of a hybrid from the field (Belanger, 1999; Lee, 2004). Despite historical predictions that teleworkers may be less committed to the organization, recent studies have reported organizational commitment as one of the benefits of telework whereby commitment is exchanged in reciprocity for a more flexible work arrangement than a typical office job.As such, the third hypothesis of the framework is derived: H3. Telework will be positively associated with perceptions of organizational commitment. The fourth organizational outcome, performance, is also of high importance to organizations. Related to productivity, performance is the assessment of the work being done within the firm. As such, it is not output oriented like productivity, and is measured differently. “Typically it can bemeasured by quality of outputs, job knowledge, leadership, judgment, innovation, goal setting or teamwork, among others” (Belanger, 1999, p. 143). Thus, performance can be viewed as the perception of howwell employees and the firmare doing. In the telework literature, it is commonly measured in comparison between teleworkers and non-teleworkers, with the predominant stance being that performance is higher amongst the former. Since increased performance of the employees translates into increased performance of the firm, the fourth hypothesis is as follows: H4. Telework will be positively associated with perceptions of performance. Thus, far, all four organizational outcomes of the framework have been predicted to have a positive association with telework. Indeed, they are all regularly reported as benefits of a telework program. If this is true, then it would seem that a telework programwould be beneficial, not only at the level of the individual, but also at the level of the organization. As such, the fifth hypothesis captures the purpose of this meta-analysis, and is stated thus: H5. Overall, there will be a positive relationship between telework and the organizational outcomes of this framework.	

Article	Content	Keywords
	This meta-analysis sought to determine whether or not telework is beneficial for organizations. Based on these meta-analytical findings, there appears to be support that overall, there is a positive relationship between telework and perceptions of organizational outcomes. In answer to the question, is telework effective for organizations, the meta-analytical answer seems to be yes.There is a small but positive relationship between telework and all four organizational outcomes of the framework: productivity, retention, organizational commitment, and performance.	telework outcomes
	Moreover, the article emphasizes the importance of labour legislation in designing a formal telework contract, an often neglected aspect in the research literature as well as in practice. Thus, the focus of the paper is on individual telework (done under an employment contract) and the managerial implications of its implementation. Informal telework practices are beyond the current analysis.	labour legislation
	At the time it was still believed that the growing problems of congestion in major cities could be resolved by creating telework centres and by encouraging people to work from home. Unfortunately, this vision soon proved unrealistic. Even with all the talk of climate change and the heightened environmental awareness since the turn of the millennium, faith in the ability of telework to replace traditional work arrangements has still not been restored.	telework a myth
	Nowadays, telework is understood as one specific type of flexible or distributed work. Besides, the general transformation of work culture towards a greater emphasis on efficiency and productivity, another factor behind the current trend towards distributed work is the closely related process of economic globalization and the consequent demand for more flexible ways of organizing work (Castells, 1996; Jackson, 1999). With the continuing advance of global economic integration and offshoring, i.e. transferring organizational functions to another country, businesses' decisions on where to locate will largely be determined by considerations of labour costs and customer needs.	Globaliza-tion

Article	Content	Keywords
	Knowledge workers or professionals, in particular, have a tendency to concentrate in and around major economic hubs (Cooke, 2002) and to commit "physically" to their organizations (So¨dergren, 2002). The World Bank (2009) projections indicate that the trend of global economic concentration is set to continue, and we simply have to learn to live with that. Already about half of total world output comes from an area that covers just 5 per cent of the world's total surface area. A good example is provided by Greater Tokyo: although the metropolitan area covers no more than 4 per cent of Japan's land area, one in four of the country's population of 127 million are squeezed into that area.	psysically commitmen t
	contractual framework and "culture" of teleworking. For this reason, telework has remained a marginal and to some extent even an elitist phenomenon; the province of managers and professionals enjoying a high level of autonomy (Clear andDickson, 2005; Pyo¨ria¨, 2003).	telework culture
	In order that these problems can be contained it is essential that telework arrangements are carefully planned. It is crucial that agreements are in place that define the rights and duties of both employees and employers. For instance, telework must not be used as an excuse to get employees to do unpaid overtime. Likewise, teleworkers cannot be expected to be on call 24 hours a day. Ideally, the volume of work should be adjusted from the outset so that overtime will not be necessary, otherwise problems are bound to arise. Working hours legislation does not lend itself easily to working from home or other situations where it is unreasonable to expect that the employer should make arrangements to monitor working hours.	ee availability
	teleworking is a way of arranging work, not a type of employment relationship.	teleworking

