

Human Resource Management at the Crossroads

Human Resource Management at the Crossroads:

Challenges and Future Directions

Edited by

Alvaro Lopez-Cabrales
and Ramon Valle-Cabrera

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CHAPTER ONE

INTRODUCTION: THE HRM FUNCTION REVISITED

ALVARO LOPEZ-CABRALES
AND RAMON VALLE-CABRERA

Introduction

Human Resources Management (hereon HRM) has become a consolidated field of research in a short time. The reason is a wide range of theoretical frameworks have been used over the last decades to study individual behaviours and problematic situations raised in organisations.

Today, human resources are more than ever regarded as the cornerstone of many companies, and are treated as such. On the new economic scene, a company's competitive advantage lies in its workers' collective talent, rather than in its real-estate assets, technologies or means of production. Organisational competitiveness factors are largely linked to human resources, their abilities, skills or competences. Interest in human resources management has thus grown. It is people who ultimately make the difference, because the quality of the employees, their enthusiasm and work satisfaction, their experience and feeling of fair treatment affect company productivity, customer service, reputation and survival.

Human behaviour is, however, highly complex and its management engenders great uncertainties. Many studies currently seek to understand, with the utmost accuracy, the connection between different HRM approaches and companies' functioning. Nevertheless, HRM is still far from achieving general deterministic formulations enabling to predict the impacts of specific management policies.

As a result, the function of human resources has undergone significant transformations in recent years. These changes are linked not only to the

name and content but also to the role and position of human resources in a company.

In the twenty-first century in which we are living, the context in which companies operate has been profoundly transformed. The 2008 international economic crisis affected HRM particularly severely and brought about radical changes. Technological shifts have led to many uncertainties concerning the future of work, raising issues such as: what situation are HR departments in today? What new roles are expected of them or assigned to them? What new challenges must they face?

The works that compose this book attempt to shed light on these issues. They offer in-depth analyses of a range of current issues, that address present and future HRM concerns.

Chapters Included in this Book.

The entire evolution of HRM roles has led HR research to focus on concretely helping companies and contributing to conflict resolutions. Thus, a greater contextualisation of research studies is sought. Analyses of human resources practices must be linked to specific situations, such as innovation, knowledge management or economic crises. Current trends seek to understand both the contribution that human resources MAKE to these specific situations and the possible impact of these situations on HR.

A change of research focus is currently taking place in the field. Today, studies are expected to be more closely linked to business reality and delve more deeply into it. The trend has gone from examining whether HRM produces effects in companies, to seeking to understand why and how HRM has an impact on companies. We believe the most significant changes consist in:

- analysing new dependent variables (the dependent variable has traditionally been performance), notably: creativity, innovation, organisational citizenship behaviour (OCB), organisational abilities or change management, among others;
- incorporating mediating and moderating variables, such as organisational culture or employee characteristics;
- using integrative (multilevel) and multidisciplinary models;
- emphasising dynamic aspects.

Current research is also beginning to consider the socio-economic context and the company's characteristics, addressing issues such as:

- Economic crisis: analysing the impact of the crisis on human resources and studying how HRM can help to overcome the crisis.
- Gender and work-family reconciliation: studying the effects of women's incorporation in the labour market and finding solutions to the problems it generates.
- Diversity: locally, but especially in multinationals.
- Age: consequences of population ageing.
- Social and ethical responsibility: searching for a balance between companies' social responsibility criteria and the need to remain competitive.
- New technologies: examining how virtual teams are managed among other aspects.
- Institutional focus: legal aspects regarding the direction adopted by human resources practices.
- Studies focused on emerging countries, more innovative sectors, SMEs, etc.

For all the reasons above, this book presents a series of seven research studies that, in our view, shed light on new HRM contributions. They address aspects such as: the future of work; new variables to explain employee wellbeing; fresh structures to create more agile organisations; the challenges and impact of part-time jobs; or the managing of various paradoxes based on a sustainable HRM perspective.

The studies included in this book were regarded as the best papers (i.e. they were the most highly rated by our reviewers) presented at the 11th International Workshop on Human Resources Management, held on 25 and 26 October 2018 in Seville, Spain. The Workshop was organised by the Business Administration Departments of two Spanish Universities – the Pablo de Olavide University (Seville), and the University of Cadiz. The aim was to cover new key topics and research paths that would be attractive to any scholar working in the HRM field.

This biannual Workshop has given participants the opportunity to discuss major HRM issues ever since 1997, the year of its first edition. A number of renowned international HRM researchers from USA and European Universities were invited as keynote speakers. They have become an asset at each edition.

Previous Workshops have featured guest speakers from the USA, such as: Professors Michael Hitt (Texas A&M University), Randall Schuler and Susan Jackson (Rutgers University), Angelo DeNisi (Tulane University), David Lepak (Rutgers University), Anne Tsui (Arizona State University), John E. Delery (University of Arkansas) and Luis Gomez-Mejia (Texas

A&M University) and Herman Aguinis, from Indiana University. Past guest speakers from Europe include: Professors Michael Poole (Cardiff Business School), Paul Sparrow (University of Sheffield), Patrick Gunnigle (University of Limerick), Jaap Paauwe (Tilburg University), Paul Boselie (Utrecht University & Tilburg University, The Netherlands); Wolfgang Mayrhofer (Vienna University of Economics and Business, Austria) and Riccard Peccei from Kings College (London).

