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HRM 4.0 FOR HUMAN-CENTERED ORGANIZATIONS

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INVESTOR IN PEOPLE

This volume is dedicated to all the incredible HRM scholars and professionals working within the e-HRM community. We thank them for their passion, engagement, and hard work in developing such an inspiring research stream.

A special thought also goes to Luigi Manzolini for having challenged us in combining HRM and innovation.

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HRM in the Industry 4.0 Era: Are Workers Still in the Center?

Rita Bissola and Barbara Imperatori

Technology has recently been undergoing a fast-growing innovation wave. We have already entered a new technological era: this phenomenon started early in the current decade, it has gradually emerged, is expected to widely involve all enterprises – regardless of their size – and substantially transform work. The distinguishing and most salient characteristic of the contemporary technological shift is that digitalization is now reaching the physical sphere (Lasi, Fettke, Kemper, Feld, & Hoffmann, 2014; Quint, Sebastian, & Gorecky, 2015).

Nowadays, powerful communication networks and new internet protocols – that together form the so-called Internet of Things – connect smart objects to flexible manufacturing systems, thus attaining the self-organizing cyber physical production systems (Annunziata & Biller, 2015). Such digitalization of industrial manufacturing is based on smart components – among which there are intermediate goods as well as products – which, by continuously exchanging large amounts of data, enable the production systems to learn and make decisions. This makes the industrial manufacturing flexible and able to meet personalization requirements. The new technological paradigm can efficiently deal with the huge amount of data (the so-called big data) stored on the cloud and allows for analytics to be continuously obtained on all the different aspects of the business activity, thus supporting a more informed and evidence-based business management (Rentzos, Mavrikios, & Chryssolouris, 2015; Rojko, 2017).

A further stream of new technologies was originally aimed at delivering tools that could replicate and hopefully more efficiently perform typical human capabilities, such as learning from experience and making decisions in unstructured contextual conditions, thinking creatively, feeling emotions, and intuit people's moods. As a matter of fact, the path to obtaining technological tools that could perform human abilities and increasingly behave like humans has already been pursued and has historically been represented in several outlets of popular culture, among which especially films and TV series (Colbert, Yee, & George, 2016; Schneider, 2018).

However, the current avenue of android technologies that connect artificial intelligence and robotics seems to be opening up an unprecedented business opportunity. Such technological implementation can further develop in two ways. On the one hand, these tools can empower human beings so that they can perform new activities or greatly improve their abilities in what they already do (e.g., augmented reality to train plane's pilots or the exoskeleton allowing to alleviate the workers' effort and increasing both efficiency and precision in automotive plants). On the other, such technological advancement may replace human work, with the consequent advantage of considerably reducing labor costs and thus gaining efficiency (Colbert et al., 2016; Klotz, 2016). Fully automated corporate warehouses, where no workers are employed, are already a reality. In the same vein, another well-known example is Amazon Go stores: in these shops, there are no cashiers as customers do not need to checkout. Technological solutions fully manage the stores and simplify the purchasing process, for which customers are only required to download an app on their smartphone. Furthermore, there are several other examples of technologies performing human activities and many more cases may become a reality in the near future.

Industry 4.0 and Work: A Human-centered Approach

The distinguishing trait of the current technological transformation is that digitalization now reaches and involves physical objects, thus not remaining restricted to services and intangible goods. The physical-digital convergence, also sustained by efficient communication networks, enabled the transformation of industrial manufacturing into what is called Industry 4.0. This is defined as “the increasing digitization of the entire value chain and the resulting interconnection of people, objects and systems through real time data exchange” both inside and beyond the organization boundaries (Hecklau, Galeitzke, Flachs, & Kohl, 2016, p. 2). A document of the Federal Ministry of Education and Research – urging the German government to invest in high-tech manufacturing, thus moving toward its digital transformation – introduced the term Industry 4.0 in 2011 (Lasi et al., 2014). Since then, the term has progressively become widespread among research, academic and industry communities. Furthermore, it has been used to refer to the exploitation of the potentials of the Internet of Things and the smart technologies to digitalize, connect, and integrate technical and business processes within and outside the organization (Rojko, 2017). The newly created “smart factories” further develop within the organizational contexts where big data, AI, advanced robotics, and, more generally, a wide bundle of new technology are radically transforming work (Schuh, Gartzen, Rodenhauser, & Marks, 2015).