Article	Content	Keywords
	Another point that is often overlooked is that telework does not fit all life situations. Some families have small children who are at home all day, for some people the workplace is like home. Others feel duty-bound to turn up at work each and every day. In some cases, telework may be a family-friendly arrangement, even though it is not an answer to the problems of reconciling work and family, at least in the sense that it would substitute day care (Devine et al., 1997). The first requirement for a successful telework arrangement is effective time use management and an atmosphere of mutual trust and respect between employee and employer. These are key problems that have been raised in the research literature and that still remain unresolved (Nilles, 1998).	family
	Another point that warrants comment here is the intense growth of teamworking, which by definition is at variance with the idea of telework. The distribution of teams is the more problematic the more continuous and more intense the contacts required by teamwork (Hislop, 2002; Nandhakumar and Baskerville, 2006). From the individual employee's point of view, it is easier to exchange ideas and to ask for help with complex problems if one works under the same roof with others. Furthermore, physically close interaction engenders commitment to work and creates a sense of collectivity that extends beyond the actual team organization. It is largely for this reason that purely virtual organizations are rare.	Teamwork-king

Article	Content	Keywords
	Security of data is yet another problem that an organization needs to assess before saying yes to telework. In this respect, the most important thing to remember is that data protection is a much wider issue than just a technological one. For those trying to protect data security, the working practices of teleworkers may provide the hardest challenge. Unfortunately, people remain the weakest link in the security of any business. Access control, encryption and the integrity of digital data flows, as well as efficient firewalls and anti-virus software are crucial today, but as long as discreet documents are filed in paper form or invaluable materials and equipment (such as USB flash drives containing confidential information) are being handled, traditional control systems and precautions should remain in place.	data security
	Although telework, especially in its most traditional mode, seems to have less potential than some visionaries have predicted, it would certainly be wrong to drop the whole project – distributed work has important benefits both to individuals, organizations and society at large. The benefits of distributed work can be captured in four main points, as described below.	hard to change
	First, telework is environmentally friendly. Although it is naive to believe that telework could resolve all the problems caused by commuting, more flexible and transferable work arrangements would certainly relieve some of the congestion, help to reduce levels of environmental pollution, and possibly improve traffic safety. Systematic investment in commuter safety, let alone the reduction of unnecessary traffic and movement, would pay itself back in lowered insurance costs and in a lowered risk of traffic accidents.	environ-ment friendly

Article	Content	Keywords
	Third, it is useful to consider telework as a way of raising the company's corporate image. Organizations that encourage employees to telework could justifiably say they are taking steps to promote sustainable development. And telework could help to create a positive and modern corporate image in more indirect ways as well. The option of telework could give the company a competitive edge both in recruiting new staff and in motivating current employees. In the public sector, telework could help to polish the rigid and bureaucratic reputation of the local and central government sectors. In contrast to what is commonly thought, bureaucratic environments lend themselves very well to telework (Taskin and Edwards, 2007). Fourth, several studies have found that the changeover to telework has improved job control and well-being at the individual level and increased the overall efficiency of organizations (Hanhike, 1998; Lai and Burchell, 2008; Luukinen, 1996; Martı´nez-Sa´nchez et al., 2007). Especially, in jobs that require creative problem-solving skills it is important to be able to work as flexibly as possible, according to need and inspiration. Telework from home, for example, makes it possible, at least in principle, to establish a rhythm of work that best suits one's own preferences.	corporate image; well-being
Perspectives of homeworkers and their partners on working flexibility and gender equity	Singley and Hynes (2005) found an interaction between couple negotiations and the structural opportunities and constraints created by the flexible working arrangements available to them. Flexible working, and homeworking, are consistently viewed by organizations and by co-workers as suitable primarily for women (Liff and Ward, 2001; Sinclair, 2000; Smithson and Stokoe, 2005; Sullivan and Lewis, 2001). Duncan et al. (2003) have linked views on paid and unpaid work, and labour market flexibility, to gender contracts. From this perspective, gender is seen as something which people routinely 'do' in relationships, rather than an innate or essential attribute, and ways of 'doing gender' are situated in and affected by the hegemonic discourses and social structures in which people live.	women

Article	Content	Keywords
	In the accounts of the homeworkers and partners, flexibility tended to be constructed as beneficial to women working at home specifically because it facilitates their role as domestic worker and mother. For men, however, our participants were more likely to construct flexibility associated with homeworking in relation to, or sometimes as a means of control over, the actual work itself. This is not to say that the men working at home did not discuss flexibility in terms of its family-related advantages – but when they did so, it was usually couched in terms of offering 'help' with domesticwork and childcare or in terms of spending time with the family. Previous research has suggested that work at home may have some capacity to facilitate the combination of paid work and family responsibilities (e.g. Silver, 1993) but there is little evidence to suggest that the fundamentally gendered nature of work and family roles is challenged (Sullivan and Lewis, 2001; Woollett and Marshall, 2001). These results support these earlier findings and also identify one possible mechanism by which this occurs – that is, work at home may increase flexibility but where it is conceptualized in traditionally gendered ways it is not likely to be gender equitable.	gender differences