In the latest edition, held in Seville in 2018, Professors Jacqueline Coyle-Shapiro from London School of Economics and Pawan Budhwar, from the Aston Business School (UK) were the guest speakers. The participants included 75 professors and other university researchers from a range of Spanish and European Universities (e.g., Ghent, Tilburg, Twente, Saxion and Amsterdam VU, among many others).

The second chapter, by Milan R. Wolffgramm, Stephan Corporaal and Maarten J. van Riemsdijk, PhD, discusses how the introduction of new technology, such as artificial intelligence, virtual reality, and big data, will have an impact on tech sector work and the role of HR professionals. Based on semi-structured interviews with CEOs and HR directors from Dutch (high-)tech organisations, it was found that, within five to ten years, tech workers will be exposed to uncommonly high levels of complexity, uncertainty, connectivity, and interdisciplinary teamwork. Based on these future prospects, it has become clear that tech workers require new skills and smarter ways of working. This raises the need for HR professionals who understand the impact of state-of-the-art technology on tech workers' jobs and who are able to stimulate tech workers' continuous development.

Beltran-Martin, Bou-Llusar and Salvador-Gomez, in the third chapter, analyse the link between High Performance Work Systems (HPWS) and two types of outcomes, related to: (a) employees' wellbeing (affective commitment, AC), and (b) their efficacy, based on their task performance (TP) and contextual performance (CP) in a specific sample of Spanish firm R&D departments. Results showed that the communicative effectiveness of HR practices depends on the nature of employee-supervisor relationships. When these relationships are weak, HR practices are more useful to shape employees' perception of organisational support, and consequently their commitment. Nonetheless, when companies cannot implement HPWS (e.g. small companies), leaders may have a key role in promoting employee well-being. Supervisors and firms should be aware of the relevance of these relationships and invest in training supervisors to improve the quality of the Leader-Member Exchange (LMX) relationships between them and their subordinates in cases where HPWS cannot be effectively implemented.

In a fourth chapter, Houldsworth, McBain and Brewster cover another question of current interest to HRM academics and practitioners: is gender a predictor of career success? The authors followed a sample of 616 alumni of the world's third largest MBA, also one of the UK's oldest programmes. The MBA is ranked among the top 50 programmes worldwide and has traditionally focused on experienced managers. Their results showed that women reported greater levels of career capital development regarding the knowing-why and knowing-how aspects of career capital. In terms of subjective career outcomes, women reported greater levels of career satisfaction and self-efficacy; the results of the objective career outcomes (promotions and levels of work) showed no significant differences.

Chapter five presents a proposal from Nijssen, Farndale and Paauwe on how to develop agile organisations based on what the authors call a "chaordic" structure. Specifically, their study addresses how agile organisations combine bureaucratic and post bureaucratic elements in their organisational structure. Agile organisations are defined as organisations that have been able to survive in a dynamic ecosystem over a substantial period of time. The authors conducted case studies by selecting organisations that have survived and are still surviving in highly dynamic sectors. These sectors were selected based on a high level of unpredictable and continuous change affecting the organisations.

Another important topic of concern for HRM departments today is studied by O'Sullivan, Cross and Lavelle in Chapter six: the emergence and effects of part-time jobs not only in young women but also in older women. The authors examined: (i) secondary labour market employment among older female part-time workers based on a proxy indicator designed to incorporate private sector work and low wages; and (ii) employment benefits offered to this cohort compared to other worker cohorts examined in this study. The key findings suggest that these jobs were in the labour market's secondary sector, characterised among other aspects by private sector employment and low wages. In addition, compared to the other cohorts under study, this worker cohort was less likely to be offered key employment benefits. To conclude this chapter, a job's characteristics, rather than a person's characteristics, primarily dictate the terms and conditions of employment.

Chapter seven examines the micro-processes and routines of middle managers as they attempt to share an understanding of strategic change events. Kieran, MacMahon and MacCurtain identify nine characteristics of a highly impactful form of shared sensemaking, shown to lead to a number of positive organisational outcomes. These include: sensegiving back to

the leadership and onward to peers and teams, successful enactment of strategic change, positive perceptions of change outcomes and organisational climate, and employee well-being.

