Dina Myllymäki

Managing people with technology

A sociomaterial perspective

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Tiivistelmä

Tämä väitöskirja korostaa digitaalisten teknologioiden disruptiivista vaikutusta organisaatioihin, työn rakenteisiin ja itse työn luonteeseen. Aikaisempi tutkimus on keskittynyt teknologian vaikutuksiin HRM-prosesseihin, mutta ymmärrys teknologian monimutkaisuudesta ja sen vaikutuksesta henkilöstöhallintoon on rajoittunutta. HRM-toimijoiden varsinainen teknologian käyttö jätetään usein huomioimatta, samoin kuin e-HRM-käytänteiden dynaaminen kehittyminen ajan myötä. Tässä väitöskirjassa käytetään sosiomateriaalista näkökulmaa, joka tunnistaa ihmisen toiminnan, materiaalisten artefaktien ja sosiaalisen kontekstin yhtäläisen merkityksen e-HRM-käytänteiden muodostumisessa ja toisintamisessa. Sosiomateriaaliseen näkökulmaan lukeutuvien teorioiden mukaan toiminnot nähdään dynaamisina ja tilannesidonnaisina, ja niihin kuuluu ja niitä muodostavat ihmiset, toimet, äänet, eleet, työkalut, ohjelmistot, asiakirjat, infrastruktuuri ja laitteisto. Väitöskirjan keskeinen tavoite on ymmärtää teknologian roolia HRM-käytänteissä ja HRM-toimijoille tuomalla selvyyttä siihen, miten teknologian materiaalisuus, sosiaaliset tapahtumat ja toimijuus kietoutuvat yhteen HRM-toiminnossa.

Sosiomateriaalinen näkökulma esitellään ensimmäisessä artikkelissa, jossa korostuu toimijuuden, materiaalisten artefaktien ja sosiaalisen kontekstin yhtäläinen merkitys HRM-käytänteiden muovaamisessa. Siinä tunnistetaan materiaalisuuden kiinteä rooli, kuten digitaaliset artefaktit ja fyysiset tilat, sosiaalisten elementtien järjestämisessä. Toisessa artikkelissa sovelletaan huomiokeskeistä näkökulmaa (eng. attention-based view, ABV) tutkittaessa, miten teknologia vaikuttaa linjaesihenkilöiden huomion kiinnittämiseen HRM-toimijoina etäsuoriutumisenarvioinnissa. Tämä tarjoaa monisäikeisen ymmärryksen huomiosta sekä kognitiivisena että kontekstiriippuvaisena. Kolmannessa artikkelissa käytetään rutiinidynamiikan teoriaa muuttamaan käsitystä HR-rooleista e-HRM:ssä siirtymällä nimellisrooleista rooleihin, jotka saavutetaan rutiininomaisten toimien jaksojen kautta.

Tämä väitöskirja tarjoaa kolme pääasiallista kontribuutiota HRM-teknologian tutkimukseen. Se (1) teoretisoi henkilöstöhallinnon olevan sosiomateriaalinen toiminto ja osoittaa empiirisesti johtamiskäytänteiden luonteen muodostuvan materiaalisista artefakteista, (2) käsittelee HRM-toimijoiden monimuotoisuuden puutetta kirjallisuudessa korostaen heidän toimijuuttaan teknologian toteuttamisessa, ja (3) tarkastelee HR-rooleja dynaamisesti tuotettuina ja toteutettuina rutiinien sarjoina.

Asiasanat: sosiomateriaalisuus, digitalinen HRM, henkilöstöjohtaminen, e-HRM

Abstract

The study highlights the disruptive influence of digital technologies on organizations, work structures, and the nature of work itself. While previous research has focused on the consequences of technology on HRM processes, there are limitations in understanding the complexity of technology and how it shapes HRM processes. The actual usage of technology by HRM actors is often overlooked, as well as the dynamic unfolding of e-HRM practices over time. This thesis adopts the sociomaterial perspective that recognizes the equal importance of human agency, material artifacts and social context in forming and reproducing e-HRM practices. Theories within the sociomaterial perspective view activities as dynamic and situated, which constitute and are constituted by people, actions, voices, gestures, tools, software, documents, infrastructure, hardware and other materiality. The key objective of the dissertation is to understand the role of technology in changing HRM practices and for HRM actors by shedding light on how the materiality of technology, social events, and human agency are intertwined in the HRM practice.

The sociomaterial perspective is introduced in Paper 1, emphasizing the equal importance of human agency, material artifacts, and social context in shaping HRM practices. It recognizes the integral role of materiality, such as digital artifacts and physical spaces, in organizing social elements. Paper 2 applies the attention-based view to explore how technology influences the attentional engagement of line managers as HRM actors in remote performance evaluation. This offers a nuanced understanding of attention as both cognitive and context-dependent. In Paper 3, routine dynamics theory is employed to transform the conceptualization of HR roles, shifting from studying nominal roles to roles accomplished through routinized sequences of actions. These theoretical lenses align with the sociomaterial perspective and contribute to our understanding of the transformative impact of technology on HRM practices and the role of HR actors.

The dissertation makes three main contributions to the research on HRM technology. It (1) theorizes HRM as sociomaterial practice and shows empirically the emergence nature of management practices around material artifacts, (2) addresses the lack of diversity of HRM actors in the literature, highlighting their agency in the enactment of technology, and (3) examines HR roles as dynamically produced and enacted through patterns of routines.

Keywords: sociomateriality, HRM technology, HRM, e-HRM, people management

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because of you; it is because I am afraid of heights. As I do my slow and hesitant steps up, I know you are always there to hold the ladders. Love you!

I dedicate this thesis to my father. The thought he never finished his thesis motivated me to finish mine for him. I only wish he would live to see this moment.

Vantaa, 16.06.2023

Contents

Tables

Abbreviations

HRM	Human Resource Management
e-HRM	Electronic Human Resource Management
HR	Human Resources
ABV	Attention-Based View
IT	Information Technology
PE	Performance Evaluation
ERP systems	Enterprise Resource Planning Systems
SHR	Unit HR in case study 2
OHR	Organization-wide HR in case study 2
AI	Artificial Technology

Publications

Myllymäki, D. (2021). Beyond the 'e-' in e-HRM: integrating a sociomaterial perspective. *The International Journal of Human Resource Management 31*, 2563-2591. https://doi.org/10.1080/09585192.2021.1913624. Published by the Taylor and Francis Group. Reprinted with the permission of the Taylor and Francis group.

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1 INTRODUCTION

The global market for human resource management (HRM) technology is reportedly growing at a fast pace and was valued at 24 billion USD in 2021 (SkyQuest Technology Consulting, 2022). Technological innovation in the field of HRM continues to grow with the goal of improving efficiency, cutting costs per employee and increasing the value of the business. HRM technology has become an important tool for organizations through which to gather employee data that can be used for a variety of purposes, for example to enable better managerial decision-making or improve the employee work experience. Digitalized HRM practices such as remote performance monitoring and online learning, challenge traditional ideas that build on the assumption that people management takes place in one common space, such as an office or a manufacturing floor, as opposed to an increasingly hybrid type of workplace in which employees and managers are not co-located. In this dissertation, I examine how digitalized HRM practices evolve around technology, and aim to deepen our understanding of this phenomenon by drawing on a variety of theoretical perspectives and studying it in two different empirical contexts.

1.1 Background

The rapid development of digital technologies and the integration of independent software has caused organizational disruption through a myriad of new possibilities it brings about for interactions between people and machines, data sourcing and mining, and the automation of various business processes. It influences the way in which people approach work, the structure of work, and the nature of work itself (Frey & Osborn, 2017; Colbert et al., 2016). As a result, the approach to managing people has undergone, and continues to undergo, a transformation (Loebbecke & Picot, 2015; Colbert et al., 2016; Kane et al., 2015). In light of this, the role of the HR function in organizations is being played out in fresh colors, based on visions of HR professionals and middle managers as change agents for digital transformation.

The widespread technological development and popularization of technological solutions for people management purposes has, already for some time, interested researchers who have focused on examining the effects of technology on organizations and different organizational actors' work. Research on the role of technology in HRM, commonly referred to as electronic HRM (e-HRM), has focused on the link between technology and 'doing HRM' (Bondarouk & Ruël,

2009), more specifically examining technology as a tool for achieving increased HRM efficiency (Bell et al. 2006; Bondarouk & Ruël, 2013; Parry & Tyson, 2011), identifying the consequences of e-HRM application (Ruël et al., 2004; Lepak & Snell, 1998; Parry & Tyson, 2011; Stone et al., 2015; Beulen, 2009), and uncovering contingency factors that support or inhibit the effective adoption of e-HRM (Voermans & van Veldhoven, 2007; Heikkilä & Smale, 2011; Panayotopoulou et al., 2010; Bondarouk et al., 2017).

Whilst this body of work on the consequences of technology and factors of successful adoption is useful, the transformative power of technology to change organizations and human behavior has largely been taken for granted. The e-HRM field has moved towards a deeper understanding of the adoption stage of technology implementation, theorizing about the variety of factors that undermine adoption, but forgoing an examination of the actual use of technology and the organizational practices that form around its use. A recent examination of the e-HRM literature (Myllymäki, 2021) highlights a prevalent dichotomy in which research tends to be overly deterministic or voluntarist in nature. and calls for a more nuanced balance of the two. In this dissertation I seek to address the limitations imposed by these extremes, which I discuss in what follows.

First, despite being a primary concept of e-HRM research, technology often remains a 'black box' (Ellmer & Reichel, 2018), playing a nominal role in empirical studies. Technology is often conceptualized at the macro-level (Myllymäki, 2021) and its potential to bring about change in organizations and human behaviour is largely taken for granted. Assuming the role of humans as functional, who follow patterns established by technology, research within the e-HRM field has tended to adopt a determinist view of technology (Marler & Fisher, 2013; Ellmer & Reichel, 2018) when examining the consequences of the implementation of HRM technology for HRM processes and HR professionals. As a result, the current accumulated body of knowledge within the e-HRM field have not been able to capture fully the complexity of technology, its materiality, its embeddedness in social processes and the ways in which technology contributes to producing outcomes for HRM.

Second, the actual day-to-day use of technology by HRM actors is overlooked in the e-HRM literature. Based on previous e-HRM research we know that HR actors who directly use technology are responsible for its level of adoption (Bell et al., 2006; Stone & Lukaszewski, 2009; Wiblen, 2016; Bondarouk et al., 2017) and, consequently, the intended results of technology implementation. While we know that users find some functions useful and easy to use and others difficult and not as helpful (Heikkilä & Smale, 2011), we know little about how HRM actors actually

respond to shifts in their work due to technology implementation, and how they bring functions of technology into use and in what form. Such knowledge can be beneficial for understanding what technology may afford for actors, as well as how technology may constrain their efforts to do their work effectively. This requires us to shift attention from actors' unlimited possibilities to act despite technological constraints (voluntarism), towards their agentic power in relation to technology and its constraints (Orlikowski & Scott, 2008). Studies like those by Francis et al. (2014) and Tansley et al. (2013) offer a critical view of HRM practices by examining the discourse around technology and identity constructions. However, these studies equate e-HRM with HRM processes, disregarding the material components involved in the implementation of e-HRM and its role in the focal processes. Moreover, thus far e-HRM research has largely focused on end users of the system and HR professionals in particular, while wider groups of actors are neglected (Bondarouk & Ruël, 2013; Perry & Kulik, 2008). For instance, our understanding of how line managers carry out their HRM responsibilities in practice, and how they use technology to perform their core tasks in HRM needs more attention.

Third, research on e-HRM has been predominantly concerned with the fixed, formal and intended e-HRM practices organizations have or intend to implement, rather than on how these practices dynamically unfold overtime. The literature treats e-HRM practices as predefined and inscribed in HRM technology (Myllymäki, 2021; Marler & Fisher, 2013). Becoming standardized with the help of technology, e-HRM practices are often considered as a way to reaching strategic HRM goals (Marler & Fisher, 2013), just as the 'best practice' approach leads to improved organizational performance in the strategic HRM literature (Becker & Huselid, 2006). Similarly, the literature treats HR roles as prescriptive and normative (Björkman et al., 2015), often assuming the power of technology to transform HR roles through the automation of administrative tasks that free up time for HR professionals to provide valuable insights for business (Gardner, Lepak, & Bartol, 2003; Marler & Parry, 2016; Bondarouk, Parry, & Furtmueller, 2017). Although such a conceptualization can be helpful, there are better alternative starting points that allow us to study how e-HRM practices and HR roles emerge and become established, or what changes in activities the automation of HRM practices entail for the actors. Focusing on dynamic and situated HRM means focusing on actors and their activities in connection to technology, its materiality and social processes. This requires us to shift our attention to how technology is enacted and how such enactment produces new outcomes for organizations and organizational actors.

I address the above-mentioned limitations by drawing on theories from the neighboring fields of organization studies and information technology. In Paper 1, I introduce the sociomaterial perspective that recognizes the equal importance of human agency, material artefacts and social context – thus integrating both deterministic and voluntarist approaches – in the formation and reproduction of HRM practices. Sociomateriality advances a conceptualization of technology that emphasizes "materiality as integral to human activities and relations" (Orlikowski & Scott, 2008: p.438). It suggests that even though social elements such as language or roles are essential to organizing, materiality, such as digital artefacts, material objects or physical spaces are integral parts of those social elements. Theories within the sociomaterial perspective view activities as dynamic and situated, which constitute and are constituted by people, actions, voices, gestures, tools, software, documents, infrastructure, and hardware (Orlikowski, 2016; Barley & Kunda, 2001).

In Paper 2, I apply the attention-based view (ABV) to examine how technology shapes the attentional engagement of line managers as HRM actors in remote performance evaluation, extending previous research by providing a more nuanced view of attention as something not entirely cognitive, but also context-dependent. And in Paper 3, I draw upon routine dynamics theory to transform our conceptualization of HR roles in e-HRM from nominal towards roles that are accomplished through the routinized sequence of actions. These two theoretical lenses align with the fundamental beliefs of the sociomaterial perspective and hold significant promise in expanding our understanding of the effect of technology on HRM practices and the role of HR actors by moving away from evaluating the success of e-HRM as the gap between actual and intended practices, towards an exploration of emergent practices conceptualized as HRM activities.

1.2 Research objectives and research questions

The key objective of the dissertation is to deepen our understanding of the role of technology in HRM practice and for HRM actors, by shedding light on the intertwinement of actor-centric, social processes and material artefacts in the practice of e-HRM. This objective can be formulated as the following research question:

> *How is HRM as a sociomaterial practice evolving in interaction with digital technology?*

This overarching research question is addressed through three papers that comprise this compilation-based dissertation.

In Paper 1, based on a comprehensive review of the existing e-HRM literature, the objective was to explore the potential of the sociomaterial perspective in terms of how it can improve our conceptualization and empirical examination of e-HRM. The review juxtaposes existing perspectives within the e-HRM literature with that of the sociomaterial perspective to illustrate the kinds of complementary theoretical and conceptual tools that can be applied to address current limitations in our understanding of the impact of e-HRM. Hence, the paper aims to answer the following question:

> 1. *How can the sociomaterial perspective improve our conceptualization of technology, actors and practices in e-HRM research, and how could this be advanced in a future research agenda?*

In Paper 2, the objective was to understand empirically the entanglements of material artefacts and social processes in performance evaluation – a core HRM practice carried out by line managers. Adopting an ABV, the paper attempts to shed light on the role of technology in line managers' performance evaluation of mobile teleworkers, elaborating on the kinds of attentional stimuli that are generated by technology as part of the broader sociomaterial work environment, and how these, together with the attentional perspectives of the manager, influence attentional engagement. This paper thus focuses on the following research question:

> 2. *How do technology and social events as attentional stimuli on the one hand, and individual attentional perspectives, on the other, interact to shape the attentional engagement of line managers in the practice of performance evaluation?*

Finally, the objective of Paper 3 was to explore how technology enables the transformation of HR professional roles. Applying routine dynamics perspective, the paper aims to deepen our understanding of transforming HR roles as practiced through patterned routinized activities, rooted in knowledge, and emerging around active implementation and use of technology. This paper attempts to answer the following research question:

> 3. *How do HRM technologies change HR routines and impact HR professionals' roles?*

1.3 Theoretical contributions

This dissertation intends to make scientific contributions to e-HRM research in three main ways.

First, the adoption of a sociomaterial perspective serves to advance our understanding of the role of technology in terms of its social and material properties in HRM. I lay the ground for empirical research within the sociomaterial perspective by examining the existing e-HRM literature with a focus on highlighting the underlying assumptions of the e-HRM literature about technology, actors, and practices that potentially influence how technological implementation has been studied and theorized in the organizational context. The dissertation offers the sociomaterial perspective as a way to respond to calls for acknowledging the materiality of technology and the agency of human actors as equally important for the formation of HRM practices with a focus on its dynamic nature. Sociomateriality also offers the notion of technology as a material artefact deeply embedded in those practices, thus impacting the way in which HRM practice and process play out. According to this view, HRM is accomplished in situ though the encounter of material features of technology and individuals engaging with them.

Second, addressing the lack of diversity of actors represented in the e-HRM literature and their use of technology, the dissertation brings HR professionals and line managers and their activities into empirical research, theorizing about them as main actors of HRM possessing agency to enact, reproduce or change HRM practices. By focusing on what line managers and HR professionals do in patterned ways, I am able to theorize about and empirically examine practices that have formed around technology, as well as how the social and material orders adjust or configure those practices. For example, Paper 2 theorizes about performance evaluation as an attentional practice of technology and examines the attentional structures that define where managers engage their attention to evaluate the work of their mobile teleworking subordinates. The paper shows how stimuli can be both material and social, and how individual managerial perspectives can be complex and based both on own identity perceptions as well as spatial-material orientations.

Third, the dissertation contributes to the discussion on the impact of technology for the transformation of the role of HR that is topical within the e-HRM literature, as well as the HRM literature more generally. Responding to calls to focus on actual instead of intended and desired HRM opened up possibilities to show how the roles of HR professionals emerge and change around the active use of

technology. By applying a routine dynamics perspective, the dissertation sheds light on the microprocesses that occur when an organization attempts to transform its HR function into a strategic one with the help of technology. The empirical focus of the routine dynamics perspective on actions and patterned routinized activities illustrates how the practicing of HRM changes in situ, and how material, social and human agencies are entangled in the practicing of HRM. For example, Paper 3 focuses on the role of HR administrative personnel in the enactment of technology, and how it empowered them.

1.4 The structure of the dissertation

The dissertation is structured into four main sections (Table 1). Following this introduction, I will provide a brief overview of the e-HRM literature, its assumptions about technology and actors being on two extremes of determinism and voluntarism. I then briefly introduce the sociomaterial perspective, attention-based view and routine dynamics theory that I have applied in my work to address the objectives of the dissertation. Section 3 discusses the methodology of the dissertation in detail, and Section 4 provides brief summaries of the three papers and outlines their key findings. Finally, in the last Section 5, I discuss the contributions of my dissertation in connection with existing work in the field of e-HRM, followed by conclusions, limitations of the dissertation and future research avenues.

Table 1. Papers comprising this compilation-based dissertation

	Paper 1	Paper 2	Paper 3
Title	"Beyond the 'e' in e-HRM research: integrating a sociomaterial perspective"	"Evaluating performance in the context of mobile telework: an attention-based view"	"Digital empowerment: a routine dynamics perspective on HR transformation"
Research questions	How can concepts from theories grounded in sociomateriality provide new, complementary ways to explain the interplay between technology, actors and HRM practices?	How do technology and social events as attentional stimuli on the one hand, and individual attentional perspectives, on the other, interact to shape the attentional engagement of line managers in performance evaluation?	How do HRM technologies change HR routines and impact HR professionals' roles?
Theoretical perspective	Sociomaterial perspective	Attention-based view	Routine dynamics perspective
Research design	Conceptual: literature review	Empirical: single in-depth qualitative case study	Empirical: single in-depth qualitative case study

2 THEORETICAL BACKGROUND

2.1 Overview of the e-HRM literature

For the purpose of this dissertation, the concept of e-HRM is defined as follows:

> *[…] an umbrella term covering all possible integration mechanisms and contents between HRM and Information Technologies aiming at creating value within and across organisations for targeted employees and management. Bondarouk and Ruël (2009: 507).*

This definition highlights the application of technology to support different kinds of HRM tasks, and stresses four critical aspects: technology, actors, HRM practices and the consequences of technology implementation. These aspects are critical to nearly all studies on the intersection of technology and organization studies (Orlikowski & Barley, 2001).

Research in this area is diverse, and it is difficult to discern a clear theoretical base for e-HRM (Strohmeier, 2009; Marler & Fisher, 2013; Bondarouk et al., 2017). Existing work can be divided into two main streams: i) research focusing on the consequences of implementing e-HRM; and ii) research focusing on factors/obstacles in the implementation of digital tools. Studies of the consequences of e-HRM distinguish between three kinds of effects: operational, relational, and transformational (Lepak and Snell, 1998; Ruël et al., 2004). First, operational effects are improvements in the efficiency and effectiveness of HRM processes (Ruël et al., 2004). The underlying idea is that technology reduces time required for HRM tasks through the automation. Decreased amounts of administrative work, and increased process speed are commonly perceived as benefits of introducing e-HRM (Parry & Tyson, 2011). Second, relational effects refer to the impact on networks of HR professionals, managers, employees, and external agents. Delivering HR information remotely, with the help of technology, allows line managers to execute HRM tasks on their own, and can improve communication between employees, managers, HR and external service providers (Lepak & Snell, 1998), the accuracy of information and simplification of processes (Gardner et al., 2003). And third, the transformational effects of e-HRM drive HR towards a more strategic role. A frequent assumption in e-HRM research is that time freed up for HR professionals as a result of implementing e-HRM is redirected to more strategic tasks.

Two problems repeatedly cited in existing e-HRM literature include the lack of consistency in the findings of empirical studies on e-HRM, and the absence of a general theoretical framework of factors affecting the adoption and consequences of e-HRM (Strohmeier, 2007; Bondarouk et al., 2017). While the value of striving to develop a comprehensive framework of influencing factors can be debated, the inconsistency of empirical findings about the impact of technology on organizations is interesting as it directs our attention to how technology is conceptualized in e-HRM research. Technology is frequently regarded as an entity that conducts organizational processes, and human actions can either be determined by or determine established e-processes. This line of thinking raises questions about interdependence - the dominant influence of either technology or humans - and further enhances our comprehension of technology as distinct from organizations and individuals.

While the literature on e-HRM does not offer an in-depth discussion about technology itself, it does compare the organizational motives for implementing e-HRM with the outcomes: what the company expects from the technology and what it gets (Parry & Tyson, 2011). Being portrayed as a 'tool', e-HRM impacts, influences, or changes organizational HRM processes, the role of HR in the organization, and other HRM activities. The e-HRM literature links abstract e-HRM 'tools' to increased productivity (Ruël et al., 2007; Ruël et al., 2004; Gardner et al., 2003; Parry & Tyson, 2011), improved information sharing (Parry & Tyson, 2011; Ruël et al, 2004), and improved HR service (Voermans & van Veldhoven, 2006, Lepak & Snell, 1998, Ruël et al, 2004). In the majority of the studies, e-HRM is a tool to substitute routinized manual work (Bondarouk & Ruël, 2013; Parry, 2011; Gardner et al., 2003; Lepak & Snell, 1998).

This deterministic view of technology dominates the research on e-HRM and influences the way in which research has been conducted, the questions that have been asked and the conclusions that have been drawn (Marler & Fisher, 2013; Strohmeier, 2007). Typically, research has built arguments on the premise that e-HRM defines processes that employee-users have no other choice but to follow. Similarly, it is assumed that technological solutions for HRM are based on 'best practices' (Huselid, 1995) and hence, are strongly associated with the strategic HRM literature (Marler & Parry, 2016). Conceptual work in e-HRM about the ongoing changes due to digitalization and how things should be, is written in a positivistic manner. This notwithstanding, empirical research has produced ambiguous conclusions about the influence of e-HRM.

In light of the conflicting results about the effect of technology on the HR function and its role in organizations, e-HRM research has sought a deeper understanding

of the challenges linked to the successful adoption of technology. It has found some of the answers in the users, their competencies and skills in using technology, and their acceptance of it. Among the key factors examined are the engagement of the users, training (Parry & Tyson, 2011; Bell et al., 2006), attitudes towards e-HRM (Voermans & van Veldhoven, 2007), and age and gender (Gardner et al., 2003). Bell et al. (2006) is an example of a study that discusses the need for HR to develop skills and competencies to implement e-HRM successfully and, in particular, to gain a strategic role within the organization. Based on interviews with HR representatives, Bell et al. (2006) suggest three knowledge areas that HR professionals need to develop further: knowledge of the business, change management, and technology expertise. Similarly, Parry and Tyson (2011) suggest that a lack of necessary skills among HR personnel hinders the implementation of new technology, as does a lack of training for users and their actual engagement with the system. Gardner et al. (2003) explore the moderating effects of HR professionals, functional orientation, and generalist or functional HR specialists on the successful adoption of e-HRM systems.

Other e-HRM studies do not concentrate on who the users are, but on their behavior as users, the use or non-use of technology, the frequency of use (Bondarouk et al., 2017), and users supporting e-HRM (Ruël et al., 2007). The Technology Acceptance Model and its variations have influenced e-HRM studies in explaining user behavior (Heikkila & Smale, 2011; Voermans & van Veldhoven, 2007). TAM assumes that the user's perceptions of the usefulness and ease of use of IT are factors that influence to what extent the implemented system is used. While the TAM model helps to explain the motivation for accepting or rejecting the use of IT, it does not adequately capture the complexity of social processes underlying IT implementation. It simplifies the context in which e-HRM operates by focusing only on users and their perceptions.

Overall, the e-HRM literature has come up against difficulties in determining the circumstances where technological outcomes become positive and intended, acknowledging that this is a complex phenomenon. This complexity stems from a range of social activities, perceptions, motivations, and organizational internal and external factors (Marler & Parry, 2016). In response to the e-HRM field's continued search for appropriate theoretical frameworks (Strohmeier, 2007; Bondarouk & Brewster, 2016; Marler & Fisher, 2013), I draw upon the sociomaterial perspective (Orlikowski & Scott, 2008; Leonardi, 2013), which provides a different basis upon which to study and theorize about the consequences of technology, HRM practices, actors and technology comprising those practices. I also draw upon the attention-based view and routine dynamics perspective that informed my empirical studies, in which where I explore how

technology influences line managers' performance evaluation in practice, and the role of HR professionals in the organization, respectively.

2.2 Overview of the sociomaterial perspective

Studies in the area of information systems and organizations view technology as a complex artefact that is both material and social by nature (Orlikowski & Scott, 2008; Leonardi, 2013; Cecez-Kecmanovic et al., 2014). Orlikowski and Scott (2008) refer to sociomateriality to introduce the notion of materiality of technology, its technical structures, and the importance of examining how materiality (e.g., particular software for recruitment) is intrinsic to everyday organizational/human activities (e.g., recruitment practices). The starting point of sociomateriality is not how technology influences humans, but rather how materiality is inherently present in our everyday activities.

There is no one sociomaterial theory, instead there is a range of theories that recognize the entanglement of the material and social but differ in terms of their ontological assumptions (Leonardi, 2013). The core dilemma is whether the social world is constitutive of pre-existing entities (substantivism) or ever-evolving relationships (relational thinking) (Embrayer, 1997). The former, often referred to as a critical realist philosophical stance (Boudreau & Robey, 2005; Bygstad et al, 2016), centers on theorizing the material and its constitutive role in organizing. Material objects are viewed as part of the organizational structure, and both objects and structure can afford or constrain human action. Structuration theories, duality of technology and socio-technical systems are holistic theories where structures or social systems are sources of action. The human subject is at the center of actions. Agency is defined as the capacity to act, and all actions involve motivation, reflection and rationalization which are exclusively human intentions but interconnected with other entities, e.g. material properties of technology stand in the way of humans when they work to achieve their goals (Boudreau & Robey, 2005).

Interaction between agency and the system is explained through the concept of affordance (Gibson, 1979). Affordance refers to something in the environment, e.g. social structures or organizations, that contributes to the interaction between that environment and agency. Agency and affordance are relational concepts which means affordance can only exist in the interaction of human and material entities. Affordance cannot exist without human agency because even if environments enable or constrain, humans still have the power to choose how to behave, producing anticipated or novel outcomes. Following this, affordance is perceived

by human agents. In substantivism, the sociomaterial perspective provides the means to focus on human actors and how they exercise their agency with regards to constraining and enabling the effect of sociomaterial practices.

The analytical focus of sociomaterial studies is on practice that is often defined as "embodied, materially mediated arrays of human activity centrally organized around shared practical understandings" (Schatzki, 2001: p.2). Reproduced practices that are shared among individuals can create significant consequences for organizational processes and organizing in general. Accordingly, it is through practice that material agency and human agency gets entangled to produce realities as we know them. The key foundation of relational ontology is that actions are performative by nature. This applies not only to language in the form of words and sentences (Butler, 1993), but is also true for material artefacts such as technology, buildings and human bodies, which are fully entangled with social elements and are essential for enactment. Enactment refers to the use of material artefacts to produce outcomes (Leonardi & Barley, 2010). When individuals employ technology with a particular purpose, they enact it through their interaction with it, and the result of such enactment is inherently uncertain due to the emergence of unpredictable and novel patterns. Organizations, whether seen as a bundle of practices, nets of activities or structural arrangements, constantly reproduce themselves in action. Actions drive change and stability, and are the primary focus of analysis in sociomaterial theories.