Article	Content	Keywords
	Wesee a strong difference between those who primarily conceive themselves as a breadwinner/homemaker couple, and those who conceive of themselves as in an egalitarian unpaid work/paid work 'contract'. There is little evidence from our analysis that homeworking significantly affects the pre-existing gender ideology that the participants are affiliated with, which implies that gender neutral policies about working patterns are not in themselves a tool for gender equity, but may be used by those who already have egalitarian expectations of the division of paid and unpaid work. The links between social structures – notably national welfare state context – and gender contracts have been made by other researchers; what this analysis, with its attention both to home workers and to their partner's perspectives, adds is the way that couples' assumptions about their gender contract affects their changing work patterns, so that working practices which appear to be innovative – such as homeworking and other flexibleworking policies – are only effective in terms of increasing gender equity where couples already have an egalitarian gender contract. This is particularly important for policymakers and HR professionals who often assume that work–life policies and flexible working policies are beneficial to gender equity (Smithson, 2005; Smithson and Stokoe, 2005). Duncan et al. (2003: 327) argue that 'Government policies in Britain assume that the adult male breadwinner model is being replaced by the adult male worker model, and that policy should support and promote this change'. What our research demonstrates is that policy at government or HR level is only likely to support a gender equitable worker and carer model in those households where there is already an egalitarian gender contract, and that innovative work-life and flexibility policies are likely to make minimal difference to gender equity in more traditional households.	egalitarian gender

Article	Content	Keywords
Telework: a challenge to knowledge transfer in organizations	This definition points to three main characteristics of telework: location(s), frequency, and the use of ICTs. Telework can be exclusively based in one location remote from the employer's main premises (e.g., home, satellite offices, telecentres or telecottages, client's premises, modes of transportation, and other places of transit) or it can take place in a combination of locations (Felstead et al. 2005). Finally, telework always involves the use of ICTs, allowing us to distinguish teleworking from homeworking that does not require ICTs to perform the activity.1	telework definition
	Without explicitly referring to the process of organizational socialization, authors in the knowledge-based view have repeatedly presented these cognitive and relational contents of organizational socialization as factors necessary to or facilitating the transfer of technical knowledge. To discuss the impact of these factors we adopt the labels of 'source' and 'recipient' from the signaling metaphor (Shannon and Weaver 1949) and distinguish between tacit and explicit technical knowledge. Drawing on the knowledge-based view, we claim first that the source of tacit technical knowledge will only be able to transfer this knowledge to a recipient if the source and the recipient share enough organizational social knowledge in the form of shared mental schemes, language, and narratives. To summarize, on the basis of the existing literature on knowledge transfer, we conclude that the transfer of individual technical knowledge is facilitated if the source and the recipient of the technical knowledge share organizational social knowledge and have a close relationship. We will now show that telework may have a negative impact on these facilitating factors.	Organiza-tional social knowledge

Article	Content	Keywords
	In this paper, introducing the components of organizational socialization has allowed us to propose a more pragmatic use of some interesting insights developed in the literature on knowledge. Indeed, we have been able to specify some of the processes (and not only the conditions) underlying the transfer of individual technical knowledge. Unsurprisingly, those processes are learning processes but their contents are social and relational. Future research should go on with a focus on individuals to study knowledge phenomena: knowledge does not constitute an autonomous or separate entity, it is by nature embedded in individuals who produce, interpret, duplicate, modify or learn it. In this perspective, qualitative research on the behaviors people adopt when they are involved in knowledge transfer processes would help unravel the complexity of those processes and subsequently enable researchers and practitioners to approach them more from an HR perspective than a strategic planning one.	Organiza-tional social knowledge

Article	Content	Keywords
The Influence of Virtuality on Social Networks Within and Across Work Groups: A Multilevel Approach	Research on organizational communication has generated seemingly contradictory findings indicating that the use of PCMC may reduce the level of interpersonal tie strength [18, 19] and that PCMC may be sufficiently "rich" to facilitate interpersonal ties [48, 64, 65]. These inconsistent results could be attributed to the following reasons. First, most prior studies did not isolate the effects of PCMC from the confounding effects of group members' geographic dispersion. Second, previous research often focused on the PCMC effects on a single dyadic relationship and was not concerned with the average tie strength within a work group. This study elaborates on the relationship between the use of PCMC and intra-group tie strength based on the results of multilevel analysis, showing that the effect of individual use of PCMC on one's intra-group tie strength is moderated by the degree of a group's geographic dispersion. The result of our analysis is consistent with the previous studies in that use of PCMC—which usually supports individualized communication—may effectively compensate for lack of face-to-face meetings, leading to a higher level of closeness among group members when the group is highly geographically dispersed. By contrast, it is notable that use of PCMC decreases one's intra-group tie strength when group members are geographically close. One possible explanation can be drawn from the previous studies, which reported that PCMC is often used to record interactions for defensive documentation in groups with low levels of geographic dispersion [66].	PCMC
	The results of this study showed that individual use of CCMC had a significant effect on intra-group tie strength regardless of group context, such as geographical or temporal dispersion. This result empirically supports the notion that a virtual workspace for a group is required to increase intra-group tie strength. The result also indicates that the use of CCMC is beneficial even for a collocated team because it may provide additional functions to the entire group and encourage individual members to share their information and facilitate group socialization, which could otherwise be achieved only with high costs in face-to-face settings.	CCMC
Human resource metrics and decision support A	Although the specific technological platforms underlying this e-HR approach will vary by organizations, the various technologies that allow organizations to capture, store, and utilize data in support of HR functions are considered to be human resource information systems (HRIS)	platforms