Finally, in Chapter eight, Bücken, Pascale and El Aghdas make use of a paradox lens to investigate how flexible HRM practices are perceived by employees in two organisations and how they fit into the three organising paradoxes in sustainable HRM, reflecting the economic, political, and socio-cultural contexts of two Dutch organizations. They identify three organising paradoxes reflecting the complexities of the Dutch economic, political and socio-cultural contexts: the '(inverted) flexibility/commitment paradox'; the 'self-management/(human-resource) management paradox'; and the 'sustainability/effectiveness and efficiency paradox'. The authors then describe the role of management and HRM in addressing the three paradoxes and whether they are able to involve management, HRM and employees in the process. The paradox lens leads us to search critically for current paradoxes and their tensions, analysing employees' perceptions on these tensions, and finally supporting management in developing an active approach, discussing paradox tensions with all stakeholders (management, HRM and employees).

All in all, these studies provide an accurate picture of today's relevant HRM issues, by bringing together different approaches and levels of analysis that are undoubtedly mutually enriching.

CHAPTER TWO

FUTURE OF WORK: HOW TECHNOLOGY WILL IMPACT THE WORKPLACE AND HR

MILAN R. WOLFFGRAMM,
STEPHAN CORPORAAL,
AND MAARTEN J. VAN RIEMSDIJK.

Introduction

The fourth industrial revolution, known as ‘Smart Manufacturing’ (Kang et al., 2016), ‘Industrie 4.0 (BRD)’, and ‘Smart Industry’ (NL), can be described as the digitization of the high-tech industry and focuses on the merger of three technological developments (Smart Industry, 2017). Firstly, new technologies have emerged that can be used in the production process, such as 3D printing and robotics. Secondly, there is the advanced digitization of product and process information using sensor and information technology, which increasingly automates production process management. For instance, using sensors, machines are capable of determining autonomously which action should be taken on a product at a specific stage in the production process. Thirdly, there is technology that integrates production equipment and human-beings in a smart way, across the boundaries of the company, e.g. machines that are capable of selecting and ordering parts at suppliers when running out of stock.

The prediction that technological developments, such as automation and robotization, will affect work (see for instance Scheele, 1990), has been repeated now for several decades. However, this time, a difference regarding the content and pace of change has been occurring. The content of change relates to the merger of the aforementioned technological developments, combined with cheap data storage, strong analytical software and fast internet technology. This combination generates possibilities for new developments to emerge, such as: virtual reality,

complex production process simulations, and autonomous production machinery.

The pace of change has to do with speed on the one hand, and the increasing penetration strength of new technologies on the other. The pace of change in the fourth industrial revolution is more rapid than ever before and has a broader and disruptive, rather than an incremental, character (Corporaal, Vos, Van Riemsdijk & De Vries, 2018). Not surprisingly, the discussion about the impact of the new industrial revolution on the future of work and the workforce, is mostly concerned with the question of which jobs will disappear due to technology (Went, Kremer, & Knotternerus, 2015; Frey & Osborne, 2017). The question however, regarding how the content of those tech jobs will change does merit much more attention than it is receiving at the moment (Ras et al., 2017 for an exception).

As recent studies show, new technologies are expected to make work more complex and require a highly-skilled workforce that is able to design, implement and use innovative technology (Usanov & Chivot, 2013). Furthermore, businesses are discovering new ways of organizing as a result of these technological developments and are adopting new business models, leading to a demand for new skills and competences too. Some high-tech organizations for instance, already allow customers to operate their manufacturing technology over the internet, enabling same-day delivery of orders. In such fully automated systems, there is hardly any need for operator intervention. The tech workers that still work there are in permanent contact with the customer. They help him through the (digital) production process, translate customer demands into final production, understand machine planning, have an excellent grasp of the supply chain and are adept at using methods of data analysis. Goos (2013) infers that such innovative ways of organizing will go hand in hand with developments such as self-managing teams, staff rotation, and ongoing training of competences, like co-operation and information sharing.

The aforementioned developments lead to a growing demand for a new set of skills and competences for staff, which are often described as '21st century skills', 'lifelong competences' or 'key skills' (Voogt & Roblin, 2012). These are the skills that allow staff to continue functioning in an environment that is being transformed by technological developments. They include skills such as: creativity, the ability to innovate, adapt and collaborate with other disciplines, and flexibility. Publications about 21st century skills often include abstract descriptions of the expertise, skills and competences required.

The goal of this paper is to specify how work and the required skills of tech workers will be affected by technological developments. As human resource management (HRM) plays an essential role in the optimization of both employee and organizational performance (Wright & Nishii, 2013), it is essential to formulate practical and meaningful implications for human resources (HR) professionals, for them to remain of significant value in a new industrial reality. In order to achieve the formulated goals, this article will answer the following research question: *how will work in the high-tech sector change due to technological developments in the upcoming five to ten years and how will these changes affect the role of HR professionals?*

Methodology

In order to understand and describe how technological developments will affect labour in the high-tech sector, a qualitative research approach was taken. 54 semi-structured interviews were conducted involving Dutch high-tech companies' CEOs and HR directors. Twenty respondents were from large companies (>250 employees) operating in the high-tech industry ("Smart Industry") and 34 respondents were from small and medium-sized enterprises (SMEs) in the following sectors: installation, mechatronics, construction, electronics, and IT. Companies were selected based on their factory floor technology. This selection criterium was used to generate more possibilities for practical examples during the interviews that would both determine and clarify the impact of technological developments. In total, 141 CEOs/HR directors of 141 companies were approached, resulting in a 38% response rate.

