Habraken, M. M. P., Bondarouk, T., Strohmeier, S., Vuorenmaa, H., van Riemsdijk, M., Corporaal, S., & Freese, C. (2018). *Implications of Smart Industry for HRM: Beyond Future Employment and Necessary Skills*. Paper presented at AOM Specialized Conference, Guildford, United Kingdom.

IMPLICATIONS OF SMART INDUSTRY FOR HRM:

BEYOND FUTURE EMPLOYMENT AND NECESSARY SKILLS

Abstract. Known under many different names, the interconnected opportunities now at our disposal (digitization, big data, connectivity & resources) are bringing change. Yet our insights into more socially oriented changes in general, and implications for HRM specially are lacking behind when considering the amount of attention given towards this development. Though fundamental steps have been made in the direction of future employment and necessary skills, we raise the need to look beyond these two streams in order to expand our knowledge on the implications for HRM due to smart industry. In this symposium we therefore focus on the exploration of potential HRM implications as a result of smart industry. With as end product a set of research questions for future projects into HRM in smart industry.

OVERVIEW

Regardless of the term used to denote the development, we know that the interconnected opportunities currently at the disposal of organisations – the move towards a more digital setting, the ability to handle massive amounts of information, the possibility of increased connectivity and the availability of resources like 3D printing and robots (Habraken & Bondarouk, 2017) – have become impossible to miss. Nevertheless, so far little research has been performed to explore it from a more social point of view (Vacek, 2016). This in particularly holds true for the field of human resource management (HRM). After fundamental steps have been made in the direction of future employment and necessary skills (e.g. Frey & Osborne, 2013; Hecklau, Galeitzke, Flachs & Kohl, 2016), we suggest to turn scholarly inquiry

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beyond these debates. We recognize their importance and the expertise they provide, but call to recognize that it is high time to move the HRM implications debate forward. We therefore raise the need to look beyond the streams of (availability of) future jobs and required competences in order to expand our knowledge on the implications for HRM as a result of smart industry (or any other term representing the development described above).

Therefore, the purpose of this panel symposium is to engage a group of panelists in an informal, interactive discussion on the exploration of potential HRM implications in smart industry. Discussion topics include, but are not limited to, questions such as:

o What kind of HRM roles will remain within a smart industry context? Administrative? Strategic? Service provision?

o To what extent are the activities of HRM subject to change as a result of smart industry?

o What are the roles of different HRM actors (managers, employees, top managers) in the personnel management within a smart industry context?

o What impacts do the changes in the HRM function play on the performance of HRM?

Subsequently, as the end product of this symposium, we will come up with a set of research directions for future research projects into HRM in smart industry.

Rationale for submission. We are submitting this symposium proposal to the Future of Managing People, Work and Well-Being in the Digital Economy track (nr.3) for the following reasons. First, the context of the topic of this symposium – previous highlighted interconnected opportunities (smart industry) – overlaps with the central focus on the digital economy. Though we have incorporated connectivity and contemporary resources to the indicated digitization and big data, we see these aspects as being connected to each other (e.g. the resource sensors aids big data). Secondly, this symposium specific aim of expanding our knowledge regarding the implications for HRM corresponds to the broad focus of the future of managing people.

Format. The format of the 90-minutes symposium will be as follows:

o Brief introduction to the topic and the panelists (5 minutes)
o Each panelist discusses the topic from own perspective and suggests and motivates at least one research question for future research into HRM and smart industry (10 minutes each)
o Synthesis of core viewpoints raised by panelists (10 minutes)
o Engagement, questions/comments, with symposium audience. Finalising the set of research questions for future projects (30 minutes)
o Concluding statements from the panelists (5 minutes)

Smart Technologies refer to the core innovation of the Internet of Things ("IoT"). The IoT refers to the possibility to connect numerous physical objects ("things") to the Internet. As a general result, the connected things get 'smart' due to their unprecedented functionality of showing an autonomous context-adequate behavior. The IoT is understood and broadly discussed as a disruptive technology with the potential of deep economic and societal changes, and it is expected that IoT technologies in the medium term will permeate all areas of business and society (e.g., Ashton, 2009; Borgia, 2014; Chui, Löffler, & Roberts, 2010; Fleisch, 2010).

Against this backdrop, my contribution to the panel aims at a discussion of whether, and if so, how smart technologies will be adopted by future HR technologies as well. To do so, I firstly discuss "sensing", "actuating" and "interacting" as the general functionalities of smart things. Based on this I discuss major potentials of things using ZUBOFFs categorization of automation and information potentials of digital technologies (Zuboff, 1988). I give also concrete examples of how HRM can use the sensing, actuating and interacting functions of smart things to support and improve HRM.