Article	Content	Keywords
classification framework	Because of this vast increase in the availability and reach of HR data, human resource professionals have the opportunity to more effectively employ HR metrics to assess HR in terms of its efficiency, effectiveness, and impact and service	hr data
	Increasingly managers and employees are utilizing decision support systems (DSS) or business intelligence (BI) capabilities available as part of HRIS that include metrics and analysis tools to help solve key HR problems.	managers
	Metrics are used by all core business functions and since HR represents a core function, a need exists for metrics. A metric is an accountability tool that enables the assessment of a function's results. With respect to HR, a primary idea has been that through metrics, HR units could build a business case for their work and this could contribute to an increased partnership between HR and the broader business functions.	metrics definition
	noted earlier, in the HR context, DSS tools are those tools available in an HRIS that support decision-making related to human resource management	managers
	The first level is efficiency metrics. Metrics at this level measure how well HR performs basic administrative tasks. The focus of these metrics is on productivity and cost. The majority of HR metrics developed to date have been efficiency measures. Examples include:	efficiency metrics
	• Cost per hire • Employer-sponsored health plan cost per employee • HR expense per employee • Yield ratios (e.g., number of applicants per recruiting source)	efficiency metrics
	Often these efficiency metrics are compared to benchmarks provided by multi-company databases. The purpose of these metrics is to evaluate HR efficiency and inform how resources should be allocated within HR to maximize the operation of the HR function	efficiency metrics
	• Expense factor: (Operating Expense/ Total Full-time Equivalent (FTE) • Profit per employee: (Revenue− Operating Expense / Total FTE) • Labor cost factor: (Compensation +Benefit Costs)/ FTE • Human capital value added revenue: (Operating Expenses−(Compensation +Benefit Costs)/ FTE.	human capital metrics
	The third level of HR metrics is HR effectiveness or HR cost benefit metrics and these measure whether HR programs and practices have the intended effect on the people or talent pools that they are directed toward.	HR metrics

Article	Content	Keywords
	• Firm salary/competitor salary ratio • Number and quality of cross-functional teams • Progression of employees through development plans • Percentage of total salary at risk	HR metrics
	This group of metrics measure HR's impact on business outcomes. Specifically, they demonstrate in measureable terms what HR's impact is on financial, customer, process, and people outcomes.	HR metrics
	The objective is to ascertain and understand the impact of HR practices and policies on organizational performance	HR metrics
	BI, as a type of DSS, refers to data driven DSS that provides capabilities with the primary focus on analyzing internal, structured data and business processes. BI applications include the activities of DSS, query and reporting, online analytical processing (OLAP), statistical analysis, forecasting, and data mining.	methods
	Fewer managers will be making decisions which occur less regularly and which require greater managerial insight. Because of this, an important question is how HR data should be aggregated to support decisions at higher levels of organizational functioning and whether the types of questions asked at the different levels of organizational functioning change to such an extent that aggregated data is not appropriate. The framework suggests that although much of the underlying data may be drawn from the same sources, the organization and presentation of this data may need to be different based upon decision structure and level of organizational functioning.	data integration
	As this occurs, HR managers can work to strengthen metrics associated with these decisions and linking HR decisions to organizational outcomes. It also suggests the need for HRIS vendors and software developers to work closely with HR professionals in the design of HRIS. By working closely, they can develop greater flexibility in the software which can allow the organization to incorporate new metrics and evolve the decision-making process as managers gain more experience with HR practices and the system.	software
	As this study highlights, the challenge is that although HR professionals have developed a greater array of metrics, a lack of guidance has existed with respect to where to apply those metrics, and to incorporate them into DSS and BI tools in order to add value to HR.	HR Skills
	Therefore, in practical terms, analytics involves both traditional relational database and spreadsheet-based analysis, new forms of database software that allow very large quantities of data to be stored and organised more efficiently and new techniques for representing and understanding data through visualisation.	analytics definition