During the semi-structured interviews, respondents were asked to describe the technological developments that they expect to have an impact on work in their high-tech company for the upcoming five to ten years. The semi-structured interviews allowed researchers to ask for clarification of the technological developments mentioned by respondents, increasing both our understanding and the validity of results. By clarifying these developments with examples, respondents were challenged to describe the impact of technological developments on work in the high-tech sector as precisely as possible. To make the impact more tangible, respondents were also asked to describe how future work in the tech sector will differ from current job tasks.

The interviews were transcribed verbatim. The verbatim transcripts were imported into AtlasTI and coded by two independent researchers. In order to increase the results' validity, inter-rater reliability was realized as

both researchers compared their coding structures to agree upon the final codes to be used. Next, four researchers used the final codes to determine how technological developments change work. Through a group discussion, the researchers agreed upon five overarching developments that would clarify how future work in the tech sector is being influenced by technology.

Results

Based on the analysed interview data, five developments were found that show how the future of work in the tech sector will be influenced by technology. These findings exceed the boundaries of the tech workers' workplace as respondents mentioned how the tech workers' work environment will be affected by technology too.

1. Tech jobs will become more diverse and demanding.

The merger of smart software, big data, smart machinery, and robotics means that a tech worker's job will become more diverse and demanding in various ways:

- Technological developments will lead, according to the respondents, to more 'customized' products and services and a fast-growing number of product innovations. This means that tech workers should be more capable of rethinking their job on a daily - or even an hourly- basis and calls on the tech worker's ability to rapidly switch between different work demands, deploy a variety of knowledge and skills, and cope with changing task descriptions.
- There will be a greater need for smart collaboration between humans and technology. To illustrate, as a result of technology, traditional process operators are having to collaborate with robots and systems that are becoming increasingly complex. This means process operators should be capable of programming machines and configuring robots in the near future. Somewhat further down the line, when the complex technology can be (re)programmed by the use of a user-friendly tablet computer, or by using augmented reality, operator job complexity is expected to decrease. The majority of the respondents underline that they already sense a weak trend towards complexity reduction in high-tech production.
- The tech worker's development will become more important due to the constantly changing technology and machinery. Especially respondents from SMEs underlined that new technological

developments will be introduced at a speed the world is as yet not accustomed to. A large part of these respondents underlined that tech workers should keep up in order to be able to use the newest technology and machinery. Furthermore, tech workers should be better equipped to cope with unpredictable and unstructured situations.

These developments come with an important practical implication according to respondents: approximately half of respondents claim that tech jobs require employees with a higher formal educational level. In contrast, the other half of the organizations state that more intense, long-term, and company-specific educational programs and workplace learning should prepare tech workers for future job demands.

2. Work environments and team compositions will face radical change.

Technological developments lead to faster and more radical changes in the work environment of tech workers: they need to become more capable of working together in changing teams consisting of colleagues, customers, and suppliers. Respondents gave two reasons for the occurrence of this trend. First, processes within the value chain are becoming more integrated due to advanced technology and smart machines. This integration increasingly interconnects companies and facilitates an intense collaboration between them. Second, respondents expect that there will be more short-cycled projects due to technological developments. There will be – according to them – an increasing demand for Just-In-Time customization, which requires employees to work in multidisciplinary project teams. More often these project teams will cross departmental and company boundaries: people will collaborate for instance in global or virtual teams of suppliers and customers to design customized products.

3. Work will become increasingly automated and robotized.

The robotization and automation of the factory floor is happening already and is expected to take over an increasing number of routine tasks. While larger organizations describe this as the current industrial reality, slightly less than half of SME respondents expect this to happen in the near future. *“Previously, there was someone who placed the product in the machine and pushed the button. That is vanishing more often. We could, like now, install a robot arm, but our series are not big enough for that just yet”*. Furthermore, respondents from SMEs expect that automation and digitalization will be reinforced by the demands and expectations of

suppliers and business-to-business clients. Respondents from both SMEs and larger organizations see another development: due to the advanced software, machines and systems in the production process will be better connected with each other and adjust themselves to each other. Many respondents, especially from larger organizations, underline that automation and robotization requires tech workers that are capable of interpreting (large amounts of) data, analyzing data, and using data to optimize processes and products/services.

4. Work in production, assembly and maintenance will be supported by augmented and virtual reality systems.

Virtual and augmented reality systems and cloud-techniques will generate opportunities to execute work activities remotely, such as maintenance and even assembly executed by customers themselves through augmented reality work instructions. Furthermore, step by step education of tech workers along with providing guidance during advanced work activities, becomes possible with these systems. *“I am coming from a company that operates globally. We can solve issues from a distance (...) by guiding the customer in what he should do, based on what you see on your screen”*. Finally, respondents – especially from larger organizations – underlined that virtual reality makes it possible to simulate process designs (digital twinning) and, based on the analysis of the simulations, generate opportunities for radical process optimizations, at a fraction of the costs involved in building a real production line.