One of the principles of Industry 4.0 in its first formulation is its human-centered focus. Industry 4.0 is reshuffling the way of working and these changes potentially support the centrality of human beings within the new labor processes: there is a

need for more qualified and unique competences. However, there are some potential risks and drawbacks.

The main assumption, both in the original German document and in a relevant part of the literature, is that Industry 4.0 aims to promote an improved human–machine interaction that, for example, can improve work safety, enable more ergonomic workplaces, or enhance the workers’ scope (Lasi et al., 2014; Rojko, 2017; Schneider, 2018).

Industry 4.0 is changing the time and space of work: smart working and new digital production are only a few examples. Traditional 9-to-5 five-days-a-week jobs are likely to decline and more varied and flexible forms (as for work time and space) will arise. New forms of working are deemed to be more flexible across time and space, but the shift is not simply about where and when work occurs, it encompasses a new mind-set that must shift from “work as presence” to “work as results” (Bissola & Imperatori, 2018).

Industry 4.0 is also changing the nature of work that still includes traditional employees and managers, but also new “external” workers, such as freelancers, gig workers, vendors, and customers collaborating across organizational boundaries, also as a result of digital platforms (Lasi et al., 2014). The new ways of producing and delivering goods and services involve stakeholders more actively and enlarge the number of actors who directly participate in the business activities (Bondarouk & Brewster, 2016; Kane, Palmer, Phillips, Kiron, & Buckley, 2016).

There is evidence that these changes could have a positive impact on both people and organizations, enabling a better work–life balance for a wider cohort of workers. Smart working offers a more efficient way of designing work, reducing absenteeism, enhancing work productivity, and enabling cost savings in relation to buildings and general expenses (Holland & Bardoel, 2016). The changes produce a higher degree of organizational innovation, enable more agile organization forms, and lower organizational costs (Bissola & Imperatori, 2014). There is also evidence that more flexible and entrepreneurial working conditions could positively affect job engagement and intrinsic motivation, supporting individual creativity and job satisfaction (Rich, Lepine, & Crawford, 2010). The new digitalization enables internal and external stakeholders to share knowledge and collaborate across organizational boundaries, while also increasing their competences and experiences.

On the other hand, detractors of Industry 4.0 predict there will be unprecedented job losses and dramatic unemployment levels as the smart machines will replace human work and not only routine activities. Full-time employment will be substituted by a wide variety of more precarious work arrangements, forcing organizations to redefine and continuously change the architecture of their management practices to better cope with the increasing diversity of the workforce. This will negatively affect job security and employees’ self-esteem (Markoulli, Lee, Byington, & Felps, 2017). Moreover, both research and practice suggest some potential risks of the digital workplace, for example a growing sense of job insecurity and technological angst. It also seems to influence the quality of social interactions toward a higher degree of personal isolation and closeness (Turkle, 2011). Moreover, continuous learning and the difficulty in separating the work and non-work domain could

cause work-life balance conflicts, stress, and burnout, especially for those who are not digital natives (Butts, Becker, & Boswell, 2015). Negative consequences could additionally affect individual creativity and critical thinking, forcing employees to focus on narrow work activities mainly driven by the pace and rhythm of machines (Jackson, Dawson, & Wilson, 2001).

Industry 4.0 and HRM 4.0: Toward a New Social Sustainability

The fourth industrial revolution (i.e., Industry 4.0) affects HRM activities from three different points of view.

First, Industry 4.0 challenges HRM in soliciting it to provide value for the new smart organization, where work overtakes the organization boundaries and a successful human–machine collaboration can potentially offer new advantages. The HRM department can assume a new crucial role as change agent helping the smart organization to develop the new workforce digital mindset and competences to interact with machines, as well as with colleagues and supervisors in an open community context (Bissola & Imperatori, 2018; Klotz, 2016).