Article	Content	Keywords
HR and analytics: why HR is set to fail the big data challenge	More specifically , data held in HRIS typically composed of information on the workers who are hired (employment history , skills and competencies, formal educational qualifications and demographic information) and on those applicants that were not hired.2 Once a worker is employed by a firm, data on hours worked and pay are collected and stored routinely . Depending on the job role, there may also be information on the performance of workers (sales made, hours billed to clients, measures of individual output, etc.). Additionally , there are a variety of ‘soft' performance data that might be collected from appraisal and performance management systems, along with information on training and development that the worker has experienced, information on grievances, capability and disciplinary cases, dispute resolution, internal communications, participation schemes and staff attitudes surveys	type of data
	Historically , such data have been held in separate pieces of software designed to carry out different HR processes (Parry , 2011), but increasingly , they are being gathered together and held in cloud-based data warehouses as organisations invest in upgrading HRIS	data integration
	However, the technical means to integrate, organise and analyse data held in conventional HRIS with data from these larger unstructured sources are as yet not well established. There are also significant issues of privacy , consent and ethics to address when storing and analysing HR data	data integration
	Rasmussen and Ulrich (2015) cite two examples of sophisticated HR analytics projects, in an offshore drilling company , which have provided a significant boost to business performance. Firstly , HR analytics was used to establish a relationship between leadership quality and lower turnover levels, which resulted in higher levels of operator competence, which in turn fed through to fewer accidents, less maintenance time and higher customer satisfaction. Secondly , analytics was used to demonstrate the significant benefits the business derived from the company's graduate training programme; the programme was doubled in size as a result	case study
	First, HR professionals need to develop a strategic understanding of how people (human capital) contribute to the success of their organisation. If a strategy is to create, capture, leverage and protect value (Sparrow et al., 2015), then it needs to be something that is unique to the organisation rather than a generic strategy (Boudreau and Ramstad, 2007).	strategy

Article	Content	Keywords
	Second, analytics need to be rooted in a keen understanding of data and the context in which it is collected if it is to generate meaningful insight (what Boudreau and Jesuthasan (2011) call logic-driven analytics). This then allows for the generation of meaningful metrics, which allow the costs and benefits of different HR strategies and methods to be measured and modelled	metrics
	Third, these metrics and tools allow key 'talent segments', those groups of employees whose performance makes the most strategic difference to the business and its performance, to be identified (Boudreau and Jesuthasan, 2011)	Performan-ce
	Fourth and closely related to the third point, data-driven decision-making then follows from careful empirical analysis using advanced statistical and econometric techniques that move beyond the analysis of correlation between variables to use experiments and quasi-experiments to identify how human capital inputs affect the performance of the organisation.	HR Skills
	Although many organisations have begun to engage with HR data and analytics, most have not progressed beyond operational reporting.	HR Skills
	The central problem is that in the main, the ideas about HR data and analytics set out in the previous section have not penetrated the thinking of much of the HR profession.	HR Skills
	HR function lacks the skills, knowledge and insight to ask the right questions of the HR data they have at their disposal (CIPD, 2013; see also Rasmussen and Ulrich, 2015).	HR Skills
	What, from a strategic HR perspective, is the problem with this type of software? Rather than providing strategic and predictive analytics that allow organisations to ask and answer big questions about how value can be created, captured and leveraged, HRIS typically provide answers to a more limited set of questions focused on operational reporting. These questions are not without value. Reporting on training and competencies can ensure legal compliance when firms operate in complex regulatory environments	software
	However, the analytics modules of HRIS software packages as they are typically sold and implemented do not have the capacity to perform this sort of analysis, which typically requires multivariate longitudinal modelling	software
	Consequently , many firms have been frustrated in their attempts to develop forward-looking strategic analysis, while having little idea about how to incorporate big data into their HR analytics programmes	HR Skills

Article	Content	Keywords
	HR and line managers who lack the skills and knowledge to challenge the assumptions underpinning the dashboards and reports unthinkingly implement the ‘optimal solution' provided by the analytics software, while the developers of the models underpinning the analytics software do not understand enough about labour in the context of the organisations they are working with to realise that the assumptions of their models are flawed.	HR Skills
	Contrary to optimistic accounts from industry sources, we can see little evidence that HR analytics is developing into a ‘must have capability', which will ensure HR's future as a strategic management function	research
	Many in the HR profession do not understand analytics or big data, while analytics teams do not un-derstand HR.	HR Skills
	Academics could play a constructive role in these developments, but could also do more to elucidate the praxis of strategic HR analytics. However, unless HR professionals upgrade their skills and knowledge to become champions of this new approach, the existing forms of HR analytics are likely to seal the exclusion of	suggestion
	Data mining refers to the non-trivial process of identifying no-vel, potentially useful and valid patterns in data (Fayyad, Piatet-sky-Shapiro, & Smyth, 1996	data mining definition
Domain driven data mining in human resource managemen t: A review of current research	Finally, there is clearly an ethical and legal dimension to consider. Data mining in the HR-domain aims at supporting decisions that often directly affect individuals in significantly positive, as well as negative, ways, for instance, a selection decision implies that a certain individual is accepted or refused for a desired position. This personal impact on employees reveals the need to consider ethical requirements when supporting HR-related decisions	ethical and legal
	As the first functional criterion, this paper reviews whether and which functional HR problems are addressed in current data min-ing research. Using staffing, development, performance management and compensation as the major four functional HR domains (Devan-na, Fombrun, & Tichy, 1984) complemented by ‘‘other functions",	data mining application
	Categorizing the domains and methods reveals a clear research focus on staffing (n = 67) – a sub domain of HRM that is responsible for planning the required quality and quantity of employees, recruiting (i.e., attracting and selecting) employees, employing employees, assigning employees to jobs and,	recruitment