5. New product-market combinations drive worker adaptability and job uncertainty.

Technological developments lead to different product-market combinations, business models, and different ways of organizing, according to larger companies. One respondent describes for instance, a new factory where customers can login on the machines, operate these machines, and receive their customized product the same day. In that process, operator influence is minimized and new questions regarding production planning, data-security, and supply chain management arise. Many CEOs, from both SMEs and larger organizations, stress that the increasing technological pressure forces an organization’s adaptability. This implies that tech workers should be more capable of functioning in teams that can react rapidly and react more autonomously to market developments. Finally, mainly respondents from larger organizations mentioned that technological developments generate opportunities for the establishment of new business models. Especially the turnaround from

traditional production towards service provision (so-called servitization) was mentioned, which is being sparked by leveraging large amounts of (machine) data in a smart way.

Conclusions

This research takes a step towards the clarification of the (upcoming) changes in tech labour caused by an accelerating sequence of technological developments. High-tech organizations are preparing for technological developments that will rapidly and fundamentally change tech labour in the new industrial reality. These organizations predict: (1) tech jobs will become more diverse and demanding; (2) work environments and team compositions will face radical change; (3) work will become increasingly automated and robotized; (4) work in production, assembly and maintenance will be supported by augmented and virtual reality systems; and (5) new product-market combinations drive worker adaptability and job uncertainty. This study reveals how new technological developments are not exclusively important to larger organizations. In the eyes of the SME respondents in this study, it is certain that these technological developments will lead to a drastic change in their tech jobs. The remaining question is not if, but when these fundamental changes will occur.

This research confirms findings from previous studies which clarify how labour in the high-tech sector is being characterised by three main dimensions, as described by Levy and Murmane (2005): (1) solving unstructured problems; (2) working with new information; and (3) carrying out non-routine manual tasks. This research adds an important fourth and fifth dimension: (4) being able to function in changing and unpredictable work environments or projects; and (5) being able to complement or collaborate with developing technology, such as augmented reality, advanced machinery and (collaborative) robots. Tech labour will become – due to the impact of the five discovered technological developments – very complex and will force tech employees to develop themselves constantly.

Insights in the impact that technological developments have on tech work – as described by the respondents in the study – are revolutionary when compared to the ongoing discussion about the impact of automation on work (Scheele, 1999). According to respondents, this is because technologies such as smart machines, big data, and sensor technology, have been developed to an extent where they have become useful and affordable for both larger companies and SMEs. Once one company takes

the first step, the consequences for those lagging behind are such that a ‘winner takes all’ market tends to arise. Furthermore, the technologies are merging into new business concepts, such as ‘smart factories’, and advanced (software) systems that exceed the boundaries of individual organizations.

Finally, the findings show how technological developments that are being combined with IT-related developments, are becoming cheaper, smarter, and more widely applicable. These powerful technologies are starting to increasingly penetrate the daily reality of tech companies, leading, according to respondents, to adjustments in: (production) processes, ways of organizing, and business models, that will rapidly and fundamentally change the tech worker’s job and work environment.

However, not only the future of tech workers is being affected by technology. For HR practitioners, the consequences of the aforementioned developments are also challenging.

From Human Resource Management to Organizational Design Expertise.

First, it is important that HR professionals help design jobs that continuously challenge employees to learn. Tech workers should be able to keep up with the pace of technological developments and learn to cope with new technologies. However, tech workers do not always have time available (nor the desire) for formal training, are not continuously challenged by their employers to learn, and do not always see the necessity to keep on learning (Corporaal et al., 2015). In other words, these tech workers are currently not being prepared for, but rather confronted with, new technology. Therefore, the HR professional should determine which technological developments will affect work in their companies and how it will impact jobs. Based on these predictions, they can define the required knowledge and skills. Once determined, the HR professional can, together with the (line) managers, help adjust production processes and the content of jobs, in order to – step-by-step – challenge tech workers to prepare themselves for what lies ahead. This requires HR professionals who can focus on the organization (primary process and job-design) side of the profession, suggesting a turnaround to an extent, from the classical ‘human resource management’ approach. Much of the current HR job is still rather instrumentally focused on rules and regulations (the administrative expert) or at establishing employee satisfaction and preventing health issues (employee champion) (Ulrich et al., 2012). We suggest the profession moves more quickly towards expertise in effectuating permanent learning and development through smart work (re)design. In other words, designing production processes and jobs in which tech workers are challenged to learn and develop themselves, should be the number one priority for HR

professionals in the high-tech sector. Not only will such HR professionals contribute to the competency development of employees, but their tech company will become increasingly attractive for the current and future workforce as well. This is relevant not only because technical staff are becoming increasingly scarce, but tech workers also underline that their current jobs do not invite them to learn and that they experience insufficient room for experimentation and innovation (TechYourFuture, 2016).