Second, the workplace digital transformation requires a revision of the traditional HR practices: these should support the changing employee-organization relationship, in which employees can work anywhere, do not have an official working time, and can cooperate with people inside and outside the organization. In such conditions, hierarchical control loses effectiveness, performance evaluation gains importance, and all the employees are expected to actively contribute with ideas and decisions. In the same vein, smart technology offers opportunities to e-HRM to evolve and provide new HRM systems that generally enhance a more direct relationship between workers, the HR department, and the organization. Likewise, they better align with people's habits and behaviors toward connectivity, and support the more flexible work organization (Bissola & Imperatori, 2018; Colbert et al., 2016; Hecklau et al., 2016).

In this situation, HR systems must be consistent with the new way of working and with the new variety of workers, and should align the behaviors of supervisors and workers toward the new digital culture. Among others, performance must be clearly defined and measured in terms of work results; career paths must be organized consistently; the ways of interaction, the time and space for collaborations must be openly set; organizational spaces (i.e., office and plants) must be specifically redesigned for the new work processes, also allowing workers to better self-manage their time and space.

Moreover, HR practices should allow organizations to manage a composite and segmented workforce. Among others, there is a need for diversified people practices for a diverse workforce that could balance the organization and people's expectations in a sustainable and fair way. The new workers require new and aligned management practices to properly attract, select, and engage external, as well as internal stakeholders and to best match the demand and supply of skills and capabilities in

the entire product lifecycle (Bissola & Imperatori, 2012). The growing reality of real time employee data can provide meaningful insights and enable data-driven decision-making. The data require increasing the digital and analytical capabilities within organizations and those of HRM professionals (Bondarouk & Brewster, 2016; Strohmeier & Parry, 2014).

Third (and most important), the HR department should be the organization unit that commits more to the human-centered approach characterizing Industry 4.0, and that supports its implementation in a socially sustainable way (Hecklau et al., 2016; Schneider, 2018).

People are becoming more aware of the social impact of their activities and lives. The recent economic crisis exposed some of the contradictions of the capitalist socio-economic system and it has led to the emergence of negative phenomena, such as unemployment, austerity and social insecurity. The pressure on firms to be socially sustainable continuously increases and is generated by a range of stakeholder groups including customers, communities, employees, governments, and shareholders (Lockett, Moon, & Visser, 2006). Organizations have responded to this pressure in a variety of ways. “Society and business,” “social issues management,” “public policy and business,” “stakeholder management,” and “corporate accountability” are just some of the terms used to describe the phenomena relating to corporate responsibility within society.

As Wheeler, Colbert, and Freeman (2003, p. 17) have stated, sustainability is:

an ideal toward which society and business can continually strive, the way we strive is by creating value, creating outcomes that are consistent with the ideal of sustainability along social environmental and economic dimensions.

HRM 4.0 can play a decisive role in designing and implementing socially sustainable solutions. It can provide stimuli to develop positive social change and adopt new digital systems and innovative organizational solutions in a sustainable way, supporting the positive outcome of the Industry 4.0 and preventing the possible drawbacks.

HRM professionals and scholars must help business leaders and workers shift toward the 4.0 mindset, that is, digital ways of managing, organizing, leading to and working for a positive social change. The HRM 4.0 can contribute to work innovation, people empowerment, building their competences, and enabling them to actively face the current labor challenges. For a long time, employees have been viewed as passive performers of their assigned job tasks. Recently, several scholars have argued that job design theory needs to address the influence of employees on their job design. HRM 4.0 could be the key driver to allowing people to exert more influence on their job characteristics, thus improving their work motivation and a social sustainable development.

The idea of an unnecessary trade-off between “doing well” and “doing good” needs to become a key consideration and HRM scholars and practitioners together have a great social responsibility in this new world.