This dissertation argues that a sociomaterial perspective has potential to deepen our understanding of the complexity of technology and its implementation in organizational settings. It allows us to think about the consequences of technology implementation for different outcomes, for example emergent ones. It provides a means to think of a variety of concepts, e.g. power or identity, as dynamic relationships, which are produced or reproduced around technology.

A sociomaterial perspective has potential to extend the literature on e-HRM by including a focus on concepts such as affordance and enactment, human and material agency, and situated and dynamic HRM practices, which help to further deepen our understanding and theorization of the complex relationships between technology, human actors and social, contextual elements, and provide complementary explanations regarding the consequences of introducing HRM technology. Sociomateriality recognizes technology as a complex artefact in which human and material are equally important for the emergence of new HRM practices. Moreover, the sociomaterial perspective implies focusing on situated activities, understanding their patterns and considering the sociomaterial environment as a source of the observed activities.

2.3 Overview of the attention-based view

The attention-based view (ABV) was chosen as a theoretical lens in Paper 2 to help shed light on the role of technology in performance evaluation (PE). Adopting a sociomaterial view on technology, the focus was on attention as something line managers do. Conceptualizing performance evaluation as a continuous process of sustaining managerial attention on specific issues that inform their evaluation judgments, ABV was applied to examine attentional stimuli generated by technology as part of the broader socio-technical work environment, and how these combined with attentional perspectives of managers to influence what they direct their time, energy and effort on when evaluating the performance of their subordinates.

Traditionally, attention is understood as a self-controlled cognitive process central to planning, problem-solving and decision-making processes. Within the frame of the behavioral theory of the firm, attention research has focused explicitly on executives and their ability to control and sustain their attention on organizational issues, as well as their actions to solve them. While organizational outcomes are, at least partly, the result of the selective attention of executives, more than cognitive processes alone is needed to explain how and why attention is directed towards some issues rather than others. The ABV (Ocasio, 1997), addresses the unidirectional attention problem by explaining attention as a multilevel process shaped by individuals, organizations and the environment. The underlying idea is that the issues decision-makers focus their attention on depends on the particular context that they find themselves in. The latter depends on how a firm's social and material structures (rules, resources and relationships) regulate and control the distribution of the issues. Hence, in ABV, attention is situated and distributed.

A central concept in ABV is attentional engagement – the sustained allocation of cognitive resources, i.e. time, energy, and effort to guide problem-solving, planning, decision-making and sense-making (Ocasio, 2011). The problem of variety, volume and fragmentation of attentional stimuli means that individuals need to balance between them. Attentional engagement is understood as the synthesis of top-down cognitive processes (attentional perspective) and bottom-up stimuli that trigger attention (attentional stimuli) (Ocasio, 2011). Attentional perspectives are the structures that generate awareness and focus (Nicolini & Korica, 2021). Individuals can have multiple competing or conflicting attentional perspectives, defined by individual's perceived identities, occupational role, personal and organizational goals, experience, position in the organizational hierarchy and other contextual specifics (Ocasio, 2011). Attentional stimuli are external triggers (data, direct observations, email, weekly goals, requests, etc.) that

are part of a situated environment where the action of paying attention to some issues takes place.

Various scholars have applied ABV to explain the strategy making process (Joseph & Ocasio, 2012; Joseph & Wilson, 2018), strategic planning (Ketokivi & Castaner, 2004), relationships between headquarter firms and their subsidiaries in the IB field (Ambos & Birkinshaw, 2010) among others. The structural determinants of attention in ABV and situated decision-making became the focus of this research as it provided a means to explain how the attention of individuals in the firm comes into interaction with the firm's social structures, specifically organizational control mechanisms. Empirical studies applying ABV started to extend and develop the theory. For example, Ocasio, Laamanen and Vaara (2018: 156) argued for deeper consideration of the "structure and role of communication channels as a means to distribute organizational attention." Nicolini and Korica (2021) contributed to ABV by an in-depth understanding of attentional engagement of firms' executives by studying the everyday practice of executives and arguing that their attentional engagement is the result of not only social structures or communication channels but also of material and other contextual social elements. Attention as practice is the result of applying the practice lens when studying managers' attention. Social practices are about "routinized materially mediated regimes of doing, saying, knowing and relating as building blocks of understanding organizational phenomena." (Nicolini & Korica, 2021: 5) The practice lens sees attention as mundane sociomaterial activity in situ, suggesting that attention is affected and structured by the managers' environment. This includes objects surrounding managers and their interactional order.

This dissertation finds the latter development of ABV as applicable for explaining how managers choose to attend to specific issues in performance evaluation practice considering the variety and volume of the available information, some of which generated by technology. In applying the ABV, the dissertation contributes to the e-HRM literature by shedding light on the role of technology in HRM practice, responding to the need for actor-centric research that HRM and e-HRM in particular has been lacking. Focusing on performance evaluation as a specific practice, the study in Paper 2 examines the situated activities of line managers and their experiences with technology in relation to other attentional stimuli and their own attentional perspectives. Looking at the everyday situated activities of managers through the prism of their attentional engagement allows us to shed light and explain how managers enact technology in the context of a core HRM practice such as performance evaluation.

2.4 Overview of the routine dynamics perspective

In Paper 3, the focus is on how HR professionals become strategic via re-organizing HR into administrative and strategic functions with the help of technology. Adopting a routine dynamics lens (Feldman & Pentland, 2003; Feldman et al. 2016) allowed us to capture actions of HR professionals in-situ, and use the actions as micro-foundations to explain the macro-level phenomenon of 'becoming a strategic HR partner'. The routine dynamics provides a conceptual tool for defining professional roles as something people do in patterned ways, and studying the roles in relation to other roles, which we do in Paper 3 to show details of unseen dynamic and complex processes behind the reorganizing.

Defined as "repetitive, recognizable patterns of interdependent actions, carried out by multiple actors", routines are considered inherently dynamic (Feldman & Pentland, 2003: 95) and consequential for organizational processes (Feldman & Orlikowski, 2011). Feldman and Pentland (2003) describe routines as a recursive cycle of performative aspects (one-time performances in specific situations) and ostensive aspects (patterned performance). Routines are not considered as building blocks of capabilities that can be moved, transferred or adapted across firms (Parmigiani & Howard-Grenville, 2011), but rather as dynamically produced and reproduced patterns of actions that are highly situative and dynamic. Actions refer to steps in a process of accomplishing work tasks, such as making employment contracts, paying invoices, ordering office supplies, etc. Actions are the foundation of any organizational routines: if actions follow one another in recognizable and repetitive patterns, routine is performed (Feldman and Pentland, 2003). Actions are in the foreground of routine dynamics and constitute social order, hence they are the unit of observation, while patterns of actions are units of analysis (Feldman et al., 2016). Analyzing patterns of actions helps to improve the understanding of how routines and actions within routines are related to each other, enacting a variety of sequences (Spee et al., 2016) entailing multiple actions and actants, that create variations in the routines (Sele & Grand, 2016).

Other core observations of the routine dynamics view include that of are actors as knowledgeable and reflective. While actions are the main object of observation, there can be no actions without the actors. However, putting actions in the foreground allows researchers to remain open about the source of the routine, which can be human or non-human. As we often think of actors as humans, the word 'actant' is used to define human, non-human actors or often it is entanglement of both.

Routines take effort to be accomplished, moreover sustaining the same patterns of actions requires more effort than to perform an accidental action (Pentland & Rueter, 1994). Kho and Spee (2021) connect not just effortful but skillful accomplishment of routines to becoming and doing within professions. Through the knowledge and expertise that people apply at work, they play a role that connects them to specific professions. hence, the dynamic of routines is especially useful for providing us with novel insights for a better understanding of HR professional roles by reconceptualizing them as unfolding in the process of accomplishing tasks and applying relevant expertise.

The routine dynamics perspective acknowledges the importance of material artefacts for forming routines. On the one hand, material artefacts such as technology can be part of the external background where technology sets up the frames for performing one's work, i.e. the standard operating procedures; people establish routines around artefacts, by complying to standard routines and finding ways to avoid the compliance. On the other hand, artefacts and actors are mutually constitutive of actions, thus routines are sociomaterial ensembles, comprising bundles of actions and artefacts. For example, Spee at al. (2016) show how a ratings sheet as an artefact is the core of the insurance team routine that allows them to make changes to deviate from the sequence of actions depending on the outcome it creates. D'Adderio (2011) argues that while artefacts are not routines in themselves, they are core to routines in that they coevolve "through being involved in performative struggles among conflicting and complementary organizational agencies" (p 208). Artefacts contribute to forming routines by at least orienting the actions of professionals based on the job they do, be it ERP systems, check-lists or contract templates.

The routine dynamics view contributes to the e-HRM literature by shifting focus from studying normative and static HR roles towards a more dynamic conceptualization of roles defined by the "patterned ways in which people play them" (Barley, 2015: 6). HR roles are part of organizational work systems, and relational to roles played by other occupational groups as well as different groups within HR. Instead of conceptualizing HR roles as formal roles and statuses, it is possible to look deeper at how HR roles are formed through HR actors' repetitive and shared activities, which in turn changes our focus from status to the underlying conditions and mechanisms of the change. Specifically, this raises questions about the ways in which HR professionals construct new routines involving HRM technology within organizations, the production of power and identity in HRM activities, and the alignment of HR professionals' activities with those of line managers, employees, and other occupational groups within the organization.

3 METHOD

Empirical Papers 2 and 3 of this dissertation adopt a case study approach, using ethnographic methods to examine how HRM as a sociomaterial practice evolves in interaction with digital technology. The empirical parts of the dissertation are based on two different data sets collected in 2018 and 2021 respectively. Despite being different data sets, I used similar qualitative research methods such as shadowing, semi-structured interviews, observations and internal organizational documents. In the following sections, I describe the research design and methods of this dissertation in detail. Specifically, I motivate the single case study methodology, explain the research settings and company selection, and describe the data collection and analysis techniques applied.

3.1 Research philosophy

The choice of theoretical lenses has influenced the choice of research strategy, which together have been influenced by the philosophical assumptions that I hold about reality and our knowledge of it, i.e. "what is real, what can be known and how facts can be faithfully rendered" (Miles & Huberman, 1994: 4). To address these questions, in what follows, I discuss the dissertation's ontological, epistemological and methodological foundations.

The sociomaterial view situates my work on the spectrum of voluntarism vs. determinism (Orlikowski & Scott, 2008; Strohmeier, 2009) and relativism vs. substantivism debates (Emirbayer, 1997, Leonardi, 2013). Voluntarism takes a stance that humans have agency, i.e. an ability to act according to 'free will', meaning they can shape reality according to their goals and interests. Determinism, on the contrary, holds that human actions are caused by technological, cultural, social and other forces external and independent of our behavior. The sociomaterial perspective makes calls for research to avoid falling into the extremes of voluntarism and determinism (Orlikowski & Scott, 2008). Instead, it advocates an equal emphasis on agency and materiality when studying the impact of technology on the phenomenon in focus. Taking both into account means acknowledging that they are constitutive of each other. Therefore, one should pay close attention to what technology allows users to do, what it does not allow for, and how actors avoid technology to fulfil their interests and goals. It requires researchers to understand how technology with its material features, gets enacted and becomes entangled in people's everyday work practices (Orlikowski & Scott, 2008; Leonardi, 2013; Cecez-Kecmanovic et al., 2014; Feldman & Orlikowski, 2011).

The ontological debate between relativism and substantivism (Leonardi, 2013), i.e. whether social and material properties exist as separate entities or not is also a key issue in the context of the sociomaterial view. Relativists argue that everything exists in relation to each other; human beings and material things are constantly performed and brought into being through relations (Emirbayer, 1997). Substantivists (Leonardi, 2013; Mutch, 2013) argue that substances such as human beings, material artefacts and other things exist in separation from each other as self-contained entities that interact and affect each other when placed together. The chosen ontological stance influences the interpretation of the data, for example how are sources of actions are identified: as sociomaterial structures (substantivism) or as sociomaterial shared practices (relativism)?

Regarding my studies, I did not start out with a specific ontological assumption about the sources of the actions I studied. Rather, the choices came along with the theories I chose to apply to best interpret the data in the abduction process of the analysis. The attention-based view allowed me to explain the attentional structures, while routine dynamics helped define the sources of empowerment of HR professionals.

Epistemology refers to the views about the relationship between the researcher and researched reality. Every individual understands the environment around them from their own point of view (Alvesson & Skölberg, 2017). Hence, our knowledge is subjectively based on our individual experiences and insights when studying reality. Knowledge is embedded in and recreated through "doings". Thus, when individuals do something, they do it based on their tacit knowledge of how it must be done, which they learn over time. The subjective epistemological stance guided my views on how I obtain knowledge about the phenomena in focus, which is to go out in the field and learn how people experience technology, their environment and the changes technology imposes on them. Those experiences and values are unique to each individual.

In my research, I adopted an interpretive approach to understanding the sociomaterial world from the perspective of subjective experiences (Burrell & Morgan, 1979). This approach recognizes that the empirical world is complex, nuanced, and often unique, and therefore cannot be fully quantified or objectively measured. Instead, by examining the individual perspectives, material artefacts, and organizational context of everyday activities and interactions, we can gain insights into the fluid and continuously changing nature of organizational reality. I have chosen this approach for its emphasis on the importance of interpretation in constructing a nuanced understanding of organizational reality (Glaser & Strauss, 1999; Orlikowski & Scott, 2008), specifically the mechanisms and

sociomaterial structures that underlie specific HRM practices or role transformations.

3.2 Research approach

I adopted a case study methodology, "a research strategy that focuses on understanding the dynamics present within single settings" (Eisenhardt, 1989: 534). It is qualitative in nature and draws on various data collection methods. In the context of my empirical studies, I relied on ethnographic methods of data collection, including semi-structured interviews and observational data such as shadowing and observation in meetings. In addition, I had access to the organizations' internal documentation, including structure charts, PowerPoint presentations from meetings, various reports etc., which provided additional information about ongoing processes.

In both empirical studies (Papers 2 and 3), I pursued a single case study approach, which is often characterized by the researcher's deep engagement in the settings to be studied (Eisenhardt, 1989). There were two main reasons for choosing the single case study method.

First, following the key objective of the dissertation, which is to understand how HRM practice evolves in interaction with technology, and ontological assumptions about HRM practice as dynamically unfolding, I aimed to get in-depth understanding of the context in which the phenomena took place. Since I was specifically interested in the activities of the actors I observed at work, I had to consider that sources and patterns of actions cannot be fully understood without observing them in the context in which they occur. Moreover, my intentions to understand HRM activities beyond the observable, and uncover mechanisms of "becoming" practice/routine/role, made it necessary to understand the context more deeply, including its material and social aspects. Hence, a case study approach was suitable as it assumes a rich contextual description around the focal phenomena (Yin, 2003; Lincoln & Guba, 1995).

Second, according to my beliefs about technology and the impact it has on organizations, organizational reality is constantly evolving through the actions and agency of individuals and the materiality that surrounds them. Case studies allow for going into the field with an open question and a flexible research design, where the specific research question and the case itself are dynamic and evolve as the organizational reality and empirical research unfold (Piekkari & Welch, 2017). The nature of case studies is inductive or abductive, which means that concepts and

theoretical explanations are derived from the context and case itself, effectively describing the research phenomenon.

Welch et al. (2011) in their classification of case studies argue that a case study can be used for interpretations and sense-making to understand particular theoretical explanations rather than generate generalizable causal explanations. Case studies allow researchers to understand actions through accessing their experiences and intentions. Moreover, it allows for theoretical divergence, i.e. different styles of theorizing and reporting research results (Cornelissen, 2017). Thus, I found a case study as the most appropriate approach for my research goals.

3.2.1 Case selection

Certain selection criteria were used to choose the case companies in focus in both empirical studies. First, following the aim of the dissertation – to understand and explain how HRM as sociomaterial practice evolves in interaction with technology – one of the main criteria for case selection was to be able to observe how actors of HRM use or start to use technology to perform HRM activities. e-HRM as a concept covers all kinds of HRM practices performed through technology, so for me one of the choices was to limit the cases to one particular technology.

Second, my research philosophy and approach required deep access to an organizational research setting in which I could get close to individual actors and be able to create personal and trustful relationships. Such close interaction with actors was planned to be achieved through frequent company visits, shadowing individuals, observing meetings and doing interviews. The interpretive research and open research question required flexibility from me as a researcher and from the case organization in terms of the kind of data to be collected as the research unfolded and research question narrowed down.

I chose to use different data sets for the two empirical papers in the dissertation as they both in their unique ways highlight how different key HRM actors (line managers and HR professionals) interact with technology to shape the practice of HRM. My first empirical study focuses on remote performance evaluation in the context of mobile telework. Such a multi-location context is a good example of a hybrid work setting that is becoming increasingly commonplace. This case is conducive for understanding how line managers implement HRM practices, in this case performance evaluation, in remote work settings. Consequently, it was valuable to receive access to observe and shadow their work, as well as understand the company's expectations about their work. The case study was conducted in the

Russian subsidiary of a large global organization, which helped to build stronger relationships with participants as my own origin and native language is Russian.

The second empirical case examined the implementation of technology as it unfolded in real time, and the changing role of HR professionals in the context of an institute of higher education. Organizational goals to reorganize the HR department structure with the help of technology allowed a focus on HR professionals' routines and the impact of technology on the role of HR. The reorganizational effort was about standardization and unification of the existing HR units and their services across the different units as well as to increase efficiency, enabling HR to become a strategic actor. The case was revelatory in nature as the opportunity to follow the implementation of the new technology combined with the restructuring efforts in-situ rendered the phenomena of interest more readily observable (Pettigrew, 1990).

3.3 Data Collection

To collect the data for the dissertation I followed the activities of the two case companies intensively over certain periods of time. Following the basic principles of ethnographic methods, I engaged with my case organizations, attending different official and unofficial events and meetings, spending time in the organizational premises during working hours and conducting interviews. During the fieldwork, I generated empirical materials including field notes, interview transcripts, photographs, and physical and digital copies of the internal documents. Below, I elaborate on the data collection process in more detail for each of the two case companies.

3.3.1 Case study 1: description and data collection

The context for the case in Paper 2 is the maintenance department of a local unit of a multinational engineering and service company. Teams of mechanics (subordinates) are overseen by engineers (line managers). Collectively, they are responsible for routine maintenance work, preventive repairs, and equipment work improvement when the client orders. The mechanics always work individually at the client sites, remotely from their team and line managers. The mechanics' day is scheduled according to planned maintenance but can be interrupted by the call centre to solve urgent tasks at client sites. The expectation of fast reaction times to callouts, the number of maintenance jobs and the distance between the sites requires careful planning to manage everything on time.

The company implemented a real-time monitoring tool, Wire, to improve the efficiency and quality of maintenance services and reporting systems. The multifaceted tool serves the needs of mechanics by enabling them to schedule, report, and keep track of their activities efficiently. Wire also communicates client callouts to the mechanics and provides access to real-time information about ongoing activities for different parties of the maintenance service chain (from clients to management). From the Wire, line managers have real-time information about individual mechanics' ongoing tasks, progress, and results.

The case study was conducted in the autumn of 2018 and during spring 2019. Through personal networks I engaged into conversation with the CEO and HR director of the Russian subsidiary of a large global manufacturing and engineering company. The organization had implemented the Wire in its maintenance service department two years earlier, however, senior management did not feel it was used to its full capacity. Some managers ignored the existence of it, others relied on it too much, and the data in the system was not always up to date. We agreed that I would first interview managers and also spend some time with them to gain an understanding of their work, provided that this was ok for the managers themselves.

The interviews were designed as semi structured, with the aim of gaining an understanding of the work of the line managers and their interactions with mechanics and available digital tools. I chose to concentrate on three main themes: their everyday work activities (major tasks, daily activities, interactions with others in the workplace), their interactions with their subordinates the mechanics (in particular concerning performance evaluation), and the digital tools they used in their work. At the end of the interviews I asked if they would consent to me following their work activities in real-time over the course of a few days. I noted down who agreed, and also asked permission from their direct superior. After discussing the formalities and safety requirements I chose to shadow three line managers whom I, based on the interviews, found to vary in terms of how they spent their work days, and how they talked about their own work as supervisors. When studying the performance evaluation in a remote setting, shadowing was a natural choice as it is helpful for studying people on the move (Czarniawska, 2014).

As a result of the fieldwork, the qualitative data consisted of 29 interviews (16 with line managers, 3 with division directors, 5 with mechanics, 1 with the HR director and 4 with service development managers) paired with the shadowing of line managers for a total of 12 days in order to gain further insight into their everyday performance evaluation practices. The interviews with senior managers as well as the first 9 interviews with line managers were done prior to the shadowing. The

rest of the interviews were done in parallel to the shadowing activities. I spent in total 12 full days with three line managers, four days each. The fieldnotes from the shadowing amounted to roughly 100 pages and about ten photographs, through which I noted down my observations, reactions and reflections. During the shadowing I paid attention to what managers did during the day, their interactions with colleagues, clients and employees, the methods of such interactions, and their work on computers, asking them to specifying the tasks they focused on at different times.

During the interviews and fieldwork, I at times requested additional material, for example the official job descriptions of the line managers or the hierarchical structure of the organization, and got access to most of these documents.

3.3.2 Case study 2: description and data collection

The context for the case in Paper 3 is a large institute of higher education with approximately 12000 students, 400 professors and 4000 other faculty and staff (DigiU). DigiU consists of six different units with their own HR functions (SHR) and an organization-wide HR unit (OHR). Since a major reorganization about 10 years ago, different initiatives have been carried out over the years to align as many processes as possible.

To push their digitalization strategy DigiU decided to adopt a cloud-based HR system, namely TaskFlow, considering it as an enabler of common HR processes across units. From the start, TaskFlow as a technology was envisioned as a driver for achieving efficiency of HRM processes and enabling the reorganization of the HR function. In particular, they envisioned HR to take on a more strategic role, which entails building a partnership with managers to develop people management practices.

Case study 2 started shortly after I finished the data collection for the first case study. Through our academic network my co-author and I got the opportunity to follow the implementation process of TaskFlow in DigiU. Our first meeting with HR management took place in the spring of 2019 when TaskFlow was officially launched. During the meeting we learned about the project, its objectives and timeline and agreed on the data collection methods. Our main data sources were interviews, observations, and documents.

We conducted 31 semi-structured interviews with 24 respondents which lasted between 40 and 70 minutes each. We did a first round of interviews with 24 respondents in 2019 and then conducted follow up interviews 12-15 months later

with 6 respondents. Whereas in the first round of interviews we followed a similar interview protocol for everyone, the follow-up interviews focused more specifically on individual respondents' current activities and challenges, and was driven by our ongoing data analysis efforts. During the interviews we asked about how technology gets implemented by different organizational actors and the role of the interviewees in the process, as well as their task scope and their interactions with different members of the organization.

Shortly after the first interviews, we were granted access to observe the HR professionals at work. To be able to follow both SHR and OHR we split up and each followed what was happening as the new HR tool was rolled out. While my co-author was observing the implementation at the OHR, I mainly shadowed HR secretaries and HR partners within SHR and were able to join meetings as well as events organized for employees and managers to facilitate the use of TaskFlow. We also participated in HR forums held twice a year where everyone got together for about 4 hours to discuss plans, ongoing activities and issues that needs to be solved. While the first part of the forum was structured as presentations on various topics, the second part was organized as a workshop where participants discussed potential solutions for perceived challenges. During COVID-19 such forums were held online and a lot of discussions were summarized on the online whiteboards which we also had access to.

In additional to interviews and observations, we also had access to a wide variety of internal documents concerning, for example, the discussion process and goals set for the transformation, the results of an internal survey on who does what within the DigiU HR function, and descriptions of the tasks of each HR role at SHR and OHR.

3.4 Data analysis

Since the empirical studies are based on different data and use different theoretical perspectives, in this section I will outline the general principles of my analytical approach. While exploratory, qualitative research in general is free from pre-existing theoretical frameworks, in practice it is not purely inductive. While the data collection and the focus on actions during my observations were guided by the sociomaterial persepctive on technology and organizing, the data analysis approach can be characterized as emergent, i.e. abductive. Being neither inductive nor deductive, the abductive approach assumes iterations between theoretical concepts and data to refine theoretical ideas during the research process (Dubois & Gadde, 2002; Saetre & Van de Ven, 2021). The conceptual advancements are

made as fieldwork progressed and the explanations are sought for observed experiences. This also means that specific research questions for both of the empirical papers were developed when being deep in the research process and at the end of it. While the overarching aim of both the empirical studies was to understand how technology play a role in HRM practices, the conceptual frameworks explaining technology-enabled practices were different, and the output of the research work emerged at the time of the study and while working with the data. Together, my experience, the primary research question, the sociomaterial perspective and case study design underpinned abductive approach to analyze data.

I started the data collection for both studies with some preconceptions about how HR work is carried out by managers and by HR professionals, that were developed during my previous work experience in HR, as well as via my reading of the e-HRM literature. However, theory was not guiding my data analysis at the beginning, rather I searched for theory that would help best to translate my observations drawn from the data (Mantere, 2018). The search for suitable theory to explain what we saw in our data was a process of trial and error. Reading and interpreting the data was instrumental, but this also involved remaining open to consider different theoretical perspectives during data analysis.

The analysis of both cases studies started more or less in the same way. Using interview transcripts and fieldnotes, I developed a thick description of what I saw and how I saw it. Already at that stage potential themes started to emerge as descriptions were transformed in the form of text or talked over during the discussions with co-authors. For example, for Paper 2 it was “construction of managerial identities”, “performance management”, “work spaces”, etc. In Paper 3, a thick description was written in the form of a chronological narrative as it was a convenient way of presenting the processual data as we followed the technology implementation process. Such descriptions were done for the purpose of understanding the actions, actors, places, and context in our cases, as well as defining meanings of the actions and their purpose.

For the purpose of organizing and mapping the data, I started to generate ‘mini-narratives’ (Paper 3) or large tables where I listed managerial ad-hoc and routinized activities to help me understand the sociomaterial structures of those actions (material artefacts, actors, interactions, purposes, places, timing etc.). When data is mapped and organized it becomes easier to see the surprising things in the data that needs to be explained (Alvesson & Kärreman, 2007). This helped to delimit the data, code it and also group the codes into conceptual categories.

Finally, based on the analysis, I attempted to extend our understanding about the phenomena in focus by drawing on the most relevant organization theories.

For more detailed information about the different steps followed in data analysis, please see the method sections of empirical Papers 2 and 3.

3.5 Quality of the research

This dissertation does not aim to provide causal explanations, or generalize findings, but instead the focus lies in providing rich descriptions of the phenomena at hand, and plausible explanations for the proposed research problems. Following the philosophical conventions of the interpretive paradigm and assuming the subjectivity of knowledge, I reflect on my own experiences, biases and role in the conducted studies. To evaluate the quality of the qualitative research I discuss the following relevant criteria: (1) self-reflexivity, (2) thick descriptions and transferability, and (3) triangulation (Cresswell & Miller, 2000; Welch & Piekkari, 2017; Tracy, 2010; Lincoln & Guba, 1985).

Self-reflexivity is about being aware of one's own influence on the process of collecting and analyzing data. I have previous experience of working as an HR partner in a large international organization where I worked with recruitment activities in cooperation with line managers, and this experience has influenced the data collection process, as well as the analysis of data.

Through my previous experience of working in recruitment, I gained valuable skills in interviewing. These skills were helpful for my research interviews. For example, I had experience of how to connect to my interviewee for a more relaxed and open discussion, and how to formulate open questions conducive for learning more about interviewees' personal experiences and behavior in particular situations. I was also aware of the importance of the environment in which interviews took place, and preferred to conduct them in places where the interviewees would feel not just comfortable but also on their 'own' territory. This also provided an opportunity for me to see where and how people work and how they organize their working.

I also want to reflect on the development of trust between me and the individuals being observed in the workplace. In the case of DigiU, the process of building trust, in particular with the HR secretaries, was somewhat easier than with the line managers in Paper 2. This may be due to their own familiarity of working with academics, which allowed for a greater level of understanding of the research process. HR professionals were generally open and relaxed during our interviews

and observations, with some even offering additional information to help clarify certain points.

Regarding the line managers in Paper 2, I gained access to interview them through senior managers. My initial contact was with the head of service development and HR director (administrative unit), however, the majority of the data was collected with line managers that provide maintenance services for the clients (operational unit). Early in the process I discovered that in addition to high power distance, which is characteristic of the Russian environment, there was tension between the operational and the administrative unit, with line managers frequently expressing frustration with decisions made by the administration. Some of the managers assumed that I had been commissioned to do my study by senior management as a kind of audit. I thus had to take time during the interviews to explain the purpose of my research, and that the information I collected was for my research purposes. Shadowing was an important complement to the interviews in Paper 2 since it was during my site visits that I managed to establish a trustful connection to the line managers through more informal discussions and chats. On the other hand, in my effort to build trust with line managers I 'took their side', being supportive and empathetic to their struggles with the administrative unit, something that could potentially compromise my own neutrality as a researcher (Brannick & Coghlan, 2007).