The HR Professional as Human Resource Developer

In addition to designing better and more stimulating jobs, HR professionals should design innovative, multidisciplinary development programs. They need to think beyond the traditional, formal training programs as prior research reveals that soft-skills training by external trainers, as well as traditional personal development plans, can deter tech workers from engaging in personal development activities (TechYourFuture, 2016). What tech workers need from their employer is: plenty of room to experiment; someone who challenges them to actively work together (on the factory floor); and a manager who guides them and offers flexibility at the right moment. Such a development program incorporating (line) management could contain the following aspects:

- Group sessions, including members from both inside and outside the team, where the technical state-of-the-art is being discussed and tech workers are challenged through assignments to increase their 'soft skills', such as: working together with other disciplines, providing and receiving feedback to/from colleagues;
- Executing and evaluating innovative assignments that are related to the tech worker's job. This means that tech workers will work on small product or process innovation assignments. During these assignments, tech workers will learn – under supervision – how to design an innovation and how to cope with constraints coming from the organization or colleagues. This aspect is crucial as tech workers state: *"everyone underlines that employees should become more innovative and creative, but employees need concrete tools for that"*. (TechYourFuture, 2016).
- Sessions with suppliers and representatives from the tech industry on future tools, machines, processes and systems, in combination with assignments regarding the translation of these developments to implications for the tech worker's current job and the organization of his work. By working together on these assignments, tech

workers will learn how organizational knowledge and skills are related to personal expertise and how they can prepare for new technology and its consequences.

Building Bridges: learning communities and skills labs

Last, but not least, it is important that HR professionals participate in regional collaboration between organizations to stimulate development of tech workers. Not every organization has sufficient expertise or resources to realize the aforementioned practical implications. In the Netherlands due to this constraint, various educational institutes, government agencies, and (larger) companies are collaborating in so-called ‘field labs’, ‘learning communities’, and ‘skills labs’. As part of these initiatives practical learning environments are being built. Companies contribute by inserting state-of-the-art knowledge and technologies (equipment) that are used in practice. There is government funding and education helps build curricula that are didactically sound and suit workers. These learning environments generate opportunities for businesses, students, and educational institutes – in close collaboration – to futureproof the tech worker. In order to create a learning environment that challenges the current tech worker, it is important that the learning environment: (1) is initiated by a group of companies; (2) captures the current state-of-the-art and vision and follows long-term developments; (3) can be used Just-In-Time and in-company by participating companies; (4) has short-term modules; (5) can be tailored to specific target groups; (6) uses tools, such as simulations, technology, or other equipment, that make it lifelike and recognizable (real) for people working in such organizations. Currently, such learning environments are being established in the Netherlands yet are still in their infancy. Nevertheless, these environments offer HR professionals and organizations a unique opportunity to bundle their strengths and learn from each other’s best practices, which can lead to powerful learning environments that – because of the close collaboration with educational institutions – hopefully contribute towards the recruitment and education of enough new tech workers.

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CHAPTER THREE

A MULTILEVEL ANALYSIS OF THE INFLUENCE OF HPWS ON EMPLOYEE WELL-BEING AND EFFICACY: STRENGTH OF THE HR STRATEGY AND LEADER-MEMBER EXCHANGE AS MODERATOR VARIABLES¹

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Introduction

A great deal of empirical research in the field of human resource management (HRM) has examined the positive linkage between human resource (HR) systems, in particular high performance work systems (HPWS), and various measures of employee well-being and firm performance (Combs *et al.* 2006). However, Van de Voorde *et al.* (2012) highlight that many of these studies focus either on the relationships between HPWS and efficacy indicators, or on those between HPWS and well-being, and that little effort has been made to analyse the simultaneous effects of HPWS on both these outcomes. A simultaneous analysis may shed light on the contradictory arguments that have been proposed to explain the relationships between HPWS and both employee efficacy and well-being. On the one hand, from the conflicting outcomes perspective, employees managed through HPWS have to work harder and are under

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greater pressure, so although HPWS may enhance firm performance they can also have a negative effect on employees' well-being (e.g. Peccei 2004). On the other hand, from the mutual gains perspective, HPWS may have positive effects on both the efficacy of the organisation and the well-being of its employees (Edgar *et al.* 2015). In our research we compare these a priori contradictory arguments by analysing the linkage between HPWS and two types of outcomes related to (a) employees' well-being (affective commitment, AC), and (b) their efficacy, based on their task performance (TP) and contextual performance (CP).

Prior studies analysing the influence of HPWS on employee well-being or efficacy have reached mixed conclusions about these relationships (Gardner *et al.* 2011; Innocenti *et al.* 2011; Jiang *et al.* 2012a; Beltrán-Martín and Bou-Llusar 2018). A review of these studies suggests that the effects of the different HPWS bundles on employee-related outcomes would be stronger when these bundles reinforce one another. That is, the synergy among the HPWS dimensions (i.e., inter-HR activity area fit) should also be taken into consideration to explain employee outcomes (Kepes and Delery 2007; Chadwick 2010). Among the different approaches to operationalise this synergy, several authors suggest that the dimensions of HPWS should not be considered as orthogonal, but as constituent parts of the whole HPWS (Arthur 1994; Delery and Doty 1996; Delery 1998; Jiang *et al.* 2012). The first purpose of our research is to examine the relationships between internally coherent HPWS and employee well-being and efficacy.