Based in this discussion, I discuss how a future application of smart technologies will change current HR technologies, while, in particular, changes of HR hardware, HR software and HR data are focused. I base this discussion on estimations of 40 German experts that were ascertained within the frame of a Delphi-Study.

This will offer first insights and prognosis on changes of future HR technologies due to the currently emerging smart technologies and therewith offer a general starting point for discussing the strengths, weaknesses, opportunities and threats that smart technologies imply of HR technologies, and subsequently for HRM in general.

Hertta Vuorenmaa

In our on-going Academy of Finland funded research we pair together HRM literatures and sociology of work literatures and examine the potential disruptive effects of technology on the nature of work and its consequences on HR work. We conceptualise the ongoing changes as three forms of decoupling: 1. Decoupling of work & time, 2. Decoupling of work & place, 3. Decoupling of work & employment. We see a need for a research agenda focusing on new questions that take into account the fundamental changes that technology brings about with regard to the role of the HR function, HRM practices, and HR professionals.

All the technological changes mean that we potentially stand at the verge of a fourth industrial revolution – one that will substantially change the way in which people work in the future. (Barley & Bechky, 2017; Schwab, 2016). We have seen increasing amount of research on this from managerial and technology perspectives. What we know considerably less about is how the employees themselves experience these changes. Employees are still the people who will have to do the work, whatever the form of it might be. Thus in order to complement the technology and management perspectives we sorely need to add the employee perspective. How employees experience these on-going changes within their work and people management in general is central for the future of work and the potential societal level changes that these changes translate into. Work and managing it are in the process of changing in fundamental ways and we need knowledge on how those changes are experienced in the employee level. Employee experiences of the changes will make a difference in areas like competence and career development, job satisfaction, and general well-being at work. How companies hire, manage, engage, and retain people will have significant effects on the surrounding societal structures e.g. health sector and employment services in the municipalities where the given companies are located.

Smart Industry brings many changes to work, both in quality and quantity. They range from different work content, new knowledge, skills, abilities and attitudes, to simply losing your job to a - not so collaborative- robot. Today's students may be expected to deal better with these challenges than their predecessors. At the same time, we see the rate of change -especially in high tech environments- increase spectacularly. This may be just temporarily in a time of transition, but it could well be a trend that continues into the foreseeable future.

All over Europe, governments prolong the working life of the labour force. In the Netherlands, a 35 year old today can look forward to another 38 years of working life. And this retirement age will likely go up, since it is directly coupled to life expectancy, which increases year over year for decades now. As demographic developments all over the continent are rather bleak, there seems to be no alternative but for our aging population to carry on. We may welcome robots yet.

We should therefore discuss ways to keep the over thirties up and running in an increasingly fast changing work environment, in which technology takes off at unprecedented scale. This is one of the biggest challenges facing companies and employees today. Tackling this challenge has to be a joint effort of employees themselves, the companies they work in and government-, employers- and employees organisations. It must mean a new institutional order as well.

We should discuss HRM's role in this transition. This has implications far beyond the mere administrative, employee champion or business partner role of any credible activist. We need HR professionals that can help companies and the people working in them to change in response to the pace of technology. Human resource management and human resource development have never been more important than in this transition that is hitting us all today.

The rapid technological developments has led to a fierce debate on whether robots are coming after our jobs (e.g. Frey & Osborne, 2013; Arntz, Gregory & Zierahn, 2016). This discussion on macro level has not yet been picked up on the level of the firm. This is remarkable, as this is the level where actual jobs disappear or the demand for new or different jobs arises. Moreover, a recent Dutch study indicates that almost every single job is or will be affected by new technology, which asks for agile employees, who are able to make this transition (Freese, Dekker, Dekker, Kool & Van Est, in press). The HR function plays a central role in facilitating these smooth transitions. In the ideal situation, HR takes a proactive role (Bondarouk & Ruel, 2008), and has a long term vision on which technological developments will impact the organisation and its employees. At the moment, HRM research mainly focuses on how the HR function can acquire digital competencies or make use of technology in HR domains, such as using new technologies for administration (e-HRM), recruitment (video interviews, CV scanning systems), training (virtual reality glasses, or serious gaming) or performance appraisal (continuous feedback apps). The impact of technology on the future of work and consequently the role of HR is much broader. In this symposium a framework of the impact of technology on six different aspects of work is presented: (1) general impact (2) disappearance of entire jobs (3) technology taking over parts of jobs, (4) the demand for new jobs (5) new products or services (6) new business models (platforms etc.). The impact of technology may lead to downsizing, restructuring the content of jobs, teams or departments, decreased quality of work, working conditions or employment relations. This requires for instance strengthening the role of HR as change agent (acknowledging the importance of social innovation combined with technological innovation), ethical agent (is it OK to monitor employees constantly), employee champion (how can the quality of work be protected when new technology is introduced), and strategic partner (which tasks need humans instead of technology).

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