Thick, rich description and transferability, as outlined by Cresswell and Miller (2000), are key evaluative criteria for high-quality qualitative research. This involves providing a detailed and nuanced depiction of the setting and themes under study. In this research, a thick description of the research settings and phenomenon was depicted in the fieldnotes with the aim of describing details on organizational events and contextual background (Geertz, 1973). Some of the description that was particularly relevant for the phenomena in focus was included in the papers themselves, including extensive quotations from interviews to allow readers to draw their own conclusions. Thick description is also viewed as credible and allows readers to consider the potential transferability of the findings to other settings or similar contexts (Ragin, 1992).

In the interpretive research approach, triangulation is another important evaluative criterion, which involves obtaining multiple perspectives from informants in order to capture a diverse range of voices (Welch & Piekkari, 2017). In this dissertation, informants were selected from various teams related to the subjects of my research. The inclusion of multiple voices allows for the exploration of different aspects of problems, increases the scope of the study, deepens understanding, and encourages consistent reinterpretation (Tracy, 2010).

Observational data was crucial for both my studies since it is hard for people to explain what they do and why they do things in a certain way. For example, observing interaction patterns with my own eyes enabled me, for example, to ask specific questions about specific routines (Czarniawska, 2018). Being in the field also allows for contextual richness, which was important for the interpretive approach I chose to pursue. Additional documents and files, 'naturally occurring data' (e.g. meeting notes, PowerPoint Presentation, company structure visuals), provided by the case organizations were extremely helpful for drawing the full contextual picture (Silverman, 2015).

4 SUMMARY OF THE PAPERS

In this section I summarize the three papers comprising this compilation-based dissertation. I present their theoretical and empirical foundations, the key findings, and scientific contributions.

4.1 Paper 1. "Beyond the 'e' in e-HRM: Integrating a sociomaterial perspective"

The e-HRM literature has mainly focused on the consequences of technology implementation as a tool to reach desired goals, and on the contingency factors that support the successful adoption of technology. Conceptualizing technology as a tool to achieve desired organizational goals has led to mixed research findings on whether technology can be key to solving organizational problems and improving performance. This review paper argues that the e-HRM research field has yet to realize the full potential that lies in theoretical perspectives applied in the fields of organizational studies and information technology. The aim of Paper 1 is to introduce a sociomaterial perspective that broadens the conceptualization of technology, actors and HRM practices as dynamic and interrelated concepts. Recognizing the equal importance of human agency, material artefacts and social context in forming and reproducing e-HRM practices is argued to broaden the research agenda of the e-HRM field and provide additional, complementary ways to explain the mechanisms that underlie the consequences of e-HRM.

To argue in support of the sociomaterial perspective, I first discuss three major concepts within e-HRM research – technology, actors and HRM practices – based on a comprehensive literature review. Second, I juxtapose these concepts with sociomaterial perspectives to illustrate new conceptual and theoretical tools that can be applied to address current limitations in our understanding of the impact of e-HRM.

The review of the concepts of technology, actors, and HRM practices revealed how the e-HRM literature tends to treat technology as a 'black-box' and adopts a deterministic view on technology. It is often unclear how technology works and what constraints it imposes on the users and other actors involved. Instead, research is mostly concerned with the consequences, their typology and whether they were intended or not. e-HRM research commonly regards actors as direct users of technology, emphasizing the role of their perceptions about technology for evaluating the success of technology adoption in the organization. The behavior of direct users, mainly HR professionals with a set of competencies and skills to use the technology, is often explained in terms of their acceptance of the system.

HRM practices are reviewed through the prism of traditional formal HRM practices such as recruitment, selection, performance management systems, compensation and benefits systems (Stone et al., 2006). Similar to the general HRM literature, e-HRM practices are conceptualized as a path to achieving strategic goals by applying universalistic "best practices" that are inscribed in the technology. It is also viewed as a way of realizing HR's potential and acquiring increasingly strategic roles for HR professionals.

By juxtaposing the concepts of technology, actors, and HRM practices as found in the e-HRM literature with the key concepts emanating from the sociomaterial perspective, I advance a research agenda based on technology and its materiality, actors and their agency, and practices as embodied and materially mediated human activities that are organized with a shared understanding. The paper emphasizes the importance of considering how actions and material objects are intertwined and constitute "doing HRM" when applying the sociomaterial perspective. This calls for thick descriptions of the organizational context and how work is performed in order to understand how technology matters, for whom and in what manner.

The study makes two major contributions to the literature on e-HRM. First, it advances the field by introducing new theoretical perspectives and concepts that can provide a complementary way to explain the mechanisms that underlie the consequences of e-HRM. Second, the paper proposes a research agenda that emphasizes interpretive research focused on the enactment of the materiality of technology in the production of outcomes. The agenda advocates focusing on actions and patterns of actions as meaningful phenomena to be analyzed and understood.

4.2 Paper 2. "Evaluating performance in the context of mobile telework: An attention-based view"

Paper 2 is an empirical account of how line managers evaluate the performance of their subordinates with the help of technology, in the context of mobile telework. The increasing amount of technology and information, as well as its volume, variety, and fragmentation, can be challenging to manage as it creates additional attentional demands. In this paper, we shed light on the attentional engagement of line managers in performance evaluation (PE) in the context of employees performing mobile telework primarily in the field rather than in their homes. Managers working in a mobile context often have monitoring tools to help them accomplish one of their primary HRM responsibilities: performance management.

However, only a limited amount of previous work in this area has tried to understand how managers perform evaluation work when employees primarily work at different client sites and are not collocated with their manager.

The aim of the paper is thus to examine PE practice as attentional engagement, i.e. what managers direct their time, energy and effort on in PE. We investigate how technologies and social context as attentional stimuli on the one hand, and individual attentional perspectives of managers on the other, interact to shape attentional engagement. The study was designed as a qualitative case study and conducted in the context of a maintenance department in a large multinational engineering and service company. The empirical findings are based on 16 interviews with line managers, paired with shadowing, to gain an in-depth understanding of their everyday PE practices.

The findings show that managers' focus of attentional engagement in PE centers on performance actors and performance indicators. The key performance actors were the mechanics, customers and equipment. Managers whose role identity was strongly linked to their perception of themselves primarily as engineers (and secondly as supervisors), engaged in more direct, physical face-to-face observation and communication, while managers who identified primarily as supervisors (and secondly as engineers) engaged in more indirect, technology-supported observation and communication (email, telephone, Wire). In addition to their focus on performance actors, managers' also directed attention towards key performance indicators such as KPI dashboard indicators and performance data of equipment and mechanics. The interaction with monitoring technology acts as a triangulation mechanism to complement managerial judgements. While direct interaction with subordinates was carried out daily, the engagement with technology was periodic and connected with their obligations to report to senior managers about their team performance.

Managers faced a continuous dilemma of balancing competing attentional demands posed by performance actors and indicators, which typically required finding the most effective ways to interact with, and monitor, employees. The ways in which managers did this varied depending on their attentional perspective – their perception of their own role and spatial orientation – as well as attentional stimuli such as client feedback, senior manager requests, and problematic equipment.

By applying the attention-based view, the study contributes to existing literature on PE and remote work by shedding light on the role of technology and the attentional stimuli it generates as a part of the sociomaterial environment within which managers operate. The study shows how the sociomaterial environment

interacts with the individual attentional perspective of managers to produce different foci of attentional engagement in the PE of mobile teleworkers. The findings are important for practice since they address the need to better understand the role of new PE technology amidst the ongoing transformation of work where employees have increasingly transitioned toward more remote and hybrid forms of working.

4.3 Paper 3 "Digital empowerment: a routine dynamics perspective on HR transformation"

Paper 3 examines how the role of HR professionals changes during a technology-enabled transformation of HR. New HR technologies are often associated with the possibility for HR professionals to engage in more 'strategic' work (Lepak & Snell, 2008; Marler & Parry, 2016; Strohmeier, 2009). Carrying extensive knowledge about people and holding expertise about how to develop human resources, HR professionals are expected to shift from providing administrative, hands-on employee counselling towards becoming strategic partners and advisors to business-unit leaders on 'people matters' (Wright, 2008; Ulrich & Dulebohn, 2015, Beer, 1997). However, empirical studies focusing on the role of technology in HRM have shown that in many cases, instead of engaging in more strategic and hence, meaningful tasks (Gardner et al., 2003; Bondarouk et al., 2017), HR is busy with administering the system technology.

Our study of the introduction of HRM software supports earlier insights that actors get engulfed in system administration as they digitally manage HR tasks (Parry & Tyson, 2011). We observed how the new tool unintendedly increased the power and standing of HR professionals tasked with seemingly monotonous administrative work. Instead of creating the opportunity for HR partners to engage in strategic tasks, we saw how HR secretaries became highly demanded and respected due to their expertise and knowledge during and beyond the software's implementation. To explain this, we adopted a routine dynamics perspective, which helped to highlight the micro-processes underlying the work of HR professionals. The routine dynamics perspective implied a shift in focus from the prescriptive and nominal role of HR professionals towards a view of roles as something dynamic and performed in situ. Routines are "repetitive and recognizable patterns of interdependent actions carried out by multiple actors" (Feldman & Pentland, 2003: 95) and are considered as inherently dynamic and effortful achievements in contrast to traditional static and taken for granted understanding of routines. By explicitly focusing on HR actors and their actions, routine dynamics can help shed light on how changing routines (as technology

disrupts the old ones), and the expertise and skills of actors are constitutive of each other.

We draw on a qualitative single case study focusing on the implementations of a cloud-based HRM software in a large institution of higher education (hereafter called DigiU). In an attempt to digitalize as well as harmonize organizational HRM processes across the different units, DigiU launched a transformation project which entailed both the re-definition of HR roles and the implementation of an HRM software. Our analysis shows how different modes of engagement with the new technology by different HR professional groups led to changes in their existing roles. We observed how new contract making routines empowered lower-level HR personnel, who by trying to solve issues around the new digitalized routines gained expertise, voice and widened their responsibilities.

We contribute to the HR role transformation literature in two main ways. First, we delve into the transformation of HR roles through a comprehensive examination of the situated, patterned activities of HR actors. Our analysis reveals the dynamic and complex nature of these roles and the agentic power of HR professionals as they navigate the constraints and affordances imposed by HRM cloud systems. Second, by examining the routines and actors involved in the accomplishment of these roles, we shed light on the diversity of HR professional groups and their roles, ultimately demonstrating that technology may empower certain roles, but may not necessarily enhance the HR partner roles as expected.

5 DISCUSSION AND CONCLUSIONS

The overarching objective of this dissertation was to deepen our understanding of the role of technology in HRM practice and for HRM actors. To this end, the dissertation focused on material and human agency and how its entanglement impacts HRM practice. The dissertation consists of three papers, each addressing the research objective in a different manner.

The first paper examines the ways in which previous research in the field of e-HRM has conceptualized technology, actors, and HRM practices. It identifies shortcomings in these conceptualizations and presents a new understanding of HRM technology as a complex sociomaterial artefact. The paper also emphasizes the significance of human agency and the dynamic nature of HRM practices. In its proposed research agenda, the paper advocates for equal consideration of materiality of technology and human agency in understanding how they mutually shape and are shaped through the enactment of e-HRM practices.

The second paper examines performance evaluation practice of line managers as attentional engagement with the focus on the role of technology and attentional stimuli it generates. The study demonstrates how the individual perspectives of managers and the sociomaterial environment in which they operate interact and evolve in situ, resulting in varied forms of attentional engagement.

The third paper explores how changing routines enabled by technology may empower HR professionals. It builds on routine dynamics perspective and theorizes about the role of HR professionals as emerging from routinized, patterned activities to show how engagement with new technology led to the empowerment of HR professionals.

5.1 Theoretical contributions

This dissertation contributes to existing research in e-HRM in several main ways. These are summarized below, including how these contributions are represented in the three papers.

5.1.1 Materiality of technology and human agency

Adopting a sociomaterial perspective, this dissertation acknowledges the equal importance of, and the dynamic relationship between, technology and actors in producing and reproducing HRM practices. It thus offers different conceptualizations of ‘technology’, ‘actors’ and ‘practices’ compared to those

usually assumed in the e-HRM literature. While e-HRM is defined as the integration of HRM practices and technology (Bondarouk & Ruël, 2009), it often overlooks the complexity of technology, wrapping it up in the concept of e-HRM itself (Ellmer & Reichel, 2018; Myllymäki, 2021). Although a number of literature reviews point to contradictory research results about the impact of technology and present reasons for its poor adoption (Bondarouk et al., 2017; Marler & Fisher, 2013; Strohmeier, 2007), scholars have overlooked the link between the materiality of technology, i.e. "the arrangements of an artifact's physical and digital materials into particular forms that endure across differences in place and time" (Leonardi, 2013: 69) , and its impact on the activities of individuals in their attempt to enact technology.

Drawing on the sociomaterial perspective (Orlikowski & Scott, 2008) and theories that align with it (Feldman & Pentland, 2003; Nicolini & Korica, 2021), I investigate and unpack the black box of technology by acknowledging that its materiality can constrain and afford human agency (Leonardi, 2013). The important notions of affordance and constraint highlight the relative nature of the impact of technology on people, their work and organizations overall. The impact of materiality of technology lies in the realm of actions, when individuals encounter and engage with material artefacts, acting against, with, or around them. Specifically, this view shifts the focus from trying to predict the consequences of the technology implementation towards how the materiality of technology is consequential in relation to human agency and social processes.

For example, Paper 2 demonstrates how line managers' attentional engagement varies based on the structures within which they work, internal and external stimuli, as well as their individual attentional perspective. We show that monitoring tools act as stimuli for managerial attention but, in addition, they also afford managers to spend less time in the field and more time in the office. Being part of the material working space environment, monitoring tools also impact managers' individual attentional perspective. In Paper 3, we show how the materiality of an HRM cloud system was central for the working practices of the administrative HR personnel who enacted the system and built routines around it, changing their own role. Such enactment, against all the expectations to empower the HR partner role, led instead to the empowerment of the administrative HR personnel, elevating their role in HR processes.

In Paper 1, I advance the thesis that a sociomaterial perspective is necessary for understanding technology and its role in shaping HRM practice. The materiality of technology must be recognized as integral to these practices and can sometimes amplify them, bringing to the forefront the constraints and opportunities it creates

for organizations and individuals. Accordingly, the proposed research agenda encourages investigation into how material and social are interwoven and constitutive of HRM practice.

5.1.2 Actors and their actions

This dissertation adds to existing research on e-HRM by addressing the lack of diversity of actors present in current research and highlighting their agency in enacting technology and producing HRM practice. My research focuses on studying different actors of HRM and their actions, analyzing the sources of these actions and how they are related to technology. In contrast to conventional views on human actors and their role in the adoption of technology, which often focus on actors' perceptions about the usefulness of technology, its ease of use, or their skills and demographic characteristics (Bell et al., 2006; Stone & Lukaszewski, 2009; Heikkilä & Smale, 2011; Wiblen, 2016; Bondarouk et al., 2017), I conceptualize the agency of actors as having an impact on HRM and how HRM is done is the organization. I show that human agency doesn't imply unlimited possibilities, rather it is a relational concept. By actively using technology at work, actors often build their work practices with or around it in response to the constraints it imposes and the affordances it provides (Ellmer&Reichel, 2021). I argue that work practices, specifically patterned ways of working, emerge around the active use of technology.

For example, in Paper 2, we focus on line managers as key HRM actors and their performance evaluation practice. The responsibility for managing people often lies with line managers, who are therefore important HRM actors to study (Steffensen et al., 2019; Bondarouk & Ruël, 2013; Perry & Kulik, 2008). Conceptualizing performance evaluation as continuous attentional engagements unfolding through the daily work of line managers' HRM practice, the paper offers a useful way to understand the activities of HRM actors when enacting e-HRM technology.

In Paper 3, we differentiate between different professional groups within the HR department. Our examination of technology implementation through application of routine dynamics perspective illuminates the diversity of HR roles and their corresponding responsibilities within HR routines. By highlighting the dynamics between different HR professional groups, we demonstrate that not only HR partners, but also support HR personnel, are crucial actors to consider in HR operations. Specifically, we illustrate how HR professionals primarily tasked with administrative duties can build their agentic power through close engagements with technology.

Also, Paper 1 advances the field by proposing a range of potential research inquiries that shift the emphasis from actors and their cognitions or proficiencies to their agency. Arguments are made for the need for adopting a relational focus on human agency and how it can be constrained or afforded by materiality of technology. Furthermore, non-human agency must also be taken into consideration as we witness the integration of artificial intelligence in HRM practices. The agentic power of technology in organizational settings must be accounted for in future research endeavors.

5.1.3 Dynamic routines and HR role transformation

Finally, this dissertation seeks to contribute the existing literature on e-HRM by examining the transformation of HR roles through the lens of the routine dynamics perspective. This perspective shifts the attention from HR routines as stable, predetermined activities to routines as dynamically produced patterns of actions carried out by actors (Feldman et al., 2016). Existing literature on the technology-driven transformation of the HR role focuses mainly on prescriptive desired roles, studying dependencies between implementation and adoption of technology and the desired role (Ruël et al., 2004; Strohmeier & Kabst, 2009; Marler & Parry, 2016; Marler & Fisher, 2013). In contrast, this dissertation shifts the focus from prescriptive logic on HR roles towards its situated performance where roles are defined by what HR professionals do at work (Sandholtz et al., 2021; Welch & Welch, 2012). In the context of technology implementation, the way in which HR professionals change their work routines by enacting technology into them becomes central. Changes in routines are not tied to technology, neither are they tied to the technology implementation plan. Instead, they are shaped by how HR actors engage with technology and how they respond to the affordances and constraints imposed by technology.

Paper 3 shows how being active in resolving issues around new technology and building new routines augmented by technology can empower professionals in their field of expertise. Moreover, the paper also highlights the diversity of roles within the HR department, and the ways in which HR personnel whose work was expected to be automated, were in fact able to use technology to empower themselves through their newfound knowledge and expertise in HRM processes. Overall, this work demonstrates the importance of considering the dynamic, interpretive nature of routines in understanding the transformation of HR roles in the digital age.

Paper 2 sheds light on the dynamic and constitutive nature of HRM practices, specifically performance evaluation. This evaluation is shaped by human agency

and its attentional perspectives, and material attentional stimuli such as monitoring tools and equipment used by subordinates. By viewing performance evaluation as dynamic and occurring in situ, the paper explores it through the lens of attentional engagements, which are also dynamic and situated, providing insights into how managers continuously evaluate the performance of their subordinates.

In its research agenda, Paper 1 highlights the benefits of considering the dynamic nature of the HRM practice as it directs our attention towards technology enactment and emergent outcomes of such enactment in contrast to prescriptive logic where the focus of attention on expected versus unexpected outcomes.

5.2 Limitations and future research agenda

The papers comprising this compilation-based dissertation have limitations that can, if addressed, open up avenues for new innovative studies Theses are discussed next. A more detailed and comprehensive research agenda is presented in Paper 1.

First, the empirical studies in this dissertation are built on a single case study approach and hence explore particular contexts, actors and technology involved in e-HRM practice. While the goal of these exploratory studies was not to make broad generalizations, the rich descriptions of context provided in the research serve to increase the transferability of the findings for readers. By offering detailed accounts of the specific organizational contexts in which the technology was implemented, readers are able to better consider the potential applicability of the results to their own settings. While I highlight the idea that similar technology produces unique outcomes once enacted in different organizational settings, it is important to consider the research questions that explore how similar technologies in different organizations produce similar results (Leonardi & Barley, 2008). Such research questions require a comparative case study approach (Barley, 1986), which allows for the identification of common and shared patterns and trends across the cases being studied. By examining the conditions under which technologies produce similar outcomes, we will gain a better understanding of how enacted technology and digitalized HRM practice becomes taken for granted or institutionalized.

Second, in conducting my research, the selection of the focal technologies was informed both by the research goals and the availability of case companies to serve as the empirical settings for the study. In these specific cases, I studied the role of technology that offered automation of HRM processes and processing of HRM data (Paper 3), and tools that allowed the monitoring of performance based on the

manual input of employees themselves and other semi-automated data sourcing through integrations with other organizational systems (Paper 2). However, HRM technology is constantly advancing and becoming more available for and embedded in the organization in more complex forms. Future research should thus concentrate on the development and implementation of the latest technology as it is not only changing how we do HRM, but also becomes the source and a core of organizations, such as artificial intelligence, machine learning or online platforms (Keegan & Meijerink, 2022; Gegenhuber et al., 2021; Wickström et al., 2021).

Third, in this dissertation I focused on HR professionals and line managers directly engaging with technology: the impact of technology on line manager performance evaluation practice (Paper 2), and the role of HR professionals (Paper 3). Future research will benefit from examining how technology plays a role in the relationships between a broader array of HRM actors, e.g. between managers and their employees, or employees and HR AI bots, managing algorithms and platform workers, looking for new forms of interactions or ways of practicing HRM in digital forms, such as interactions with AI bots, algorithmic people management or AI empowered decision making.

Lastly, addressing the limitations of the e-HRM literature, the dissertation illustrates the need to be attentive to the materiality of technology and human agency in the production of HRM practices. This entails not only the theoretical choices but also choices related to methodological approach. The examination of emerging patterns of activities as dynamic, multiple and indeterminate requires deep engagement with the field through ethnographic methods and preferably longitudinal data to enable looking beyond the obvious. While I have used ethnographic methods in my research, e.g. shadowing, combining those with interview data, I did not conduct a fully-fledged ethnographic study. Future studies will benefit from an extended stay in the company's environment or using methods like affective ethnography (Katila et al., 2020), videography (Rokka & Hietanen, 2018), or observing the use of technology in novel ways, like Czarniawska (2018) did. Reporting an ethnographic study also requires the ability to convey the richness of the context and its impact on the findings in writing (Langley & Abdallah, 2011). Such an approach becomes crucial when new forms of organizing continue to emerge as a result of technological advancements deeply embedded in daily work experiences, such as those related to mobile technology, platform organizations, internet communities, and monitoring technologies.

5.3 Practical implications

Introducing new technology in an organization affects the way in which work is carried out and is often unique for every organization. A sociomaterial perspective on technology shifts the focus towards the examination of how objects are used and experienced in everyday activities, instead of solely focusing on the objects themselves. It may reflect in different ways of measuring success of technology implementation. The dissertation highlights the notion of material technologies in which human power to act and social context are instrumental in how technology-enabled HRM practice is produced and reproduced.

For organizations and implementation project teams this means that technology on its own is not sufficient for solving the challenges that organizations are trying to solve, rather the consequences are the product of how it is enacted and used in the given context. For example, in Paper 2, we show that managers' own identity perception in combination with the context of their work space and the variety of stimuli, influenced what they paid attention to in their performance evaluation practice, which is likely to have implications for how mobile teleworkers are managed, evaluated and rewarded. We show that while monitoring tools afforded managers with some freedom to choose from where they do their work, it never became the only way to source performance data for evaluation among line managers.

Paper 3 directs our attention to a highly topical theme among practitioners: the strategic partnership between HR and business managers. Technology-enabled reorganizations of HR are one way to open up possibilities for HR to build their skills and expertise to create strategic value for the organization, leaving administrative repetitive tasks to technology. With our case we show that such reorganizations may take unexpected turns if technology gets implemented first or if it is the only action taken by organization. We show that the changes in routines that come with technology implementation may have an empowering effect on the HR professionals actively using technology.

By putting everyday activities at the center, ethnographic methods and a sociomaterial perspective can support the practical relevance of research through enhanced engagement with practitioners during data collection. The engagement with researchers and their findings can lead to useful reflections and critical thinking, rather than producing reports and prescribing a cure to organizational problems. Through reflexivity, organizations can examine their own specific HRM challenges and avoid the temptation to apply standard or popular solutions. These

reflections can inform strategies and decision-making around the implementation and use of technology in HRM, which usually involve large financial investments.

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Beyond the 'e-' in e-HRM: integrating a sociomaterial perspective

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ABSTRACT

This review paper argues that e-HRM literature has not realised the full potential of different theoretical perspectives on information technology. This paper proposes one of them, a sociomaterial perspective, which recognises the equal importance of human agency and material artefacts in the formation and reproduction of e-HRM practices. The review juxtaposes existing perspectives within e-HRM literature with that of the sociomaterial perspective to illustrate the kinds of complementary theoretical and conceptual tools that can be applied to address current limitations in our understanding of the impact of e-HRM. A research agenda is presented that suggests ways to explore the materiality of technology, wider groups of actors and their agency, and emergent practices around technology. The application of this perspective means paying closer attention to how actions and material artefacts are intertwined and constitute 'doing HRM', which therefore requires thick descriptions of the organisational context and how work is performed in order to understand how technology matters, for whom and in what ways.

KEYWORDS

e-HRM; sociomateriality; materiality; technology; human agency; HRM practice; emergent outcomes

Introduction

Widespread technological development and the popularisation of digital solutions across all aspects of life means research has been increasingly concerned with the effects of technology on organisations, their external environment, and internal organisational actors. Research on technology and HRM started four decades ago (Bondarouk et al., 2017) and has evolved into a stream of literature known as electronic HRM (e-HRM). e-HRM is an umbrella term that covers all possible integration mechanisms between 'doing HRM' and technology (Bondarouk & Ruël, 2009). This research has primarily concentrated on e-HRM as a tool for

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achieving increased HRM efficiency (Bell et al., 2006; Bondarouk & Ruël, 2013; Parry & Tyson, 2011), identifying the consequences of e-HRM application (Beulen, 2009; Lepak & Snell, 1998; Parry & Tyson, 2011; Ruël et al., 2004; Stone et al., 2015), and uncovering the contingency factors that support or inhibit the effective adoption of e-HRM (Heikkilä & Smale, 2011; Panayotopoulou et al., 2010; Voermans & van Veldhoven, 2007).

While this work on the consequences of technology is useful, the power and potential of technology to bring about changes in organisations and human behaviour has been largely taken for granted. This is evident in the way that e-HRM literature often conceptualises technology at the macro-level and as a 'black box', downplaying the role of important social processes in producing organisational outcomes (Ellmer & Reichel, 2018; Marler & Fisher, 2013). Such accounts of technology assume technological determinism (Misa, 1994), and consider the actor's attitudes and behaviours to be functional and following established patterns of work. At the other extreme, some e-HRM studies assume the supremacy of human activities over technology (i.e. voluntarism) (Francis et al., 2014; Tansley et al., 2013). Overall, e-HRM research tends to focus on the adoption stage of technology implementation, and on explaining underlying mechanisms in terms of user perceptions and behaviours but forgoing a detailed examination of the actual use of technology.

This paper aims to broaden the conceptualisation of technology, actors, and HRM practices in e-HRM by moving away from the extremes of determinism and voluntarism towards a more balanced perspective that recognises the equal importance of human agency, material artefacts and social context in forming and reproducing e-HRM practices. Sociomateriality, as an established stream of research within the field of technology in organisations, addresses the narrow conceptualisations of technology that can be found in the management literature, by advancing a conceptualisation that emphasises 'materiality as integral to human activities and relations' (Orlikowski & Scott, 2008, p. 438). Theories within the sociomateriality school of thought offer detailed explanations of how organisations change in relation to newly introduced technologies by drawing attention to dynamic and situated activities, which constitute and are constituted by people, actions, voices, gestures, tools, software, documents, infrastructure, hardware (Barley & Kunda, 2001; Orlikowski, 2016). As such, the sociomaterial perspective possesses significant potential to enrich our knowledge about the transformational impact of technology on HRM practice and the role of HR by moving away from the evaluation of the success of e-HRM against the intentions, towards explorations of actual emergent practices in terms of HRM activities. Whilst there are small number of studies in the e-HRM literature (Dery

et al., 2013; Ellmer & Reichel, 2020; Wiblen, 2016) that build on ideas from the sociomaterial perspective, there has not been a systematic attempt to integrate the sociomaterial perspective into a meaningful research agenda that would inform future research in e-HRM.

This paper contributes to existing e-HRM literature in two main ways. First, it introduces concepts from sociomateriality to advance theory development at the intersection of technology and HRM, namely materiality, affordances, human agency, enactment, emergent outcomes, situated and dynamic HRM practice. Through a comparative review of the e-HRM and sociomaterial literatures the paper shows how these new concepts can provide additional, complementary ways to explain the mechanisms that underlie the consequences of e-HRM. More specifically, rather than adopting a purely determinist or voluntarist perspective, scholars adopting a sociomaterial perspective recognise technology as a complex sociomaterial artefact that matters only in relation to human agency and vice-versa, and acknowledge the equal constitutive role of agency and artefacts in dynamic situated HRM practices.