In addition, Jiang *et al.* (2013) argue that a more in-depth analysis of the relationship between HPWS and the employee variables requires consideration of the boundary conditions for the effects studied. These authors claim that the impact of HPWS on employee outcomes is likely to be affected by different contextual conditions. Specifically, following Ostroff and Bowen (2016), they recommend considering the social context in which the HPWS are implemented, since this context may determine HPWS efficacy. This leads to the second purpose of our study, namely, to examine the moderator role of the strength of the HR strategy and leader-member exchange (LMX) in the relationship between HPWS and employee well-being and efficacy (Bowen and Ostroff 2004). These two variables foster a shared employee perception of the situation, and they may therefore contribute to either strengthen or weaken the relationships between HPWS and employee outcomes (Bowen and Ostroff 2004).

Following Peccei *et al.*'s (2013) considerations about the highly context-specific nature of the effect of HR practices on employee well-being and efficacy, we provide evidence of the abovementioned

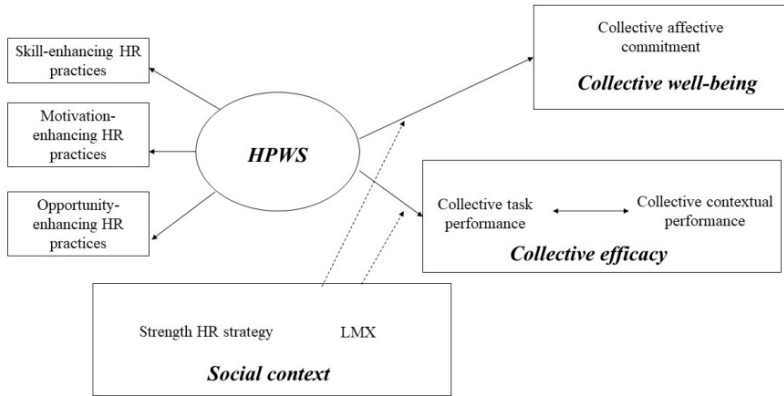
relationships in a sample of R&D departments of Spanish firms. We estimate a mediation model in which data on the relevant variables is collected from three different informants in each firm – HR managers, R&D managers and R&D employees – in two time periods. This research design reduces the risk of common method variance affecting the relationships analysed (Podsakoff *et al.* 2003). In this context, we adopt the collective (i.e. R&D department) as the unit of analysis. The term “collective” refers to an interdependent and goal-directed combination of individuals (the department in our study), with shared goals, embedded in an organisational context and interacting to perform interdependent tasks (Chan 1998; Gardner *et al.* 2011). Collective variables are of great interest in the HRM literature given their close relationship with organisational results. According to Pugh and Dietz (2008, 45), “performance at the unit level is often more of a barometer of success than the performance of individuals”. Therefore, our position departs from much research analysing the relationships between HPWS and employee outcomes in which the individual (i.e., employee) is adopted as the unit of analysis.

The paper is structured as follows. In the first section, we present the general theoretical framework for our research and the definitions of the variables. We then analyse the influence of HPWS on the employee-related variables (well-being and efficacy). Next, we introduce the strength of the HR strategy and LMX as moderator variables in these relationships. After the theoretical review, we present our methodology and results, and finally, we discuss the main conclusions, implications and limitations of the research.

Theoretical Framework and Definitions

We adopt the mutual gains perspective (Van De Voorde *et al.* 2012; Peccei *et al.* 2013) to examine the relationships between HPWS and the employee-related variables. This perspective is based on the assumption that developing fully-fledged HPWS may have positive outcomes in terms of both employee well-being and efficacy. The theoretical model that guides our research is depicted in Figure 1. In this model, we also consider that the main relationships may be moderated by the strength of the HR system and by LMX.

Figure 1: Theoretical model



High performance work systems (HPWS) (independent variable) consist of an interconnected set of HR practices designed to promote workforce ability, motivation and opportunity (AMO) to perform behaviours consistent with organisational goals (Jiang *et al.* 2012a). According to the AMO model (Bailey *et al.* 2001), HPWS is made up of three interrelated HR bundles, namely skill-enhancing, motivation-enhancing and opportunity-enhancing HR practices. The set of skill-enhancing HR practices is designed to ensure that employees have a broad range of superior knowledge, skills and abilities (KSAs) (Way 2002). These practices include comprehensive recruitment, rigorous selection, and extensive training (Jiang *et al.* 2012a). The motivation-enhancing HR practices encourage the belief among employees that greater effort at work will lead to higher rewards (Jiang *et al.* 2012a). HR practices commonly classified within the motivation-enhancing domain are those related to incentives and rewards, extensive benefits, and career development (Subramony 2009). Finally, HPWS also include initiatives to give employees greater participation and control at work (Jiang *et al.* 2012a), such as employee participation in firm decision making, and the use of communication channels from the firm to its employees (opportunity-enhancing HR practices) (Subramony 2009; Gardner *et al.* 2011). The synergy or covariation among these three bundles is captured by a latent common HR policy that ties the HR bundles together (Wood and Albanese 1995).