Article	Content	Keywords
	selection of employees (n = 37). Both employee selection phases, pre-selection (e.g. Lakshmipathi, Chandrasekaran, Mohanraj, Senthilkumar, & Suresh, 2010; Tai & Hsu, 2006) and fi-nal-selection (e.g. Chen & Chien, 2011; Kroll, 2001), are seen as possible application areas	recruitment
	The development domain primarily comprises basic and ad-vanced training as well as career and succession planning for employees (Devanna et al., 1984).	Develop-ment
	Managing the performance of employees refers to the setting of performance objectives and subsequently monitoring the achieve-ment of these objectives (Devanna et al., 1984)	Develop-ment
	Compensation is a significant functional subcategory of HRM that addresses the remuneration of employees facultatively com-plemented by profit and equity sharing (Devanna et al., 1984	Compen-sation
	summary, current research is characterized by a marked fo-cus on employee selection with an additional concentration on em-ployee turnover prediction, employee assignment, and employee performance prediction.	data mining application
	However, aggregating method cate-gories with data mining functions, i.e., classification, segmentation, association, forecasting and anomaly detection, revealed that classifi-cation methods (i.e., decision trees, discriminant analysis, neural networks, and support vector machines) were frequently used for turnover prediction (confidence 0.94, support 0.15), employee selection (confidence 0.70, support 0.27), employee assignment (confidence 0.69, support 0.09) and employee performance predic-tion (confidence 0.78, support 0.11). T	methods
	an example, when pre-selecting employees, it may be useful to mine sequential patterns, e.g., typical sequences of CV-positions, such as educational phases, stays abroad, previous employments, etc., to distinguish suitable from unsuitable appli-cants based on typical sequential patterns. When mining sequen-tial patterns, diverse methods of sequential association analysis are offered (e.g. Agrawal & Srikant, 1995).	limitation
	herefore, patterns yielded by data mining based on the data of a recruiting system will just reproduce the previous hir-ing policy. For example, applicants from certain universities, with certain specializations and certain grades were hired, while others were not. Such rules are not new to HRM (as they simply map the well-known previous hiring policy) and are also not useful (as they merely promote the well-known previous hiring policy)	limitation

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	use the potential of data mining to support selection decisions, data should refer to a larger range of clearly differing applicants, i.e., from dif-fering universities, with differing specializations, grades, etc. Such data would have, at least, the potential for unexpected patterns, while allowing for the evaluation of existing hiring policies	limitation
	decisions in recruiting, develop-ment, compensation, etc., is usually based on previous HR policies. Consequently, data of corresponding HRIS and subsequently mined patterns will simply mirror these policies and thus will provide limited potential for information and decision suppor	limitation
	the offering of do-main-specific IS should clearly further the acceptance and usage of HRM data mining. Adapting mining algorithms to specific HR prob-lems, automatically importing and pre-processing necessary HR data, presenting results in domain language, etc., clearly reduces and hides data mining complexity for end users. An even more advantageous, yet until now unrealized, approach is embedded data mining (e.g. Rupnik & Jaklic ˇ, 2009).	algorithm
	Moreover, the problem of stereotyping as a specific variant of discrimination inherent to data mining (e.g. Schermer, 2011; Wang, Li, Wang, & Li, 2009b) needs special atten-tion in future research. Stereotyping refers to the unequal treat-ment of individuals due to their assignment to certain classes, segments, or rules. To give an example, when classifying employ-ees for selection purposes to the classes suitable and unsuitable, the respective error rates indicate the extent of misclassified employees in each class	ethical and legal
	There are two basic approaches to cope with privacy requirements. The permission approach aims at informing and asking the permission of individuals; however, this approach takes effort and has the risk of individuals denying the mining of their data. The de-personalization approach aims measures that offer valid results on the one hand, while protecting individual privacy on the other	ethical and legal
	In order to find the right people to do the right things for the right jobs, developing effective selection approaches is very critical	recruitment
Data mining to improve personnel selection and enhance human capital: A	Nevertheless, semiconduc-tor companies, as well as other high-technology companies, often suffer from high turnover rates and difficulties in recruiting the right talents	recruitment
	Therefore, selecting the right engineers who can demonstrate the best performance and who will stay with the company for a long time is of great urgency for every high-technology company	recruitment