Second, the paper advances an actionable research agenda that presents how the sociomaterial perspective can offer a complementary approach to answering core research questions about the impact of technology on HR roles and HRM practices. The agenda places emphasis on the enactment of materiality of technology in the production of emergent outcomes (e.g. practices), that implies a shift (i) from 'black-box' conceptualisation of technology towards understanding its materiality, possibilities and constraints it creates for actors, (ii) from actors towards human agency, acknowledging a variety of actors and their constitutive roles in HRM practices, and (iii) from normative HRM practices towards emergent practice that affects organisational processes and ways of organising. Given its focus on the continuous enactment of HRM technology and emergent outcomes, the agenda advocates longitudinal field studies which draw more heavily on observations of the activities themselves as meaningful phenomena to be analysed and understood.

e-HRM literature: core concepts and existing perspectives

The concept of e-HRM has evolved and broadened over decades of research into the intersection between HRM and technology. Several definitions exist, but one of the most cited is that by Bondarouk and Ruël (2009, p. 507):

> […] an umbrella term covering all possible integration mechanisms and contents between HRM and Information Technologies aiming at creating value within and across organisations for targeted employees and management.

According to the authors, this definition corresponds with four critical aspects of e-HRM: HRM practices, the implementation of technology, actors in those processes, and the consequences of implementation. Other definitions provided by Strohmeier (2007) and Ruël et al. (2004) similarly highlight the application of technology in order to support the performance of HR activities. Those aspects related to organisational actors using technology, organisational practices and impact of technology are not only central to e-HRM, but to nearly all studies on the intersection of technology and studies of organisation (Orlikowski & Barley, 2001).

In what follows, and building on the above definition of e-HRM, the extant e-HRM literature is critically reviewed in terms of how it conceptualises the core aspects of e-HRM: technology, actors and HRM practices. The paper then turns to the sociomaterial perspective, introduces its main defining features, key epistemological and ontological assumptions, and discusses how this perspective views the same three key aspects of e-HRM. Juxtaposing the existing perspectives and the sociomaterial perspective across these key concepts serves to highlight key differences and illustrates how the sociomaterial perspective can complement existing theory and empirical research in ways that can help to address some of the limitations raised. Table 1 provides a summary of the key points arising from this comparative review.

Given the diversity and breadth of the e-HRM literature, from HRM as a complex system to specific technological solutions and individual attitudes towards them, the purpose of this review was not to perform an exhaustive analysis of the entire field. Instead, this review builds on several, existing comprehensive reviews and conceptual papers (Bondarouk et al., 2017; Bondarouk & Brewster, 2016; Ellmer & Reichel, 2018; Marler & Fisher, 2013; Strohmeier, 2007), which provided a systematic representation of the e-HRM field covering several decades of research. These reviews served as a starting point to identify the existing perspectives of e-HRM literature on technology and its impact on HRM in organisations, as well as limitations that e-HRM suffers from as a research stream. Those reviews were complemented with an additional search for e-HRM, e-HR, digital HRM, HRM technology, and combinations of these keywords with 'use', 'implementation', 'impact', and 'sociomateriality' in the Web of Science and Scopus databases. In addition to those identified in the published literature reviews, this search produced 34 new publications, published as journals articles or book chapters between 2018 and 2020, i.e. the years that were not covered in the existing reviews, producing a total of 136 publications. The review then focused on analysing this body of literature in terms of how technology, users and e-HRM practices are conceptualised and studied empirically to

Table 1. Contrasting existing and sociomaterial perspectives on e-HRM.

Key concepts	Existing perspectives within e-HRM	Sociomaterial perspectives	Implications for future research
Technology	*Conceptualisation:* • Unspecified component of e-HRM ('black-box') • Technology is predictable and stable • Technology is priorityised in research	*Conceptualisation:* • Technology is a complex sociomaterial entity, where material (physical or digital objects, bodies, spaces) is integral to organisational life • Technology is emergent, shifting/impermanent and relational (e.g. Leonardi, 2013; Leonardi & Barley, 2010; Orlikowski & Scott, 2008)	How do material properties constitute technologies? For example, what are the material properties of HRM cloud systems? How are algorithms, inscribed practices, instructions, checklists, forms, web-technologies arranged to form materiality of technology?
	Causal assumptions: • Technology and humans are distinct, interdependent entities • Technology is a purposeful tool to improve efficiency and effectiveness of HRM processes or/and to collect and distribute information • Technology is a driving force in transforming HR practices and HR professionals	*Casual assumptions:* • Affordances of the materiality (i.e. perceived function of technology) are relative to and unique for individuals, or groups of individuals, and can be perceived as constraints or enablers for intended actions (e.g. Bygstad et al., 2016; Faraj & Azad, 2012)	What are the sets of affordances that the materiality of technology can offer HR professionals, line managers, and employees? For example, what are the immediate outcomes that cloud systems such as Workday or SuccessFactors create for HR professionals? For HR professionals it may be a digital working space where human resources are administered, whereas for line managers it may mean control over employees, and for employees instant communication.
	Adoption and Use: • Technology must be adopted by users to achieve defined outcomes (intended or unintended) • Various attributes of technology are perceived by users who then decide whether to use, misuse or not to use it	*Adoption and Use:* • Materiality of technology must be enacted (i.e. integrated into work processes) in order to lead to change • Organizational life is bound by materiality, not only during the adoption period	What new functions are realized through the continuous use of technology? For example, the data generated through the use of technology can offer a variety of possibilities on how to work with it.

(*Continued*)

Table 1. Continued

Actors	*Conceptualisation:* • Actors are humans characterised by their knowledge, skills, competences • Users of e-HRM are the main actors	*Conceptualisation:* • Actors can be both human and non-human • Actors are not limited to users but include any organisational actors practicing HRM, or subject to HRM	How do actors enact their roles in HRM practices/ processes? For example, what actors are involved in performance evaluation practice? Are line managers controlling and evaluating, employees doing self-assessment, or integrated software feeding in data records about everyday activities?
	User behaviour: • Intentions and perceptions guide user behaviour (i.e. to use or not use technology) during the adoption phase • Users' perceptions about technology are shaped through social interactions and a desire to conform • Users institutionalise e-HRM practices by creating a shared understanding, or through the process of interpretations of e-HRM's usefulness	*User behaviour:* • Emphasis on actors' agency, i.e. "a capacity to act" (whether human or non-human) • Human agency can be constrained or afforded by material artefacts • Materiality (objects, space, technology, data etc.) is inherent in human activities (e.g. Boudreau & Robey, 2005)	How do human actors exercise their agency? How do they navigate the constraints of the materiality of technology? For example, how do line managers resolve/ avoid the constraints imposed by algorithms?
	Actor roles: • Actors are functionally defined (e.g. line managers, HR professionals, employees), and assumed to have mutually distinct roles • Actor's roles are fixed	*Actor roles:* • Roles are defined by situated, patterned activities of actors • HR roles are part of the organizational work system and are related to the roles of other occupational groups (line managers, employees). (e.g. Barley, 2015; Barley & Kunda, 2001)	How do technologies exercise agency? What actions can/do technologies take without humans directly controlling them? For example, how do algorithms work in the selection process?

(*Continued*)

Table 1. Continued

HRM practices	*Conceptualisation:* • Formal and predefined e.g. recruitment, performance appraisal, training and development • Normative practices define organisational HRM activities and enable their effectiveness	*Conceptualisation:* • HRM is 'practiced', i.e. reflects realities of organizational work • HRM practice is the space where material and human agency meet to produce actions and construct realities • Practices are routinized activities. i.e. reproduced in recognisable patterns (e.g. Schatzki, 2001)	How are material artefacts and human agencies enacted in sociomaterial practices, i.e. what affordances are realised through agencies? For example, how are rating systems for contingent workers used by different organisational actors (internal or external)?
	HRM practice outcomes: • Emphasis on benefits of intended HRM practices for organisations	*HRM practice outcomes:* • Emphasis on emergent HRM practices (e.g. Feldman & Orlikowski, 2011; Leonardi & Barley, 2010; Mazmanian et al., 2013)	How do new practices that emerge in sociomaterial arrangements become patterned and routinized? For example, what new HRM practices emerge around the relationships with contingent workers?
	HRM practice implementation: • Standardised HRM practices across country borders are the path to reach strategic goals • HRM practices are fixed (i.e. relatively stable through time and space) and normative, which organisations intend to carry out • Appropriation (use of technology in line with its purpose) of HRM technology defines the quality and value of HRM for the organisation	*HRM practice 'implementation':* • Practices can change, sustain, or disappear • HRM practices as formal and fixed cannot be placed in the sociomaterial environment as it is, it will be shaped and reshaped through its enactment (e.g. Francis et al., 2014; Pentland et al., 2012)	How are normative and standardised HRM practices shaped when enacted in novel practices? For example, how will 'collecting employee feedback' as a standardised practice be shaped (e.g. different technology, processes or content) once used for reporting purposes?

enable a comparison between existing perspectives within the extant e-HRM literature and the sociomaterial perspective.

Technology

Conceptualisation. Existing research in e-HRM has been cautious articulating in depth the specific role and function of technology in HRM activities. Instead, technology is often equated with, for example, an enterprise resource planning system with little acknowledgment of the way it functions (Ellmer & Reichel, 2018). e-HRM as a field of study is built around technology, prioritising the discovery of its implementation consequences for HR function and HRM practices. Empirical studies on e-HRM rarely make a distinction between technology and the concept of e-HRM (Farndale et al., 2009; Parry & Tyson, 2011; Stone et al., 2006) discussing it as an organisational-level concept that integrates everything and everyone into some system (Strohmeier, 2007).

To provide more clarity about the e-HRM concept as a configuration of the hardware, software and communication technology, Marler and Fisher (2013) specified IT as a physical entity that is separate from individuals but incorporates organisational processes, specifically HRM processes. According to this view, technology is recognised as an entity that carries out organisational processes, while actors' behaviour can be determined by, or determine, established e-processes. Such a formulation opens up a discussion about interdependency, who or what dominates the relationship between technology and humans, and at the same time deepens our understanding about technology as discrete from the organisation and individuals.

Causal assumptions. Concurrently, e-HRM is predominantly portrayed as a *purposeful and discrete tool* that is expected to have a positive impact on HRM practices. Technology is mainly treated as an independent variable having various effects at different levels of analysis. Some studies assume technology to be a productivity tool that should improve the efficiency and effectiveness of HRM processes (Gardner et al., 2003; Parry & Tyson, 2011; Ruël et al., 2004, 2007). The underlying idea is that e-HRM reduces costs and time through the automation of HRM processes. Reduced HR staff, decreased amounts of administrative work and increased process speed are commonly perceived as benefits of introducing e-HRM, and the most common goals for e-HRM implementation (Parry & Tyson, 2011). In the research, such improvements are classified as operational consequences. Other studies view technology as a tool that allows for relational consequences through information collection and distribution (Arjomandy, 2016; Lin, 2011; Parry & Tyson, 2011; Ruël et al., 2004), which improve HR services within the organisation through better availability of information about HR policies (Bondarouk et al., 2017; Lepak & Snell, 1998; Voermans & van Veldhoven, 2007).e-HRM is assumed

to be a *powerful driving force* behind the transformation of the role of the HR function and HR professionals in organisations. These transformational consequences of technology have attracted the most attention among e-HRM studies thus far, although the conclusions from the empirical research on the causal influence are somewhat ambiguous (Bondarouk et al., 2017; Ellmer & Reichel, 2018; Francis et al., 2014; Marler & Fisher, 2013; Marler & Parry, 2016; Strohmeier, 2007). For example, Marler and Fisher (2013) in their evidence-based review paper on strategic HRM and e-HRM, concluded that there is no evidence that e-HRM predicts strategic HRM outcomes, but there is evidence that strategic HRM predicts e-HRM outcomes and that the relationships are context dependent. All in all, the e-HRM literature has come up against difficulties in defining the conditions under which technological outcomes become positive and intended, acknowledging that this is a complex phenomenon that encompasses different social activities, perceptions, intentions and influences from the organisation's external and internal environment (Marler & Parry, 2016).

Adoption and use. The consequences of technology implementation are often linked to the adoption phase of implementation as crucial for defining technology outcomes. In their review, Bondarouk et al. (2017) identified and classified the number of technological, human and organisational factors that influence the successful adoption of technology that, in turn, influence organisational outcomes. Most studies focusing on the adoption of e-HRM acknowledge that no matter what features technology has, the role of social actions and users affect technological outcomes. The perceptions of the users, their attitudes, beliefs and cultural values have been used as a way to explain technology user behaviour, and the acceptance or resistance to the implemented technology (Heikkilä & Smale, 2011; Ruta, 2005; Stone et al., 2007; Voermans & van Veldhoven, 2007). The use of e-HRM technology is conceptualised as an appropriation, i.e. its use in line with its purpose (Bondarouk et al., 2017; Ruël & van der Kaap, 2012), which is rooted in Adaptive Structuration Theory (AST). Diffusion of Innovation (DOI) theory is another way to conceptualise the use of e-HRM technology, which explains how deeply technology is penetrated into socio-institutional systems of organisations looking at the organisational factors and institutional barriers to such penetration (Bondarouk et al., 2016; Parry & Olivas-Lujan, 2011). The work by Burbach and Royle (2013) conceptualises e-HRM technology as standardised e-HRM practices that need to be diffused across different countries within multinational corporations to be successfully implemented. The authors show the complexity and interconnection of socially constructed institutional context, organisational context with its strategies and individuals with their intentions.

Limitations. Despite being an essential component of e-HRM research, the attributes of technology have played a nominal role in empirical e-HRM studies, and the accompanying conceptualisations of technology have been fairly narrow. Indeed, technology within the e-HRM concept often remains a 'black box' (Ellmer & Reichel, 2018), which in turn restricts the study of complex, multiple, mobile, impermanent technologies. The current accumulated knowledge, theoretical perspectives and research questions within the e-HRM field have therefore not been able to capture the use of technology in organisations in sufficient detail.

While treating e-HRM and actors separately allows us to isolate factors and evaluate their significance, it precludes a discussion on how users, technology and social processes are related to each other, how the desired improvements happen or do not happen. The social dynamics and evolvement of technology are rarely captured in sufficient details in e-HRM studies which does not help to resolve the question of how users and what of technology matter for the production of successful consequences. Notable exceptions to this dominant conceptualisation (Dery et al., 2013; Ellmer & Reichel, 2020; Francis et al., 2014; Wiblen, 2016) view technology as an active actor playing an equally important role alongside social activities in producing and reproducing HRM practices while being an inseparable part of those practices (Ellmer & Reichel, 2018, 2020).

Actors

Conceptualisation. Research within e-HRM has directed considerable attention at the direct users of technology and, in particular, their competencies and skills in using the technology, and their acceptance of technology. Key factors examined include the engagement of the users, their training and skills (Bell et al., 2006; Parry & Tyson, 2011), attitudes towards e-HRM (Voermans & van Veldhoven, 2007), as well as age and gender (Gardner et al., 2003).

User behavior. The Technology Acceptance Model (TAM) and its variations have influenced e-HRM studies by explaining user behaviour based on their perceptions and behavioural intentions (Heikkilä & Smale, 2011; Marler & Dulebohn, 2005; Voermans & van Veldhoven, 2007). From this point of view, perceptions largely determine whether people will use the technology in question or not. Various studies within e-HRM explore through qualitative and quantitative studies different obstacles to and enablers of e-HRM acceptance, to name a few: standardisation of language (Heikkilä & Smale, 2011), communication strategies and activities (Cronin et al., 2006), and support of top management (Hannon et al., 1996).

The TAM model helps to explain the motivations for accepting or rejecting the technology. It does not, however, include a focus on what technology use entails or how it is affected by perceptions, which means it is not well suited to capturing the use of technology once it is adopted. A major factor behind the formation of users' perceptions about technology is social influence (Fulk et al., 1987), that is to say, technology acceptance is shaped through social interactions and a desire to conform within the work group (Heikkilä & Smale, 2011). Whilst belonging to a work group helps to determine whether technology will be used and how, still little is known about how agreement within the group is reached. In addition to TAM, studies have also applied institutional theory (Burbach & Royle, 2013), Adaptive Structuration Theory (Bondarouk et al., 2017), and Discourse theory (Wiblen, 2016) to explain how users create a shared understanding of e-HRM usefulness for HRM processes. Such interpretivist approaches to studying e-HRM are represented by a small but growing amount of studies within e-HRM that explore the implementation of e-HRM in the interaction between actors, technology and social context.

Actor roles. Another central theme within the e-HRM literature is the role of the HR function and HR professionals working within it, and the transformational consequences of technology implementation. e-HRM research has been largely concerned with whether HR assumes more strategic roles in the organisation or not. The extent of HR's strategic role has been evaluated in terms of the perceptions of other internal stakeholders in the company or in terms of the official presence of HR managers in the board of directors (Marler & Parry, 2016).

While HR professionals have received much attention, line managers—another relevant user category—have received considerably less. e-HRM studies note that due to the increased use of technology, many tasks previously performed by HR professionals are being transferred to line managers (Bondarouk & Ruël, 2013). One can argue that this process is not necessarily due to digitalisation per se, and is also related to greater overall managerial involvement in HRM (Perry & Kulik, 2008; Renwick, 2003). Nevertheless, technology is expected to play a crucial role in the successful transfer of HR responsibilities from HR professionals to line managers as it facilitates the routinisation of activities for line managers and greater control over their execution.

Limitations. Overall, the typical way of examining individual perceptions of a newly adopted technology does not allow for understanding the experiences of actors with the technology in their everyday life. We know little about how actors respond to shifts/changes in technology, and about how and why they bring some functions into use but not

others. Furthermore, neglecting the line manager perspective on e-HRM and its implementation limits our knowledge about their role in HRM practices, how HR professionals and line managers negotiate such transfer of responsibilities, how line managers cope with the transfer, and in which ways and with what intentions they use technology. e-HRM studies with an instrumental view on technology are not able to provide us with detailed accounts of interactions and connections between people and technology.

HRM practices

Conceptualisation. HRM practices in the e-HRM literature are often equated with 'traditional', formal HRM practices (Ruël et al., 2007), such as e-recruitment, e-selection, e-performance management systems, e-compensation systems (Stone et al., 2006). Studies commonly examine different subfields, focusing on the question of whether a particular HRM practice has become more efficient after applying technology, and to what extent users accept the implemented e-practices (Stone & Lukaszewski, 2009). In addition, rather than focusing on different subfields in isolation, Ruël et al. (2007) direct attention to the firm-level system of e-HRM; 'doing HRM' *via* 'business resource planning software, as in PeopleSoft and SAP HR' (Ruël et al., 2007, p. 281) to understand its overall strategic effectiveness. Overall, e-HRM practices are assumed to be predefined as those that are inscribed in the HRM technology.

HRM practice outcomes. HRM practices are often conceptualised as a path to reaching strategic HRM goals. The strategic HRM literature debates whether a universalistic 'best practice' approach leads to better performance or whether a contingency approach—the specification of HRM practices to align with company strategy—is more effective (Becker & Huselid, 2006). The literature on the strategic value of e-HRM is often based on the assumption that since standardised 'best practices' are built into HRM software and systems, the adoption of such systems may result in a more strategic role for HR professionals (Marler & Parry, 2016), along with freeing up time from non-strategic tasks.

Implementation of e-HRM practices. Studies focusing on the implementation of e-HRM in multinational companies (MNC) discuss HRM practices the most. The standardisation of HRM practices across borders within the MNC is often an ultimate goal for the implementation of e-HRM as MNCs strive for the efficient management of their foreign subsidiaries. Institutional theories have been applied to help to explain the successful implementation of e-HRM practices in an international setting (Burbach & Royle, 2013).

Studies of implementation of e-HRM include studies that look at how technology is used by the users (Bondarouk et al., 2017; Francis et al., 2014; Ruël & van der Kaap, 2012; Tansley et al., 2013). The frequency of use and the *appropriation* of e-HRM practices (i.e. the use of the software in line with its purpose) are argued to affect the quality of HRM services (Bondarouk et al., 2017), and the value created by e-HRM (Ruël & van der Kaap, 2012). Some studies take a critical perspective, focusing on the discursive practices between line managers and HR implementation team (Francis et al., 2014), and identity construction work within the implementation team (Tansley et al., 2013). While these studies open up how the social constructions of e-HRM practices unfold through interactions within different organisational actors, the role of materiality remains largely undescribed since e-HRM and HRM practices, policies and processes are viewed synonymously.

Limitations. Research on e-HRM has been predominantly concerned with the fixed, normative e-practices organisations *have or intend to carry out*, rather than on what they actually do/was actually done (Bondarouk et al., 2017; Francis et al., 2014). Although such a conceptualisation can be useful, it is not an optimal starting point for studying how e-HRM practices emerge and become established, or what actions e-HRM practices entail for the actors.

Within the e-HRM literature, only a few studies exist that employ in-depth case studies and ethnographic studies to show social processes and power dynamics in organising HRM work. For example, Francis et al. (2014) studied e-HR as a discursive practice and analysed the discourse around the implementation of e-HR, exploring the power dynamics in the relationships between HR and line managers, while Dery et al. (2013) looked at the implementation process of HRIS showing how the initial intentions about the new HRIS were lost in the process as it did not match the possibilities HRIS could provide, due to what the new HRIS could afford, and decisions and actions were made around that. Those studies make the transition from normative and prescriptive HRM practices towards the analysis of how those practices are socially constructed. However, they place technology in the background by emphasising social micro-processes.

Sociomaterial perspectives on e-HRM

While the sociomaterial perspective has already received some attention in research on e-HRM, this has mostly been in the context of broader reviews or conceptual papers discussing future research (Bondarouk et al., 2017; Bondarouk & Brewster, 2016), when speculating about conflicting results of empirical studies (Marler & Parry, 2016), or in

reference to current conceptualisations of technology (Ellmer & Reichel, 2018; Marler & Fisher, 2013; Strohmeier, 2009). However, with a couple of notable exceptions (Dery et al., 2013; Ellmer & Reichel, 2020; Wiblen, 2016), the sociomaterial perspective has not been integrated into empirical e-HRM research. Next, the sociomaterial perspective on e-HRM is presented as a promising way of reconceptualising technology, actors and HRM practices in ways that help to address many of the limitations described in the previous section.

Sociomateriality

Sociomateriality stands out as a perspective to study technology as arrangements of social and material objects, and posits that nothing is purely social or material, rather everything is sociomaterial: entities, objects, places, practices, humans. Material objects are integral to human activities, while human activities define material object's functions. Such a view implies that organisations, humans, and technology only exist in interaction with each other (Cecez-Kecmanovic et al., 2014; Leonardi, 2013; Orlikowski & Scott, 2008).

There is no one particular sociomaterial theory. Instead, there is a range of theoretical families which share sociomaterial orientations with different theoretical and ontological assumptions (Leonardi, 2013)[1]: structuration theory (Barley, 1986; Giddens, 1984), socio-technical systems (STS) (Mumford, 2006), Actor-Network Theory (Latour, 2005), duality of technology (Orlikowski, 1992), and the practice perspective (Schatzki, 1996; Suchman, 2007). The underlying ontological assumptions of sociomaterial theories vary; the fundamental dilemma is whether the social world is constituted by preformed entities (substantivism) or by dynamic, unfolding relations (relational thinking). The former is often referred to in the literature as the critical realist philosophical stance (Boudreau & Robey, 2005; Bygstad et al., 2016), and focuses on theorising materiality and its constitutive role in organising. Structuration theories, duality of technology and STS are the most pronounced theories in IS literature that view material objects as elements of the organisational sociomaterial structure, which is pre-formed and cannot be reduced to discrete entities. Such sociomaterial structures can enable (afford) or constrain human action, while human actors are at the centre of actions with their motivation, reflection and rationalisation.

Other sociomaterial theories such as Actor-Network theory and Mangle of Practice (Pickering, 1995) are derived from relational ontology (Emirbayer, 1997; Orlikowski, 2007). The relational view of sociomateriality considers organisations as assemblages of different sociomaterial practices,

where material and social are inseparable (Orlikowski & Scott, 2008). Reality is not given, but rather performed in practice through the relations of material objects and social abstracts (norms, policies, discourses, communication patterns, etc.). This implies a shift in understanding technology and people as characterised by their specific properties that interact with and impact each other, towards understanding the materiality of technology, human agency and social process as connected in the production of sociomaterial practices. All the qualities that might be commonly attributed to people—meaning-making, exercising power or control—are produced exclusively within actions or practices.

The key foundation of sociomateriality is the performative nature of practices (Barad, 2003), which explains how properties and boundaries of artefacts and people emerge out of practices. Specifically, performativity refers to when words and sentences not only describe reality, but constitute actions that change social reality (e.g. orders, vows, apologies, laws). Similarly, in some gender theories, the performativity of gender means that gender is not predefined, it is enacted when a person acts as a woman or a man (Butler, 2011). In the sociomaterial view, not only language, but also material artefacts are performative because they trigger changes in social processes through doing things. Material artefacts are thus performative when enacted in organisational life.

Enactment refers to the use of material artefacts to produce outcomes (Leonardi & Barley, 2010). Although enactment is similar in meaning to the appropriation of technology studied in e-HRM previously (Bondarouk et al., 2017; Ruël & van der Kaap, 2012), a key difference is that it is not concerned with whether users use it in line with designer intentions. In other words, when people use technology with a specific intention, they enact it by becoming entangled with it, and the result of such enactment is always uncertain since unpredictable novel patterns are always emerging. Whether being a bundle of practices, nets of activities or structural arrangements, organisations reproduce themselves in action. Actions are the main drivers for change and stability, and the main unit of analysis in sociomaterial theories.

The assumptions within sociomaterial perspectives imply a focus on the activities themselves as observable and meaningful phenomena to be analysed and understood. With the current development of artificial intelligence and workflow systems (e.g. robotic process automation, chatbots, predictive technology), it is possible to imagine modern technology performing work, but with humans and machines so closely interacting with each other, it becomes difficult to understand who or what carries out specific activities. As long as there are activities, which contribute to the sustaining of old or formation of new practices, those and the interactions within HRM are what matter the most.

What follows is a comparative review of existing e-HRM perspectives against the sociomaterial perspective to show where and how technology, actors and HRM practices differ.

Technology

Conceptualisation. Contemporary technology such as cloud IT systems, Artificial Intelligence (AI), web-platforms, and search engines, are multiple, complex, impermanent and highly interdependent of one another. These kinds of technologies are increasingly difficult to study as an abstract, macro-level entity as has often been done in previous e-HRM studies. Sociomaterialists argue that when studying the impact of technology, closer attention should be paid to its materiality and the way it enables or constrains human activities. Leonardi (2013, p. 69) defines the materiality of technology as: '[T]he arrangements of an artifacts' physical and digital materials into particular forms that endure across differences in place and time'. It follows from this definition that material does not necessarily mean physical; in fact, information technologies have digital properties that are arranged in a certain form, making technology what it is.

The notion of materiality and its conceptualisation within the sociomaterial perspective extends our thinking about the materiality of e-HRM beyond physical artefacts and illuminates its role in HRM activities without prioritising it. Materiality is part of technology, but materiality is not only about technology. Texts, inscribed processes, checklists, reports, physical and digital spaces, bodies and clothes are also examples of material artefacts. In e-HRM literature, authors discussing the sociomaterial perspective confirm and acknowledge the complexity of technology which can better explain the empirical evidence that technology does not always lead to expected outcomes (Marler & Fisher, 2013). However, authors deny the inseparability of the material and the social, which leaves the question of connectivity between material artefacts and 'organisational process' (i.e. social) open. On the contrary, sociomaterialists aim to explain how the materiality is integral to organisational life, therefore they focus on sociomaterial practices and their materiality, rather than on sociomaterial technologies (Leonardi, 2011).

Causal assumptions. While e-HRM considers the impact of technology on organisational processes, sociomaterialists examine the possibilities that materiality creates for actions, i.e. affordance (Leonardi et al., 2012). From a sociomaterial view, technology cannot determine human activities, instead it can only offer some functional possibilities that human actors need to realise (Gibson, 1979). Materiality makes certain actions possible

and constrains others (i.e. makes it impossible or difficult to achieve). Affordances thus only exist in relation to actors, which means that people need to perceive the function that material objects offer them. One example from nature that illustrates this well is that while water for most species do not afford walking on its surface, it does for some insects (Gibson, 1979).

Affordances are not obvious and do not follow from the designers of a technology, rather actors learn about affordances through their encounters with artefacts (Hutchby, 2001). For instance, keeping a record about its employees in the system creates possibilities for analysing employee data, but the full range of activities possible with the data can only be understood from working with the employee data in the system. The focus on affordance of material artefacts means a shift in focus from technological properties and features towards enactment of materiality into social processes.

Adoption and use. In comparison to existing e-HRM literature, which is largely concerned with predicting outcomes, studies within the sociomaterial perspective aim to uncover explanatory mechanisms that underlie emergent outcomes. The sociomaterial perspective is largely uninterested in whether people use, misuse or reject the technology as it is mostly the case in the existing perspectives of e-HRM. It considers organisational phenomena as emergent from the ongoing stream of activities that trigger new activities or sustain old ones.

Furthermore, organisational life is always bound by materiality and not only during the adoption period. The materiality of technology is dynamic and changes in relation to ongoing social processes outside or within the organisation (e.g. adapting functionality of technology by internal users, data protection legislation, developers' updates), which is why the adoption period is not necessarily the only period relevant for realising the change.

Actors

Conceptualisation. The sociomaterial perspective that is based on a relational ontology in which the boundaries of the social and material are blurred facilitates the acknowledgment of a wider group of actors compared to existing e-HRM perspectives. It focuses not only on users of technology, or even just internal organisational actors, but includes anyone who participates in the company's HRM activities, to whom HRM activities are directed or who designs or uses the products of HRM activities (such as data, reports, analytics). In fact, the actors are not even necessarily humans. If material and human are equally important and not prioritised, then both participate in constituting HRM activities.