This is also a new world for the HRM domain, potentially opening up new career opportunities for the HR professionals. In addition, it could transform the impact that scholars could have on people, business, and society at large, by supporting the positive and, moreover, sustainable side of the ongoing work transformation, and permitting a human-centered organization (Figure 1).

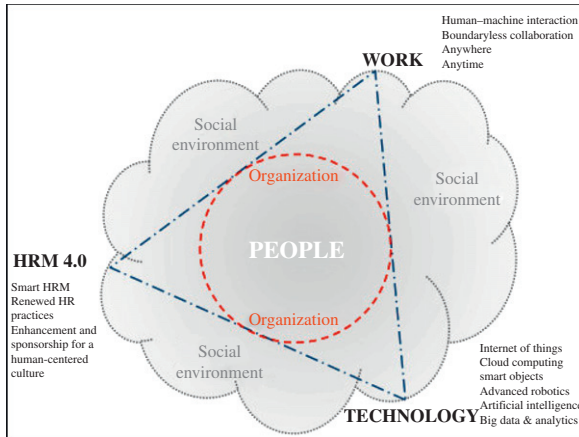


Figure 1. Ecosystems for Human-centered Approach in Industry 4.0.

Goals of This Volume

This volume revisits the concept of e-HRM according to Industry 4.0; it focuses on the progression from e-HRM toward HRM 4.0 and it critically assesses the academic and business achievements in this field, as well as highlighting the latest developments.

We pick up the baton from the sixth e-HRM Conference that addressed the topic of the smart HRM and suggested following the growing development of the new technologies and the organizational digital transformation. The “human-centered organization” is inherently consistent with industry 4.0 and it calls for reflections. The HRM field needs to focus on non-routine, evidence-based, science-inspired, creative, and value-added actions. What should be the role of HRM in the 4.0 environment? How can HRM activities change to support sustainable 4.0 organizations? How should a human-centered organization be designed in an ultimately jobless scenario? What individual and organizational competencies will be required to meet the expectations of the latest 4.0 business developments? Which organizational solutions will enable a fruitful and creative collaboration between human beings and “smart things”? What will be the impact of the 4.0 revolution on employment relationships and management practices? How could HRM practices drive social value in the 4.0 scenario? Moreover, how can research into HRM 4.0 issues inform whether, how, and why changes occur?

All these questions will challenge the e-HRM scholars for the next years, and with this volume we aim to follow the digital developments, provide some stimuli, and move the field further.

The chapters of this book are a selection of the research projects presented at the seventh e-HRM Conference. They critically address the depicted changing scenario by adopting different levels of analysis and foci: from the industry 4.0 to the new HR tools and practices.

In the first chapter, Milou Habraken and Tanya Bondarouk open the discussion on the fourth industrial revolution, starting from the absence of a clear understanding of the different labels in the field, such as smart industry and 4.0 industry. Their interview-based research confirms that smart industry is more complex than how the official reports depict it and, given the extent of the overlap with industry 4.0, they recommend aiming for more conformity by choosing the label industry 4.0 over smart industry. Chapters 2 and 3 investigate, from an organizational perspective, the possible outcomes of adopting e-HRM. Esther Njoku, Huub Ruël, Hefin Rowlands, Linda Evans, and Michael Murdoch (Chapter 2) present evidence about the role of e-HRM in sustaining business performance and how e-HRM can create strategic value and enable HR to realize the benefit of achieving the transformational role of operating and contributing strategically. In Chapter 3, Daniela Isari, Rita Bissola, and Barbara Imperatori demonstrate how smart technology is reshaping the distribution of people management activities between the HR department and line managers, thus offering insights into the relationship changes between HR and line managers. In Chapter 4, Aurelio Ravarini and Marcello Martinez focus on an emergent organization model: holacracy. This is a network-based organization whose functioning highly relies on advanced technological platforms. The predominant role played by the technological infrastructure in such an organization model greatly restricts the activities of the HR department. The latter is in part replaced by a unit responsible for an internal social network used as the main coordination mechanism in the organization. Such a case study further suggests the need for HR department and professionals to invest in digital competences to become more aware of the potentials of the new technological tools. However, it also raises the question of whether digital tools and technology specialists can replace HR competences. Chapter 5, by Sandra Fisher and Elizabeth Cassady, deals with one of the most relevant transformations of work, that is, gig work. They analyze a wide sample of digital platforms from the gig workers' perspective and find that such platforms provide three functions of relational e-HRM systems, namely communication, training and development, and performance management. Nonetheless, some of the resources with the potentially highest value are available only to people in certain roles. Therefore, a large cohort of low-skilled workers actually remains excluded.