Article	Content	Keywords
case study in high-technology industry	Data min-ing refers to the extraction of useful patterns or rules from a large database through an automatic or semi-automatic exploration and analysis of data (Berry & Linoff, 1997; Chen, Han, & Yu, 1996).	data mining definition
	They can also help the users to actively excerpt the key points from huge amounts of data, and make use of analysis or prediction	data mining definition
	This study aims to develop a data mining framework for personnel selection to explore the association rules between personnel characteristics and work behaviors, including work performance and retention	recruitment
	Data mining problems are generally categorized as asso-ciation, clustering, classification, and prediction (Fayyad, Piatesky-Shapiro, & Smyth, 1996; Fu, 1997; Han & Kam-ber, 2001	methods
	Decision tree is a data mining approach that is often used for classification and prediction	methods
	We used CHAID as the data mining tool to explore the latent relationships among the input employee profiles and target variables of work behaviors such as job perfor-mance, retention, and turnover reasons	methods
	Based on the findings and the interpretations through data mining and discussions, we developed specific recruit-ing strategies in order to fulfill the ‘‘right fit from the best" policy. Firstly, the company should recruit the students from the first tier schools through promoting their Univer-sity Relationship Program (URP). Now this company has established this program with the four first tier universities in Taiwan and also extended it to major universities in USA including UC Berkeley, MIT, and Stanford. Secondly, this company has promoted a campaign for employee referral via cash award as well as professor referral system through the URP. Thirdly, some job functions are redesigned and their roles and responsibilities are adjusted to be competi-tive for attracting high-talents. Fourthly, job rotation mechanism is developed for cross functions to save high-performance talents from tedious jobs. Fifthly, mentoring system is developed for new hired employee and potential employees in the URP from the first tier schools	recruitment

Article	Content	Keywords
	Though these conversations are predominantly practice driven, organizations are exploring how large-volume data can usefully be deployed to create and capture value for individuals, businesses, communities, and governments (McKinsey Global Institute, 2011). Whether it is machine learning and web analytics to predict individual action, consumer choice, search behavior, traffic patterns, or disease outbreaks, big data is fast becoming a tool that not only analyzes patterns, but can also provide the predictive likelihood of an event.	big data
Big Data And Manage-ment	To better predict outcomes with greater precision	prediction
	there is very little published management scholarship that tackles the challenges of using such tools—or, better yet, that explores the promise and opportunities for new theories and practices that big data might bring about.	research
	Whether it is "big" or "smart" data, the use of large-scale data to predict human behavior is gaining currency in business and government policy practice, as well as in scientific domains where the physical and social sciences converge (recently referred to as "social physics") (Pentland, 2014).	predict behaviour
	They include (but are not limited to) A/B testing cluster analysis, data fusion and integration, data mining, genetic algorithms, machine learning, natural language processing, neural networks, network analysis, signal processing, spatial analysis, simulation, time series analysis, and visualization (McKinsey Global Institute, 2011).	analysis methods
	Ultimately, the promise and the goal of strong management research built on big data should be not only to identify correlations and establish plausible causality, but, ultimately, to reach consilience—that is, convergence of evidence from multiple, independent, and unrelated sources, leading to strong conclusions (Wilson, 1998)	how to reach results
	Organization-wide balanced scorecards were introduced in the mid-1990s as a way of demonstrating the connection between long-term strategy and short-term actions. They not only include financial metrics but also metrics for customers, internal business processes, and employees; allowing senior team members to	balance scorecard

Article	Content	Keywords
	track performance and monitor the effect of business initiatives in these key areas. All the metrics on the organization-wide balanced scorecard are typically business outcomes or connected directly to business outcomes.	
Creating a Business-Focused HR Function with Analytics and Integrated Talent Management	By quantifying the relationship between HR processes and critical business outcomes in the past (lagging indicators), organizationspecific algorithms (not generic best practices) can be created to predict future impact of HR investments (leading indicators).	predict
	This case study emphasizes a couple of important points. First, ethics course compliance was a critical driver of shrink with a large expected ROI. Most HR professionals would never consider something as mundane as participation rates in a single training course as part of their overall HR scorecard. However, the linkage analysis showed just how important the course was to shrink rates and its subsequent impact on the bottom line. The point being that for something to be impactful it does not necessarily have to be "sophisticated" or "strategic" in nature. This case study also illustrates the importance of looking holistically at all the potential HR processes. By considering training, selection, performance on key competencies, and employee attitudes, the organization was able to make fact-based decisions regarding potential investments in its people and calculate an expected ROI (based on the algorithm produced using real data).	case study
	The case study clearly shows how an organization can and should link its HR data to key business outcomes. These analytics provide an organization with the facts and data to make strategic decisions about prioritization and investments in its employees. Furthermore, the process clearly defines which metrics should be included on the HR scorecard.	metrics and business
	For HR professionals, our task is to identify the key metrics to include in the People domain. Instead of using the typical HR metrics (e.g., turnover, overall employee engagement), we need to identify the most critical metrics from the other strategic domains (i.e., business outcomes) to	metrics and business