'User behaviour'. In contrast to existing perspectives in e-HRM that are interested in the qualities of human actors, such as knowledge, competences and skills, sociomaterialists consider the capacity to act according to the individual's intentions, i.e. *human agency*. Human agency is the freedom to choose how to enact organisational practices by sustaining old practices or creating new practices. Humans exercise their agency in relation to social practices and material objects through their own interpretations of them (Orlikowski & Scott, 2008). Agency is a temporal and relational concept since agency is embedded in sociomaterial structures, which can afford or constrain the activities at a certain time and place. For example, in the research on mobile email technology, Mazmanian et al. (2013) analysed knowledge professionals' use of their mobile devices, in particular email applications, and the consequences for organisational processes. They found that, in their desire to become more in control of the work with the help of material artefacts that afforded connectivity 24/7, professionals enacted *a norm* of being continuously connected and accessible. This, somewhat conflictingly, increased their perceptions of flexibility, peace of mind and control over interactions, but also escalated their work engagement and made it harder for them to disconnect. This example illustrates how professionals exercised their agency to become more autonomous with the help of mobile technology and how it in fact shaped that agency and made them less in control of their own time. Paying more attention to the dynamic constitutive relationships between agency and materiality can provide valuable analytical insights into the work of HR professionals and how it reconfigures in practice.

An increased acknowledgement of the role of human agency in connection to technology enables us to gain a deeper understanding of how HRM technology is enacted in organisations, for instance, how actors resist and accept material artefacts and how they deal with constraints posed by material artefacts. Thus, in comparison to the existing view in e-HRM, the sociomaterial perspective looks at the evolution of e-HRM practices and how human agency and material agency bond together to produce emergent outcomes rather than nominal expected consequences.

Actors roles. The e-HRM literature explores whether HR function becomes more strategic or not, whereby status is evaluated on the basis of perceptions of other employees or by the HR manager's presence on the board of directors. Sociomateriality, on the other hand, may potentially contribute plausible explanations by shifting the focus from studying functional roles to studying roles defined by the 'patterned ways in which people play them' (Barley, 2015, p. 6). Roles are part of organisational work systems and are relational to other roles played

by other occupational groups. In other words, roles are about what HR does daily and how, their communication patterns, whether they have and use their influential power, how their role relates to the roles of line managers or employees rather than what is written in their job description. It offers a means to study how materiality triggers alternations in the patterned ways HR professionals complete their tasks, as well as how emergent activities of HR professionals around materiality are aligned with the activities of line managers, employees and other occupational groups within the organisation.

HRM practices

Conceptualisation. Schatzki (2001, p. 2) defines practices as 'embodied, materially mediated arrays of human activity centrally organised around shared practical understandings'. Accordingly, practice is where material agency and human agency meet to produce actions and construct realities. Action on its own cannot create significant consequences unless actions are reproduced many times and in recognisable patterns, in other words, routinised. Thus, the analytical focus of sociomaterial studies is on practices that are routinely performed through particular arrangements of tools, discourses and human bodies.

HRM practices outcomes. While e-HRM literature is concerned with organisational effectiveness after the implementation of technology and the integration of intended HRM practices into it, theories grounded in sociomateriality aim to explore in more detail the effects the enactment of technology has on HRM work. In particular, what are the new activities emerging with the use of material artefacts such as cloud HRM systems or dashboards with HR data, how and why do some activities repeated over time create new practices whereas some disappear quickly? Focusing on ongoing activities allows us to distance ourselves from the supremacy of human actions, perceptions and intentions of users or technological artefacts, and instead to try to understand the reasons behind activities becoming new norms. Like the earlier example of the study by Mazmanian et al. (2013), it is about how the new practice of being constantly connected became new normality when employees saw an opportunity in using mobile email to become more flexible and in control over work interactions. This example illustrates the emergence of unexpected outcomes through the enactment of new technological artefacts, such as mobile email.

HRM practice 'implementation'. According to the sociomaterial view, normative HRM practices as discussed in e-HRM literature are materialised in text, instructions, technologies, discourses, and artefacts

that certainly do play an important role in how real activities unfold. Given the dynamic nature of real practices, their temporality and situatedness, HRM practices implemented within the organisation would not lead to mirroring those in reality. Rather, the practices would be shaped and reshaped through their enactment. Sociomateriality provides a means for looking at how normative HRM practices are executed in real-time by allowing us to explore the power structures, the conflicts that arise in relation to material artefacts, different discursive practices that carry meanings, and intentions for the implementation of technological material artefacts.

Integrating a sociomaterial perspective: A research agenda

Against the background of the comparative review above, a future research agenda on e-HRM is presented below based on how the sociomaterial perspective can be used to extend our understanding of the interplay between HRM and technology. In the presentation of the research agenda, an artificial separation is made between technology, actors and practices to show where the focus within these three dimensions should lie when studying e-HRM from a sociomaterial perspective. The proposed research agenda is summarised in the far-right column of Table 1.

From technology to material artefacts

A sociomaterial view emphasises the need for understanding how materiality is integral to social activities and encourages exploration of how materiality and human agency configure HRM work. For example, HRM work involves human bodies (HR professionals, line managers, employees) engaged in repeated activities (consulting, advising, reporting, managing, evaluating) and a variety of material artefacts (workplaces, forms, instructions, tools, computers, software, data centres). The materiality of HRM work is reflected not only in the tangible artefacts, but also more intangible artefacts like software, which only exists in relation to computers, codes, algorithms, and specifications. Therefore, when studying sociomaterial arrangements, one needs to consider the extent to which the focal practices (e.g. performance appraisal, recruitment, development discussions) are material.

The material properties of technology as such are not as central as the affordances these properties provide people with. For empirical research, this means exploring what different material artefacts enable actors to do. Enabling is different from determining since materiality does not define actors actions; instead it provides a variety of

possibilities for actors, but also sets the limits of what is possible. Therefore, to explore affordance, one may ask, or identify through observations, what the immediate outcomes of using a particular technology are for various organisational actors. Sociomateriality offers a particular way to express HRM work through the engagement of material and social, repositioning it against the interactions of entities such as HR professionals and line managers, or line managers and employees. For instance, being integral to HRM work, cloud systems can produce digital spaces on the screen for HR professionals to administer human resources, initiate and support HRM processes' flow, and record employee activities, which in turn allows for generating data within databases, which feed into algorithms, analytical tables, and talent management systems.

From actors to agency

While materiality can be considered as fixed, with certain technical features imposed by the designers of a technology, affordance does not exist without human agency. Actors interpret material artefacts and perceive the affordance in line with their intentions. Affordance, as a function of technology, is not always visible or known until actors realise it in action. Hence, the roles, as situated patterned activities, that actors play in sociomaterial practices, need to be explored in greater detail. Considering the example of online platform organisations that offer jobs to contingent workers (gig workers) (Barley et al., 2017), examining the roles customers play in such platforms would be interesting. Do they only buy services? Are they encouraged to give feedback to the worker, which in turn not only evaluates the worker's performance but also feeds the data into the system's algorithms, making workers more visible or invisible, helping other customers to make choices.

In comparison to voluntarism where people are believed to act based on their interpretations of the situation despite technological constraints, theories within the sociomaterial perspective assume that human actions are limited by materiality. Only in relation to material artefacts can they exercise their agency. Thus, researchers exploring phenomena from a sociomaterial perspective need to question how people exercise their agency, including their goals and motivation.

What if their intentions do not fit the affordance of technology? How do they resolve or avoid those constraints? For example, how do line managers deal with algorithms that do not serve their own wants/needs? This dilemma may arise in the case of algorithms that strictly afford the maximising of the value of labour when managers need to find a balance between maximising the production, whilst ensuring employees' work-life balance.

A sociomaterial lens has the potential to become a powerful tool for studying machine learning and artificial intelligence since it assumes that material agency acts without intentions, without humans directly controlling its activities or understanding its algorithms of working and learning. For example, AI-based recruitment software can make a selection of the candidates without human involvement or control over AI. Acknowledging the way AI works and how it configures the recruitment practices together with humans will provide insights into the implications it has for organisational processes.

From HRM practice towards practicing HRM

Adopting a sociomaterial perspective on technology enables a more detailed examination of how changes in HRM work occur during the implementation of technology in organisations. Rather than conceptualising technology as a discrete and predictable technological artefact that focuses on intended adoption and organisational effects, the sociomaterial perspective considers the enactment of technology in practice as constitutive to the production of outcomes (Feldman & Orlikowski, 2011). In other words, what is consequential is not technology as a tool or material artefact itself, but the way it is used to get work done. Therefore, future e-HRM research is encouraged to focus more closely on actions and patterns of actions (Pentland et al., 2012) in connection to material artefacts that together constitute HRM practices, as situated activities of actors or groups of actors involved in HRM work (Björkman et al., 2014).

Research needs to pay closer attention to how technology is enacted in the organisation, i.e. how its different functions are realised in everyday practice. While we might think of similarities with the adoption process, it is different in that it considers the materiality of technology to be enacted on a daily basis, sometimes re-enacted every day through routinised patterns of actions and sometimes differently due to changes in the organisational sociomaterial environment, i.e. context producing emergent outcomes. Therefore, research needs to examine the outcomes that emerge from such enactments, e.g. boundaries and forms of technology, norms, routines, meanings, power dynamics, and identities. For example, the sociomaterial perspective can be a powerful lens in studying online platforms for gig-workers since those platforms disrupt traditional HRM practices and our understanding of the employment relationship in general. For instance, how do new norms of control emerge around online platforms? What is the interplay between material artefacts, such as the rating system (Kellogg et al., 2020) and the combination of different agencies, such as customers', workers and platform providers?

Methodological implications

Empirical research should focus on describing the observed activities and patterns of actions in addition striving to explain how those are connected, and what effects they produce. Examining the practice of HRM implies following HR actors in their daily activities such as meetings, training and their people management activities, and studying the material artefacts in their production of activities (Cecez-Kecmanovic et al., 2014).

Since work is highly situated, most people cannot describe the specificity of their work outside their stated context (Suchman, 1987). Fieldwork, which includes ethnographic methods, participant observation, shadowing and other qualitative methods is crucial in order to understand and appreciate the actual work that occurs. For example, comparative case studies might be valuable to further our understanding of how a technology unfolds in two or more organisations. Such case studies could highlight the mechanisms underlying how the same technology may lead to similar (or different) outcomes in different organisational contexts (Leonardi & Barley, 2010). Another way to study how HRM practices evolve as technology comes into use is to study it retrospectively, for example, by studying email archives or other archival data, and/or narratives that are constructed individually by occupational groups (see e.g. Nelson & Irwin, 2014).

Limitations and implications for practitioners

Whilst this paper has advocated the introduction of a sociomaterial perspective to e-HRM research it is itself not without criticism. Among the most common critiques is the failure by researchers to give equal importance to the material and social, leaving the material behind while 'agency and interpretations came to the fore' (Barley, 2015; Cecez-Kecmanovic et al., 2014). Commentators see at least two reasons for this: the theories used (Barley, 2015) and associated methods deployed have relied heavily on interview data (Cecez-Kecmanovic et al., 2014). Therefore, balanced decisions about the methods and theories applied that are capable of acknowledging both the material and the social are essential in pursuing a sociomaterial approach.

In order to pursue the aim of the paper—to draw a parallel between existing perspectives of e-HRM and a sociomaterial perspective—some generalisations about those perspectives had to be made. Whilst there was an attempt to acknowledge important exceptions, as well as the advantages and limitations of the existing perspective, it can nevertheless be argued that the review may have over-simplified the boundaries between the two perspectives in places.

Nevertheless, applying a sociomaterial perspective has practical as well as theoretical implications. The practical implications for organisations concern how sociomateriality directs attention towards the issue of how artefacts are used and experienced in everyday activities, instead of simply focusing on the artefacts themselves. It implies different ways of measuring success than simply counting the number of accounts created in recently installed software. By putting everyday activities at the centre, sociomateriality can support the practical relevance of research through enhanced engagement with practitioners during the data collection, bringing in the practitioners' reflections rather than producing reports and prescribing a cure.

Conclusion

Through a comparative review of the e-HRM and sociomaterial literature, the aim was to show how concepts from theories grounded in sociomateriality can provide new, complementary ways to explain the interplay between technology, actors and HRM practices. The literature review suggests that theorisation in e-HRM research mostly concentrates on exploring causal relationship between technology and user perceptions, and the influence of such relationships on HRM outcomes. As a result, e-HRM contributions have not extended far beyond the frames characterising the general HRM research.

This article argues for more research that applies theories and concepts grounded in a sociomaterial perspective, which emphasises the need to be attentive to how both the materiality of technology and the social processes occurring around it constitute HRM practices. Sociomaterial theories allow the examination of emerging patterns of activities as dynamic, multiple and indeterminate. Such an approach is critical when new ways of organising continue to emerge around technological advancements deeply embedded in everyday working experiences such as those emerging around mobile technology, platform organisations, internet communities, and monitoring technologies.

Note

1. This paper only provides a brief introduction to some shared concepts across those theories and does not aim to promote one particular theory

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Paper 2

Evaluating performance in the context of mobile telework: An attention-based view

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Abstract

This study is an empirical account of how line managers evaluate the performance of their subordinates in the context of mobile telework. Whilst the increasing use of new technologies affords certain advantages for line managers in remote performance evaluation, it also results in a greater volume, fragmentation and variety of performance data, which can be challenging to manage. Adopting an attention-based view (ABV), we shed light on the role of technology in performance evaluation (PE), elaborating on the kinds of attentional stimuli that are generated by technology as part of the broader socio-technical work environment, and how these together with the attentional perspectives of the manager influence attentional engagement, i.e. what managers direct their time, energy and effort on in PE of mobile teleworkers. Our focus is on attention as something line managers do, in their immediate context. We contribute to the remote work and PE literature by showing how the interplay between two drivers of attentional engagement: attentional stimuli (different possible foci of attention in the external environment) and managers' own attentional perspectives (the cognitive and motivational structures that influence what stimuli receive attention) influence the attentional engagement in PE of mobile teleworkers.

Keywords: remote work, performance management, performance evaluation, monitoring technology, line managers

Introduction

Employee performance evaluation (PE) today, as an integral part of performance management, can be very demanding due to the volume, fragmentation and variety of performance data. These characteristics of performance data create attentional demands, i.e. issues that compete for managerial attention (Nicolini & Korica, 2021). Managers need to navigate these demands in order to arrive at a suitably accurate account of individual performance, potentially in real time - to respond quickly to acute situations in the short term, and as input into performance measurement and appraisal in the longer term. Research on performance evaluation shows that evaluation tasks are dependent on a complex context where organisational climate and design (Tziner et al., 2005, Levy & Williams, 2004), monitoring technology (Jeske & Santuzzi, 2015), social dynamics (Saffie-Robertson & Brutus, 2014; Ng et al, 2011) and other distal features of the organisational context (Levy & Williams, 2004) have significant impacts on the outcome of the task. In the context of remote work, and more specifically mobile telework, "where work is done by people whose work usually involves travel and/or spending time on customers' premises, who may be equipped with laptop computers and mobile phones to support their mobile work" (Daniels, Lamond & Standen, 2010: 1154), attentional demands are exacerbated and can create additional challenges relating to information asymmetry, trust and control (e.g. Järvenpää & Leidner, 1999; Hertel, Geister, & Konradt, 2005; Webster, & Wong, 2008).

As part of the trend towards the greater use of technology in supporting and carrying out HRM practices (e-HRM) (Prikshat, Malik & Budhwar, 2021, Bondarouk & Brewster, 2016, Stone, Deadrick, Lukaszewski & Johnson, 2015), organisations have introduced new technology and data-driven tools (e.g. real-time reporting, dashboards) in order to support managers in evaluating the performance of their employees remotely. Gartner's outlook on the employee monitoring market for 2020 estimated that almost 80% of companies will be using monitoring software to keep track of their organisational goals and employees (Gartner, 2019).

Whilst such technology is intended to afford managers greater visibility, as well as the opportunity to react quickly, it also adds another layer to managers' attentional demands. For instance, such technology often produces a greater volume of data and cues, contributes to additional fragmentation with data both 'online' and 'offline', as well as real-time and historical, and poses difficult questions to managers about how much to rely on this data versus other more direct sources of information (Chen & Nath, 2008; Curzi, Fabbri, Scapolan & Boscolo, 2019; Schwarzmüller, Brosi, Duman & Welpe, 2018; Stone et al., 2015).

Previous research on PE in a remote or telework context falls into two broad categories. The first category, grounded in the organisational behaviour literature and psychology and cognitive theories, considers the influence of technology use on individual evaluations, including rater biases, ratee perceptions and the rater-ratee relationship (e.g. Stanton & Barnes-Farrell, 1996; Moorman & Wells; 2003, Jeske & Santuzzi, 2015; Alder & Ambrose, 2005). The second category, grounded in the HRM literature and theories on leadership, organisational communication, control and social identification, focuses on performance management in virtual

or global team settings as the remote work context (e.g. Gilson et al., 2015; Hertel et al., 2005; Lauring & Jonasson, 2018).

Despite its valuable contributions, we identify three key shortcomings in existing work on PE in telework. First, previous research mostly focuses on the formal organisational practice of performance appraisal that occurs on a limited number of occasions over a period of time (McKenna, Richardson & Manroop, 2011) and less on how managers continually engage in the evaluation of subordinates' performance (Schleicher et al., 2018, Tseng & Levy, 2019). Given technology's ability to monitor 'everyday' employee performance, and the importance of real-time performance data in managing fast-paced operations and delivering value to customers, focusing only on the formal performance appraisal 'event' risks ignoring the more pervasive, continuous role technology plays in shaping manager attention in PE.

Second, in response to studies on evaluation ratings based on cognitive theories and the formal appraisal event, De Nisi and Murphy (2017) suggest that cognition cannot fully explain individual managerial attention to particular issues since context also plays a significant role. While studies examine the interplay between manager cognition and the social context within which PE takes place, only few focus on the informational and technological context within which PE takes place (Golden, Barnes-Farrell & Mascharka, 2009; Kalischko & Riedl, 2021). And third, as Hislop and Axtell (2007: 35) note, 'the telework literature has placed significantly more emphasis on the movement of work into the home than work done "on the move".' This is significant in terms of PE practices and attentional demands since managers of mobile teleworkers possess agency about whether and how often to visit and observe teleworkers directly (e.g. on customer premises).

We seek to address the above-mentioned shortcomings by adopting an attention-based view (ABV) (Ocasio, 1997) to examine PE in the context of mobile telework. Following Nicolini and Korica (2021), we adopt a sociomaterial perspective of technology (Orlikowski, 2007), where our focus is on attention as something line managers do, in their immediate context. In terms of their attentional engagement – what they direct their time, energy and effort on (Ocasio, 2011) – line manager agency in their performing of PE will be constrained or afforded by attentional stimuli and their own attentional perspective. The sociomaterial perspective thus complements the attention-based view by incorporating a focus on both individual attention distribution and contextual, organisational attentional stimuli, in understanding how technology shapes attentional engagement in PE.

The aim of the study is to examine how technology and social structures as attentional stimuli, interact with individual attentional perspectives to shape the attentional engagement of line managers in PE in a remote setting. In this study, we focus on examining PE in the context of employees performing mobile telework primarily in the field rather than in their homes. The study was designed as a qualitative case study and conducted in the context of a maintenance department in a large multinational engineering and service company. The findings are based on 16 interviews with line managers paired with 12 days of shadowing in order to gain an in-depth understanding of their everyday PE practices.

In applying the ABV (Ocasio, 1997), the study contributes to existing literature on remote work and PE by shedding light on the role of technology in "how busy

managers [...] incorporate the observation of employee performance into their responsibilities" (Schleicher et al., 2018: 2219). It does this by examining where managers direct their attentional engagement, i.e. how their attention is allocated, directed and dealt with (Ocasio, 2011), which is not well understood in this research to date. We also address Schleicher et al.'s call to emphasise the importance of context in PE by examining attentional engagement in a remote telework context, by examining the role of technology in PE as attentional stimuli, and by viewing technology as part of an organisation's broader socio-technical system.

Advancements in technology have paved the way for the development of sophisticated monitoring tools that enable real-time tracking of performance indicators (Ravid, Tomczak, White & Behrend, 2020), regardless of the geographical distance between supervisors and subordinates (Golden et al., 2009). Monitoring tools allow for the continuous collection of different types of data, which renders the collected performance data rich but diverse and often ambiguous (Ravid et al., 2020). We elaborate on the kinds of attentional stimuli that are generated by technology-based monitoring tools as part of the broader socio-technical work environment, and how these together with the attentional perspectives of the manager influence attentional engagement in PE of mobile teleworkers. Specifically, we shed light on the interplay between two drivers of attentional engagement: attentional stimuli (different possible foci of attention in the external environment) and managers' own attentional perspectives (the cognitive and motivational structures that influence what stimuli receive attention).

The findings are important for practice since they address the need to understand better the role of new PE technology amidst the remote work transformation where the number of employees transitioning towards teleworking, hybrid, and/or remote working is increasing significantly (Felstead & Henseke, 2017; Donnelly & Johns, 2021). The study also addresses the question of what it means to be an effective 'remote leader' (Gan et al., 2022) and the implications for line managers of implementing HRM practices remotely (Bos-Nehles, Van Riemsdijk & Kees Looise, 2013). Existing literature has criticised performance management as being too rigid, formal and long-term oriented (e.g. Buckingham & Goodall, 2015; Cappelli & Tavis, 2016). Our examination of the continual process of PE contributes to our understanding of how technology is being used to develop the practice of PM in a more agile, individual-focused and short-term direction.

Literature review

Performance Evaluation and Mobile Telework

Performance evaluation (PE) is a key part of performance management (PM), the purpose of which is to support and improve employees' performance and align it with the organisation's strategic goals (Aguinis & Pierce, 2008). Whilst performance appraisal is typically a very structured type of routine carried out on pre-set occasions where performance is recorded and developmental feedback can be documented, PE is viewed as a less structured, continual process (i.e. indefinitely, at regular intervals) that involves observing and gathering

information about how employees carry out their work, including their attitudes and skills, to enable real-time evaluations of employee and job performance. This information is used as a basis for subsequent judgements about employee performance in formal performance appraisals. In line with Ferris et al. (2008: 146), we thus view PE as "embedded within complex social, emotional, cognitive, political, and relationship contexts" that "can be understood only in situ, or as played out against the contextual backdrop of the day-to-day interactions occurring in work contexts." When conceptualised in this way, managers can be viewed as key actors in PE, who have agency in choosing their evaluation strategy based on their individual preferences and interpretations of job performance. This influences what information they attend to, and how they synthesise information from different sources (Murphy & Cleveland, 1995; De Nisi & Murphy, 2017).

Most existing research on performance appraisal has focused on the formal evaluation process, wherein the individual attributes of raters have been identified as playing a pivotal role in determining the accuracy of the ratings. This phenomenon has been examined in terms of its inherent biases and leniencies. Notably, studies by Bernardin et al. (2000; 2010) have found that raters who exhibit high levels of agreeableness and low levels of conscientiousness are more prone to making lenient ratings. Moreover, lenient ratings are connected to self-construency and discomfort of the rater (Saffie-Robertson & Brutus, 2014). Self-efficacy and conscientiousness play a motivational role in performance evaluation, impacting raters' effort in making the performance as accurate as possible (Tziner et al, 2005). Studies have also highlighted various dimensions of the rater-ratee relationship (Tziner et al., 2005; De Nisi & Murphy, 2017), such as their demographic similarities (Judge & Ferris, 1993), close relationships (Duarte, Goodson & Klich, 1994; Kingstrom & Mainstone, 1985), cultural identity and background (Mok et al., 2010), power relationships (Saffie-Robertson & Brutus, 2014; Ng et al, 2011; Ferguson, Ormiston & Moon, 2010), and the effects these have on rater biases.

While the personality traits and interpersonal relations between rater and ratee have significant impact on the evaluation process and its outcome, social contextual factors such as organisational design, HR strategy or technological development also have indirect impacts (Levy & Williams, 2004, Murphy & Cleveland, 1995). Different contexts may affect the interaction patterns, power dynamics and emotional background between rater and ratee and are therefore important for understanding the PE process and its outcomes. For example, electronic performance management tools hold people accountable for their performance and ties performance to rewards, which directs the attention of rater and ratee to key performance indicators at the expense of other tasks that are not monitored (Ravid et al., 2020, Stanton & Julian, 2002).

Research on PE shows that the evaluation of employees' overall performance is most likely to be biased in favour of performance information observed directly (Golden, Barnes-Farrell & Mascharka, 2009; Adler et al., 2016). This suggests that the "task of accurately evaluating someone's performance is difficult if not impossible" as it requires constant direct observation, exclusion of irrelevant information and any judgements from the past (Adler et al., 2016). Direct observations are possible when manager and employee are co-located. However, as an increasing number of employees today work remotely, their managers must instead rely on indirect observation in the form of information from a variety of

different sources (e.g. colleagues, customers, systems), and through a variety of media (email, telephone, logs) and electronic performance monitoring (EPM) technologies (e.g. Kalischko & Riedl, 2021; Ravid et al., 2020), most commonly accessed through laptops or smartphones.

For remote managers, evaluating the performance of mobile telework with the help of EPM technologies presents new challenges compared to co-located PE. According to Golden et al. (2009) managers evaluate the performance of their employees by considering direct and indirect sources of information. Amidst the growing popularity of performance management systems and the increased use of technology-generated performance data, managers frequently use such performance metrics in their evaluations, which can contribute to perceptions of appraisals being fair (Payne et al., 2009). Technology also creates opportunities for recording and monitoring a wide range of behaviours (Kellogg et al., 2020). Research on EPM technologies - including the more controversial surveillance EPM - has moved away from viewing them dichotomously (used or not) toward the effects of their specific characteristics such as perceived purpose, invasiveness, control and transparency (Ravid et al., 2020). However, the most commonly used for evaluation purposes are employee output, unproductive worktime, and the length and frequency of work tasks (Jeske & Santuzzi, 2015; Murphy & Cleveland, 2005). While empirical research still remains scarce, existing findings suggest that remote PE leads to managers increasing their focus on quantifiable information about employee output (Chen & Nath, 2008; Schwarzmüller et al., 2018). Whilst remote performance monitoring as a part of PE offers managers an unobtrusive means to collect performance data, the features and perceived purpose of this form of PE can influence a range of employee attitudes (Ravid et al., 2020; Wells, Moorman & Werner, 2007), including trust in management (Holland, Cooper & Hecker, 2015) and perception of tight control (Jeske & Santuzzi, 2015).

An Attention-Based View of Performance Evaluation

The volume, fragmentation and variety of performance data in PE of mobile workers – both from EPM tools and direct observation – create attentional demands that compete for managers' attention (Nicolini & Korica, 2021). We therefore suggest that the attention-based view (ABV) (Ocasio, 1997) is a pertinent lens through which to understand the effects of technology on managerial practices in PE. The ABV incorporates not only the individual focus of attention, but also how attention is structured by the organisational environment, i.e. how attention is situated. The ABV argues for the need to study the attentional engagement of organisational members which are defined by attention to stimuli in time and over time since people can be mindful about where they direct their attention based on their future plans and strategic goals (Ocasio, 2011, Ocasio, Laamanen & Vaara 2018).

Attentional engagement defines what people pay attention to. More specifically, attentional engagement is the process of sustained allocation of cognitive resources, i.e. time, energy, effort, to guide problem solving, planning, decision-making and sense-making (Ocasio, 2011). Such cognitive processes are activated in interaction with attentional perspective, i.e. top-down cognitive structures that emphasise relevant stimuli and action repertoires, and attentional stimuli, i.e. bottom-up attentional processing (data-driven, direct observations, stored in memory). Individuals can have multiple competing or conflicting attentional

perspectives, defined on different levels by goals, experience, top management team, organisational strategy, prior attention and other sociomaterial structures (Ocasio, 2011).

Although the importance of managerial attention for the evaluation process is emphasised in the PE literature, the existing, cognitive approach to attention is not sufficient for explaining how managers make judgements about the work of their subordinates. An attention-based view considers interlinkages between managers' overall attentional processing based on their values, perceptions, and goals – which in turn generate differing attentional engagement in response to a variety of social and material stimuli (Nicolini & Korica, 2021; Ocasio, 2011).

Method

Research context

To gain insight into how line managers use technology and data-driven tools in evaluating the performance of subordinates working remotely, we conducted a single case study at a maintenance department of a Russian subsidiary of a large European MNC. The work in the maintenance department is done in teams of mechanics (subordinates) led by engineers (line managers). The main task of the mechanics is to maintain customer equipment in commercial and residential buildings located in different parts of the city. This means responding to client callouts as well as performing routine maintenance. The work of the mechanics at the client sites is by its nature remote, often done individually in the absence of the engineers or other colleagues. Mechanics generally schedule their day according to planned maintenance or repairs, but can also be summoned by the call-centre to attend to urgent tasks at client sites. The number of maintenance jobs, combined with the expectation of fast reaction times to callouts, and the distance between the sites creates challenges for mechanics to manage everything on time.