As regards employee-related variables (our dependent variables), *employee well-being* is defined as the employees' affective commitment

(AC), which refers to their sense of integration in and belonging to the organisation (Peccei *et al.* 2013). It is one of the most widely used variables to measure employee well-being at work, particularly the happiness dimension of well-being² (Van De Voorde *et al.* 2012). Unlike other measures of employee happiness well-being used in the literature (e.g. job satisfaction), AC represents a broader conceptualisation of happiness well-being given that it is targeted at the organisation as a whole. Since our study focuses on the relationship at the department level of analysis, and given that commitment is a force that guides individuals towards a course of action that is relevant to the organisation (Meyer *et al.* 2006), we adopt AC as an appropriate variable to measure happiness well-being. At the unit level of analysis, collective well-being refers to the psychological state shared by a collective of individuals with regard to their common employer, which is manifested in feelings of loyalty and in a desire to invest mental and physical energy to help the organisation to achieve its goals (Gardner *et al.* 2011). In sum, collective well-being refers to aggregate positive affect and attachment to the organisation (Chun *et al.* 2013). We assume that collective well-being emerges out of the feelings shared by employees in a unit (department), so the resulting construct is functionally equivalent to the individual construct (Kozlowski and Klein 2000; Gardner *et al.* 2011). This functional isomorphism implies that the influence of the contextual factors, particularly HR practices, on individual well-being also appear at the aggregate (i.e., collective) level.

Regarding *employee efficacy*, previous research considers two dimensions: task performance and contextual performance. Task performance is related to meeting formal job requirements (Yu and Frenkel 2013). Following Borman and Motowidlo's (1993) definition, at the unit level of analysis task performance refers to the effectiveness with which the members of the unit, as a whole, perform activities that contribute to the unit's technical core, and achieve the unit's objectives and mission (Whitman *et al.* 2010). On the other hand, contextual performance refers to employees' behaviours that are discretionary, are not directly or explicitly recognised by the formal reward system, and that promote the effective functioning of the organisation (Organ 1988; Ehrhart 2004). At the unit level of analysis, contextual performance refers to the normative levels of CP performed in the unit (Organ 1988; Ehrhart 2004). The importance of CP lies largely in its manifestation at the collective level because that is where it has its strongest impact in the organisation

² Well-being has been defined in the literature as a multidimensional concept, made up of three dimensions, namely well-being as happiness, as health, and as relationships (Van De Voorde *et al.*, 2012).

(Gong *et al.* 2010). In sum, both indicators of employee efficacy (TP and CP) are described as unit-level constructs that refer to the normative level of employee efficacy performed within the unit. Here, collective efficacy is not being considered as an exact equivalent to the average level of efficacy of the unit's employees, although it is tied to their performance. With collective efficacy, we refer to how the unit as a whole is perceived, that is, the standard mode of behaviour in the unit. Collective efficacy therefore differs in structure from the average individual-level efficacy because it captures interactive elements of the construct that are not included at the individual level of analysis (e.g. social interactions) (Morgeson and Hofmann 1999; Kozlowski and Klein 2000; Ehrhart 2004).

The social context variables (moderator variables) we consider are the strength of the HR strategy and LMX. The idea of the *strength of the HR strategy* draws on the notion of strong climates, defined as those situations in which employees share a common interpretation of what is important and what behaviours are expected from them. The strength of the HR strategy, as defined by Bowen and Ostroff (2004), comprises a set of features of the overall HR strategy (i.e., distinctiveness, consistency and consensus) that may lead to a strong climate situation and better employee well-being and efficacy. *Leader-member exchange* (LMX, Graen and Uhl-Bien 1995) is one of the most useful and frequently used approaches for studying the relationships between employees and supervisors and the impact that these relationships have on employee-related outcomes (Rosen *et al.* 2011). At the unit level of analysis, LMX reflects a psychological state shared among a set of individuals within a unit in terms of their relationships with their supervisors (Rosen *et al.* 2011).

In the following sections we present the theoretical arguments that sustain the relationships depicted in Figure 1. In so doing, we draw on a broad range of theoretical perspectives with the aim of providing strong arguments to support the relationships analysed (Peccei *et al.* 2013).

Testing the Mutual Gains Perspective

Following the premises of the mutual gains perspective, HPWS may have positive outcomes both in terms of employee well-being and efficacy. Peccei (2004) describes this perspective as the “optimistic perspective” because both employees and employers benefit from HPWS. Employees will benefit by feeling happier at work (i.e. higher affective commitment) and employers will benefit by having more productive workers (i.e. higher employee efficacy) (Van de Voorde *et al.* 2012).