The following four chapters (6 to 9) offer an interesting overview of both smart HRM practices and the opportunities of applying digital technologies to existing HR and e-HRM practices. Sharna Wiblen and Janet Marler (Chapter 6) specifically investigate the role HR managers play in high-potential talent identification when Talent Management Information Technologies are introduced. Presenting a

qualitative case study, the authors provide a nuanced and in-depth analysis showing that perceptions and attitudes toward information technology, in combination with existing social systems, influence the relevance HR professionals maintain in increasingly digital organizational contexts. In Chapter 7, Miguel Olivas-Lujan presents a detailed description of blockchains and, building on the Diffusion of Innovations theory and on well-known examples of blockchains applications, he hypothesizes HR domains such as, among others, employment screening and worker contracts and payments, could benefit from the introduction of such technology. Chapters 8 and 9 provide evidence on analytics and their adoption in the HR activities. John Werkhoven (Chapter 8) selects an exemplary case study to illustrate how companies can develop their internal HR analytics capabilities and the organizational conditions and integration mechanisms that can lead to synergistic outcomes. Tommaso Fabbri, Anna Chiara Scapolan, Fabiola Bortolotti, and Claudia Canali (Chapter 9) offer empirical results of a study performed by applying the HR analytics approach. They codify actions that a sample of employees performed through a digital collaboration platform and correlate them with the level of individual embeddedness. The findings show that workers who engaged in more activities on the digital platform also experienced an increased level of organizational embeddedness. Besides the organizational attitudes that the authors consider in their study, this contribution represents a concrete example of insights that HR analytics can provide to managers and, more generally, to the enterprise. The aim of the last three chapters (10 to 12) is contributing to the theorization in the e-HRM field by taking into consideration some specificities of the more recent digital technologies. Chapter 10 is a literature review on smart working. The authors, Teresina Torre and Daria Sarti, highlight that the topic is still being debated between scholars who depict it as a completely new approach to job design, and others who underline the continuity aspects with telework. The implications stemming from the two perspectives are then identified with particular attention to future empirical studies. Claudia Dossena, Lorenzo Mizau, and Francesca Mochi conceptually investigate if and how the use of social media in HRM can support a more humanistic approach within firms. Chapter 11 is a theoretical contribution which, starting from some principles of Humanistic Management, develops propositions that could inform future research on social media and their potential in bringing the “human component” at the center of the organization. In Chapter 12, Francois L’Ecuyer and Claudia Pellettier contribute to the theoretical development of the adoption of e-HRM and social media in SMEs in particular. Their empirical results identify four main patterns that specifically explain the use of social media for recruitment in SMEs. First, social media is not the first choice when it comes to choosing a recruitment tool. Second, the use of social media for recruitment is not a structured activity. Third, recruiters use social media in the same way they do in their personal life. Finally, marketing people are often involved in recruitment practices on social media.

This volume may serve as a prelude to the growing body of research and to the emerging request of theorization to face the challenges the e-HRM domain is encountering due to the fourth industrial revolution. The present book is a step

further in this direction and it opens new research strands, reveals different approaches, offers stimuli, and unwraps the debate on different levels: society, organization, and people.

We believe that each of the following chapters is an opportunity for additional discussion and investigation. Although much work remains to be done, we hope to see e-HRM researchers contribute to a future sustainable world, where workers (and people) will be and will remain at the center.

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