To improve the efficiency and quality of maintenance services, the company recently implemented a real-time monitoring tool (hereafter referred to as Wire). The tool is multifaceted and aims to serve the needs of mechanics by enabling them to schedule, report, and keep track of their activities in the most efficient way. Wire also communicates client callouts to the mechanics, and provides access to real-time information about ongoing activities for different parties of the maintenance service chain (from clients to management). For line managers, Wire provides real-time information about individual mechanics' ongoing tasks, and their execution progress and success. It has a colour coding system, for instance the length of an activity may be highlighted in red to indicate that the mechanic spent more time than expected moving from one site to another or in performing a maintenance task. The colour coding is intended to direct managers' attention towards issues potentially requiring action, for example clarifying the reason for a longer than average repair time, thus enabling the development of possible solutions such as rethinking the distribution of tasks among mechanics, or figuring out ways to increase their efficiency.

Design and data collection

Data collection started in autumn 2018 when initial contacts with the case company were made and the first introductory meeting with the HR Director and Head of Service Development was held. In this initial meeting, we learned about the company's PM system, its purpose, when it was implemented and what practices were in place before that. We also agreed on the details of the data collection process, and that we would gather data in the form of interviews, shadowing, and documents. We concluded data collection in summer 2019.

After receiving approval from corporate HR to start conducting interviews and shadowing in the unit, we started emailing potential participants. In our first email we emphasised that their participation in our study was voluntary, and that the content of all interviews was confidential and only accessible to members of the research team. In the consent agreement, we emphasised that in our reporting of the data, their views would be shared anonymously and that no individuals could be identified. We further explicitly stated that we would not share any individual insights directly with HR but only in aggregated form. At the end of our interviews with line managers we asked selected managers about the possibility to shadow them in their daily work for a few days, emphasising they were not obligated to agree to this. Several managers that we asked consented to this.

The qualitative data consists of 29 interviews, lasting on average 50-60 minutes (16 with line managers, 3 with division directors, 5 with mechanics, 1 with the HR director and 4 with service development managers), paired with shadowing of line managers for a total of 12 days in order to gain further insight into their everyday PE practices. Although the line managers are the key informants in this study, we also interviewed other actors in the company in order to get a broader understanding of the PE process. While not directly providing us with insights about how performance evaluation was practiced by line managers, being able to interact with different actors involved in PE technology and process implementation provided us with a better contextual understanding, which was informative for further interpreting and reflecting on the line manager data.

As a research tool, shadowing enables the researcher to follow closely organisational processes and practice (Czarniawska, 2018), such as PE, by observing daily interactions and practices of managers working in their actual, complex, social and material settings (McDonald, 2005; Gilliat-Ray, 2011). One of the authors shadowed three managers during working hours, for 12 days, to learn what they actually do during their TaskFlow, rather than what their job role states they do (Quinlan, 2008). Shadowing is a one-on-one ethnography that is less about what is being done and more about connection between researcher and participant (Gill, 2011). The researcher's presence may influence the behaviour of the participant, for example changing the usual behaviour or workflow to align with perceptions of the observer's potential expectations. As the shadowing progressed, observation shifted to include also active discussions of ongoing work events with the participant, and casual conversations during shared meals or car rides. These interactions enabled the development of a rapport and a more natural behaviour from the participants, enhancing the accuracy and depth of the collected data. All interactions along with the observations were carefully documented in the field notes, which in turn required reflexive reading.

The 16 semi-structured interviews with our key informants, the line managers, focused on their daily activities, routines and responsibilities, their interactions with mechanics, ways to evaluate performance, and the use of monitoring technology. In the latter part of the interview, we employed an open-ended questioning style in order to allow room for new themes to emerge (Hammer & Wildavsky, 2018). All participants in the study were male and had an engineering education. They had progressed from being mechanics themselves to supervisory roles. Most of the supervisors had worked for the company for over 10 years and been in a supervisory role for over 3 years. The managers were encouraged to describe and reflect on their work, their experiences of using Wire, as well as their evaluation of mechanics' performance. All interviews were conducted face-to-face in the local language, which was the native language of both the interviewer and all the interviewees.

Data analysis

We analysed our data in three broad stages following an abductive process (Dubois & Gadde, 2002; Timmermans & Tavory, 2012). Being neither inductive nor deductive, the abductive approach assumes iterations between theoretical concepts and data to refine theoretical ideas during the research process (Dubois & Gadde, 2002; Saetre & Van de Ven, 2021). The data analysis approach can thus be characterised as emergent, and conceptual advancements are made as fieldwork progresses and explanations are sought for observed experiences. The search for suitable theory to explain what we saw in our data was a process of trial and error. Reading and interpreting the data was instrumental, but also involved remaining open to consider different theoretical perspectives during the data analysis.

The aim of the first phase of data analysis was to create an initial understanding of how managers went about evaluating the performance of their mobile teleworkers (mechanics), what they based their judgements on, and what kinds of activities they engaged in. We paid special attention to managers' interactions with the mechanics and the technology (Wire). Reading and re-reading the interview transcripts, we noted down aspects of the managers' work environment including social patterns, artefacts, location, network relationships of the managers, and their intentions and expectations. In line with Silverman's (2011) suggestion to enhance the credibility of qualitative findings, we adopted researcher triangulation so that each author initially read and made notes separately. We met frequently throughout the process to discuss emerging themes and compare our views. We developed a table containing descriptions of managerial ad-hoc and routinised activities, as well as the context underlying the activity, which we used to 'map' the data.

In the second phase of analysis, upon deeper analysis of the table from phase 1, we observed that the ways in which managers interacted with their subordinates and Wire clearly seemed to influence the issues they focused on in their performance evaluation. We continued to work on the table, using informant-centric codes (Van Maanen, 1979), and including interview excerpts which we identified as important or illustrative, also adding our own comments and raw analyses to this table (Strauss & Corbin, 1990). We next turned to the performance evaluation and EPM literature to learn more about the role of managers as evaluators of

employee/teleworker performance and the use of performance monitoring technology (De Nisi & Murphy, 2017). As we deepened our understanding of the data, the concept of attention (Ocasio, 2011) appeared to resonate with our previous readings and interpretations (Silverman, 2013), and it was viewed as helpful in shedding light on how technology, together with salient aspects of the individual manager's disposition and their environment, was shaping their PE activities in our study.

In the third and final phase, we decided to analyse the PE practices we were observing as attentional practices (Nicolini & Korica, 2021). We grouped and refined our initial, open codes to more research-centric codes related to concepts in ABV (Van Maanen, 1979). This involved identifying what managers directed their time, energy and effort on in the PE process (attentional engagement), and how this was being shaped by their own personal disposition and agency (attentional perspective) on the one hand, and the sociomaterial context in which PE was taking place (attentional stimuli) on the other. Our data structure is illustrated in Figure 1.

Both observational data and interviews were important for capturing different aspects of attentional engagement. Our field notes were particularly valuable for capturing what managers spent their time, energy, and effort on. We were able to identify patterns in their work practices and observe the attentional stimuli that influenced their attentional engagement. The interviews, on their part, allowed us to gain a deeper understanding of the attentional perspective of the managers, such as their perception of their own role identity, their motives for PE, and the different stimuli they pay attention to.

Findings

We present our findings in correspondence with the data structure illustrated in Figure 1. First, we go through, in turn, the two key foci of attentional engagement in PE that emerged from our data: managers' focus on interactions with key performance actants, and specific performance indicators. At the same time, we interweave the attentional stimuli within the organisational context and the attentional perspective of individual managers that influenced managers' attentional engagement on these two foci. Second, we touch on how managers continuously balanced competing attentional demands between actants and indicators when evaluating everyday employee performance. All quotes are from line managers (engineers); their names have been carefully anonymised using pseudonyms.

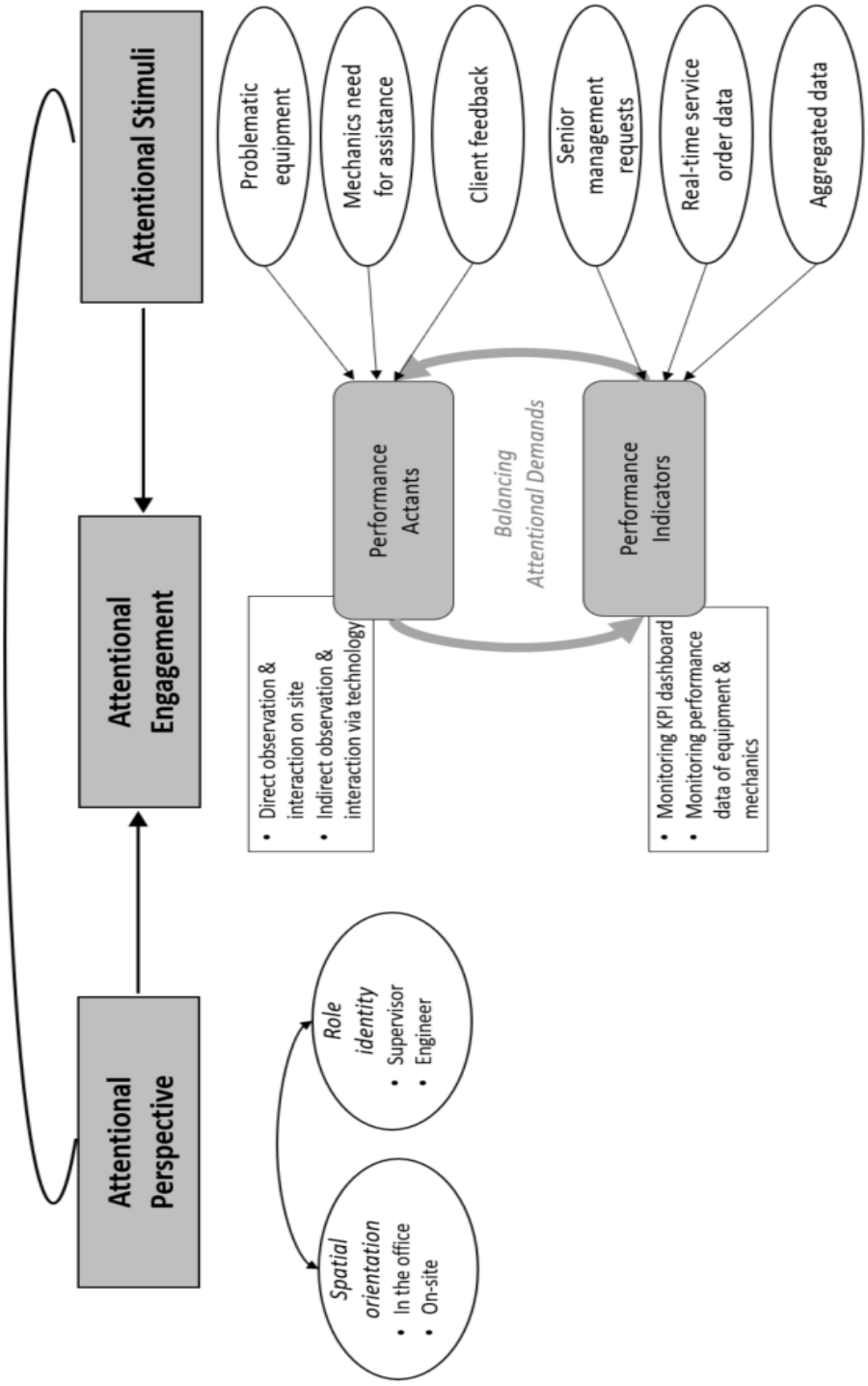

Figure 1. Empirical data structure

Attentional Engagement in Performance Actants

The first focus of attentional engagement in PE that emerged was the time, energy and effort that managers directed to key performance actants. In this study, the key performance actants were the mechanics, customers and equipment that managers deemed central for evaluating performance. However, in terms of how managers directed their time in evaluating the performance of mechanics (even hour to hour), managerial attention was split depending on managers' spatial orientation that in turn related to the role managers identified themselves with. Most of the managers had an engineering education and most of the managers started out as mechanics before assuming their managerial role. Our findings show that managers whose role identity was strongly linked to their perception of themselves first and foremost as engineers (and secondly as supervisors), engaged in more direct, physical face-to-face observation and communication (during which they also engaged in hands-on maintenance and repair work). Managers who identified primarily as supervisors (and secondly as engineers) engaged in more indirect, technology-supported observation and communication (email, telephone, Wire). Managers aimed to ensure that acute and emergency situations were responded to in a timely manner by paying attention to the performance of actants in real time, regardless of the type of interaction they used.

Direct observation and interaction on site. The attentional engagement of managers who favoured direct observation and interactions, mainly concentrated on three actants – mechanics and customers and problematic equipment. Site visits were considered important for getting insight into the daily work of mechanics, what they spent time on, what they prioritised, and how well they performed their tasks. The daily routine of these managers was to gather all the mechanics for a quick morning meeting at the office or at a client's premises, to discuss which current cases needed most attention, to answer potential questions, and to go through the plans for the day.

> "We have our own small workshop at clients' premises, and every morning I hold a quick meeting with the mechanics. That is, every morning at 8 am we talk about the past day's callouts." (Jack)

Although every mechanic had Wire and knew their daily work tasks in the morning (as opposed to before when tasks were distributed to employees in these meetings), managers nonetheless retained this practice, which they considered helpful for getting an overview of each individual mechanics' work, as well as for achieving alignment between different tasks. In addition to the informational aspect, managers viewed the daily morning meetings as a good way of controlling mechanics' presence at work, ensuring their neat appearance and that they kept busy with the right tasks. Following the in-person meetings, managers spent a considerable part of their day visiting different work sites.

The strong engineer identity of these managers seemed to be associated with a sense of personal accountability for the equipment, the quality of the repair and maintenance work carried out, and client relationships. This was coupled with their spatial orientation in the sense that they perceived hands-on involvement as something important for them as managers and senior engineers to do. A key attentional stimulus when evaluating the work of mechanics was the operational condition of equipment, with particular attention being paid to problematic

equipment. Relying heavily on their own past experiences, these managers were of the opinion that they, by looking at the state of the equipment, could judge the actions of mechanics in terms of typical mistakes they made or ways in which they resolved different problems. Mechanics' own requests for help and the questions they asked also fed into managerial perception of mechanics' professional competence and performance.

> "We ourselves [the managers] were once in their [the mechanics'] place, so we know what to control, what to check, and where to look, because I also worked as a mechanic, then a foreman, then master. So, everyone grows up as an engineer. Therefore, there is certain experience and best practices, we know where to look, we remember our experience of doing maintenance and times when we could have missed something, not noticed. Therefore, everyone here has their own accumulated experience." (Paul)

Direct customer feedback was another attentional stimulus that these managers paid considerable attention to. In addition to being an important source of information about mechanics' work performance, managers also considered this kind of feedback as critical for maintaining close and trusting relationships with the customers. They considered their own physical presence on site as an effective way of assuring customers that they were receiving good service and that their equipment was being well taken care of, partly driven by the fact that many customer contact persons also had an engineering background.

Indirect observation and interaction. While some managers directed a lot of attention to visiting mechanics at their working sites, others clearly favoured spending more (but not all) of their time in the office. This spatial orientation seemed to stem from their perception that administrative duties, reporting tasks, and bureaucracy (managing warehouse, logistics, labour safety management) had increased, thus requiring more presence at the office. These managers appeared more focused on their role as supervisors, highlighting their engineering role identity to a lesser extent. Similar to their managerial colleagues who preferred on-site face-to-face interactions, the attentional engagement of these managers in PE was focused on mechanics, clients and equipment, however, they engaged with these in a notably different way. They typically started their day by checking emails and Wire, but instead of meeting mechanics, they called them. The purpose of the phone calls was largely the same as that of the morning meetings that the other managers held, with the important distinction that these managers directed less attention to helping mechanics plan their day and instead monitored more closely the extent to which mechanics completed emergent tasks and needed support with their work. While getting information about mechanics' location and task completion through Wire, the phone calls were intended to check that mechanics were in fact doing the things they reported in Wire., i.e. to triangulate Wire data with direct communication.

> "In the morning I call my mechanics, find out what plans they have, what site will they go to, what task they are going to carry out there, routine maintenance work or repair work. In parallel with this, during the day, I monitor whether this is really so – it is necessary to control their actions." (Dave)

Although the attentional stimuli were overall the same as for managers favouring direct interaction, (problematic equipment, client feedback and mechanics' need for help), they had a different, and largely digital form. Managers who spent more time managing the operational work remotely, engaged with Wire and the real-time data it provided more frequently as the major source of information about the performance of mechanics and the state of equipment. Managers could see the callouts in Wire, the urgent tasks that mechanics needed to attend to, and also the intended daily work plan for all their mechanics. Like the managers who frequented sites, these managers were also concerned with having all equipment running continuously, and safely. These managers, however, activated their attention towards problematic equipment based on the data provided in Wire, real-time (working/non-working equipment) and historical reports of how many times it had malfunctioned. The problematic equipment was also an indirect way of evaluating mechanics' work as Wire retained information on who had been responsible for what equipment. In addition, questions that mechanics asked, and the help they needed was an indicator of their competence, and thus a further source of input into PE.

> "If a mechanic calls about some trifling matters several times a day, asking how to do this and that, then I understand that some knowledge is missing. I then start to look into his work history, what sites he is mostly working at, what work he has never done." (Rob)

A further observation was that managers whose attentional engagement was more directed towards indirect interaction, appeared to place more emphasis on the quality of mechanics' soft skills (e.g. communication skills) in PE. Differences in managers' way of observing and evaluating employee performance from physical to more remote, seemed to shift their focus of attention to incorporate other skills than simply technical ones, more specifically ones that supported managers in their remote evaluation.

Attentional Engagement in Performance Indicators

In addition to their focus on performance actants, managers' felt accountability for the results of their own team and team members (the mechanics), also led them to direct attention towards key performance indicators (KPIs). Thus, the second focus of attentional engagement that we found in our data was the attention paid to the KPI dashboard and the performance data of equipment and mechanics. Continual performance evaluation is also a way for managers to ensure accuracy and fairness in determining appropriate bonus levels, thus feeding into their decision-making about subordinates' rewards. Our findings suggest that attentional stimuli were more important in shaping manager attentional engagement compared to individual attentional perspectives. We elaborate on this in the findings below.

Monitoring KPI dashboard. In the organisation's performance management system, the central KPIs were presented in numbers and graphs on a dashboard that was visible on the first page of Wire. While the attention of managers to performance actants was frequent, even daily in the case of mechanics, manager attention to KPIs was more sporadic, driven largely by external attentional stimuli

such as queries from senior managers, weekly approval of working hours, quarterly bonus decisions, senior management meetings, and emergency callouts. Being in the middle, line managers have several levels of accountability. They are, for example, accountable to senior managers for team performance indicators, so it is in their interest to ensure that mechanics report data promptly and accurately. This also means that they manage performance towards their own KPI targets and are thus motivated to follow these targets when aggregated data is available.

> "I have key indicators, KPIs: commercial repairs, real-time back reporting for mechanics, the number of service orders they execute. This is updated once a week on Tuesday mornings. So, on Tuesday I go in [to Wire] and look where something needs to be addressed." (Dave)

The KPI dashboard provided a convenient way to get an overview of everyone's work and progress, evaluate it, and understand what additional things needed to be done. Based on their own background knowledge, managers often double-checked that all activities carried out during a month were accurately recorded in Wire. For example, during one of the field observations that took place at the end of the closure period, one manager called a mechanic in his team, reminding him that if he did not close a repair project in the program, this would not be included in his pay.

> "Wire has all the data on callouts, on mechanics, on objectives. Using Wire, I also create reports on how many mechanics have worked, the peaks, when callouts arrive, on which days for a certain period. All sorts of different reports on the number of call outs for any period. There [in Wire] are all the data about where the equipment is located, customers, numbers, addresses, contracts and so on." (Rob)

Monitoring performance data of equipment and mechanics. While the dashboard provided an overview of key team KPIs, managers deepened their understanding of the dashboard data by accessing more detailed performance data of equipment and mechanics that was available in Wire for different periods. They were able to slice this data in different ways depending on their needs; per team or individual mechanic, client or unit of equipment. For example, one key KPI for mechanics concerned whether or not they were able to fix equipment on the first attempt, without the problem recurring. If this indicator seemed to suggest problems, managers would go on to examine available performance data in Wire to try to get to the bottom of the problem, is it linked to a certain lift, a specific mechanic etc. Studying this data thus allowed managers to get an overview of individual mechanics' entire maintenance histories.

> "I can fill in the name of the equipment and the system will give a full history: what faults there were. Accordingly, I can already talk in detail with the mechanic, for example, "John, I'm sorry, you had 56 applications for this piece of equipment in a week and it still continues to fail, so it seems you yourself can't figure it out?" (Alex)

While a properly performed maintenance job was considered to prevent frequent breakdowns, the condition of the equipment was not viewed solely as the result of mechanics' work. Managers were interested in the reasons for failure and engaged with the equipment data to identify particularly problematic cases. Combined with

the dashboard indicators, this helped to provide a more accurate and well-rounded picture of an individual mechanic's performance.

> "80-90% of visits to Wire are to view call-outs – that is an emergency that brings the equipment to a standstill, how many of them there were, within what timeframe the mechanic arrived there and how efficiently he performed – their efficiency can be seen too." (Alex)

Emergency stops, e.g. standing, non-operating equipment, were a key stimulus of managerial attention when it came to evaluating the performance of mechanics. Every morning, the night shift director sent managers a report on what equipment had stopped operating during the night. Managers evaluated mechanics' reactions to the callouts in terms of speed, quality as well as following organisational procedures (for example regarding safety). While emergency stops appeared to be a key stimulus for most managers, those who worked on-site relied more on physical journals for this information, e.g. notes that mechanics made at the end of the working day, whereas managers who spent more time at the office relied more on the digital data available in Wire.

Balancing attentional demands between actants and indicators

Our findings indicate that managers' attentional engagement in PE was directed towards two key foci – performance actants and indicators – in distinctive ways. However, it was evident in our data that this was not an 'either/or', nor a 'both/and' scenario, rather managers were observed as continuously confronting a complex dilemma of balancing competing attentional demands between these two foci of attentional engagement when evaluating mechanics' performance.

> "I still learn some information from the mechanic, because he is my direct subordinate. In second place, from the customer, and in third place - the system. This is how I do it anyway. All this happens in a fairly short period of time, if you need to understand the true information. Mechanic, customer, and then the system in parallel. There lies the complete picture, everything fits together." (Jeff)

A key issue for managers in this respect was finding a balance, over time, between trusting and controlling their mechanics. The prevalence of the trust vs. control dilemma again seemed to be linked to managers' attentional perspectives in terms of role identity and spatial orientation. Managers working on-site, who engaged in more direct physical interactions, exhibited a greater tendency to micro-manage and control their employees directly. For example, although reasons for repeated equipment failure were listed in Wire by mechanics, these managers were not satisfied relying solely on the system generated information. Instead, they commonly wanted to make their own assessment of the cause of failure to determine whether the equipment was faulty (badly installed from the beginning or too old), or if the failure was in fact caused by mechanics' poor work. They did not appear to trust mechanics' ability to report accurately about each site visit, nor Wire itself, and frequently called mechanics for complementary information when needed, or visited them onsite.

> "It is not like a mechanic lies, or provide false information. This does not happen often. The issue is not a lie when we assess the situation. We have our own truth, and we say it. Maybe the system tells some other truth. We have different perceptions of time, and different perceptions of the quality and complexity of work." (Jeff)

Managers who worked more from the office generally appeared more trusting of mechanics' ability to carry out the work effectively on site and did not visit sites themselves unless absolutely needed. Instead, they directed more attention to indicators related to reporting and other managerial work, showing trust in the Wire data. This seemed to relate to their self-identification as managers rather than engineers, where they saw their primary task to be one of supervising and organising work, whereas managers with a dominant engineer identity felt more personal accountability for the quality of work being carried out.

In addition to grappling with the issue of trust and control when evaluating the quality of mechanics' performance in maintenance and repair work, trust vs. control also posed a dilemma for managers when evaluating the timeliness and reliability of mechanics. In particular, managers with a strong engineer identity expressed doubts regarding mechanics' motivation to report the duration of their work tasks and travel times correctly in the system. They relied on their own experience of working as mechanics, which led them to try to pre-empt/prevent different forms of potential misconduct that they knew could take place, using a combination of direct communication and system generated information.

> "WIRE is not so convenient for the mechanics, because at any time I can see John is working today, the time is 12 noon, and he has 3 callouts hanging from 9 o'clock in the morning, and he still has not gone to them. And so I call him: 'Where are you, mate? Your callouts have been hanging for three hours now, and you still have not appeared. Where are you?!'" (Alex)

Managers responded to the dilemma of balancing competing attentional demands by increasing their direct control over mechanics' performance, and the information that was entered into the system. This typically involved agreeing with mechanics on certain informal practices, such as how to report the duration of activities in the system.

> The mechanic was at the site at 9.00 a.m., although it was scheduled for 10.00 a.m. They called the expert that they had arrived early. The expert arrived at 9.35 a.m., and at 9.40 a.m. the guys started working. I [the researcher] did not see how this mechanic records his activity in [the system]. I asked Dave. He said "Yes, of course the mechanics are inputting the time records. But, there is a nuance! They are unlikely to record the 'real' time, because this work can last from 10 minutes to 90 minutes. It is very difficult to explain these statistics to management, so they just enter average values." (Field observation notes, followed by interview with Dave in quotation marks)

To address the challenge of discrepancy in what performance indicators showed in the system and what was happening in reality, managers created informal reporting rules for mechanics so they could manipulate some of the timing-related

issues that they thought to be insignificant for performance evaluation purposes but might create "unnecessary" difficult questions from management, such as informing standard times for tasks rather than the real ones.

Discussion

In this study, we focused on how technology shapes the attentional engagement of line managers in PE in a remote work setting, specifically mobile telework. Drawing on literature on PE (De Nisi & Murphy, 2017) and ABV (Ocasio, 1997; 2011), we examined how the combination of social structures and technologies as different attentional stimuli on the one hand, and individual attentional perspectives on the other, interact to shape the attentional engagement of line managers in PE. This is important as organisations increasingly adopt more technology and data-driven tools to support managers in their implementation of HRM practices in a remote work setting – in this case PE – which facilitates the process, but simultaneously compounds managers' attentional demands by providing a greater volume and variety of data and cues to attend to.

We contribute to research on PE and remote work in two main ways. First, our findings advance the PE literature by studying it in situ as a continual process. PE is considered a 'core' HRM practice (Biron, Farndale, & Paauwe, 2011) – strategic in that it is one of the most human capital-enhancing practices of the 'HR bundle' (Takeuchi, Lepak, Wang, & Takeuchi, 2007), and tactical, since it provides input into a number of HRM-related outcomes for the employee (e.g., pay, promotion, and talent pool inclusion). Our focus on the daily activities that managers engage in to formulate an account of the performance of their subordinates constitutes an important addition to existing literature, which has predominantly concentrated on the formal practice of performance appraisal, paying less attention to what information feeds into these appraisals and how managers arrive at their evaluations. Our study also advances the PE field by focusing simultaneously on two significant phenomena that are shaping the PE practices of line managers in more and more organisations – the introduction of new technologies to support the capture, monitoring and reporting of individual performance, sometimes in real time (e.g. Ravid et al., 2020), and the exponential rise of remote work arrangements (Donnelly & Johns, 2021).

Second, this paper contributes to the remote work literature by furthering our understanding of how managers carry out PE activities for mobile teleworkers. Our findings confirm that managers rely more on the information they observe directly (Golden et al.,2009) and co-location with subordinates is ideal for PE (Adler et al., 2016). However, we also show that indirect contact with subordinates is as reliable for them given that other sources of information are available too. By applying the ABV (Ocasio, 1997; 2011), we show that technology indeed plays a key role as attentional stimuli, but so too do other actors and actants. The proximity and instant availability of the stimuli often depends on the in-situ physical location of the evaluator, which as we show, interrelate with the role evaluators choose to identify themselves in. In other words, managers exhibit agency in how and when they use technology and what cues they attend to, but that their agency is constrained and/or afforded by the attentional stimuli in the external context and their own attentional perspective (Nicolini & Korica, 2021). In doing so, we provide

one of the first fine-grained accounts of managerial attentional engagement in connection with PE of remote teleworkers, where technology plays a crucial role in staying connected and draws the attention of the user to 'important things' (Ravid et al., 2020, Stanton & Julian, 2002).

Attention has traditionally been conceptualised as a cognitive process of conscious allocation of awareness and scanning, based on the assumption that attention is the result of mental work only. While managers have agency and can be proactive in choosing the sources of the information based on which to evaluate the performance of their employees, our study provides a nuanced view on the foci of attentional engagement where attention is not entirely the conscious choice of managers, but in which context also has a significant influence. Our findings show how, driven by their own motives such as accurate performance measurement and timely response to acute situations, managers pay attention to the things they do in PE. More specifically, we emphasise the interplay between managers' attentional perspective and the stimuli that influence their attentional engagement, ultimately shaping their approach to performance evaluation. The managers' 'attentional infrastructure' (Nicolini & Korica, 2021) – owing to their nested position in between employees, customers, the equipment and top-management, as well as their different levels of trust in their employees and the technology – included a need for managers to strike a balance between different competing attentional demands.