Article	Content	Keywords
	understand how HR processes can drive those business outcomes. Essentially, HR analytics will show the direct impact on actual business outcomes — not simply measure surrogate metrics that we assume have an impact (e.g., engagement). It is important to identify the 2-3 most critical business outcomes (e.g., sales, customer satisfaction, safety) to narrow the focus.	
	The truth is that most vendor platforms don't do any real analytics work that show the cause-effect relationship between HR/talent management and business outcomes.	software
	Had this organization initially focused on pulling all of their data onto one platform, the actual analysis of the data would have taken over 18 months just to get started. Can your organization afford to wait 18 months before analytics can begin?	not integrated data
	HR data provides a rich resource for knowledge discovery for decision support system development. In addition, today's organization has to struggle effectively in terms of cost, quality, service or innovation. The success of these tasks depends on having enough right people with the right skills, deployed in the appropriate locations at the appropriate point	HR data
Human Talent Prediction in HRM using C4.5 Classificatio n Algorithm	There are many techniques used for classification in data mining such as Decision Tree, Bayesian, Fuzzy Logic, Support Vector Machine (SVM), Artificial Immune System (AIS), Neural Network, Rough Set Theory, Genetic Algorithm and Nearest Neighbor. Decision tree is among the powerful classification algorithms as stated in some studies [20-23]. The decision tree technique has its advantages such as it	methods
	In this study, we attempt to focus on one of the talent management challenges i.e. to identify an existing talent regarding the key talent in an organization by predicting their performance. For that reason, we use the past data from the employee	predict
	There are very few studies related to prediction application in HR using this approach. However, this approach is quite popular in HR personnel selection problems. Data mining has been applied in many fields such as finance, marketing, manufacturing, health care, customer relationship and etc. However, its application in HRM is rare [18].	research

Article	Content	Keywords
	Due to these reasons, this study attempts to use the data mining approach for employee's performance prediction as one of the methods to predict the human talent in an organization.	predict
	It is stated that, the decision tree is among the powerful classification algorithms [20-23].	algorithm
	In this study, as we can see from result analysis, C4.5 classifier has a great potential for performance prediction. The generated classification rules can be used to predict the performance of an employee whether he/she has potential to be promoted or not, based on his/her performance..	predict
	So far the published evidence supporting the alleged value of HR analytics is actually quite slim — it is currently based more on belief than evidence, and most often published by consultants with a commercial interest in the HR analytics market, while organizations rarely share the same success stories of business impact, but typically share cases with turnover prediction (even if turnover is not an issue) or projects with a similar narrow HR focus.	research
Learning from practice: how HR analytics avoids being a management fad	We predict HR analytics in its current form will continue to fail to add real value to companies. We agree with those who argue that HR analytics is being taken over by other functions that are more mature in their analytics journey (in particular finance, IT, and marketing) and that this will happen sooner rather than later, but also that this is actually a good thing: HR analytics needs to evolve and transcend HR (as other functions' analytics will need to transcend their own functional boundaries), and will only become relevant when it takes an ''outside in'' approach, and is taken out of HR and integrated in existing end-to-end business analytics	why HR analytics fail
	HR analytics in its current form has the risk of being a fad that fades. Here is a list of analytic pitfalls that will contribute to make it a fad: (a) Lack of analytics about analytics. One colleague made a vehement case that HR work required more analytics and that rigorous analytics was the wave of the future for HR. We asked him a simple question, ''what is your data that suggests that analytics is critical for the future?'' Some who are enamored with analytics are not using analytics to justify analytics. They are analytical hypocrites who call for analytics, but do not use analytics to justify the use of analytics. b) Analytics too often starts with data, when it should start with business challenges (hence all the analytics cases linking survey data to turnover because the data is readily	reasons to fail

Article	Content	Keywords
	available — while it does not yield new, insightful or value adding results). c) So even though academia and the accumulated science is an enormous resource for management practice (and an underutilized resource too), not understanding the differences between academia and practice — or academia and actionable analytics — may actually undermine the value of HR analytics. Academics like to create assumptions that allow them to test null hypothesis and offer incremental insights on theory. Business leaders face complicated problems that require integrated solutions. Academics like precision; business leaders require practical ‘‘good-enough’’ solutions. Academics start with theory; business leaders start with real challenges. Academics like to reflect; business leaders have to act.	
	In the following we will illustrate two cases of HR analytics being successfully integrated in business analytics and leading to impactful interventions on offshore drilling performance optimization and technical talent development, respectively: Customer satisfaction is about operational performance (in this case drilling performance/uptime), but other factors also matter for company success: leaders assessed more positively (on various standard leadership tasks) by their direct reports have lower crew turnover, lower turnover is associated with higher crew competence (fewer new people to train), which in turn is related to better safety performance, fewer spills, and fewer maintenance hours outstanding (i.e. the time it takes to fix stuff) which impacts customer satisfaction. Recommended action is to focus on leadership quality (training and selection), crew competence (training budget and controls) and maintenance hours outstanding across the fleet by placing same on unit scorecards, and to communicate the findings throughout the company to all leaders and employees and to existing and prospective clients.	case study