Our findings support ideas in the mobile telework and PE literature that managers heavily rely on direct continuous interactions with subordinates, as well as deep engagements with other direct sources of performance information such as clients (Adler et al., 2016, Golden et al., 2009, Murphy & Cleveland, 2005) in forming their judgements. However, our study also suggests that managers direct significant attention to technology-generated performance indicators, triangulating between different sources of data to complement their own accounts of their subordinates' work performance in a remote environment. Our findings reveal that managerial attention to digital performance indicators tends to be periodical rather than day to day, triggered by stimuli related to formal demands such as requests from senior managers, routine duties such as confirmation of working hours and bonus decisions. Our study also showed that some material objects (in our case, 'connected' equipment) can create a considerable amount of attention around itself, activating more 'engineer' roles of managers, whereas other tools (e.g. digital monitoring tools) can be particularly important in activating practices expected from managers as 'supervisors'.

While performance indicators are highly relevant for evaluating performance, the information received from direct interaction with subordinates and clients is necessary to make more accurate judgements for PE purposes. Monitoring tools play an important role in affording managers and subordinates the opportunity to organise their own workflow independently, which creates additional challenges for remote PE. In line with the work on control issues in remote work settings (e.g. Sewell & Taskin, 2015), managers in this study faced a continuous dilemma of managing competing attentional demands in order to stay in control of subordinates' activities, which typically required finding the most effective ways to interact with them as well as monitor them. In contrast to previous literature, which primarily focused on employees' perceptions of excessive control (Jeske & Santuzzi, 2015), our study offers a unique insight into the challenges that managers

face when deciding which source of information to trust and react to. Managers are confronted with the challenging task of striking a balance between monitoring their subordinates' operational activities and their reporting activities. This balancing is needed to ensure an optimal level of performance on site as well as in the software reporting system. The ways in which individual managers chose to do this were highly intertwined with attentional stimuli such as client feedback, senior manager requests, problematic equipment, as well with their attentional perspective – their spatial orientation and their perception of their own role. Those with a strong managerial identity directed their attention towards the KPI's of their subordinates which, combined with other data, also served as an indicator of their own performance and thus potentially impacted the accuracy of their ratings (Ferris et al., 2008). A strong perceived role identity of being an engineer, served to direct managers' attention towards performance actants. Our interpretation of this focus of attention was that it was driven by their own views/expectations of the specific role they had to play as incumbents of their current position (Burke 1991; Burke & Reitzes, 1981), rather than being grounded in a social identity explanation of perceiving themselves as members of a wider social group, in this case engineers.

Limitations and areas for future research

Like all research, this study has limitations that can, if addressed, open up avenues for new innovative studies. First, our study is built on single, in-depth, case study data. Generalising the findings was not the aim of our explorative study, and there are several potential reasons why studies such as this might have been influenced by certain idiosyncrasies. For instance, our target group was limited to mobile teleworkers performing hands-on, complex tasks in nearby, remote locations that their managers and customers could attend on site in person. This afforded line managers far greater agency than if evaluating the performance of a knowledge worker working from their own home, potentially in another country. In light of our findings, this would not only alter the kinds of attentional stimuli that these managers would experience, but the trust and control dynamics within PE in this kind of setting would produce different kinds of attentional demands on the line manager. Future research could therefore adopt a nuanced categorisation of remote workers and comparative research designs in order to tease out how the challenges of PE differ for each group. Moreover, our study was conducted in the Russian cultural context which is considered high-context (Hall, 1976). The importance of face-to-face communication and close relationships is considered essential for building trustful relationships (Andreeva, 2014), and Russian attitudes captured in the proverb 'trust, but verify' have been presented as a challenge to employee empowerment (Outila et al., 2021). Furthermore, in our study all the managers were male which may have an impact on which performance measurement criteria they rely on, subjective or objective (Maas & Torres-Gouzalez, 2011). Accounting for personal characteristics of the managers, for example gender, may clarify patterns of the attentional engagement.

Second, while trying to understand the attentional engagement of managers, we did not focus on their personality traits or skills to mindfully and consistently sustain their attention on key tasks (Weick & Sutcliffe, 2006) without interruptions, or mindfully switch their attention to the most relevant stimulus in-situ (Ocasio, 2011). Understanding managers' personality traits and their cognitive

abilities would serve to complement future research on attentional engagement of managers in performance evaluation practices.

Third, by extension, the study does not investigate the influence of attentional engagement on key performance management outcomes, whether these are for the employee, the team or the organisation. Future research could thus re-connect with the performance appraisal literature by examining how managerial attention in everyday PE activities in a remote or telework setting influences performance measurement, including how attentional engagement might be related to objective and subjective rater biases. The employee perspective is also missing from this study. Building on the growing body of research on employee experiences of HRM practices (Edgar & Geare, 2014; Plaskoff, 2017) and performance appraisal more specifically (Farndale & Kelliher, 2013), future research could build on studies such as Abraham et al. (2019) and Kalischko and Riedl (2021) in examining employee attitudes towards performance tracking technologies and practices of their line managers, including the psychological, cross-cultural and ethical issues surrounding the use of EPM and surveillance technologies (Ravid et al., 2020).

Lastly, due to methodological constraints, we did not observe the performance monitoring tools and how managers worked with them in great detail, but relied mostly on managers' own accounts about their interactions with the system. We encourage future research to use more innovative, digitally-supported data collection methods in order to gain more in-depth and objective insights. For example, backlog data (Mahringer et al., 2021), or shadowing the digital activities of users on the screen (Czarniawska-Joerges, 2011) would serve as a useful complement to the subjective views of key actors. In addition, shadowing activities of managers on screen has potential to further open up the 'black box' of technology in HRM research (Myllymäki, 2021) by elaborating on the affordances and constraints its specific material and/or digital properties create for line managers when engaging with HRM practices.

Implications for practice

Our study reinforces the notion that human agency, material artefacts and social context are all instrumental in how technology-supported HRM practices such as performance management are formed and reproduced. In this particular case we observed that these three things in combination influenced what managers paid attention to in PE, which is likely to have implications for how mobile teleworkers are managed, evaluated, given feedback and rewarded. Whilst new technologies have become essential in managing geographically dispersed service operations, as well as in evaluating the performance of remote work and workers, no technology exists in a vacuum. The combination of physical spaces and managerial tasks gives rise to a variety of attentional stimuli that differ in their urgency and importance. As managers carry out their work, they must navigate through these stimuli in real-time while maintaining a balance. Our study has revealed that sustaining attention to organisational priorities stems from the manager's individual attentional perspective, such as perceived role identity as shown in our research.

In terms of the evaluation of mobile telework, we examine it as a continual process that includes real-time observation and integration of information for the evaluation. Both organisational contextual factors that provide attentional stimuli,

as well as the individual attitudes and agency of managers that determine how they process information and where they direct their attention, generate different routines and practices among managers as they try to navigate the attentional demands that come with different types and sources of information. Therefore, understanding the attentional engagement of managers is important for organisations, since this can be used to help direct their attentional focus to the issues deemed most important. The company's strategic objectives and expectations for managerial roles should be a guiding principle for making recommendations about how to direct their attentional engagement. Development interventions and the adoption of leadership practices such as mindfulness or coaching could also help managers deal with the volume, fragmentation and variety of information for PE, and support them in sustaining attention over different temporalities and proactively managing their attention towards critical matters (Nicolini &Korica, 2021). Together, this should also reduce the need for time spent on manipulating data and inventing informal practices that can be counterproductive for everyone.

Lastly, the sources that managers attend to for evaluating performance influence the kind of feedback they provide to employees and the quality of formal evaluation as perceived by the employees. Employees' reactions and perceptions of fairness of evaluation are important for general satisfaction with the workplace and job engagement. Therefore, finding the balance between paying attention to technology generated data and observations made through direct interaction is crucial for managers in order to improve the employee experience.

Data availability statement

Due to the sensitive nature of the data, participants of this study did not agree to make data publicly available.

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Paper 3

Digital empowerment: a routine dynamics perspective on HR transformation

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Abstract

HR transformation processes that aim to increase efficiency and elevate the HR function to a strategic level, often underperform in practice. The separation of administrative and strategic tasks between different professional groups following the implementation of HR technologies is particularly difficult. This paper builds on a routine dynamics perspective to study the introduction of a new HRM software in a large higher education institution. Zooming in on the changes of routines performed by different HR professionals, we show how the implementation of the new technology led to an unexpected situation in which HR secretaries destined for monotonous administrative tasks, experienced an elevation of their role, while HR partners supposed to turn into strategic partners stalled within their existing role. We identify each professional group's mode of engagement with the new technology as a key driver of this counterintuitive empowerment and discuss how the digitalization of the HR function may empower unexpected professional groups depending on their involvement in, and enactment of, changing routines. Our paper contributes to the HRM literature by viewing HR transformation as a dynamic and unfolding process during which roles evolve through actors' use of technology. We also contribute to research on routine dynamics by enhancing our understanding of the mutual constitution of organizational routines and professional roles.

Keywords: HR roles, strategic HR, digital transformation, automation, routine dynamics

Introduction

Many organizations are eager to transfer routine tasks currently performed by humans to automated technological systems (Bonnet & Westerman, 2021; Murray, Rhymer, & Sirmon, 2021; Raisch & Krakowski, 2021). Introducing such technologies in organizations is broadly considered a key means for reshaping current ways of working and organizing (Bailey, Faraj, Hinds, Leonardi, P. M., & von Krogh, 2022; Faraj, Pachidi, & Sayegh, 2018). Human Resource Management (HRM) is no exception to this trend of 'digital transformation' defined "as the process of using digital technologies to produce strategic organizational changes" (Scott & Orlikowski, 2021: 311) as organizations increasingly automate their HRM processes (van den Broek, Sergeeva, & Huysman, 2021). Indeed, new HR technologies are often associated with creating the possibility for HR professionals to engage in more 'strategic' work (Lepak & Snell, 2008; Marler & Parry, 2016; Strohmeier, 2009) in which HR professionals are expected to shift from providing administrative, hands-on employee counselling towards becoming strategic partners and advisors to business-unit leaders on 'people matters' (Ulrich & Brockband, 2005; Wright, 2008; Ulrich & Dulebohn, 2015; Beer, 1997)

Following this logic, scholars and practitioners alike proclaim the importance of drawing clear boundaries between administrative and strategic HR tasks. Underlaying this separation is the assumption that the different HR tasks can be easily attributed to distinct units or professional groups (Reichel & Lazarova, 2013; Beer, 1997; Ulrich, Brockbank, & Johnson, 2009). However, once such transformational efforts are being implemented, challenges often arise. On the one hand, organizations are confronted with the issue of identifying HR tasks to be outsourced, automated and centralized without compromising efficiency (Keegan, Bitterling, Sylva, & Hoeksema, 2018; Meijerink & Bondarouk, 2013). On the other hand, the re-distribution of tasks is often critically questioned by customers of HR professionals, such as line managers, who may show a lack of appreciation for the new HR roles or may not automatically recognize the strategic value of having an HR partner at their side (McCracken, O'Kane, Brown, & McCrory, 2017; Aldrich, Dietz, Clark, & Hamilton, 2015; Truss, Gratton, Hope-Hailey, Stiles, & Zaleska, 2002).

Although many organizations see potential in HRM software solutions, these technologies do not necessarily resolve issues caused by the division of "thinking from doing" (Reilly, Tamkin, & Broughton, 2007: 40) and rarely lead to a straightforward transformation of HR professionals into strategic partners (Marler & Parry, 2016). Indeed, several empirical studies focusing on the role of technology for HRM have shown that seemingly 'freed' resources are in many cases spent to administer the system instead of engaging in more strategic, and hence, meaningful tasks (Gardner, Lepak, & Bartol, 2003; Bondarouk, Parry, & Furtmueller, 2017). While our study of the introduction of an HRM software supports earlier insights that actors get engulfed as they digitally manage HR tasks (Parry & Tyson, 2011), we also observed how the new technology unintendedly

increased the power and standing of HR professionals tasked with seemingly monotonous administrative work. And instead of creating opportunities for HR partners to engage in strategic tasks, we saw how HR secretaries became highly demanded and respected due to their expertise in and knowledge of the HRM software, which lasted beyond its actual implementation.

We suggest a routine dynamics perspective (Feldman & Pentland, 2003; Feldman, Pentland, D'Adderio, & Lazaric, 2016) to explain this empirical puzzle of empowerment and capture in-situ what happens to HR professionals and their tasks (i.e., routines). Shifting the focus from a prescriptive logic on HR professionals' roles towards its situated performance allows us to elucidate the mechanisms behind this unintentional empowerment. Defined as "repetitive, recognizable patterns of interdependent actions, carried out by multiple actors" (Feldman & Pentland, 2003: 95) routines are considered inherently dynamic and effortful accomplishments (Pentland & Reuter, 1994). Considering routines as consequential and focusing on their situated performance (Feldman & Orlikowski, 2011), existing research suggests that developing new routines, or adapting existing ones, does not automatically lead to anticipated actions (Pentland & Feldman, 2008) and might even cause unintended actions that become the source of failures (Mirc, Sele, Rouzies, & Angwin, 2022). As recently discussed by Kho and Spee (2021), routine dynamics research and its explicit focus on actors and actions enables scholars to unravel how actors use their skills and expertise in their attempts to accomplish a task (Jarzabkowski, Bednarek, & Spee, 2016). However, they also suggest that because actors are embedded in occupations among which there exist more or less pronounced 'jurisdictional' battles (Anteby, Chan, & DiBenigno, 2016) and because professional activities are mediated by how the different actors enact the available tools (Spee, Jarzabkowski, & Smets,2016), switching to more strategic tasks or dividing tasks among professional groups is notoriously challenging.

Empirically, we draw on a qualitative single case study that traces the implementation of a cloud-based HRM software in a large higher education institution (hereafter called DigiU). In an attempt to digitalize as well as harmonize the organizational processes across its different units, DigiU launched a transformation project in 2019 which entailed both the reorganization of the HR function and the implementation of a new HRM software. Our analysis shows how different modes of engagement with the new technology changed not only the existing HR routines but impacted the roles of different professional groups within the organization. Prior to the technology being implemented, the work of HR secretaries was meant to become mostly automated, centralized and ultimately removed from the units. As the technology got implemented, knowledge about the software and the ability to not only administer but also maneuver it was decisive for HR secretaries to become a strategic resource within the organization.

Our study contributes to the literature on HR transformation by applying a routine-dynamics perspective to understand the transformation as dynamic and

unfolding, while HR roles are emergent and constitutive of the performed routines. Zooming in on a core HR routine we show how the agency of HR professionals is crucial for interpreting and accordingly transforming their own role, and how technology enables such transformation through augmenting the work of HR professionals instead of automating it. We observe this transformation as HR secretaries—typically seen as lower-level HR personnel—get empowered while they actively engage in reconfiguring a core HR routine in line with the new technology. Our study also shows the diversity of different roles within HR and how they are connected and related to each other, and the transformation and empowerment that may happen where least expected. We also contribute to routine dynamics research as we zoom in on the relationship between routines and professional roles.

Theoretical background

The Role of Technology in HR Transformation

HRM practices are widely considered as pivotal to organizational success (Paauwe & Boon, 2018). According to this view, HR professionals hold a strategic role in their organization's attempts to achieve goals (Ulrich, 1996). Existing research suggests that to fulfil this increasingly strategic role, HR departments are best organized based on Ulrich's (1996) three-legged model wherein HR tasks are split into excellence centers, shared-service centers and business partnership units. Whereas the first two units are responsible for an organization's overall HR policies and providing centralized administrative services, the latter is often distributed across organizational units with HR partners consulting and directing business leaders on specific HR tasks (Reilly et al., 2007; Boglind, Hällstén, & Thilander, 2011). HR transformation implies that the reorganization of the HR function is coupled with fundamental changes in the shared understanding of how HR professionals' expertise can enrich and alter the business units in a way to allow for value creation (Beer, 1997; Ulrich et al., 2009; Sandholtz, Chung, & Waisberg, 2019). The underlying assumptions of this model are based on the idea that administrative tasks (e.g., staffing activities, maintaining employee records) and strategic tasks (e.g., coaching line managers, providing career advice) can be neatly divided among different HR professionals.

Unsurprisingly, existing studies focus on whether HR professionals possess a strategic role and, thus, seek to identify necessary conditions for becoming strategic HR partners. In particular, scholars point to the importance of how HR professionals are perceived by other organizational members focusing on their reputation and influential power. Galang and Ferris (1997) show how HR departments' influence results from symbolic actions and political maneuvering, which is key for gaining the organizational resources needed to widen the scope of their tasks. Once accepted by management, HR departments are able to enact a strategic role if key stakeholders such as CEOs build up trust and empathy towards HR (Aldrich et al., 2015) and become willing to delegate decision-making

responsibilities (Brandl & Pohler, 2010). Strong functional expertise combined with a good understanding of the core business is considered key as HR partners work together with and for line managers (McCracken et al., 2017). Not only are HR professionals with strong leadership skills more likely to participate in strategic decision-making processes (Lo, Macky, & Pio, 2015), but them practicing servant leadership has a positive influence on line managers' leadership skills (Kauppila, Ehrnrooth, Mäkelä, Smale, Sumelius, & Vuorenmaa, 2021).

However, the change of roles is rarely a straightforward endeavor as it requires visible and recognizable changes in tasks beyond an organization's acceptance of HR's strategic role (Truss et al., 2002). Several scholars stress the importance of task automation to enable HR professionals to switch from performing administrative to strategic tasks (Ruel, Bondarouk, & Looise, 2004; Strohmeier & Kabst, 2009; Marler & Parry, 2016). Considering administrative tasks as purely transactional, they argue that the implementation of sophisticated HR technologies is a key means for automation while lifting HR to a more strategic level. Indeed, reduced administrative work, increased process speed, and improved communication are commonly perceived as the main benefits of a technology-enabled HR function (Arjomandy, 2016; Parry & Tyson, 2011; Ruël et al., 2004). Technology is portrayed as a facilitator and enabler of centralized service centers for administrative tasks (Cooke, 2006; Farndale, Paauwe, & Hoeksema, 2009), which can rely on the "knowledge embedded in online databases and intranets to make HR service delivery more efficient" (Meijerink & Bondarouk, 2013: 490). At the same time, the assumption is that HR professionals that take on partner roles can use the time gained to dedicate themselves to more strategic tasks (Ruël et al., 2004; Lepak & Snell, 1998).

However, while transformational effects of technology-enabled work task separation have attracted a lot of attention, the conclusions from empirical research on the causal influence are ambiguous at best (Marler & Parry, 2016). In their literature review focusing on the relationship between e-HRM and strategic HRM, Marler and Fisher (2013) did not find evidence that technology actually enables HR professionals to take on more strategic roles. Instead, they find that the implementation of HR technologies seems mostly "an outcome of strategic decision-making by senior managers" (p. 34). Parry and Tyson (2011) show how, after the introduction of HR technologies, HR professionals become occupied with administering the system instead of engaging with strategic tasks. Accordingly, the expectation that HR professionals will create added value often remains unmet (Tansley, Newell, & Williams, 2001); a situation which is intensified as HR professionals are struggling to manage the division between strategic and administrative tasks (Keegan et al., 2018; Pritchard, 2010). As argued by Wright (2008), the bifurcation between tasks may even undermine the unitarity of HR teams as it fosters competition between the different subgroups of the HR profession. Studies zooming in on the situated tasks of HR professionals show how administrative activities, which require technical HR expertise, are perceived as particularly valuable by line managers and are often seen as the only way to

establish credibility and become an integral part of decision-making processes (Sandholtz et al., 2021; Welch & Welch, 2002). This insight fits with Pritchard's (2010: 185) argument that HR partners are at risk of not practicing what they preach. In their daily work and their interactions with line managers, they often "weave old generalist activities into [the] new positioning".

While the above studies point to the difficulties of making HR more strategic and focus on factors hindering or enabling the successful implementation of digital technologies (Bondarouk et al., 2017), most existing work is concerned with questions of antecedents and outcomes. Therefore, relatively little is known about what happens to the actual tasks of HR professionals. Consistent with the recent turn to practice research (Feldman & Orlikowski, 2011), several authors point to these limitations and argue for a micro perspective that pays attention to actors and their actions in such transformation processes (Bjorkman et al., 2014; Myllymäki, 2021). Zooming in on the actual use of HR technologies and how they impact the work of HR professionals is particularly important to elucidate the mechanisms at play as strategic and administrative tasks are being separated and as HR professionals enact new HR technologies. Applying a routine dynamics perspective (Feldman et al., 2016) we aim to learn more about the role changing routines—who does what when and how—play in technology-enabled HR transformation.

A Routine Dynamics Perspective on HR Transformation

Seen as the main building blocks of how organizations function (Nelson & Winter, 1982) routines have traditionally been considered important drivers of stability and, at times, inertia (Gersick & Hackman, 1990). However, based on Feldman and Pentland's (2003) reconceptualization of routines as inherently dynamic and generative, many scholars have shown how their situated performance is consequential for a variety of organizational processes such as change (Bucher & Langley, 2016; Feldman, 2000) and innovation (Deken, Carlile, Berends, & Lauche, 2016; Sele & Grand, 2016). Shifting the attention to actors and their actions was an important step in moving away from seeing routines as mere 'things' (Feldman et al., 2016) as routine dynamics studies have shown that in many instances changing the representation of routines through design efforts is not a good proxy for how routines are ultimately being enacted (Pentland & Feldman, 2008; Mirc et al., 2022; D'Adderio, 2014). Based on these insights, we posit that intended changes in routines do not automatically lead to envisioned changes in people's roles or to a carefully thought through redefinition of a profession. We see two main reasons. On one hand, performing routines is mostly effortful and rarely a mindless execution of assigned tasks (Levinthal & Rerup, 2006). On the other hand, actors are knowledgeable and reflective, which means that they interpret their tasks in light of their profession and what they consider important. As Kho and Spee (2021) have recently argued, routines and professional roles are mutually constitutive and, hence, both need to be seen as unfolding processes instead of pre-defined entities (Feldman, 2016).

Building on these insights from routine dynamics research and answering recent calls for a sociomaterial perspective in the HRM literature, i.e., acknowledging that material and social aspects are of equal importance in the production of organizational outcomes (Myllymäki, 2021; Ellmer & Reichel, 2018), we adopt a practice-based approach to study a technology-enabled HR transformation. Such an approach allows us to zoom in on what the different actors do and how their roles evolve in relation to their tasks (i.e., how they enact routines). Conceptualizing routines as generative systems, we ask: How do HR technologies change HR routines and impact HR professionals' roles?

Methods

Research Setting

Our analysis is based on a single case study (Yin, 2003) of a technology-enabled HR transformation project. Following an inductive and open-ended research design (Locke, Feldman, & Golden-Biddle, 2015) we conducted a longitudinal study collecting fine-grained data on the introduction of the HRM software 'TaskFlow' within DigiU, a large interdisciplinary higher education institution. The goal of implementing this HR technology was to standardize and digitalize the different HR units and their services across multiple units of DigiU. Coupled with the reorganization of the entire HR function, DigiU aimed at increased efficiency and wanted to enable HR to become a strategic actor within the organization. We consider our case as revelatory in nature and an opportunity to follow the in-situ implementation of the HRM software combined with the restructuring efforts rendered the phenomena of interest more readily observable (Pettigrew, 1990).

DigiU emerged from a major restructuring in 2010. Whereas in the beginning, the units functioned rather independently and relied on their existing routines, various initiatives have been taken over the years to align as many processes as possible. For the purpose of our study, we focus on DigiU's HR function which follows the general logic of HR services offered by unit-specific HR (SHR) units and overseen by an organization-wide HR unit (OHR). The OHR unit is responsible for defining DigiU's HR strategy, policies and practices and is thus the main driver of DigiU's HR transformation project. SHR units, on the other hand, are responsible for people-related tasks within their unit. In most units, SHR units consist of an HR director supervising several HR partners and HR secretaries. Traditionally, HR directors work closely with the Heads of their respective unit and HR partners and HR secretaries are situated at the department level. Depending on the size of the departments, HR partners work for one or more departments simultaneously. HR secretaries are mostly assigned to one department and work under the supervision of an HR partner.

Data Collection

Data collection started in summer 2019 when TaskFlow was officially launched at DigiU and ended in spring 2022. We entered the field after a first discussion with the Heads of HR and People and Organization Development before the launch. During this initial encounter, we learned about the time frame of the project and its role within the larger transformation of the HR function. We agreed on and mapped out our data collection efforts. Throughout the study we gathered data in the form of interviews, observations, and documents.

Interviews. We conducted 31 semi-structured interviews with 24 respondents which lasted between 40 and 70 minutes each (see Table 1 for an overview of all interviewees and their role). Whereas the first interviews followed a common protocol (see Appendix 1), follow-up interviews were focused on timely happenings and driven by our ongoing data analysis efforts. Being able to re-interview different actors allowed us to gain an in-depth understanding of the transformation process and each actor's role within it. In the interviews we were especially interested in the process of technology implementation, the role of the interviewees in this process as well as in discussing the scope of their task and the interaction with the faculty.

Observations. Shortly after the first interviews, we were able to observe HR professionals. To capture both SHR and OHR practices and processes we split up and each followed what was happening as the new HR tool was rolled out. Within the units we mainly observed the work of HR secretaries and HR partners and were able to join in on meetings as well as events organized for faculty and staff to facilitate their use of TaskFlow. Being with SHR professionals meant spending time in their office, observing what they do at work, how they discuss things between each other, and what kinds of questions they are trying to solve for their customers. Depending on the department, the office was occupied only by HR secretaries or shared with HR partners. At the OHR level, we followed the person responsible for the implementation of the performance management module. While not directly providing us with insights about power shifts at the unit level, being able to interact and see the reactions towards what was happening within the units was very informative for our own sensemaking. Over the course of our data collection, we also assisted three DigiU-wide HR events which gathered all HR professionals and provided an important platform to communicate the state of the transformation project and its future steps.

Table 1. Overview of Interviews

#	Position	Duration	Follow-up
1	Head of People and Organization Development, OHR	60 min	2 [45 min and 60 min]
2	Learning, OHR	60 min	No
3	Talent Management, OHR	65 min	no
4	HR secretary, SHR	50 min	1 [60 min]
5	HR director, SHR	60 min	1 [60 min]
6	HR partner, SHR/department level	50 min	no
7	HR director, SHR	50 min	1 [60 min]
8	HR partner, SHR/department level	50 min	no
9	Head of Operations, OHR	60 min	1 [60 min]
10	Head Payroll, OHR	80 min	1 [70 min]
11	Payroll	60 min	no
12	Payroll	60 min	no
13	Head of HR, OHR	50 min	no
14	Vice Rector, OHR	60 min	no
15	Head of Unit	60 min	no
16	HR partner, SHR/department level	50 min	no
17	HR secretary, SHR/department level	50 min	no
18	HR partner, SHR/department level	60 min	no
19	HR partner, SHR/department level	50 min	no
20	HR director, SHR/department level	40 min	no
21	HR secretary, SHR/department level	40 min	no
22	HR secretary, SHR/department level	40 min	no
23	HR secretary, SHR/department level	40 min	no
24	HR partner, SHR/department level	40 min	no

Documents. In addition to interviews and observational data, we collected a wide variety of internal documents. While some documents were publicly available, others were shared with us by our informants. Throughout the project we always took notes of presentations, questionnaires, etc. which were mentioned and then asked whether they could be shared with us. For example, we collected documents specifying the discussion process and goals set for the transformation. We also had access to the results of an internal survey on who does what within DigiU's HR function, and we obtained descriptions of all the tasks of each HR role at SHR and OHR level.

Data Analysis

Our research started with the question: How do technologies targeted at automation enable digital HR transformation? In particular, we were interested in the relationship between routines and professional roles. We were looking for changes in the role of HR partners as, liberated from the tasks that got automated, they were supposed to engage in more strategic tasks. However, while we were looking for these changes to happen, we got a sense that mostly the roles of HR secretaries changed—and clearly not as intended. Indeed, instead of seeing their tasks automated as originally envisioned, we observed how they became valuable resources:

> *"[In the future] we have [an] HR system, so we don't need manual work, which is ensuring contractual work: making them, changing them, signing them, etc. and done by HR secretaries."* (Gretta, Head of Talent Development)

This puzzle and our interest in routines and professional roles let us iterate between the emerging insights and the existing HR and routine dynamics literature as we probed our empirical material (Locke, 2001). Our data analysis progressed in two stages as summarized in Table 2. In the first step, we wrote a chronological narrative of the transformation project. In our descriptions we paid particular attention to identifying the actors and their actions and how their routines changed. In order to draw a longitudinal picture, we relied on interview data and especially our questions targeted at understanding the 'old' as well as the 'new' way of accomplishing HR tasks. The observational data allowed us to complete our descriptions. Relying on a temporal bracketing approach (Langley, 1999), we identified three phases within the transformation project: (1) preparing for the software implementation; (2) launching and accomplishing core tasks in TaskFlow; (3) adding additional tasks to TaskFlow and focusing on the reorganization aspect.

In a second step, we zoomed in on the second phase of our chronological narrative and focused on the contract making routine, one of the core HR routine implemented first. Accordingly, we geared our analysis to understanding how the contract making routine changed due to the implementation of TaskFlow, and how

these changes impacted the different professional roles. To this end, we coded our data using a narrative network approach to identify who does what, when, and how (Pentland & Feldman, 2007). By comparing the contract making routine before and after the implementation of TaskFlow, we were able to grasp various changes to the routine itself as well as to the actors involved in each action step. As we set out to describe these changes, we realized that HR secretaries became more central to performing the contract making routine. Intrigued by the counterintuitive finding that the position of HR secretaries got elevated through the technology, we went back to our interviews and observational data to unravel the alteration in the roles of both HR secretaries and HR partners. In particular, we coded our data with regard to how the different actors interpreted and reflected on their role. This led us to cluster our codes into what we labelled the empowering of HR secretaries vs. the stalling of HR partners.

Table 2. Stages of Data Analysis

Stages	Tasks	Output
1. Developing chronological narratives	1a. Writing of chronological narrative (thick description) and identifying phases of the transformation project	3 phases within transformation project
	1b. Tracing actions and their actions over time	2 main processes: reconfiguring of activities and reconfiguring of spaces
2. Analysis of contract making routine and changing roles	2a. Comparing the contract making routine before and after the implementation of TaskFlow following a narrative network approach	Descriptions of action patterns of routines
	2b. Coding of data to establish how different professionals enacted and interpreted their role	Empowering (of HR secretaries) and stalling of (HR partners) as two role changing mechanisms

Findings

In what follows, we closely examine the unintended empowerment of lower-level employees (i.e., HR secretaries) and theorize on the relationship between routines and professional roles in digital transformation processes. Because it is not possible to offer detailed examples of all the routines and performances we found, we report our insights along the contract making routine which is at the core of DigiU's HR function. The employment of new people is not only a repetitive, central HR task across units but also involves several actors and builds on a set of interdependent actions (Feldman & Pentland, 2003). Accordingly, we first show how the contract making routine changed following the implementation of TaskFlow and elaborate on how the different actors saw and embraced these changes. Then, we shed light on how the described changes in contract making led to the empowering of HR secretaries and the simultaneous stalling of HR partner roles.

Contract Making at DigiU

Employing people prior to TaskFlow

Before the implementation of TaskFlow, contract making involved different actors within each unit such as HR partners, HR secretaries, and line managers as well as people from Payroll, an organization-wide centralized service. As illustrated in Figure 1, the contract making routine was initiated by HR partners who closely worked with their line managers to establish the new employee's contract conditions:

> *"Before actual contract making, there's a lot of HR consulting that we can do, is this OK … do we have the money for this researcher, is this OK by DigiU rules, department rules, that can you hire this kind of a person, can you hire a person with a doctor's degree to be a research assistant for the summer?"* (Alex, HR partner)

Once the contractual conditions were clear, the HR partner passed on the information to an HR secretary who would then on their own or in close collaboration with the HR partner collect the necessary personal information of the future employee, including their contact details, copies of their passport, bank information etc. This information was inserted together with other details into an Excel-based template. Once the Excel form was completed, the HR partner would check the file and print it to either physically collect signatures from the HR director and the responsible line manager themselves or delegate the task to an HR secretary. After the signing process which "sometimes took a while to get all the signatures" (Nina, HR secretary) was done, the contract was sent via internal mail to Payroll where someone from the team checked and entered the information into the system:

> *"Everything was handed to us as a paper document, and we had to process this and type this into the payroll system so that it had the effect on the salaries paid, and after also the information proceeded to the admin who are responsible for the pensions and stuff like that."* (Sofia, Payroll)

In parallel, HR secretaries launched several processes to ensure a successful onboarding process for the newly hired employees. Important actions included organizing a designated workspace together with the line manager, securing entry rights to the building with the reception staff, and informing the IT services about the new employee to have an email address, a computer and a phone. As explained by HR secretary Tanya:

> *"There is a lot of connecting the dots type of thing where you need to speak to people. So where is this person going to sit. All of this needs to be communicated to finance, to people responsible for the spaces, to people who are responsible for getting the equipment, people who get the keys. And all this relies on my memory, that I remember to inform every single different department."*

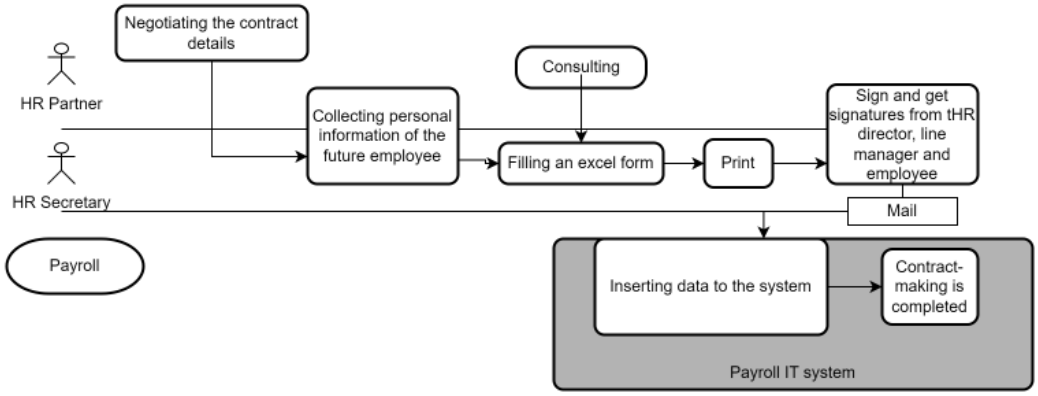

Figure 1. Pre-TaskFlow Contract Making Routine

When reflecting on the original routine, the different actors agreed that contract making was not only a slow and time-consuming task, but was also characterized by many inefficiencies:

> *"We still used paper forms for most of the HR processes, so all the changes in employment were typed in the paper form and then you sent it via post to Payroll [to process them], which is in a different building."* (Christine, HR Operational Director)

This led to frustrating situations which sometimes left new employees without an email account or delayed the start of working and receiving a salary. Indeed, it was normal that two to three weeks would pass from the time the information

necessary for creating a paper contract was received until it was finalized in the payroll system. Payroll specialists reported that the inefficiencies created by how the routine was designed and performed was further aggravated as they often dealt with erroneous contract files.

> *"When we had a paper document, and there were some quality errors, small ones, we could just fix it without even confirming it with HR in the units"* (Sofia, Payroll secretary)

While many cases required special knowledge about the payroll system as well as some expertise on accounting procedures, or tax and labor legislation, the director of Payroll did voice her frustration about how SHR often made mistakes when they filled in the Excel forms. In her opinion there was nothing that could not be learned and one "only need[s] to think" (Alice, Payroll director), but she also explained that Payroll staffers often did not even contact SHR when they were fixing mistakes. Lacking any feedback, HR partners or secretaries usually remained unaware of their mistakes.

Employing people through TaskFlow

To overcome these difficulties OHR together with the executive team of DigiU decided to implement an HR software in order to digitalize and where possible automate HR processes, including the contract making. Following a public tendering process, an organization-wide effort was made to map out all the necessary steps within each HR process while also identifying problematic points. One overarching goal was to make the different processes more transparent and leaner, and to align them across the six units. After configuring the core module of contract making, TaskFlow went live in May 2019.

The redesigned contract making routine had almost the same number of steps as before. However, as illustrated in Figure 2, TaskFlow led to several changes in the actual sequence of actions, automated certain steps, and changed or removed the actors involved in each step. The launch of TaskFlow also meant that Payroll was no longer entering contract information manually into the system as the entire process was now done by SHR. The rationale behind keeping the entire routine in the unit was to save time and let HR professionals in the units create employees' profiles and contracts as they anyhow gathered the relevant information. However, TaskFlow required HR secretaries to ensure the information was correct:

> *"It starts with the candidate's personal info. You start by creating a pre-hire profile for a person, where you fill in all the info [located in TaskFlow]. You need to collect the info, make sure that it's up-to-date. […] what I understand right now is that the information from TaskFlow will go automatically to the actual Payroll service, and from there, it will go straight to the tax office. So, in TaskFlow, you have fields, you fill in first name, middle names, and last name, but you're not allowed to use the*

> *middle name part, because the tax office's systems don't have that field. And this is, by the way, again things that are relying on your memory, if you forget this, then [...] the tax office information is going to be a whole mess."* (Tanya, HR secretary)

As now the distance to the responsible line managers became much shorter, the contract making routine suddenly became more efficient. Efficiency gains were further supported as TaskFlow automates the contract writing. Once the contract is established, the system notifies the line manager and they can approve it electronically meaning that HR directors no longer needed to approve contracts:

> *"Previously, some changes weren't approved by the supervisor, but they were approved by the head of the department, but now the supervisor has to actually go to the system and click and approve it, so that means that I have more interaction with certain supervisors."* (Nina, HR secretary)

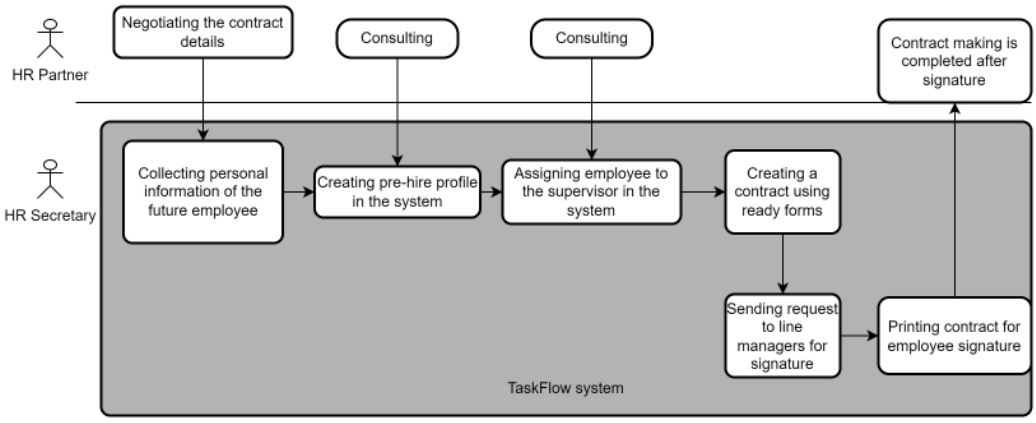

Figure 2: Post-TaskFlow Contract Making Routine

With the new contract regime in place, the process of creating an employee account in the system was way faster than before. However, for harvesting the full potential of the software SHR professionals needed to learn new tasks and procedures. Specifically, they were required to translate employee information and contract conditions into the system's language. Especially in the beginning, this created a lot of problems and frustrations. While OHR was well aware of the fact that TaskFlow was not fully operational when launched it was, they considered it operational enough to be used:

> *"When you go live, you realize different kinds of flaws: this is okay; this works; this doesn't work for the academics; this works for service [employees]; let's change this and that. [...] that's the advantage of the TaskFlow system, it's very agile and you can change things as they come up."* (Christine, Operational HR director)

On the other hand, contract making was much more in the hand of one person:

> *"We sort of start taking everything to TaskFlow, and at the end of the day, we've done a lot of things, which the salary office used to do. And then we get the piece of paper which everybody gets to sign."* (Alex, HR partner)

In most units and departments, HR secretaries took on the task of creating contracts in the system which in the beginning was challenging but at the same time provided the opportunity to learn about the peculiarities of TaskFlow on the fly.

Changing Roles of HR Professionals

The reconfiguration of the contract making routine had the biggest impact on the duties of HR secretaries as they worked with the new system. While prior to the implementation of TaskFlow they were paper handlers without many independent tasks, our observations suggest that now not only work patterns but also contact persons changed. Before using TaskFlow, they would often consult with HR partners in case of questions or doubts. Now, problems were mostly directed to OHR personnel responsible for operating the system. We also observed that becoming responsible for the contract making routine from start to end, HR secretaries had gained new expertise within the process.

While changes in the role of HR secretaries were apparent, changes in the work of HR partners were less visible. Indeed, as we will discuss below, role changes mainly happened among HR secretaries whereas the hope that HR partners would take on more strategic tasks did not materialize.

Empowering of HR secretaries.

Our observations show that HR secretaries were those actors whose actions were most influenced by the implementation of TaskFlow as they were directly dealing with a lot of the problems that TaskFlow created. While most new technologies create issues in the early stages of their implementation, TaskFlow seemed particularly complex. In practice this meant that, instead of dealing with consequences of automation of their administrative tasks, HR secretaries had suddenly a gatekeeper position and got empowered as they were trying to make TaskFlow work through their committed engagement with the system. Contrary to the envisioned consequences of automation, HR secretaries became an invaluable resource that provided access to the new system as they learned quickly how to administer TaskFlow successfully, raised issues and solved problems along the way. All of these changes, which we now describe in more detail, meant that HR secretaries were all of a sudden much less dependent on HR partners, elevating themselves from their prior role of 'paper handlers'.

Getting role access. Three months after the launch of TaskFlow, almost every HR secretary we interviewed mentioned that their work with the system was complicated by the relatively restricted access rights that they had:

> *"Well, there's four of us, we work with TaskFlow a lot, like, they [HR partners] actually had to give us partner roles. Before we had assistant roles, which gives only very restricted access to the system, and we couldn't do our jobs anymore. For example, we couldn't see if people had their personal info correctly because assistants don't have access rights to viewing that. So, they had to give us partner roles, so we could do our job."* (Tanya, HR secretary)

For security reasons, TaskFlow itself requires HR partners to be responsible for sensitive data such as personal data and salary information. However, for convenience matters, HR partners quickly transferred their 'partner role' rights in the system to HR secretaries in order to let them take care of these aspects in TaskFlow. This allowed HR secretaries not only to create contracts in the system and enter data, but also manage the contractual work by being able to access overall data about existing contracts, their validity, duration, type, ownership etc. The transfer of access rights allowed for greater responsibility of contract making, less bureaucratic control points and more autonomy for HR secretaries. Not long after the launch of TaskFlow, HR secretaries became full owners of the contract making routine.

Learning new things. Transforming contract making into a digital workflow had not only a measurable effect on the speed of the process, but also required HR secretaries to take on responsibilities previously owned by payroll employees as they now became the ones entering all the information into the system. Accordingly, they had to learn how the system works, i.e., what data needs to be entered into which cells to satisfy accounting procedures, labor laws, tax requirements and contract conditions. Alice, Director of Payroll, explained that:

> *"My people who are working with me have quite a lot of knowledge about vacations rules, employment procedures, salaries and so on. So, they knew if there is something wrong with the contracts, and we could say, "OK, we cannot do this, because it's overlapping with something". And now unit HR secretaries have to do this, and they also have to think […] and they have to understand how TaskFlow works too."*

One HR secretary explained their previous role in contract making as collecting data:

> *"We had Excel, we created it, and then we just forwarded it. But none of us was actually typing that information, personal information."* (Tanya, HR secretary)

While HR secretaries could previously do their job without much understanding of legal and internal processes—they just needed to fill in the information into an Excel form—they were now forced to make sure that all information was correct for the system to accept it.

Solving problems. During one of our observational days, Tanya, an HR secretary, was changing the contract of an employee from part-time (20%) to full-time (100%) and back. Only recently secretaries had realized that this change was only possible in one direction: from full-time to part-time employment. When secretaries figured out this limitation, they together established a new procedure for part-time employments. Now, even if a new employee started as a part-timer, the HR secretaries would establish the job as full-time employment in the system and then change it straight away to part-time. This is just one example of the types of issues that HR secretaries encountered while entering data in TaskFlow.

While previously controlled by Payroll, the contractual information is now encrypted into the TaskFlow system allowing limited options to deviate from designed HRM processes. However, mistakes were still made and centrally designed processes could not accommodate all the peculiarities and nuances of the different units and their needs. The difference compared to before, was that these needs became visible to those actively using the system, i.e., the HR secretaries. Active involvement in problem solving meant that HR secretaries increasingly became carriers of knowledge about issues such as dichotomies in salary rates across units, differences in the treatment of part-time employees, sharing working hours between units, etc. We also observed how many issues were solved informally as HR secretaries shared tips and best practices with their counterparts in other units thus circumventing OHR.

> *"Also, it has increased cooperation between HR people in whole DigiU. Because we have the channel in Teams where people ask questions very easily, and then somebody is always answering. Before, I didn't even know that many HR people at DigiU. I didn't see them. Maybe like once or twice a year during the HR forum. But now I think I know them more, and I think it has brought us together."* (Nina, HR secretary)

Speaking up. At the weekly HR meeting, Hanna, an HR secretary, had some practical questions about what she needed to put into the system if one of the employees asked for unpaid days off. Tanya, another HR secretary, replied based on her experience with the system. She started: "According to TaskFlow logic…" and continued explaining the logic behind the system. That HR secretaries took such an active role in these kinds of discussions and even initiated them was new. During another meeting, one HR secretary raised an issue about salary rates for research assistants who simultaneously work in different departments or even units with different hourly rates. After discussing possible changes to the salary policy for research assistant for ten minutes, the HR director concluded that the aim of such meetings should be the alignment of processes and finding a way to

coordinate employment processes between departments; a process increasingly shaped by HR secretaries' experience with TaskFlow.

Taken together, the changes we described show two things. First, being on the lowest level of the HR hierarchy and involved in many aspects of the contract making routine, HR secretaries had no other choice but to start using TaskFlow despite all its 'teething problems'. Their use of the software revealed the complexity of DigiU's contract making. In contrast to more classical organizations, DigiU has a large variety of contract types. The TaskFlow system was not well adapted to accommodate for the nuances of DigiU's work relationships, covering researchers, teachers and administrative staff, part-time and full-time workers, tenured and fixed-term employees, short term and long-term durations or even multiple contracts for one employee. Instead of giving in, HR secretaries took on the challenge and quickly became fully responsible for the augmented contract making routine as they established shared practices across the different units to work with TaskFlow. Instead of seeing their tasks being automated, they transformed their own job into an expert role around administrating HR processes.

Stalling of HR partners.

While our data points to clear changes in the role of HR secretaries, not much changed in the role of HR partners. Instead of being able to engage in more strategically important work, HR partners continued to do what they did before, but with less oversight over HR secretaries' tasks. Drawing on interviews with HR partners and our observational data, this situation seemed to be driven mainly by two factors. HR partners protected their comfort zone during the TaskFlow implementation and willingly delegated some of their responsibilities to HR secretaries. However, without additional tasks in sight, HR partners appeared to be stalling somewhere between their own expectations and what the organization envisioned for them. We now report how their detached mode of engagement with TaskFlow led them to question their role within DigiU's HR organization.

Being in the dark. As we have shown above, HR partners quickly turned over their access rights to the HR secretaries of their units as they felt that they are not responsible for simple tasks such as entering information into the system. However, as HR partners also did not approve newly established contracts anymore, they were increasingly in the dark of what was happening as outlined by HR secretary Tanya:

> *"Before, we did [a contract] as secretary and it would go to our own department's [HR] partner for approval, but now, because we're all partners [in the system], it goes directly to our [line] manager."*

This meant that in case of a contract issue, line managers would no longer turn to HR partners but would directly consult HR secretaries who could help them to

administer the system if necessary. One of the HR directors openly reflected on the system's implications on her work and shared:

> *"I've realized now that I have to, even though I don't take care of processes, I need to go there and sort of [...] keep myself updated, at least to know how it looks."* (Anna, HR director)

Because most processes now happened directly in TaskFlow, those not directly involved in the process were increasingly in the dark of what was happening.

Protecting comfort zones. As HR secretaries learned their way to handle new tasks in the system, TaskFlow played a significant role in drawing the border line between work of secretaries and partners. Helena, an HR partner, reflected:

> *"I don't do much administrative work, meaning that I don't do employment contracts, for example. Which means that I don't use TaskFlow that much. The fact is that I cannot do it, I don't know how to do those quite complicated things in the system."*

The view that TaskFlow was complicated meant that HR partners often did not even try to learn how contracts are done in TaskFlow as this was exactly what HR secretaries should be taking care of in their view. Indeed, HR partners shared their view of what their job did and did not entail. By staying in their comfort zone and focusing on their existing responsibilities HR partners rejected to learn about the new system and, over time, became increasingly dependent on HR secretaries and their knowledge of TaskFlow. This put them into an awkward position where they had to argue for keeping HR secretaries whose jobs seemed destined to be centralized or rationalized away despite of more automation within the units. During the organization wide HR forum, HR partners anonymously commented and supported each other's statements on a shared digital white board during a group discussion on the transformation plans in the following way:

> *"It doesn't make sense to split an employment contract into negotiation and making parts, it just adds work when you need to provide someone else elsewhere with information on what to do. Would have created the contract on my own on TaskFlow at the same time."*

The fragmentation of one process for several actors consumes the principle of efficiency. Moreover, the responsibility for the process becomes blurred for everyone. That is, clearing and bouncing from one person to another.

Questioning strategic status. As noted before, the changes in the contract making routine only marginally impacted the activities of HR partners. Nevertheless, the discussions around the reorganization of the HR function and their realization that there is not necessarily more 'strategic' work unsettled them. Alex, an HR partner, reflected on the changing role of his position:

> *"At this point, I have to do some guessing, because we have to actually implement TaskFlow [fully], and then we'll see what actually takes place. But I would see that it will probably not change my job that much. (--) give the faculty sort of more and better service for how to conduct objective discussions and, more importantly, how to document them. So, I would see that kind of an improvement."*

The change that OHR was envisioning and talking about was not that clear for SHR professionals. During informal talks they often mentioned that the "change talk" has been ongoing for several years already but nothing ever happened. Moreover, during the interviews, HR partners were rather confident that they actually were doing strategic activities. Referring to the discussion at the DigiU-wide HR forum Helena, an HR partner, said:

> *"I would say that my role is quite near to that one already. I would say that I work quite close with our head of department. My role is much in those academic recruitments or if there are some kind of problems in the research group or with some specific employee, then I'm the one who is there, trying to find ways to solve those problems with the supervisors."*

Overall, HR partners showed unpreparedness for change but at the same time took the opportunity to delegate administrative tasks to HR secretaries. This led to a situation where they got dependent on the work of HR secretaries who worked in the unit but were about to relocate into the centralized HR service centers. That created heated debates at organization-wide HR forums in which partners were clearly against letting secretaries go as they feared it would distort the contract making routine and slow down the hiring processes. Even though the core activity was not on their desk anymore, they were still closely involved as the owner of information and being the key contact person for managers and candidates.

Discussion

Motivated by the question of how technologies enable transformation, our study of DigiU's HR automation initiative offers an interesting account of how the implementation of a new HR technology had counterintuitive effects on the development of HR professional roles. Whereas a change in routines and difficulties in creating a more strategic standing of the HR unit within the organization could have been expected, the empowering of HR secretaries coupled with the stalling of HR partners was unexpected. Our findings suggest that the engagement with the technology may run against the goals of the envisioned transformation. Indeed, while the different actors were aware of what was supposed to happen to their own role as the automation technology was always positioned as an important piece of the larger transformation puzzle, they were still taken down unexpected paths.

Theoretical Contributions

We contribute to the literature in three ways. First, we contribute to the ongoing debate about whether and how the implementation of HR technologies is consequential for HR transformation (Marler & Parry, 2016; Marler & Fisher, 2013). Prior studies are ambiguous about this relationship and question the transformational effects of technology. Aiming at identifying those factors that enable or hinder the successful implementation of digital technologies, most existing work remains in the realm of antecedents and outcomes (Bondarouk et al., 2017). As they focus on the status of HR roles at certain defined points in time, these studies lack too many details regarding the actual transformation process and risk overlooking what actually happens to the tasks of HR professionals (Myllymäki, 2021; Ellmer & Reichel, 2018; Bjorkman et al., 2015).

Adopting a routine-dynamics perspective (Feldman et al., 2016), we are able to answer calls from within HRM research (Myllymäki, 2021; Bjorkman et al., 2015) to focus on actors and their actions; an approach which enables researchers to unpack the micro-processes that underlie HR transformation. While existing research points to poor adoption and a lack of legitimacy of the HR role as an obstacle for transformation (Bondarouk et al., 2017, Aldrich et al., 2015, Galang & Ferris, 1997), our study provides insights on how HR professionals react to constraints and affordances imposed by new technologies. Whereas previous studies conceptualize technology as provider of standardized, centralized or automated algorithms that can do HR work and thus as a prerequisite for transforming the HR function (Myllymäki, 2021; Ellmer and Reichel, 2018), our results show that how the different actors engage with the technology is very consequential for realizing the envisioned HR transformation.

As we shift our attention from outcomes of technology implementation towards what actors do during and beyond implementation processes, it becomes evident that designing technology-enabled standardized routines does not necessarily automate HR work but augments it. Our empirical study showcases how HR professionals actively augmented their own work by developing new routinized activities on the basis of HR technology. In this process they had to acquire new knowledge and build expertise, which ultimately led to the extension of their digital roles. As they shared their best practices with others across the organization, HR secretaries found themselves becoming more independent and empowered in their task domain. This insight has important implications for our understanding of HR transformation as it is the situated enactment of the technology and not the technology itself which transforms HR roles when routines are being reconfigured.

Second, we highlight the diversity of occupations within HR units and how overlooked, lower-level HR personnel were able to use technology to empower themselves and undermine the authority of those above them. Our data shows how an established hierarchy, which the technology was supposed to fortify, was

questioned by the flexibility of HR professionals' roles and the dynamics and connections between the different actors enacting those roles. The dynamics and outcomes of such connections cannot be known a priori, but need to be seen as the situated outcome as actors re-interpret their roles which in our case created much less defined boundaries between professional groups. By shifting to the level of routines and considering them as constitutive of HR roles we are able to enhance our understanding on how administrative and strategic tasks are intertwine. As a consequence, separating tasks presents itself as a difficult approach as organizations aim for efficiency and standardization.

Our case illustrates how technology was utilized by HR partners to differentiate between administrative and strategic tasks. However, their efforts of avoiding to use the new technology ultimately meant that they are stalling in their existing roles while HR secretaries' tasks were augmented by the technology. Accordingly, lower-level HR personnel solidified their influential positions within HR service processes, while HR partners became increasingly reliant on them to deliver services to their customers. This highlights the importance of HR partners embracing technology in order to transform and evolve their own roles.

Finally, our findings are also relevant for routine dynamics research as we respond to calls for a more in-depth understanding of the constitutive relationship between professional roles and organizational routines (Kho & Spee, 2021). While our insights support the long-standing argument that designing routines is not necessarily a good proxy for how they are being performed (Mirc et al., 2022; Pentland & Feldman, 2008), we also show how the interpretation of one's role may have counterintuitive implications. In particular, the empowerment of HR secretaries as they built up expertise and knowledge through their direct engagement with the technology shows how performing routines may create patterns beyond the routines themselves. As HR secretaries got more independent and became important resources within the organization, the playing field of who is responsible for what was questioned and the role changes impacted the overarching strategy of the HR transformation.

Practical Implications

Our research has important practical implications for the implementation of new technology, particularly in the context of HR transformation (Bonnet & Westerman, 2021; Lepak & Snell, 2008; Marler & Parry, 2016). We find that active users of the technology often play a central role in driving the transformation, as they are able to experience and thus shape the technology and the envisioned processes. Contrary to the plan of those in charge of the transformation, the implementation led to the situation that academics and in particular line managers resisted the structural changes towards a more self-service type of HRM system. Keeping actors with established expertise and knowledge about the technology close became more important than receiving 'more strategic' services. This raises questions about the role of HR professionals in relation to technology

implementation, and suggests that practitioners and scholars alike need to move beyond a rhetoric of automation in HR processes towards a focus on augmentation and transformation of their work processes in such way that it allows to create value for business (Raisch & Krakowski, 2021).

Limitations and Future Research

There are several limitations to our study. First, we conducted a single case study at a public higher education institution with a diverse range of stakeholders and a relatively large volume of HR transactions. While this provided a rich case for analysis, it is not necessarily representative for other organizations which may vary in complexity and operate across different borders. Future research could explore how digital HR transformation unfolds in business organizations where HR professionals may be more goal-oriented and where business targets are more explicit in comparison to public organizations. Second, the technology implemented in this case had specific characteristics related to its implementation stages, which may differ from others. A comparative study would be necessary to understand the role of technology in shaping the routines of HR partners and secretaries in different contexts. Finally, our analysis focused on highly administrative routines. Future studies could focus more on what the routines of HR partners look like and how their augmentation empowers them in their role, ultimately creating strategic value.

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Appendix 1: Interview Guideline

Background questions

- Role in DigiU/Your job
- Structure of DigiU HR, the interaction between the different units
- Experience and history within DigiU HR, previous employment

Work practices (action patterns)

- What does your day look like
- What are your main tasks
- With whom do you work and interact
- Where do you spend your working day, what tools/devices you use during the day?
- Ask about the specific practices/routines that they mention

TaskFlow (technology and what it does to the job)

- What is TaskFlow, what kind of HR tasks can it do
- The first time that you work with it?
- Role within the TaskFlow project
- First experiences with TaskFlow
- What do you like about TaskFlow
- What are the challenges with TaskFlow? Any of it came to you as a surprise?
- Activities
- How do the employees work with it

Envisioned outcome of TaskFlow

- How does it or will it change your job
- What are the first changes that you see
- How is the process of implementation in your unit

Users using it

- What they think about using it
- What are the benefits for the users? Do users see those benefits?
- What are the challenges?
- How do they work with users to encourage usage?